NIPPON CHEMI-CON

ALUMINUM ELECTROLYTIC CAPACITORS

CAT. No. E1001H

The current part numbering system is changed to new part numbering system.
As to old and new part number, you can refer to our Internet website.

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CAPACITOR SERIES TABLE, CONTENTS

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Series			Features	Endurance (+R=With ripple)	Standard type	Low impedance	Solvent resistant	Terminal type	Rated voltage range (Vdc)	Capacitance range (μF)
Conductive Polymer Electrolyte Type		PXF	Vertical type, super low ESR	105℃ 2,000 hours		●	●	SMD	2.5 to 6.3	220 to 1,000
		PXE	Vertical type, super low ESR	105℃ 2,000 hours		●	●	SMD	2.5 to 16	33 to 2,700
		PXA Upgrade!	Vertical type, super low ESR	105℃ 1,000 to 2,000 hours	●	●	●	SMD	2.5 to 25	3.3 to 1,500
		PXH	125℃ Vertical type	125℃ 1,000 hours		●	●	SMD	2.5 to 20	22 to 1,000
		PSC Upgrade!	Radial lead type, super low ESR, high ripple current	105℃ 2,000 hours		●	●	Radial	2.5 to 16	270 to 2,700
		PSA Upgrade!	Super low ESR, high ripple current	105℃ 2,000 hours		●	●	Radial	2.5 to 16	47 to 1,500
		PS Upgrade!	Radial lead type, super low ESR	105℃ 2,000 hours	●	●	●	Radial	2.5 to 35	18 to 1,500
		PSL NEW!	Low ESL (Ask Engineering Bulletin No791 in detail)	105℃ 2,000 hours		●	●	Radial	2.5	560
Surface Mount	Vertical Type	MVS	4.5mm height	85℃ 2,000 hours	●		●	SMD	4 to 50	0.1 to 220
		MVA	5.5 to 22.0mm max. height, downsized	85℃ 2,000 hours			▲	SMD	4 to 450	0.1 to 10,000
		MV	5.5 to 10.5mm max. height	85℃ 1,000 to 2,000 hours	●		●	SMD	4 to 63	0.1 to 1,000
		MVE	5.5 to 22.0mm max. height, downsized	105℃ 1,000 to 2,000 hours			▲	SMD	6.3 to 450	0.47 to 6,800
		MVK	5.5 to 10.5mm max. height	105℃ 1,000 to 2,000 hours	●		●	SMD	6.3 to 50	0.1 to 1,000
		MKA	5.5 to 10.5mm max. height (Ask Engineering Bulletin No704 in detail)	105℃ 1,000 to 2,000 hours			●	SMD	6.3 to 50	0.1 to 1,000
		MZA	6.1 to 10.5mm max. height, very low impedance	105℃ 2,000 hours		●	●	SMD	6.3 to 80	3.3 to 1,500
		MVY	5.5 to 22.0mm max. height	105℃ 1,000 to 5,000 hours		●	▲	SMD	6.3 to 100	1.0 to 8,200
		MZE NEW!	105℃7,000/8,000 hours, low impedance, long life	105℃ 7,000 to 8,000 hours		●	●	SMD	6.3 to 50	10 to 470
		MZD	105℃5,000 hours, low impedance, long life	105℃ 5,000 hours		●	●	SMD	6.3 to 50	10 to 470
		MLA	Low impedance, long life	105℃ 3,000 hours		●	●	SMD	6.3 to 50	10 to 1,000
		MVJ	6.0mm max. height	105℃ 2,000 hours			●	SMD	6.3 to 50	0.1 to 100
		MLE NEW!	105℃7,000/8,000 hours, long life	105℃ 7,000 to 8,000 hours			●	SMD	6.3 to 50	0.1 to 1,000
		MLD	105℃5,000 hours, long life	105℃ 5,000 hours			●	SMD	6.3 to 50	0.1 to 1,000
		MVL	6.0 to 10.5mm max. height	105℃ 3,000 to 5,000 hours			●	SMD	6.3 to 50	0.1 to 1,000
		MVH	6.0 to 22.0mm max. height	125℃ 1,000 to 5,000 hours			▲	SMD	10 to 450	3.3 to 4,700
		MHB NEW!	10.5mm max. height	125℃ 2,000 hours			●	SMD	10 to 35	47 to 470
		MKB	10.5mm max. height	105℃ 3,000 hours			●	SMD	400	2.2 to 4.7
		MV-BP	5.5mm max. height, bi-polar	85℃ 2,000 hours			●	SMD	4 to 50	0.1 to 47
		MVK-BP	6.0mm max. height, bi-polar	105℃ 1,000 hours			●	SMD	6.3 to 50	0.1 to 47
Miniature	Low Profile	SRM	5mm height, downsized	85℃ 1,000 hours			●	Radial	4 to 50	0.1 to 330
		SRE	5mm height	85℃ 1,000 hours	●			Radial	4 to 50	0.1 to 100
		KRE	5mm height	105℃ 1,000 hours	●		●	Radial	6.3 to 50	0.1 to 100
		SRA	7mm height	85℃ 1,000 hours	●			Radial	4 to 63	0.1 to 470
		KMA	7mm height	105℃ 1,000 hours	●		●	Radial	4 to 63	0.1 to 220
		SRG	φ4×7 to φ18×25mm, low profile	85℃ 1,000 to 2,000 hours			●	Radial	4 to 50	0.1 to 10,000
		KRG	φ4×7 to φ18×25mm, low profile	105℃ 1,000 hours			●	Radial	6.3 to 50	0.1 to 10,000
	General Purpose	SMQ	Downsized	85℃ 2,000 hours	●			Radial	6.3 to 450	0.1 to 47,000
		KMQ	Downsized	105℃ 1,000 to 2,000 hours +R	●		▲	Radial	6.3 to 450	0.1 to 47,000
		SMG	General, downsized	85℃ 2,000 hours	●		▲	Radial	6.3 to 450	0.1 to 39,000
		KMG	General, downsized	105℃ 1,000 to 2,000 hours +R	●		▲	Radial	6.3 to 450	0.1 to 22,000
		SME-BP	Bi-polar, general	85℃ 2,000 hours	●		●	Radial	6.3 to 100	0.47 to 6,800
		KME-BP	Bi-polar, general	105℃ 1,000 hours	●		●	Radial	6.3 to 100	0.47 to 6,800
	High Frequency Use	KZM	Lowest impedance, long life	105℃ 6,000 to 10,000 hours +R		●		Radial	6.3 to 50	27 to 10,000
		KZH	Lowest impedance, long life	105℃ 5,000 to 6,000 hours +R		●		Radial	6.3 to 35	47 to 8,200
		KZE	Lowest impedance, long life	105℃ 1,000 to 5,000 hours +R		●		Radial	6.3 to 100	6.8 to 6,800
		KY	Low impedance, long life	105℃ 4,000 to 10,000 hours +R		●		Radial	6.3 to 100	0.47 to 18,000
		LXZ	Low impedance, downsized	105℃ 2,000 to 8,000 hours +R		●	●	Radial	6.3 to 63	12 to 18,000
		LXY	Low impedance, high reliability	105℃ 2,000 to 8,000 hours +R	●	●	●	Radial	10 to 63	10 to 8,200
		LXV	Low impedance	105℃ 2,000 to 5,000 hours +R		●	●	Radial	6.3 to 100	5.6 to 15,000

: Promotional products

▲ : Some of range are solvent resistant.

CAPACITOR SERIES TABLE, CONTENTS

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Series			Features	Endurance (+R=With ripple)	Standard type	Low impedance	Solvent resistant	Terminal type	Rated voltage range (Vdc)	Capacitance range (μF)
Miniature	High Reliability	KXJ	Downsized, long life, for input filtering	105℃ 10,000 to 12,000 hours +R		●		Radial	160 to 450	6.8 to 680
		KXG	Downsized, long life, for input filtering	105℃ 8,000 to 10,000 hours +R		●		Radial	160 to 450	6.8 to 330
		SMH	φ20×20 to φ22×50mm	85℃ 2,000 hours +R	●			Radial	160 to 450	33 to 470
		KMH	φ20×20 to φ22×50mm	105℃ 2,000 hours +R	●			Radial	160 to 450	33 to 470
		PAG	Low profile, for input filtering	105℃ 2,000 hours +R				Radial	200 to 450	18 to 560
		KLJ	Downsized, no sparks with DC overvoltage	105℃ 2,000 hours +R				Radial	200 & 400	4.7 to 330
		KLG	No sparks with DC overvoltage	105℃ 2,000 hours +R				Radial	200 & 400	22 to 330
		FL	Long life	105℃ 3,000 hours +R			●	Radial	6.3 to 50	0.47 to 270
		GPA	125℃, downsized, low impedance	125℃ 3,000 to 5,000 hours +R		●	●	Radial	25 to 50	470 to 6,800
		GXE	125℃, downsize, low impedance	125℃ 2,000 to 5,000 hours +R		●	▲	Radial	10 to 450	4.7 to 4,700
		GXL	125℃ Long life	125℃ 5,000 hours +R			●	Radial	10 to 50	100 to 1,000
	Special Application	LBG	For airbag	105℃ 5,000 hours +R		●	●	Radial	25 & 35	1,000 to 11,000
		KZG	For PC motherboard	105℃ 2,000 hours +R		●		Radial	6.3 to 16	470 to 3,300
		LLA	Low DC leakage, general	85℃ 1,000 hours			●	Radial	6.3 to 50	0.1 to 15,000
		PH	For photo flash	55℃ 5,000 times charging				Radial	300 & 330	—
Large Sized	General Purpose	KMR	105℃, Snap-in terminal, super downsized	105℃ 2,000 hours +R	●			Pin	160 to 450	100 to 3,900
		SMQ	Snap-in terminal, more downsized	85℃ 2,000 hours +R	●			Pin	160 to 450	82 to 3,900
		KMQ	Snap-in terminal, more downsized	105℃ 2,000 hours +R	●			Pin	35, 50, 160 to 450	68 to 33,000
		SMM	Snap-in terminal, downsized	85℃ 3,000 hours +R	●			Pin	160 to 450	47 to 3,300
		KMS	Snap-in terminal, downsized	105℃ 3,000 hours +R	●			Pin	160 to 450	82 to 3,300
		KMM	Snap-in terminal, downsized	105℃ 2,000 to 3,000 hours +R	●			Pin	160 to 450	39 to 3,300
		SMH	Snap-in terminal, general (Refer Engineering Bulletin No585 for 160 to 450V)	85℃ 2,000 hours +R	●			Pin	6.3 to 100	820 to 100,000
		KMH	Snap-in terminal, general (Refer Engineering Bulletin No584 for 160 to 450V)	105℃ 2,000 hours +R	●			Pin	6.3 to 100	560 to 82,000
	Low Profile	SLM	15mm height	85℃ 2,000 hours +R				Pin	160 to 400	47 to 560
		KLM	15mm height	105℃ 2,000 hours +R				Pin	160 to 400	39 to 390
	High Reliability	LXM	Long life	105℃ 7,000 hours +R				Pin	160 to 450	47 to 2,200
		LXS	Snap-in terminal downsized	105℃ 5,000 hours +R	●			Pin	160 to 450	82 to 3,300
		LXQ	Long life, downsized	105℃ 5,000 hours +R				Pin	160 to 450	82 to 2,700
		LXG	Long life	105℃ 5,000 hours +R				Pin	10 to 100	390 to 47,000
		CHA	No sparks with DC overvoltage, downsized	105℃ 2,000 hours +R				Pin	200 to 450	56 to 1,200
		LXH	No sparks with DC overvoltage	105℃ 3,000/5,000 hours +R				Pin	200 & 400	68 to 1,500
		KMV (NEW!)	For charge and discharge application (Ask Engineering Bulletin No781 in detail)	105℃ 3,000 hours +R				Pin	350 to 450	82 to 1,200
Screw-mount Terminal Type	General Purpose	SME	Screw terminal, general	85℃ 2,000 hours +R	●			Screw	10 to 250	560 to 680,000
		KMH	Screw terminal, general	105℃ 2,000 hours +R	●			Screw	10 to 400	180 to 680,000
	For Inverter	RWG	85℃, high ripple, downsized, long life	85℃ 5,000 hours +R				Screw	350 to 450	1,500 to 18,000
		RWF	High ripple, long life	85℃ 5,000 hours +R				Screw	350 to 450	820 to 22,000
		RWE	High ripple	85℃ 2,000 hours +R	●			Screw	350 to 550	100 to 12,000
		RWY	High ripple, long life, low cost	85℃ 5,000 hours +R				Screw	350 to 450	500 to 14,000
		RWL	High ripple, long life	85℃ 20,000 hours +R				Screw	350 to 450	2,200 to 12,000
		FTP	Ellips can shape, high ripple	85℃ 5,000 hours +R				Screw	63 to 450	270 to 21,000
		LXA	Long life	105℃ 2,000/5,000 hours +R				Screw	10 to 525	330 to 390,000
		LXR	High ripple, long life	105℃ 5,000 hours +R				Screw	350 to 450	2,200 to 15,000
		LWY	Low cost (Ask Engineering Bulletin No714 in detail)	105℃ 5,000 hours +R				Screw	350 to 450	460 to 13,000
		RWV (NEW!)	For charge and discharge application (Ask Engineering Bulletin No782 in detail)	85℃ 5,000 hours +R				Screw	350 to 450	820 to 18,000

: Promotional products

▲ : Some of range are solvent resistant.

GROUP CHART

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CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

◆SURFACE MOUNT

Vertical SMD

Upgrade! PXA → (Lower ESR) PXE → (Lower ESR) PXF

High Temperature

PXH

Digitalization Super Low ESR

◆RADIAL LEAD

Radial type

Upgrade! PS → (Lower ESR) Upgrade! PSA → (Lower ESR) Upgrade! PSC

PS → (Lower ESL) NEW! PSL

Digitalization Super Low ESR

ALUMINUM ELECTROLYTIC CAPACITORS

◆SURFACE MOUNT

SURFACE MOUNT (Vertical)

MV 85℃

MVK / MKA 105℃

Downsized & Low Profile

MVA 85℃ High CV

MVE 105℃ High CV

MVS 4.5mmL

Low Impedance

MLA 105℃ 3,000H → (Longer life) MZD 105℃ 5,000H → (Longer life) NEW! MZE 105℃ 7,000/8,000H

MVY 105℃ → (Longer life) MLA

MVY 105℃ → (Lower Z) MZA 105℃ 2,000H P74

Digitalization

Large size (φ12.5 to φ18)

MVA 85℃ High CV

MVE 105℃ High CV

MVY 105℃ Low Z

MVH 125℃

105℃ Long Life

MVJ 2,000H → (Longer life) MVL 3,000/5,000H → (Longer life) MLD 5,000H → (Longer life) NEW! MLE 7,000/8,000H

MKB 3,000H

High Temperature

NEW! MHB 125℃

MVH 125℃

Automotive Application

◆RADIAL LEAD

5mmL

SRM 85℃ → (High CV) SRE 85℃

KRE 105℃

7mmL & Low Profile

SRG 85℃ → (High CV) SRA 85℃

KRG 105℃

KMA 105℃

Low Profile

105℃ Low Impedance

LXY High Reliability → LXZ High Reliability

LXV Low Z

Lower Z

KY Long Life・Low Z → KZE Lower Z → KZH Lower Z → KZM Long Life・Low Z

Power Supply Output Filter

RADIAL TYPE STANDARD

SMG 85℃ Standard

KMG 105℃ Standard

SMH 160 to 450V

KMH 160 to 450V

SMQ 85℃ Downsize

KMQ 105℃ Downsize

No Sparks against Over-voltage

KLG 2,000H → KLJ 2,000H

Downsized

High Ripple Current / Longlife

PAG 2,000H → KXG 8,000/10,000H → KXJ 10,000/12,000H

Downsized

Adapter/ Ballast

For Strobe

PH

For Motherboard

KZG

Low LC

LLA 85℃

Long Life

FL 3,000H

High Temperature (125℃)

GXE 2,000 to 5,000H

GXL 5,000H

GPA 3,000/5,000H

Automotive Application

For Airbag

LBG

CAT. No. E1001H

GROUP CHART

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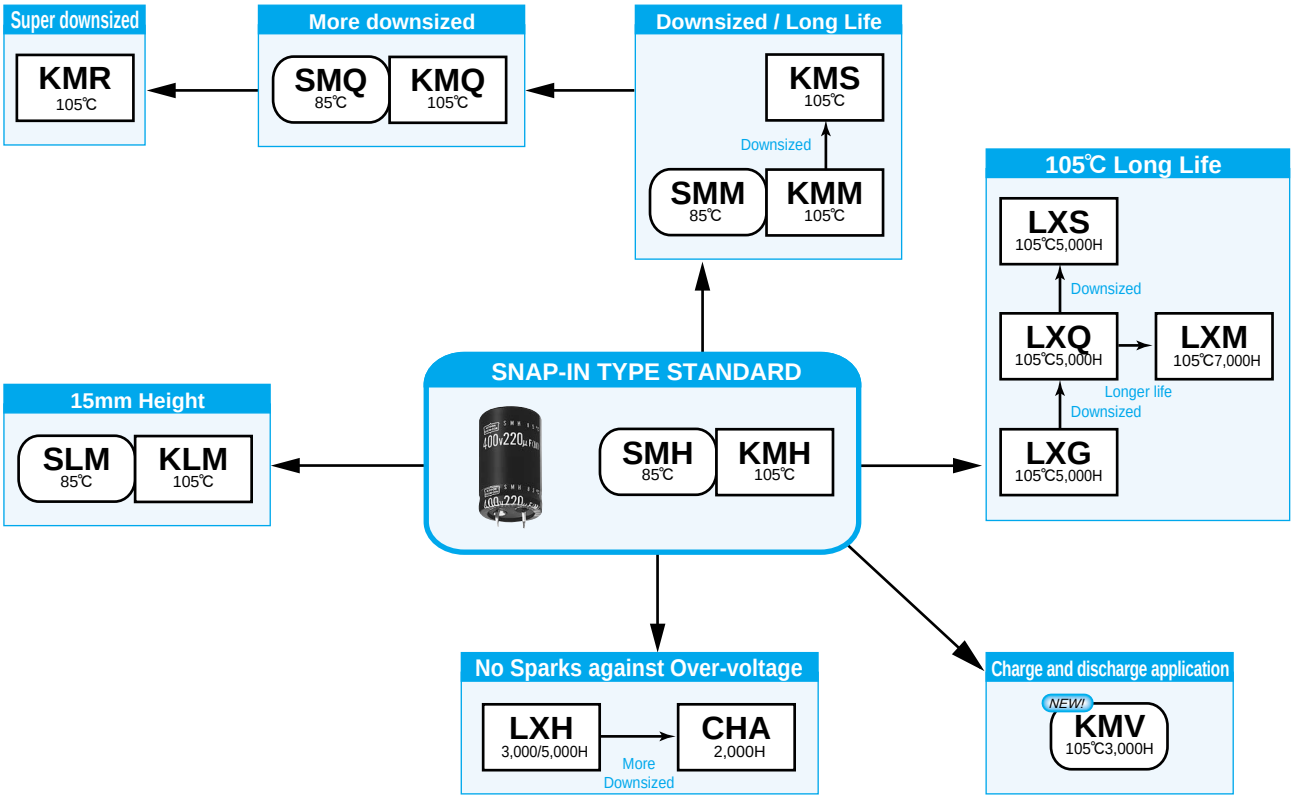
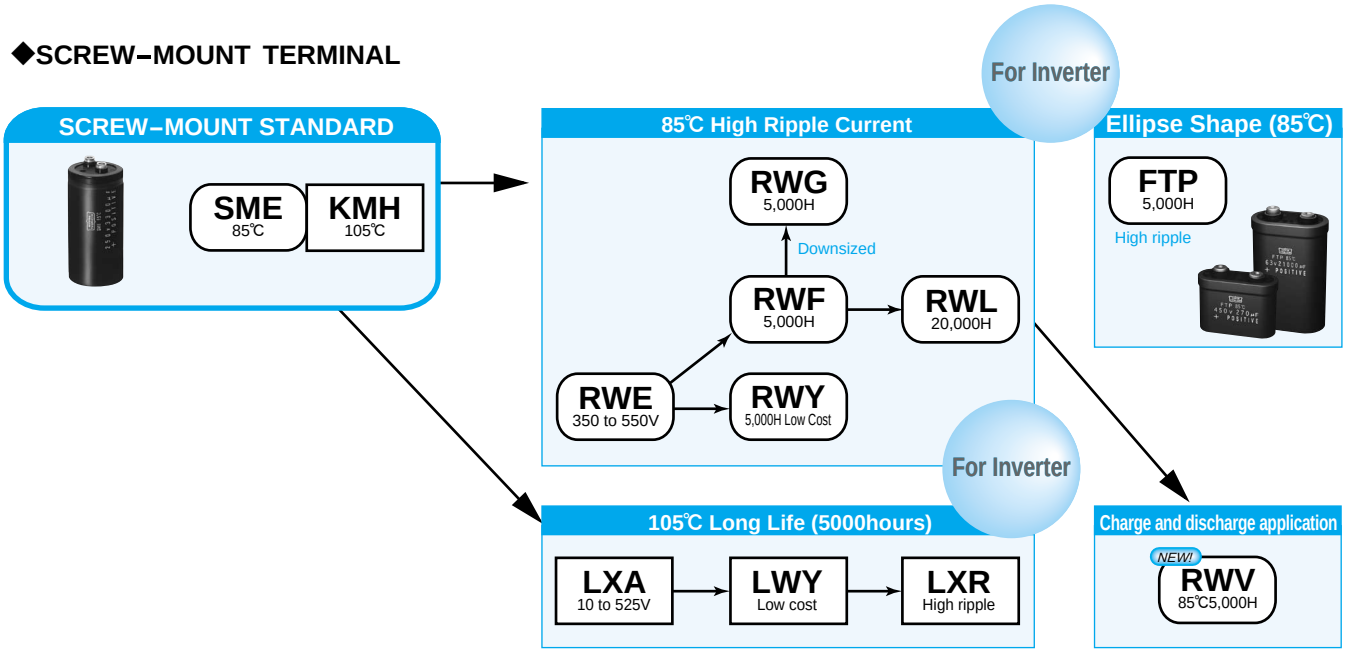
ALUMINUM ELECTROLYTIC CAPACITORS

◆SNAP-IN



◆SCREW–MOUNT TERMINAL

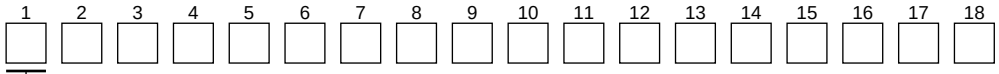


PART NUMBERING SYSTEM

Part numbering system

Our part numbering system is common to all of Nippon Chemi-Con's subsidiaries worldwide, and has been switching the conventional part numbering system. The part number uses 18-digit codes to express information of principal product specifications such as product category, series name, rated voltage, capacitance, case size and RoHS compliance.

●Categories



Code	Details
A	Conductive Polymer Aluminum Solid Capacitors (Polar)
E	Aluminum Electrolytic Capacitors (Polar)
B	Aluminum Electrolytic Capacitors (Bi-polar)
K	Multilayer Ceramic Capacitors
F,W	Film Capacitors
D	Electric Double Layer Capacitors
T	Metal Oxide Varistors
L	Amorphous Choke Coils

* For digits 2 to 18, please see "Product code guide".

●Example

Product type	Part number (Example)	Conventional part number (Ref.)
Surface mount type	EMV-160ADA100MD55G	MV16VC10MD55E0
Radial lead type	ESMG6R3ETC102MHB5D	TC04RSMG6. 3VB1000MF50E0
Snap-in type	ESMQ201VSN471MP30S	SMQ200VSSN470M22BE0
Screw mount terminal type	ERWE551LGC821MCD0M	RWE550LGSN820MCC13EA

ENVIRONMENTAL CONSIDERATION

Environment friendly capacitors

Nippon Chemi-Con always considers the environment in product materials, designs and manufacturing. In fact, our factories already have received ISO 14000 certificate. Cadmium, Mercury, Hexavalent Chromium, PBB and PBDE have never been used in our products. Furthermore, since 2004, lead-containing materials have been eliminated from all our aluminum electrolytic capacitors including Conductive Polymer Aluminum Solid Capacitors to comply with RoHS.

◆Lead free and Non-PVC Products

1. Lead wire (Plating)

Category		Plating material on lead wires	
		Original type	Lead-free type
Chip	case code : B55 to JA0	Sn-Pb	Sn-Bi
	case code : KE0 to MN0		Sn100%
Radial	case dia : ～φ8		Sn-Bi
	case dia : φ10～		Sn100%
Snap-in			Sn100%
Screw-Mount		Originally lead free	Originally lead free

*Please consult with us when you need "Lead-free parts" other than the above mentioned terminal plating materials.
(Note) **Pb** : lead, **Sn** : Tin, **Bi** : Bismuth

2. Sleeve

Category		Sleeve material	
		Original type	Lead-free type
Chip		Sleeveless(Resin case)	Sleeveless(Resin case)
Radial	φ8×5L	Sleeveless(Coating case)	Sleeveless(Coating case)
	except φ8×5L	PVC	PET
Snap-in		PVC	PET
Screw-Mount		PVC	PVC(Lead-free)

* Please consult with us when you need "Non-PVC parts" other than the above mentioned outer sleeve materials.

The colors of a PET sleeve are "Black", "Brown", and "Dark blue".
Standard designs of "lead-free" Snap-in type are not equipped with a top disk.
Please consult with us when you need nonflammable grade for outer sleeve material.

Identification of friendly parts is given by a supplement code (18th digit) of the part number.
For details, please refer to "Product code guide" for each type.

CAT. No. E1001H

PACKAGING

TAPING SPECIFICATIONS

SURFACE MOUNT TYPE (TAPING)

◆CARRIER TAPE [mm]

Fig.1

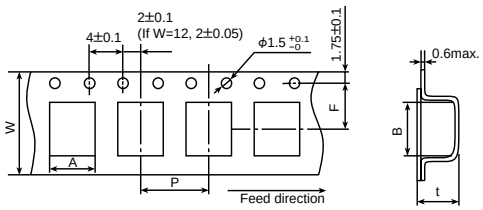


Fig.3

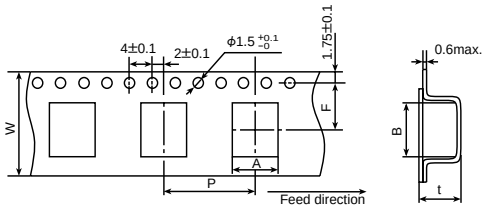


Fig.2

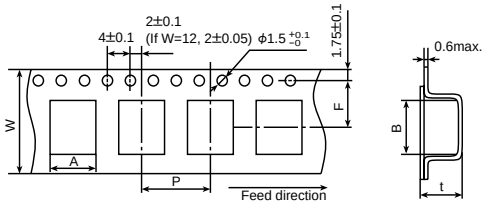
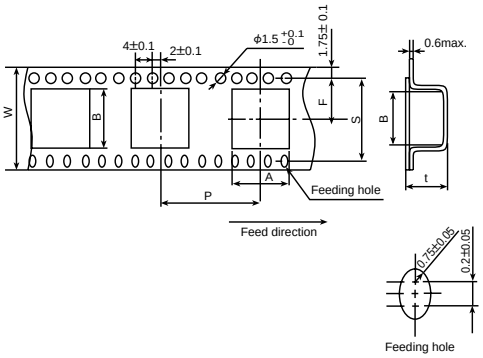


Fig.4



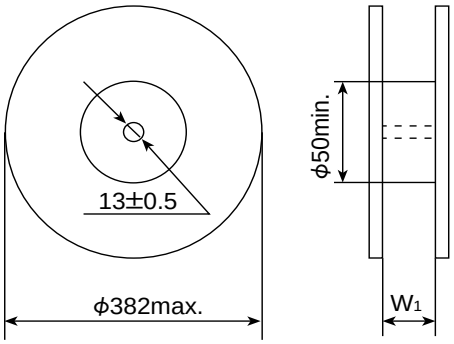
[mm]

Series \ Items		W	A	B	F	P	t	S	Fig.
		±0.3	±0.2	±0.2	±0.1	±0.1	±0.2	±0.1	
AlChip™ MVS/MVA MV/MVE MVK/MKA MZA/MVY MZE/MZD MLA/MVJ MLE/MLD MVL/MVH MHB/MKB MV-BP MVK-BP NPCAP™ PXF/PXE PXA/PXH	B55	12.0	3.5	3.5	5.5	8.0	5.9	—	1
	D46	12.0	4.7	4.7	5.5	8.0	4.9	—	1
	D55	12.0	4.7	4.7	5.5	8.0	5.7	—	1
	D60,D61	12.0	4.7	4.7	5.5	8.0	6.3	—	1
	D73	12.0	4.7	4.7	5.5	8.0	7.5	—	1
	E46	12.0	5.7	5.7	5.5	12.0	4.9	—	2
	E55	12.0	5.7	5.7	5.5	12.0	5.7	—	2
	E60,E61	12.0	5.7	5.7	5.5	12.0	6.3	—	2
	E73	16.0	5.7	5.7	7.5	12.0	7.5	—	2
	F45	16.0	7.0	7.0	7.5	12.0	4.8	—	2
	F46	16.0	7.0	7.0	7.5	12.0	4.9	—	2
	F55	16.0	7.0	7.0	7.5	12.0	5.7	—	2
	F60,F61	16.0	7.0	7.0	7.5	12.0	6.3	—	2
	F73	16.0	7.0	7.0	7.5	12.0	7.5	—	2
	F80	16.0	7.0	7.0	7.5	12.0	8.2	—	2
	F90	16.0	7.0	7.0	7.5	12.0	9.2	—	2
	H63	16.0	8.7	8.7	7.5	12.0	6.8	—	2
	H70	24.0	8.7	8.7	11.5	12.0	7.3	—	2
	H80	24.0	8.7	8.7	11.5	12.0	8.3	—	2
	HA0	24.0	8.7	8.7	11.5	16.0	11.0	—	3
	HC0	24.0	8.7	8.7	11.5	16.0	12.8	—	3
	J80	24.0	10.7	10.7	11.5	16.0	8.3	—	3
	JA0	24.0	10.7	10.7	11.5	16.0	11.0	—	3
	JC0	24.0	10.7	10.7	11.5	16.0	12.8	—	3
	KE0	32.0	13.4	13.4	14.2	24.0	14.0	28.4	4
	KG5	32.0	13.4	13.4	14.2	24.0	16.5	28.4	4
	LH0	44.0	17.5	17.5	20.2	28.0	16.8	40.4	4
	LN0	44.0	17.5	17.5	20.2	28.0	22.1	40.4	4
	MH0	44.0	19.5	19.5	20.2	32.0	17.1	40.4	4
	MN0	44.0	19.5	19.5	20.2	32.0	22.1	40.4	4

* Regarding to taping for LH0/LN0/MH0/MN0, please consult with us.

PACKAGING

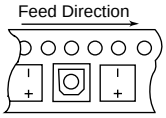
◆REEL DIMENSIONS [mm]



◆POLARITY

Alchip™- (Vertical) MVS/MVA/MV
MVE/MVK/MKA
MZA/MVY/MZD
MLA/MVJ/MLD
MVL/MVH/MKB
MV-BP/MVK-BP

NP CAP™ PXF/PXE/PXA/PXH

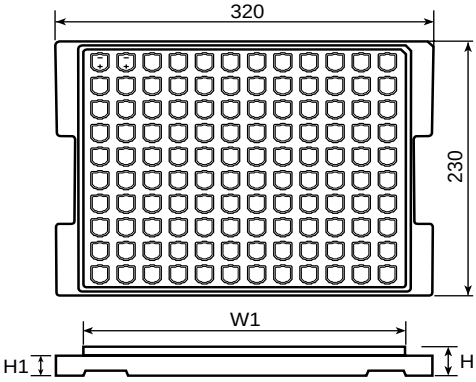


◆QUANTITY PER REEL/BOX

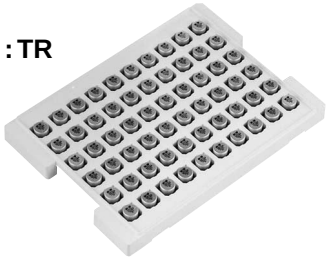
Series	Size code	Quantity (pcs/reel)	Quantity (pcs/box)	W1 (mm)
Alchip™ MVS/MVA MV/MVE MVK/MKA MZA/MVY MZE/MZD MLA/MVJ MLE/MLD MVL/MVH MHB/MKB MV-BP MVK-BP	B55	2,000	10,000	14
	D46,D55,D60,D61	2,000	10,000	14
	D73	1,500	7,500	14
	E46,E55,E60,E61	1,000	5,000	14
	E73	1,000	5,000	18
	F46,F55,F60,F61,F73	1,000	5,000	18
	F80	900	4,500	18
	F90	800	4,000	18
	H63	1,000	5,000	18
	HA0	500	1,500	26
	JA0	500	1,500	26
	KE0	200	600	34
	KG5	150	450	34
	LH0	125	250	46
	LN0	75	150	46
	MH0	125	250	46
	MN0	75	150	46
NPCAP™ PXF/PXE PXA/PXH	D55	2,000	20,000	14
	E60,E61	1,000	10,000	14
	F45,F55,F60,F61	1,000	7,000	18
	F80	900	6,300	18
	H70	1,000	6,000	26
	H80	900	5,400	26
	HA0	500	3,000	26
	HC0	400	1,200	26
	J80	500	3,000	26
	JA0	500	3,000	26
	JC0	400	1,200	26

SURFACE MOUNT TYPE (TRAY)

◆DIMENSIONS [mm]



●TRAY CODE : TR



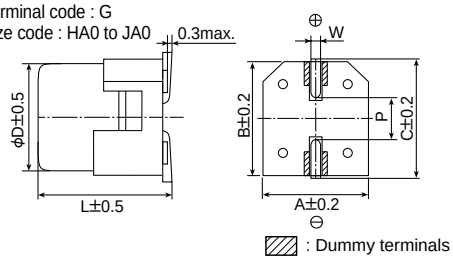
Size code	H [mm]	W1 [mm]	H1 [mm]	Quantity [pcs/tray]	Quantity [pcs/box]
KE0 & KG5	21.0	284	18.5	120	600
LH0 & LN0	28.0	284	24.0	80	400
MH0 & MN0	28.0	284	24.0	60	300

VIBRATION RESISTANT STRUCTURE (Terminal code : G)

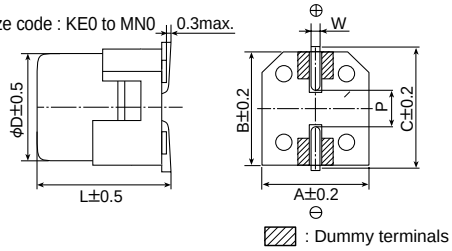
◆DIMENSIONS [mm]

●Terminal code : G

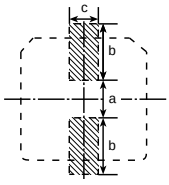
●Size code : HA0 to JA0



●Size code : KE0 to MN0



◆RECOMMENDED SOLDER LAND



Solder land on PC board

Size code	Dimensions of products (mm)									Solder land (mm)		
	D	L	A	B	C	W	P	(a)	(b)	a	b	c
HA0	8.0	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1	(0.5)	(1.8)	3.1	4.2	3.5
JA0	10.0	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5	(0.5)	(2.1)	4.5	4.4	3.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2	(1.3)	(3.0)	3.4	6.3	9.3
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2	(1.3)	(3.0)	3.4	6.3	9.3
LH0	16.0	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5	(2.0)	(3.0)	4.7	7.8	9.6
LN0	16.0	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5	(2.0)	(3.0)	4.7	7.8	9.6
MH0	18.0	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5	(2.0)	(4.0)	4.7	8.8	9.6
MN0	18.0	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5	(2.0)	(4.0)	4.7	8.8	9.6

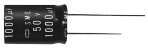
( ); Ref.

NIPPON CHEMI-CON

PACKAGING

TAPING SPECIFICATIONS

RADIAL LEAD TYPE (TAPING)



◆DIMENSION [mm]

Fig.1
Taping Code : TA, TC
ϕD=ϕ4 to 8

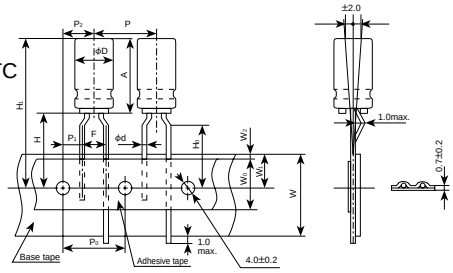


Fig.2
Taping Code : TD
ϕD=ϕ5
ϕD×L=ϕ4×7

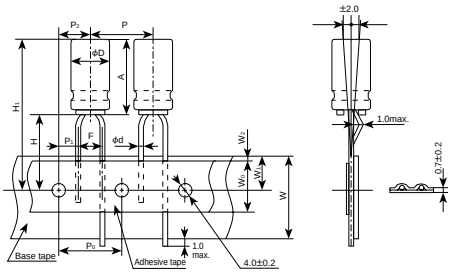


Fig.3
Taping Code : TD
ϕD=ϕ6.3 to 12.5

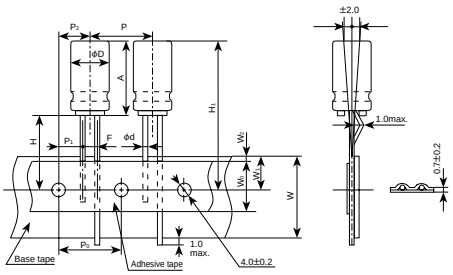
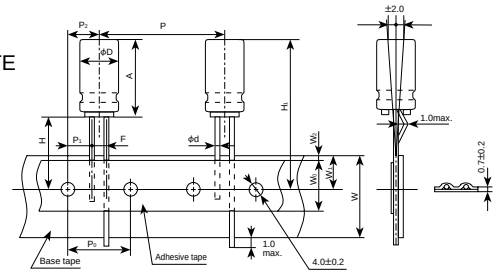


Fig.4
Taping Code : TE
ϕD=ϕ12.5



Code	Taping Code	Case size ϕD	Case size A	ϕd	P	P0	P1	P2	F	W	W0	W1	W2	H	H0	H1	Fig.
tol.		—	—	±0.05	±1.0	±0.2	±0.7	±1.0	+0.8 −0.2	±0.5	min.	±0.5	max.	±0.75	±0.5		
Nominal	TA	4	5	0.45	12.7	12.7	5.1	6.35	2.5	18.0	6.0	9.0	1.5	18.5	16.0	H1=H+A Check insertion machine specs.	1
	TC						3.85		5					17.5			
	TD		7	0.45	12.7	12.7	5.1	6.35	2.5	18.0	6.0	9.0	1.5	18.5 *1	16.0		2
	TC						3.85		5					17.5			1
	TD		11.5	0.45	12.7	12.7	5.1	6.35	2.5	18.0	10.0	9.0	1.5	17.5	16.0		1
	TC						3.85		5								
	TD	5	5 to 7	0.45	12.7	12.7	5.1	6.35	2.5	18.0	6.0	9.0	1.5	18.5	—		2
	TC						3.85		5					17.5	16.0		1
	TD		9 to 15	0.5	12.7	12.7	5.1	6.35	2.5	18.0	10.0	9.0	1.5	18.5	—		2
	TC						3.85		5						16.0		1
	TD	6.3	5 to 7	0.45	12.7	12.7	5.1	6.35	2.5	18.0	6.0	9.0	1.5	18.5	—		3
	TC						3.85		5					17.5	16.0		1
	TD		9 to 15	0.5	12.7	12.7	5.1	6.35	2.5	18.0	10.0	9.0	1.5	18.5	—		3
	TC						3.85		5						16.0		1
	TD	8	5	0.45	12.7	12.7	5.1	6.35	2.5	18.0	6.0	9.0	1.5	18.5	—		3
	TC						3.85		5					17.5	16.0		1
	TC		7	0.45	12.7	12.7	3.85	6.35	5	18.0	6.0	9.0	1.5	17.5	16.0		1
	TD		9 to 20	0.6	12.7	12.7	3.85	6.35	3.5	18.0	10.0	9.0	1.5	20.0	—		1
	TC								5						16.0		
tol.		±0.5	max.	±0.05	±1.0	±0.3	±0.7	±1.3	+0.8 −0.2	±0.5	min.	±0.5	max.	+2.0 −0	—		
Nominal	TD	10	21	0.6	12.7	12.7	3.85	6.35	5	18.0	12.5	9.0	1.5	18.0	—		3
	TD	12.5	26	0.6	*2 15	15	5.0	7.5	5	18.0	12.5	9.0	1.5	18.0	—		3
	TE			0.6	25.4	12.7	3.85	6.35	5	18.0	12.5	9.0	1.5	18.0	—		4

* 1 : For ϕ4×7 (A=7, F=25), shall be $18.5^{-0.5/+0.75}$ (Taping code : TD) at Fig.2.

* 2 : P=15 taping is not standard. Use P=25.4 taping.

TAPING CODE

Example

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	S	M	G	5	0	0	E	T	C	1	0	0	M	E	1	1	D

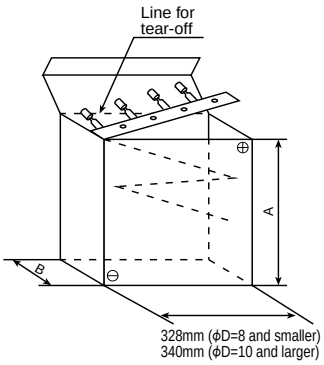
- 18: Supplement code
- 15–17: Size code
- 14: Capacitance tolerance code
- 11–13: Nominal capacitance code
- 9–10: Lead forming code (Radial lead type)

Type	Contents	Code 9th	Code 10th
Taping (Radial lead)	Straight	T	D
	Sloping clinch		
	Straight(Skip a hole)	T	E
	Clinch(F=2.5mm)	T	A
	Clinch(F=3.5mm)	T	B
	Clinch(F=5.0mm)	T	C

- 8: Terminal code
- 5–7: Rated voltage code
- 4: Series code
- 1–3: Category

QUANTITY PER AMMO PACK

Ammo pack box



Typical example

Case size ϕD ×L(mm)		A (mm)	B (mm)	Quantity (pcs.)
ϕ4	L=5 & 7mm	183	42	2,000
	L=11.5mm	183	51	
ϕ5	L=5 & 7mm	232	42	2,000
	L=9 to 15mm	232	51	
	L=17mm	235	53	
ϕ6.3	L=5 & 7mm	282	42	2,000
	L=9 to 15mm	284	51	
	L=17mm	284	55	
ϕ8	L=5 & 7mm	232	42	1,000
	L=9 to 15mm	232	51	
	L=17 & 20mm	235	53	
ϕ10	L=≦16mm	308	56	800(500)*
	L=17 to 20mm	308	62	800
	L=21 to 25mm	308	67	800
	L=26 to 30mm	308	71	500
ϕ12.5	L=≦16mm	308	62	500
	L=17 to 25mm	308	67	500

*Minimum order quantity for PSC/PSA/PS series

CAT. No. E1001H

PACKAGING

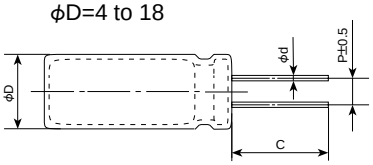
RADIAL LEAD TYPE (CUT/FORMED LEAD)

The following lead configurations are available. When ordering, please indicate the type of lead configurations by using the appropriate supplement code, such as C5, FC, MC or RC in the product part number.

[mm]

●Lead code : C5

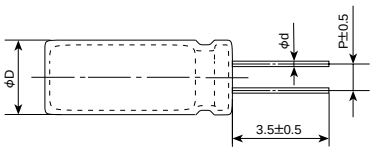
ϕD=4 to 18



Case diameter	C:Lead length
ϕD=4 to 8	: 5.0±0.5
ϕD=10 to 18	: $5.0^{+1.0}_{-0}$

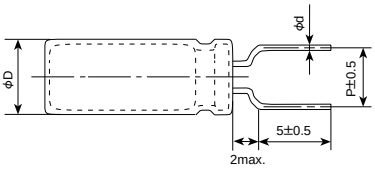
●Lead code : C3

ϕD=4 to 18



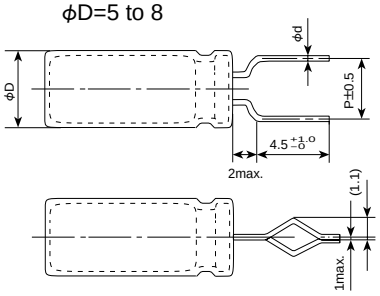
●Lead code : FC

ϕD=5 to 8



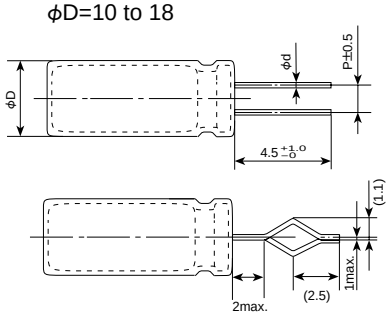
●Lead code : FM

ϕD=5 to 8



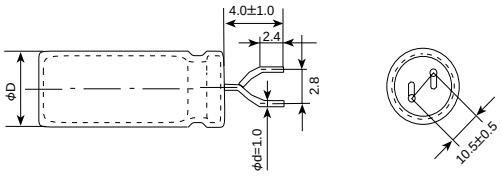
●Lead code : MC

ϕD=10 to 18



●Lead code : RC

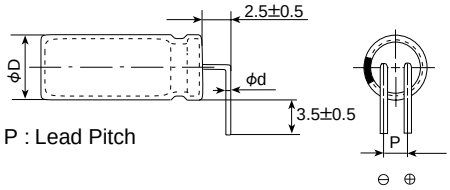
ϕD=20 & 22



●Lead code : BC

ϕD=10, 12.5 : P=5.0±0.5

ϕD=14.5, 16, 18 : P=7.5±0.5



P : Lead Pitch

PACKAGING

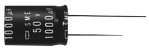
MINIMUM ORDER QUANTITY

Please order by minimum order quantity.

◆SURFACE MOUNT

●Vertical

Series	Size code	Quantity (pcs)	
		Taping	Tray (pcs/box)
Alchip™ MVS/MVA/MV MVE/MVK/MKA MZA/MVY/MZE MZD/MLA/MVJ MLE/MLD/MVL MVH/MHB/MKB MV-BP/MVK-BP	B55	2,000	—
	D46, D55, D60, D61	2,000	—
	D73	1,500	—
	E46, E55, E60, E61, E73	1,000	—
	F45, F46, F55, F60, F61, F73	1,000	—
	F80, H80	900	—
	F90	800	—
	H63, H70	1,000	—
	HA0	500	—
	HC0	400	—
	J80, JA0	500	—
	JC0	400	—
NPCAP™ PXF/PXE/PXA PXH	KE0	200	600
	KG5	150	600
	LH0	125	400
	LN0	75	400
	MH0	125	300
	MN0	75	300

◆RADIAL 

Size		Quantity (pcs)	
		Bagged*1	Taping
ϕ4		200	2,000
ϕ5		200	2,000
ϕ6.3		200 (200)*2	2,000 (2,000)*2
ϕ8		200 (100)*2	1,000 (1,000)*2
ϕ10	**Height≦25mm**	200 (100)*2	800 (500)*2
	Height≧30mm	200	500
ϕ12.5		100	500
ϕ14.5		50	250
ϕ16		50	250
ϕ18		50	250

*1 Standard bagged quantity.
*2 Minimum order quantity for PSC/PSA/ PS series.

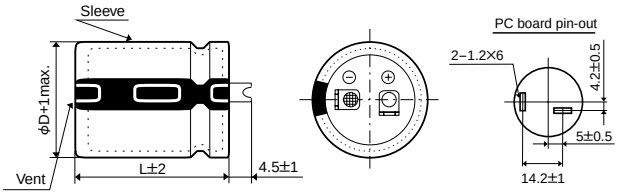
◆SNAP-IN

200 pieces

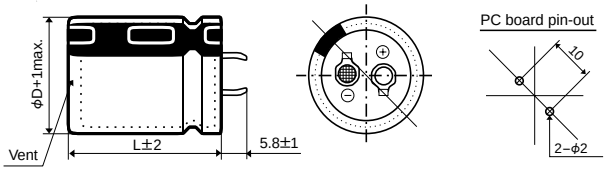
AVAILABLE TERMINALS FOR SNAP-IN TYPE [mm]

The following terminal options can be selected.
Please consult with us before purchase.

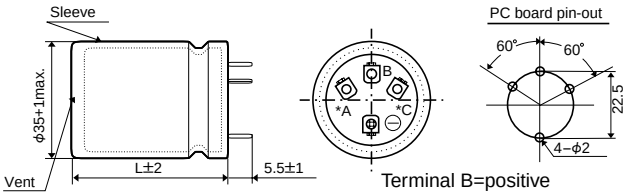
D=ϕ30 to ϕ40mm **Terminal Code : LIN**



D=ϕ22 to ϕ35mm **Terminal Code·Dummy Terminal Code : VNN**

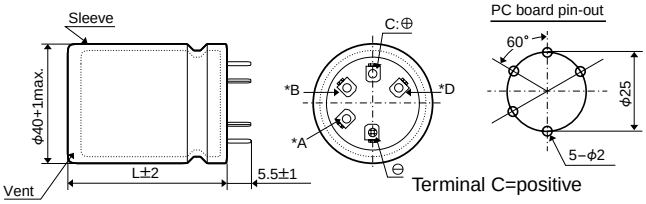


D=ϕ35 & ϕ40mm **Terminal Code·Dummy Terminal Code : VRD**

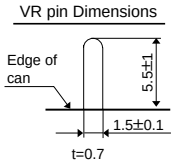


Terminal B=positive
Terminal A & C=blank

D=ϕ40mm **Terminal Code·Dummy Terminal Code : VRT**



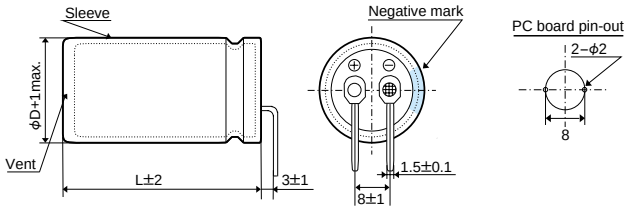
Terminal C=positive
Terminal A, B & D=blank



CAUTION

* Use the blank terminals for mechanical support only.
The blank terminals must not be connected to any copper trace on PC board.
Be sure to electrically isolate from the negative and the positive terminals.

D=ϕ20X30 to ϕ50 ℓ mm, ϕ22X30 to ϕ50 ℓ mm **Terminal Code·Dummy Terminal Code : LCN**



NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

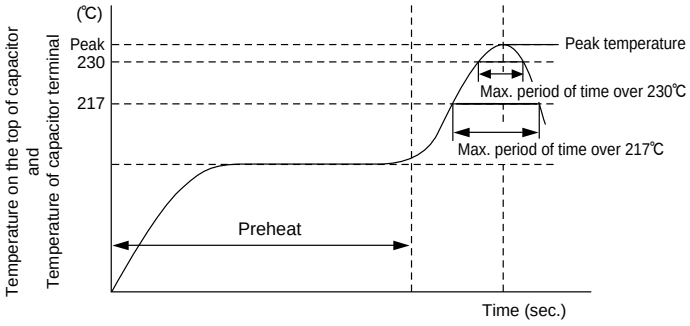
RECOMMENDED REFLOW SOLDERING CONDITIONS

NPCAP™-PXF/PXE/PXA/PXH Series

The following conditions are recommended for air or infrared reflow soldering PXF/PXE/PXA/PXH series onto a glass epoxy circuit board of 90×50×0.8mm (with resist) by cream solder. The temperatures shown are the surface temperature values on the top of the can and temperature of capacitor terminal.

Reflow should be performed twice or less.

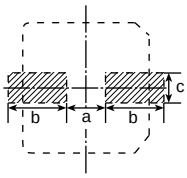
Please ensure that the capacitor became cold enough to the room temperature (5 to 35℃) before the second reflow.



Voltage range	Preheat	Time maintained above 217℃	Time maintained above 230℃	Peak temp.	Reflow number
2.5 to 16V	150 to 180℃ 120 sec.max.	50 sec.max.	40 sec.max.	260℃max.	1-cycle only
				250℃max.	2-cycle allowed
20 to 25V		50 sec.max. (40 sec.max.)	40 sec.max. (30 sec.max.)	250℃max. (240℃max.)	1-cycle only
		40 sec.max.	30 sec.max.		2-cycle allowed

( ) : Applies for 20V 82µF(J80) and 25V 39µF(J80)

●Recommended Solder Land on PC Board



Solder land on PC board

Size code	a	b	c
D55	1.0	2.6	1.6
E60,E61	1.4	3.0	1.6
F45, F55, F60 F61, F80	1.9	3.5	1.6
H70, H80, HA0, HC0	3.1	4.2	2.2
J80, JA0, JC0	4.5	4.4	2.2

◆PRECAUTIONS FOR USERS

Soldering method

The capacitors of NPCAP™-PXF/PXE/PXA/PXH series have no capability to withstand such dip or wave soldering as totally immersing components into a solder bath.

Reflow soldering

Reflow the capacitors within Recommended Reflow Soldering Conditions. Verify there is no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult with us if other reflow conditions are employed.

1.Location of components : Temperature increases at the edge of PC board more than the center.
2.Population of PC board : The lower the component population is, the more temperature rises.
3.Material of PC board : A ceramic-made board needs more heat than a glass epoxy-made board. The heat increase may cause damage to the capacitors.
4.Thickness of PC board : A thicker board needs more heat than a thinner board. The heat may damage the capacitors.
5.Size of PC board : A larger board needs more heat than a smaller board. The heat may damage the capacitors.
6.Solder thickness
If very thin cream solder paste is to be used for SMD types, please consult with us.
7.Location of infrared ray lamps : IR reflow as well as hot plate reflow heats only on the reverse side of the PC board to lessen heat stress to the capacitors.

Rework of soldering

Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10℃ and an exposure time of 3±0.5 seconds.

Mechanical stress

Do not grab the capacitors to lift the PC board and give stress to the capacitor. Avoid bending the PC board. This may damage the capacitors.

Cleaning assembly board

Immediately after solvent cleaning, remove residual solvent with an air knife for at least 10 minutes. If the solvent is insufficiently dry, the capacitors may corrode.

Coating on assembly board

1.Before curing coating material, remove the cleaning solvents from the assembly board.
2.Before conformal coating, a chloride free pre-coat material is recommended to decrease the stress on the capacitors.

Molding with resin

Internal chemical reaction gradually produces gas in the capacitor; increasing internal pressure. If the end seal of the capacitor is completely coverd by resin the gas will be unable to escape causing a potentially dangerous situation. The chlorine in resin will penetrate the end seal, reach the element, and damage of the capacitor.

Glue

The followings are requirements for glue.

1.A low curing temperature over a short period of time
2.Strong adhension and heat resistance after curing
3.Long shelf life
4.No corrosion

Others

Refer to Precautions for Users of Aluminum Electrolytic Capacitors.

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

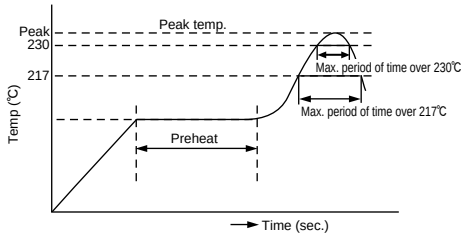
Surface Mount

RECOMMENDED REFLOW SOLDERING CONDITIONS

Alchip™-MVS/MVA/MV/MVE/MVK/MKA/MZA/MVY/MZE/MZD/MLA/MVJ/MLE/MLD/MVL/MVH/MHB/MKB/MV-BP/MVK-BP

The following conditions are recommended for air convection and infrared reflow soldering on the SMD products on to a glass epoxy circuit boards by cream solder. The dimensions of the glass epoxy boards with resist are 90×50×0.8mm for B55 to KG5 case code SMD capacitors and 180×90×0.8mm for LH0 to MN0 case codes SMD capacitors.
The temperatures shown are the surface temperature values on the top of the can and on the capacitor terminals.
Reflow should be performed twice or less.
Please ensure that the capacitor became cold enough to the room temperature (5 to 35℃) before the second reflow.
Consult with us when performing reflow profile in IPC / JEDEC (J-STD-020)

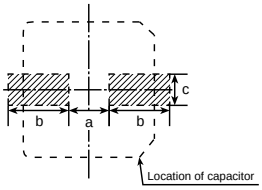
●Recommended soldering heat conditions (Except for Conductive Polymer Aluminum Solid Capacitors)



Contents			Lead-free type (high heat durability design)					Original type		
SMD type	Case code	Voltage range	Use Supplement Code "G" for case code B55 to JA0, and "S" for case code KE0 to MN0					Supplement Code "N"		
			Preheat	Time maintained above 217℃	Time maintained above 230℃	Peak temp.	Reflow number	Preheat	Time maintained above 200℃	Peak temp.
Vertical	B55 to F90	4 to 50V	150 to 180℃ 120sec. max.	90sec. max	60sec. max.	260℃max.	2 times or less	150℃max. 120sec. max.	20sec. max.	240℃max.
		63 to 80V		60sec. max.	40sec. max.	250℃max.	2 times or less			—
	H63 to JA0	4 to 50V		60sec. max.	30sec. max.	245℃max.	2 times or less			230℃max.
		63 to 100V		30sec. max.	20sec. max.	240℃max.	2 times or less			230/ 240℃max.
	KE0 to MN0	to 50V		30sec. max.	20sec. max.	240℃max.	2 times or less			230℃max.
		63V and more		20sec.	—	230℃max.	2 times or less			
	D46, E46, F46	4 to 50V		40sec. max.	30sec. max.	250℃max.	2 times or less			—

●Recommended Solder Land on PC Board

Series : MVS/MVA/MV/MVE/MVK/MKA/MZA/MVY/MZE/MZD/MLA
MVJ/MLE/MLD/MVL/MVH/MHB/MKB/MV-BP/MVK-BP



: Solder land on PC board

Case code	Terminal code : A			Terminal code : G		
	a	b	c	a	b	c
B55	0.8	2.2	1.6			
D46, D55, D60, D61, D73	1.0	2.6	1.6			
E46, E55, E60, E61, E73	1.4	3.0	1.6			
F46, F55, F60, F61, F73, F80, F90	1.9	3.5	1.6			
H63	2.3	4.5	1.6			
HA0	3.1	4.2	2.2	3.1	4.2	3.5
JA0	4.5	4.4	2.2	4.5	4.4	3.5
KE0, KG5	4.0	5.7	2.5	3.4	6.3	9.3
LH0, LN0	6.0	6.9	2.5	4.7	7.8	9.6
MH0, MN0	6.0	7.9	2.5	4.7	8.8	9.6

◆PRECAUTIONS FOR USERS

Soldering method
The capacitors of Alchip-series have no capability to withstand such dip or wave soldering as totally immerses components into a solder bath.

Reflow soldering
Reflow the capacitors within recommended reflow soldering conditions. Verify there is no temperature stress to the capacitors because the following differences might degrade capacitors electrically and mechanically. Please consult us if other reflow conditions are employed.
1.Location of components : Temperature increases at the edge of PC board more than the center.
2.Population of PC board : The lower the component population is, the more temperature rises.
3.Material of PC board : A ceramic made board needs more heat than a glass epoxy made board. The heat increase may cause damage to the capacitors.
4.Thickness of PC board : A thicker board needs more heat than a thinner board. The heat increase may damage the capacitors.
5.Size of PC board : A larger board needs more heat than a smaller board. The heat increase may damage the capacitors.
6.Solder thickness
If very thin cream solder paste is to be used for SMD types, please consult with us.
7.Location of infrared ray lamps : IR reflow as well as hot plate reflow heats only on the reverse side of the PC board to lessen heat stress to the capacitors.

Rework of soldering
Use a soldering iron for rework. Do not exceed an iron tip temperature of 380±10℃ and an exposure time of 3±0.5 seconds.

Mechanical stress
Do not use the capacitors for lifting the PC board and give stress to the capacitor. Avoid bending the PC board. This may damage the capacitors.

Cleaning assembly board
Immediately after solvent cleaning, remove residual solvent with an air knife for at least 10 minutes. If the solvent is insufficiently dry, the capacitors may corrode.

Coating on assembly board
1.Before curing coating material, remove the cleaning solvents from the assembly board.
2.Before conformal coating, a chloride free pre-coat material is recommended to decrease the stress on the capacitors.

Molding with resin
Internal chemical reaction gradually produces gas in the capacitor; then, increasing internal pressure. If the end seal of the capacitor is completely coverd by resin the gas will be unable to escape causing a potentially dangerous situation. The chlorine contained resin will penetrate into the end seal, reach the inside element, and cause damage of the capacitor.

Others
Refer to Precautions for Users of Aluminum Electrolytic Capacitors.

CAT. No. E1001H

STANDARDIZATION

The following series are discontinued. Please use the replacements in the table.

◆CONDUCTIVE POLYMER REPLACEMENT

Discontinued series	Characteristics	Replacements
PX	105℃ Super low ESR	PXA

◆LEAD TYPE REPLACEMENTS

Discontinued series	Characteristics	Replacements
SL	85℃ standard	SMG
SM		
SMC		
SME		
KM	105℃ standard	KMG
KMC		
KME		
USM		LXY
BSM		
SHA	95℃ L=7mm	LXY/LXZ
SM-BP	85℃ bi-polar	SME-BP
KM-BP	105℃ bi-polar	KME-BP
SR	85℃ low profile	SRG
SRC		
SRJ		
SX	Low impedance	KY/LXV
SXA		
SXC		
RX		
RXC		
LXE		
LXJ		
SXE		
KMF(6.3 to 100Vdc)		
SXF	Low impedance Long life	LXY
LXF		
TXF		
LXA	Long life	KY/ LXY
LX(10 to 63Vdc)		*

Discontinued series	Characteristics	Replacements
KX	High heat resistance	GXE
KXC		
GX		
EX		
GXC		
GXD		
EU	High temperature performance	LXY
GHA	150℃ high heat resistance	*
LL	Low leakage current	LLA/KY
LR		LLA
KHA	High ripple current	KXG
KXB		
KMF(160 to 450Vdc)		
BX	JIS B-X characteristics	KMG
SM(VP-type)	85℃ large radial	SMG/SMH
SRF		
GX-VH	High operating temperature	*
SD	2 volt	
SB	For memory backup	
KRL	105℃ low leakage current	
KSA	Bi-polar high ripple	
SRE(5.2L)	L=5.2mm	
FTK	Appropriate shape	

◆SNAP-IN REPLACEMENTS

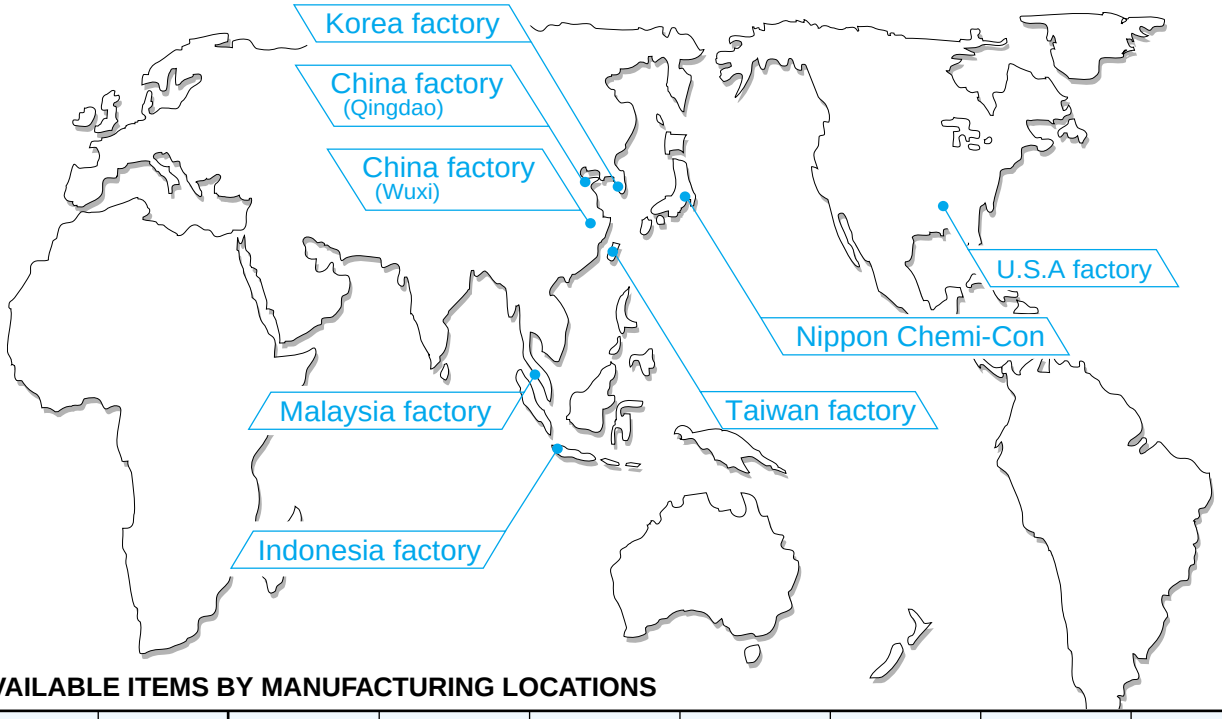
Discontinued series	Characteristics	Replacements
SM	85℃ standard	SMH/SMM
SME		
SMG		
KM	105℃ standard	KMH/KMM
KME		
KMG		
NM	Long case size	SMH
NMA		
BK	Long height	
NM-HR	High ripple current	KMH/KMM
BX	JIS B-X characteristics	
LX	Long life	LXG/LXQ
LXA		
KLG	Overvoltage resistant design	CHA
KLH		
RZ	Low impedance	*
GX	High heat resistance	
VD	voltage doubler rectifier circuit	

◆SCREW-MOUNT TERMINAL REPLACEMENTS

Discontinued series	Characteristics	Replacements
EW	85℃ standard	SME
PW		
MW		
GW		
SW	100℃	KMH
RW	For inverters	RWE/RWF
RWA		
KM	High reliability	KMH
KME		
LX	105℃ Long life	LXA/LXR
KW	Low impedance, Long life	*
FW	Low impedance	

* Please contact us.

WORLD-WIDE MANUFACTURING LOCATIONS



◆AVAILABLE ITEMS BY MANUFACTURING LOCATIONS

Classification	Series	Korea factory	China factory (Qingdao)	China factory (Wuxi)	Indonesia factory	Taiwan factory	Malaysia factory	U.S.A. factory
SMD	MV	●		●	●			
	MVK	●		●	●			
Low Profile	SRE				●			
	SRA	●	●		●			
	KMA	●	●		●			
	SRG	●	●		●			
General purpose	SMG	●	●	●	●	●		
	KMG	●	●	●	●	●		
	SMQ			●				
	KMQ			●				
Bi-polar	SME-BP	●	●		●	●		
	KME-BP	●	●		●	●		
Low impedance, High ripple	LXV			●		●		
	LXY			●				
	KY	●	●	●	●	●		
	KZE	●	●	●	●	●		
	KXG			●				
Snap-in	SMQ			●			●	
	KMQ			●			●	
	SMH			●			●	●
	KMH			●			●	●
	SMM			●			●	●
	KMM			●			●	●
Screw-mount Terminal	KMH							●
	RWE							●
	RWF							●
	RWL							●
	LXA							●

Please be sure to contact us before ordering as our product range is continuously improved and the product you require may have been superseded.

CAT. No. E1001H

Conductive Polymer Aluminum Solid Capacitors

PRECAUTIONS AND GUIDELINES (Conductive Polymer)

The NPCAP™ is a Conductive Polymer Solid Aluminum Capacitor that uses highly conductive polymer electrolytic material.
Please read the following in order to get the most out of your NPCAP™ capacitor.
For aluminum electrolytic capacitors, please refer to PRECAUTIONS AND GUIDELINES.

Designing Device Circuits

1 Types of Circuits Where NPCAP™ Capacitors are Not to be Used

The leakage current in conductive polymer solid aluminum capacitors (hereafter called capacitors) may vary depending on thermal stresses during soldering. Avoid the use of capacitors in the following types of circuits:

a) High-impedance circuits that are to sustain voltages.
b) Coupling circuits
c) Time constant circuits
Because the capacitance varies depending on the environment the capacitors are used in, there is a possibility that the capacitor can affect a time constant circuit where sensitivity to variation in capacitance is required.
d) Other circuits that are significantly affected by leakage current

2 Circuit Design

Verify the following before designing the circuit:

a) The electrical characteristics of the capacitor will vary depending on differences in temperature and frequency. Only design your after verifying the scope of these factors.
b) When connecting two or more capacitors in parallel, ensure that the design takes current balancing into account.
c) When two or more capacitors are connected in series, variability in applied voltage may cause over-voltage conditions. Contact Nippon Chemi-Con before using capacitors connected in series.

3 Use in High Reliable and Critical Applications

Consult with Nippon Chemi-Con before using these capacitors in applications involving human life: Aviation/space equipment, Nuclear power equipment, Medical equipment and Automotive equipment, or in applications where capacitor failure could have a major impact.

4 Polarity

The NPCAP™ is a polarized solid aluminum electrolytic capacitor. Do not apply either reverse voltages or AC voltages to the polarized capacitors, using reversed polarity may cause a short circuit. Refer to the catalog, product specifications or capacitor body to confirm the polarity prior to use.

5 Operating Voltage

Do not apply DC voltages exceeding the full rated voltage. The peak voltage of superimposed AC voltages (ripple voltages) on DC voltages must not exceed the full rated voltage. While there are specifications for surge voltages exceeding the rated voltage, usage conditions apply, and continued operation for extended periods of time under such conditions cannot be guaranteed.

6 Ripple Current

Do not apply currents in excess of the rated ripple current. The superimposition of a large ripple current increases the rate of heating within the capacitor. This may reduce the service life of the capacitor or damage the capacitor.

7 Operating Temperature

Do not use the capacitor at high temperatures (temperatures exceeding the maximum temperature for the capacitor category). Use of the capacitor outside of the maximum temperature for the capacitor category may decrease the service life of the capacitor.

8 Charging and Discharging the Capacitor

Do not use the NPCAP™ capacitor in circuits where the capacitor is repetitively charged and discharged rapidly. Repetitively charging and discharging the capacitor rapidly may reduce the capacitance or may cause damage due to internal heating. Use of a protective circuit to ensure reliability is recommended when rush currents exceed 20A.

9 Failures and Service Life

Based on the JIS C 5003 Standard, the failure rate for NPCAP™ capacitors (with a 60% reliability standard) is as follows:

0.5%/1,000 hours (applied rated voltage at category temperature)

a) Failure Modes
The main cause of failure is thermal stress caused by the solder reflow process or thermal use environment, along with electrical and mechanical stresses. The most common capacitor failure mode is the short circuit mode, where the following phenomenon may occur after shorting:
(1) If the pass-through current when the product is shorted is 1A or less, then the product becomes heated, but no effects are visible, even when the current is continuously carried. However, larger currents may cause substantial internal heating that causes the rubber seal to separate from the case, causing the release of gas.
(2) Some flammable materials are used in the capacitor. If an extremely large electric current flows through the capacitor after shorting, the shorted part may spark, and in a worst-case scenario, may ignite. Ensure safety by fully considering the design issues described below when using this capacitor in equipment where safety is a priority.
- Increase safety by using in conjunction with a protective circuit or protective equipment.
- Install measures such as redundant circuits so that the failure of a part of the equipment will not cause unstable operation.

b) Service Life
NPCAP™ uses rubber as the sealing material, so the service life depends on the thermal integrity of this rubber. Consequently, it is recommended to use the capacitor at a lower temperature than the maximum temperature for the capacitor category.

10 Capacitor Insulation

Ensure electrical insulation between the capacitor case, negative electrode, positive electrode and circuit pattern.

11 Capacitor Usage Environment

Do not use/expose capacitors to the following conditions.

a) Oil, water, salty water, take care to avoid storage in damp locations.
b) Direct sunlight
c) Toxic gases such as hydrogen, sulfide, sulfurous acids, nitrous acids, chlorine and chlorine compounds, bromine and bromine compounds, ammonia, etc.
d) Ozone, ultraviolet rays and radiation.
e) Severe vibration or mechanical shock conditions beyond the limits advised in the product specification section of the catalog.

PRECAUTIONS AND GUIDELINES (Conductive Polymer)

12 Capacitor mounting

a) For the surface mount capacitor, design the copper pads on the PC board in accordance with the catalog or the product specification
b) For radial capacitors, design the terminal holes on the PC board to fit the terminal pitch of the capacitor.

Installing Capacitors

1 Installing

a) Do not reuse capacitors already assembled in equipment that have been exposed to power.
b) The capacitor may have self charge. If this happens, discharge the capacitor through a resistor of approximately 1kΩ before use.
c) If capacitors are stored at a temperature of 35℃ or more and more than 75%RH, the leakage current may increase. This may also occur if the capacitors are stored for a longer period than the period which is specified in the catalog or the product specification. In this case, they can be reformed by the voltage treatment through a resistor of approximately 1kΩ.
d) Verify the rated capacitance and voltage of the capacitors when installing.
e) Verify the polarity of the capacitors.
f) Do not use the capacitors if they have been dropped on the floor.
g) Do not deform the case of the capacitors.
h) Verify that the lead spacing of the capacitor fits the hole spacing in the PC board before installing the capacitors.
i) Do not apply any mechanical force in excess of the limits prescribed in the catalog or the product specification of the capacitors. Avoid subjecting the capacitor to strong forces, as this may break the electrode terminals, bend or deform the capacitor, or damage the packaging, and may also cause short/open circuits, increased leakage current, or damage the appearance. Also, note the capacitors may be damaged by mechanical shocks caused by the vacuum/insertion head, component checker or centering operation of an automatic mounting or insertion machine.

2 Heat Resistance during Soldering

Ensure that the soldering conditions meet the specifications recommended by Nippon Chemi-Con. Note that the leakage current may increase due to thermal stresses that occur during soldering, etc. Note that increased leakage currents gradually decrease when voltage is applied.
a) Verify the following before using a soldering iron:
- That the soldering conditions (temperature and time) are within the ranges specified in the catalog or product specifications.
- That the tip of the soldering iron does not come into contact with the capacitor itself.

b) Verify the following when flow soldering:
- Do not dip the body of a capacitor into the solder bath only dip the terminals in. The soldering must be done on the reverse side of PC board.
- Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the catalog or the product specifications.
- Do not apply flux to any part of capacitors other than their terminals.
- Make sure the capacitors do not come into contact with any other components while soldering.

c) Verify the following when reflow soldering:
- Soldering conditions (preheat, solder temperature and soldering time) should be within the limits prescribed in the catalogs or the product specification.
- The heat level should be appropriate. (Note that the thermal stress on the capacitor varies depending on the type and position of the heater in the reflow oven, and the color and material of the capacitor.)
- Vapor phase soldering (VPS) is not used.
- Except for the surface mount type, reflow soldering must not be used for the capacitors.

d) Do not reuse a capacitor that has already been soldered to PC board and then removed. When using a new capacitor in the same location, remove the flux, etc. first, and then use a soldering iron to solder on the new capacitor in accordance with the specifications.
e) Confirm before running into soldering that the capacitors are for reflow soldering.

3 Handling After Soldering

Do not apply any mechanical stress to the capacitor after soldering onto the PC board.
a) Do not lean or twist the body of the capacitor after soldering the capacitors onto the PC board.
b) Do not use the capacitors for lifting or carrying the assembly board.
c) Do not hit or poke the capacitor after soldering to PC board. When stacking the assembly board, be careful that other components do not touch the aluminum electrolytic capacitors.
d) Do not drop the assembled board.

4 Cleaning PC boards

a) Do not wash capacitors by using the following cleaning agents. Solvent resistant capacitors are only suitable for washing using the cleaning conditions prescribed in the catalog or the product specification. In particular, ultrasonic cleaning will accelerate damage to capacitors.
- Halogenated solvents; cause capacitors to fail due to corrosion.
- Alkali system solvents; corrode (dissolve) an aluminum case.
- Petroleum system solvents; cause the rubber seal material to deteriorate.
- Xylene; causes the rubber seal material to deteriorate.
- Acetone; erases the markings.

b) Verify the following points when washing capacitors.
- Monitor conductivity, pH, specific gravity and the water content of cleaning agents. Contamination adversely affects these characteristics.
- Be sure not to expose the capacitors under solvent rich conditions or keep capacitors inside a closed container. In addition, please dry the solvent sufficiently on the PC board and the capacitor with an air knife (temperature should be less than the maximum rated category temperature of the capacitor) for 10 minutes. Aluminum electrolytic capacitors can be characteristically and catastrophically damaged by halogen ions, particularly by chlorine ions, though the degree of the damage mainly depends upon the characteristics of the electrolyte and rubber seal material. When halogen ions come into contact with the capacitors, the foil corrodes when a voltage is applied. This corrosion causes an extremely high leakage current which results venting and an open circuit.

If the new types of cleaning agents mentioned below are used, the following are recommended as cleaning conditions for some of new cleaning agents.

-Higher alcohol cleaning agents
Pine Alpha ST-100S (Arakawa Chemical)

PRECAUTIONS AND GUIDELINES (Conductive Polymer)

Clean Through 750 H, 750K, 750L, and 710M (Kao)
Technocare FRW-14 through 17 (Toshiba)
Cleaning Conditions:
Using these cleaning agents, capacitors are capable of withstanding immersion or ultrasonic cleaning for 10 minutes at a maximum liquid temperature of 60℃. Find optimum condition for washing, rinsing, and drying. Be sure not to rub the marking off the capacitor which can be caused by contact with other components or the PC board. Note that shower cleaning adversely affects the markings on the sleeve.

-Non-Halogenated Solvent Cleaning
AK225AES (Asahi Glass)
Cleaning Conditions:
Ultrasonic or vapor cleaning for 5 minutes. However, from an environmental point of view, these types of solvent will be banned in near future. We would recommend not using them if at all possible.

-Isopropyl Alcohol (IPA)
IPA (Isopropyl Alcohol) is one of the most acceptable cleaning agents; it is necessary to maintain a flux content in the cleaning liquid at a maximum limit of 2 Wt.%.

5 Precautions for using adhesives and coating materials

a) Do not use any adhesive and coating materials containing halogenated solvent.
b) Verify the following before using adhesive and coating material.
- Remove flux and dust left over between the rubber seal and the PC board before applying adhesive or coating materials to the capacitor.
- Dry and remove any residual cleaning agents before applying adhesive and coating materials to the capacitors. Do not cover over the whole surface of the rubber seal with the adhesive or coating materials.
- For permissible heat conditions for curing adhesives or coating materials, follow the instructions in the catalog or the product specification for the capacitors.
- Covering over the whole surface of the capacitor rubber seal with resin may result in a hazardous condition because the inside pressure cannot be completely released. Also, a large amount of halogen ions in resins will cause the capacitors to fail because the halogen ions penetrate into the rubber seal and the inside of the capacitor.
- Consider that some solvents in the adhesives and coating materials may make the capacitor surface matt or result in whitening.

6 Fumigation

In many cases when exporting or importing electronic devices, such as capacitors, wooden packaging is used. In order to control insects it may become necessary to fumigate the shipment. Precautions during “Fumigation” using halogenated chemical such as Methyl Bromide must be taken. Halogen gas can penetrate packaging materials such as cardboard boxes and vinyl bags. Penetration of the halogenated gas can cause corrosion of Electrolytic capacitors. Nippon Chemi-Con gives consideration to the packaging materials not to require the Fumigation. Verify whether the assembled PC board, products and capacitors themselves are subjected to Fumigation during their transportation or not.

The Operation of Devices

a) Do not touch the capacitor terminals directly.
b) Do not short-circuit the terminal of a capacitor by letting it come into contact with any conductive object. Also, do not spill electric-conductive liquid such as acid or alkaline solution over the capacitor.
c) Do not use capacitors in circumstances where they would be subject to exposure to the following materials
- Oil, water, salty water or damp location.
- Direct sunlight.
- Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or its compounds, and ammonium.
- Ozone, ultraviolet rays or radiation.
- Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalog or product specification.

Maintenance Inspection

a) Make periodic inspections of capacitors that have been used in industrial applications. Before inspection, turn off the power supply and carefully discharge the electricity in the capacitors. Verify the polarity when measuring the capacitors with a volt-ohm meter. Do not apply any mechanical stress to the terminals of the capacitors.
b) The following items should be checked during the periodic inspections.
- Significant damage in appearance
- Electrical characteristics: leakage current, capacitance, tanδ and other characteristics prescribed in the catalog or product specification.
- We recommend replacing the capacitors if the parts are out of specification.

Contingencies

a) If gas has vented from the capacitor during use, there is a short circuit and burning, or the capacitor discharges an odor or smoke, turn off the main power supply to the equipment or unplug the power cord.
b) If there is a problem with the capacitor or a fire breaks out, the capacitor may produce a burning gas or reactive gas from the outer resin, etc. If this happens, keep your hands and face away from the gas. If vented gas is inhaled or comes into contact with your eyes, flush your eyes immediately with water and/or gargle. If vented gas comes into contact with the skin, wash the affected area thoroughly with soap and water.

Storage

We recommend the following conditions for storage.
a) Store capacitors in a cool, dry place. Store at a temperature between 5 and 35℃, with a humidity of 75% or less.
(table-1)

	Befor the bag is opened	After the bag is opened
SMD	Within 3 years after manufacturing	Within 6 months after the bag is opend
Radial	Within 3 years after manufacturing	–

SMD products are sealed in a special laminated aluminum bag. Use all capacitors once the bag is opened. Return unused capacitors to the bag, and seal it with a zipper. Please refer to (Table -1) for storage conditions. Be sure to follow our recommendations for reflow soldering.
b) Store the capacitors in a location free from direct contact with water, salt water, and oil.
c) Store in a location where the capacitor is not exposed to toxic gas, such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or chlorine compounds, bromine or other halogen gases, methyl bromide or other halogen compounds, ammonia, or similar.
d) Store in a location where the capacitor is not exposed to ozone, ultraviolet radiation, or other radiation.
e) It is recommended to store capacitors in their original packaging wherever possible.
f) The JEDEC J-STD-020 (Rev. C) standard does not apply.

PRECAUTIONS AND GUIDELINES (Conductive Polymer)

Disposal

Please consult with a local industrial waste disposal specialist when disposing of aluminum electrolytic capacitors.

Catalogs

Specifications in the catalogs may be subject to change without notice. For more details of precautions and guidelines for aluminum electrolytic capacitors, please refer to Engineering Bulletin No. 634A.

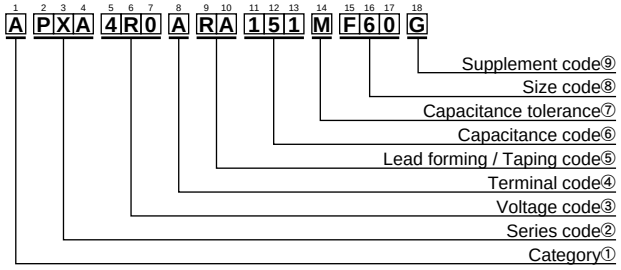
NIPPON CHEMI-CON

PART NUMBERING SYSTEM

Product code guide (Conductive polymer)

(Example : PXA series, 4V-150μF, φ6.3×5.7L)

Please refer to the following table



①Category

Contents	Code
	1st
Polar	A

②Series code

Series name	Code		
	2nd	3rd	4th
PXA	P	X	A
PS	P	S	–

③Voltage code

Voltage (V)	Code		
	5th	6th	7th
2.5	2	R	5
4	4	R	0
6.3	6	R	3
10	1	0	0
16	1	6	0
20	2	0	0
25	2	5	0
35	3	5	0

④Terminal code

Type	Code
	8th
SMD	A
Radial lead	E

⑤Lead forming code (Radial lead type)

Type	Contents	Code	
		9th	10th
Lead forming (Radial lead /Bulk)	Straight	L	L
	CC(3.5mm)	C	3
	CC(5.0mm)	C	5
Taping (Radial lead)	Straight	T	D

⑤Taping code (SMD)

Type	Taping contents	Reel dia. (mm)	Code		Application size φD (mm)
			9th	10th	
Taping (SMD)	Reel for resuse	380	R	A	φD=4 to 10
	Reel for resuse	330	R	B	φD=8 to 10

Refer to product guide for taping specifications.

⑥Capacitance code

Cap. (μF)	Code		
	11th	12th	13th
10	1	0	0
22	2	2	0
27	2	7	0
33	3	3	0
39	3	9	0
47	4	7	0
56	5	6	0
68	6	8	0
82	8	2	0
100	1	0	1
120	1	2	1
150	1	5	1
180	1	8	1
220	2	2	1
270	2	7	1
330	3	3	1
390	3	9	1
470	4	7	1
560	5	6	1
680	6	8	1
820	8	2	1
1,000	1	0	2
1,200	1	2	2
1,500	1	5	2

⑦Capacitance tolerance

Tol. (%)	Code
	14th
±20	M

⑧Size code (Radial lead type)

φD	Code
	15th
6.3	F
8	H
10	J

L	Code	
	16th	17th
8	0	8
10.5	A	5
11.5	B	5
12.5	C	5

⑧Size code (SMD)

φD	Code
	15th
5	E
6.3	F
8	H
10	J

L	Code	
	16th	17th
5.2	5	5
5.7	6	0
6.7	7	0
7.7	8	0
10	A	0
12	C	0
12.2	C	0

⑨Supplement code

Classification	Code
Type	18th
SMD	G
Radial lead	S

* Refer to the appendix (Part number) for codes not listed here.

CAT. No. E1001H

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXF Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Rated voltage range : 2.5 to 6.3Vdc, Capacitance range : 220 to 1,000µF
- Case size range : φ6.3×5.8L to φ8×7.7L
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**

PXF
↑ Lower ESR
PXE

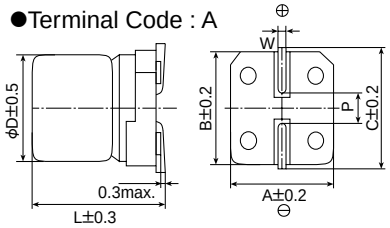
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 6.3Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15V (at 105℃)
Leakage Current	I=0.3CV I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

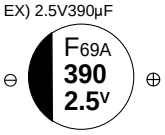
●Terminal Code : A



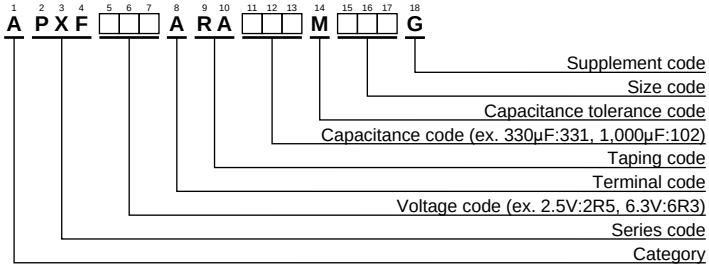
Size Code	φD	L	A	B	C	W	P
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
H80	8	7.7	8.3	8.3	9.0	0.7 to 1.1	3.1

◆MARKING

EX) 2.5V390µF



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

CAT. No. E1001H

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXF Series

◆STANDARD RATINGS

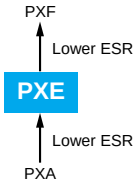
WV (Vdc)	Cap (μF)	Size code	ESR (mΩmax/20℃, 100kHz)	Rated ripple current (mArms/100k to 300kHz) -55 to +105℃	Part No.
2.5	390	F61	10	3,900	APXF2R5ARA391MF61G
	470	F80	9	4,200	APXF2R5ARA471MF80G
	560	F80	9	4,200	APXF2R5ARA561MF80G
	560	H70	9	4,500	APXF2R5ARA561MH70G
	680	H70	9	4,500	APXF2R5ARA681MH70G
	1,000	H80	9	4,500	APXF2R5ARA102MH80G
4	330	F61	10	3,900	APXF4R0ARA331MF61G
	390	F80	9	4,200	APXF4R0ARA391MF80G
	470	H70	9	4,500	APXF4R0ARA471MH70G
	560	H70	9	4,500	APXF4R0ARA561MH70G
	680	H80	9	4,500	APXF4R0ARA681MH80G
6.3	220	F61	10	3,900	APXF6R3ARA221MF61G
	270	F80	9	4,200	APXF6R3ARA271MF80G
	330	F80	9	4,200	APXF6R3ARA331MF80G
	330	H70	9	4,500	APXF6R3ARA331MH70G
	390	H70	9	4,500	APXF6R3ARA391MH70G
	470	H80	9	4,500	APXF6R3ARA471MH80G
	560	H80	9	4,500	APXF6R3ARA561MH80G

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXE Series



- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
  (ESR and rated ripple current values are improved from PXA series.)
- Rated voltage range : 2.5 to 16Vdc, Capacitance range : 33 to 2,700μF
- Case size range : φ5×5.8L to φ10×12.2L
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**

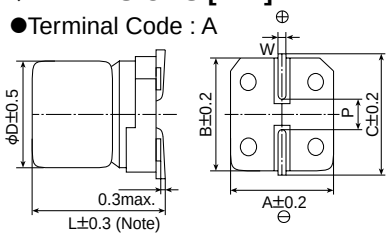
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage×1.15V (at 105℃)
Leakage Current	I=0.2CV (max.) I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A



(Note) L±0.5 for HA0, HC0, JA0, JC0

Size Code	φD	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
H80	8	7.7	8.3	8.3	9.0	0.7 to 1.1	3.1
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
HC0	8	12.0	8.3	8.3	9.0	0.7 to 1.1	3.1
J80	10	7.7	10.3	10.3	11.0	0.7 to 1.1	4.5
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
JC0	10	12.2	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 2.5V390μF

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	P	X	E				A	R	A				M				G

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 47μF:470,100μF:101)
Taping code
Terminal code
Voltage code (ex. 6.3V:6R3,10V:100)
Series code
Category

Please refer to "Product code guide (conductive polymer type)"

CAT. No. E1001H

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	ESR (mΩmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100k to 300kHz)	Part No.
2.5	180	E61	21	2,670	APXE2R5ARA181ME61G
	390	F61	15	3,160	APXE2R5ARA391MF61G
	470	F80	13	3,600	APXE2R5ARA471MF80G
	560	F80	13	3,600	APXE2R5ARA561MF80G
	560	H70	13	4,100	APXE2R5ARA561MH70G
	680	H70	13	4,100	APXE2R5ARA681MH70G
	820	H80	12	4,260	APXE2R5ARA821MH80G
	820	HC0	9	5,400	APXE2R5ARA821MHC0G
	1,000	H80	12	4,260	APXE2R5ARA102MH80G
	1,200	J80	13	4,450	APXE2R5ARA122MJ80G
	1,500	HA0	10	5,220	APXE2R5ARA152MHA0G
	1,500	HC0	9	5,400	APXE2R5ARA152MHC0G
	2,200	JA0	10	5,500	APXE2R5ARA222MJA0G
	2,700	JC0	9	5,600	APXE2R5ARA272MJC0G
4	100	E61	22	2,610	APXE4R0ARA101ME61G
	150	E61	22	2,610	APXE4R0ARA151ME61G
	270	F61	15	3,160	APXE4R0ARA271MF61G
	330	F61	15	3,160	APXE4R0ARA331MF61G
	390	F80	14	3,470	APXE4R0ARA391MF80G
	470	H70	14	3,950	APXE4R0ARA471MH70G
	560	H70	14	3,950	APXE4R0ARA561MH70G
	680	H80	13	3,950	APXE4R0ARA681MH80G
	1,000	HA0	10	5,220	APXE4R0ARA102MHA0G
	1,000	J80	14	4,300	APXE4R0ARA102MJ80G
	1,200	HC0	9	5,400	APXE4R0ARA122MHC0G
	1,200	JA0	10	5,500	APXE4R0ARA122MJA0G
	1,500	JA0	10	5,500	APXE4R0ARA152MJA0G
	1,800	JA0	10	5,500	APXE4R0ARA182MJA0G
	1,800	JC0	9	5,600	APXE4R0ARA182MJC0G
6.3	100	E61	24	2,500	APXE6R3ARA101ME61G
	120	E61	24	2,500	APXE6R3ARA121ME61G
	220	F61	15	3,160	APXE6R3ARA221MF61G
	270	F80	14	3,470	APXE6R3ARA271MF80G
	330	F80	14	3,470	APXE6R3ARA331MF80G
	330	H70	14	3,950	APXE6R3ARA331MH70G
	390	H70	14	3,950	APXE6R3ARA391MH70G
	470	H80	13	3,950	APXE6R3ARA471MH80G
	820	HA0	12	4,770	APXE6R3ARA821MHA0G
	820	HC0	10	5,150	APXE6R3ARA821MHC0G
	820	J80	14	4,300	APXE6R3ARA821MJ80G
	1,200	JA0	12	5,025	APXE6R3ARA122MJA0G
	1,500	JA0	12	5,025	APXE6R3ARA152MJA0G
	1,500	JC0	10	5,500	APXE6R3ARA152MJC0G
10	47	E61	28	2,310	APXE100ARA470ME61G
	56	E61	28	2,310	APXE100ARA560ME61G
	68	E61	28	2,310	APXE100ARA680ME61G
	120	F61	25	2,530	APXE100ARA121MF61G
	150	F80	21	2,880	APXE100ARA151MF80G
	220	H70	21	3,220	APXE100ARA221MH70G
	270	H70	21	3,220	APXE100ARA271MH70G
	330	H80	19	3,390	APXE100ARA331MH80G
	390	HA0	17	4,000	APXE100ARA391MHA0G
	470	J80	19	3,800	APXE100ARA471MJ80G
	680	JA0	13	4,820	APXE100ARA681MJA0G
16	33	E61	35	2,070	APXE160ARA330ME61G
	39	E61	35	2,070	APXE160ARA390ME61G
	68	F61	28	2,390	APXE160ARA680MF61G
	82	F80	24	2,700	APXE160ARA820MF80G
	100	F80	24	2,700	APXE160ARA101MF80G
	100	H70	24	3,010	APXE160ARA101MH70G
	120	H70	24	3,010	APXE160ARA121MH70G
	150	H80	22	3,150	APXE160ARA151MH80G
	180	HA0	18	3,890	APXE160ARA181MHA0G
	220	HA0	18	3,890	APXE160ARA221MHA0G
	220	J80	22	3,450	APXE160ARA221MJ80G
	330	JA0	16	4,350	APXE160ARA331MJA0G

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

Upgrade!

NPCAP™-PXA Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte
- Rated voltage range : 2.5 to 25Vdc, case size range : φ4×5.2L to φ10×12.2L
- Suitable for DC-DC converters, voltage regulators and decoupling applications used on computer motherboards etc.
- **RoHS Compliant**

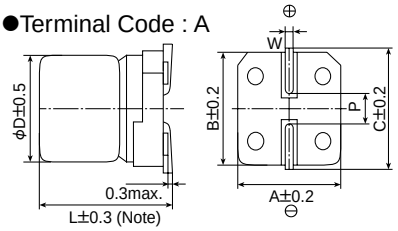
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 25Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (Rated voltage 2.5 to 20Vdc, 25Vdc) / Rated voltage(V)×1.00 (Rated voltage 23Vdc) (at 105℃)
Leakage Current	Shall not exceed values shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (F45 : 1,000 hours) at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours(F45 : 500 hours).
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial value
	DF (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : A



Note : L+0.1/-0.2 for F45
L±0.5 for HC0 and JC0

Size code	φD	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E60	5	5.7	5.3	5.3	5.9	0.5 to 0.8	1.4
F45	6.3	4.4	6.6	6.6	7.2	0.5 to 0.8	1.9
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
HC0	8	12.0	8.3	8.3	9.0	0.7 to 1.1	3.1
J80	10	7.7	10.3	10.3	11.0	0.7 to 1.1	4.5
JC0	10	12.2	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 16V39μF

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	P	X	A				A	R	A				M				G

- 18: Supplement code
- 15–17: Size code
- 14: Capacitance tolerance code
- 11–13: Capacitance code (ex. 10μF:100,100μF:101)
- 9–10: Taping code
- 8: Terminal code
- 5–7: Voltage code (ex. 6.3V:6R3,10V:100)
- 4: Series code
- 1: Category

Please refer to "Product code guide (conductive polymer type)"

CAT. No. E1001H

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

Upgrade!

NPCAP™-PXA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/ after 2 min.)	ESR (mΩmax/ 20℃, 100kHz)	Rated ripple current (mArms/100k to 300kHz) -55 to +105℃	Part No.
2.5	220	F55	110	25	2,500	APXA2R5ARA221MF55G
	220	F60	110	25	2,500	APXA2R5ARA221MF60G
	560	H70	280	23	3,100	APXA2R5ARA561MH70G
	680	HC0	340	12	4,770	APXA2R5ARA681MHC0G
	1,000	J80	500	19	4,240	APXA2R5ARA102MJ80G
	1,500	JC0	750	10	5,500	APXA2R5ARA152MJC0G
4	33	D55	66	200	740	APXA4R0ARA330MD55G
	100	F55	80	26	2,450	APXA4R0ARA101MF55G
	100	F60	80	26	2,450	APXA4R0ARA101MF60G
	120	F45	240	38	1,710	APXA4R0ARA121MF45G
	150	E60	120	30	1,490	APXA4R0ARA151ME60G
	150	F55	120	26	2,450	APXA4R0ARA151MF55G
	150	F60	120	26	2,450	APXA4R0ARA151MF60G
	220	H70	176	25	3,020	APXA4R0ARA221MH70G
	330	H70	264	25	3,020	APXA4R0ARA331MH70G
	470	J80	376	20	4,130	APXA4R0ARA471MJ80G
	560	HC0	448	12	4,770	APXA4R0ARA561MHC0G
	680	J80	544	20	4,130	APXA4R0ARA681MJ80G
	820	JC0	656	10	5,500	APXA4R0ARA821MJC0G
	1,200	JC0	960	10	5,500	APXA4R0ARA122MJC0G
6.3	22	D55	69	200	740	APXA6R3ARA220MD55G
	47	E60	59	35	1,380	APXA6R3ARA470ME60G
	68	F60	86	27	2,400	APXA6R3ARA680MF60G
	82	F45	267	40	1,670	APXA6R3ARA820MF45G
	82	F55	103	27	2,400	APXA6R3ARA820MF55G
	82	F60	103	27	2,400	APXA6R3ARA820MF60G
	100	F45	315	40	1,670	APXA6R3ARA101MF45G
	100	E60	126	35	1,380	APXA6R3ARA101ME60G
	100	F55	126	27	2,400	APXA6R3ARA101MF55G
	100	F60	126	27	2,400	APXA6R3ARA101MF60G
	120	F60	151	27	2,400	APXA6R3ARA121MF60G
	150	H70	189	25	3,020	APXA6R3ARA151MH70G
	220	H70	277	25	3,020	APXA6R3ARA221MH70G
	330	J80	416	20	4,130	APXA6R3ARA331MJ80G
	390	HC0	491	12	4,770	APXA6R3ARA391MHC0G
	470	J80	592	20	4,130	APXA6R3ARA471MJ80G
	470	HC0	592	12	4,770	APXA6R3ARA471MHC0G
	680	JC0	857	10	5,500	APXA6R3ARA681MJC0G
	820	JC0	1,033	10	5,500	APXA6R3ARA821MJC0G

WV (Vdc)	Cap (μF)	Size code	Leakage current (μAmax/ after 2 min.)	ESR (mΩmax/ 20℃, 100kHz)	Rated ripple current (mArms/100k to 300kHz) -55 to +105℃	Part No.
10	4.7	D55	24	240	670	APXA100ARA4R7MD55G
	6.8	D55	34	240	670	APXA100ARA6R8MD55G
	10	D55	50	220	700	APXA100ARA100MD55G
	15	D55	75	200	740	APXA100ARA150MD55G
	33	E60	66	40	1,270	APXA100ARA330ME60G
	47	E60	94	40	1,270	APXA100ARA470ME60G
	47	F45	235	41	1,560	APXA100ARA470MF45G
	47	F60	94	31	2,250	APXA100ARA470MF60G
	56	F55	112	31	2,250	APXA100ARA560MF55G
	56	F60	112	31	2,250	APXA100ARA560MF60G
	120	H70	240	27	2,800	APXA100ARA121MH70G
	150	H70	300	27	2,800	APXA100ARA151MH70G
	270	J80	540	24	3,770	APXA100ARA271MJ80G
	270	HC0	540	14	4,420	APXA100ARA271MHC0G
	330	J80	660	24	3,770	APXA100ARA331MJ80G
	330	HC0	660	14	4,420	APXA100ARA331MHC0G
	470	JC0	940	12	5,300	APXA100ARA471MJC0G
	560	JC0	1,120	12	5,300	APXA100ARA561MJC0G
16	3.3	D55	26	260	660	APXA160ARA3R3MD55G
	22	E60	70	45	1,210	APXA160ARA220ME60G
	22	F45	176	45	1,490	APXA160ARA220MF45G
	33	F60	106	37	2,050	APXA160ARA330MF60G
	39	F55	125	37	2,050	APXA160ARA390MF55G
	39	F60	125	37	2,050	APXA160ARA390MF60G
	82	H70	262	30	2,700	APXA160ARA820MH70G
	150	J80	480	26	3,430	APXA160ARA151MJ80G
	180	J80	576	26	3,430	APXA160ARA181MJ80G
	180	HC0	576	16	4,360	APXA160ARA181MHC0G
	220	JC0	704	14	5,050	APXA160ARA221MJC0G
	330	JC0	1,056	14	5,050	APXA160ARA331MJC0G
20	15	F45	150	57	1,300	APXA200ARA150MF45G
	22	F55	88	50	1,650	APXA200ARA220MF55G
	22	F60	88	50	1,650	APXA200ARA220MF60G
	39	H70	156	45	2,000	APXA200ARA390MH70G
	47	H70	188	45	2,000	APXA200ARA470MH70G
	82	J80	328	40	2,500	APXA200ARA820MJ80G
	150	JC0	600	20	4,320	APXA200ARA151MJC0G
23	15	F45	172	57	1,300	APXA230ARA150MF45G
25	10	F60	125	65	1,500	APXA250ARA100MF60G
	22	H70	275	50	1,800	APXA250ARA220MH70G
	39	J80	488	45	2,100	APXA250ARA390MJ80G

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXH Series

- Super low ESR, impedance and high heat resistance have been obtained by using conductive polymer as electrolyte.
- Suitable for DC-DC converters, voltage regulators and decoupling applications.
- Endurance : 125℃ 1,000 hours
- Rated voltage range : 2.5 to 20Vdc, Capacitance range : 22 to 1,000μF
- Case size range : φ6.3×5.7L to φ10×7.7L
- **RoHS Compliant**

PXH
↑ Higher temperature
PXA

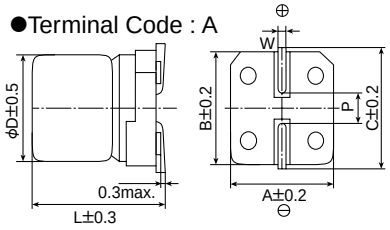
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +125℃
Rated Voltage Range	2.5 to 20Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current	Shall not exceed value shown in STANDARD RATINGS. (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 125℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦200% of the initial specified value ESR: ≦200% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial value DF (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 125℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 125℃.

◆DIMENSIONS [mm]

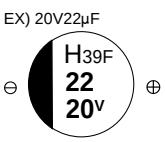
●Terminal Code : A



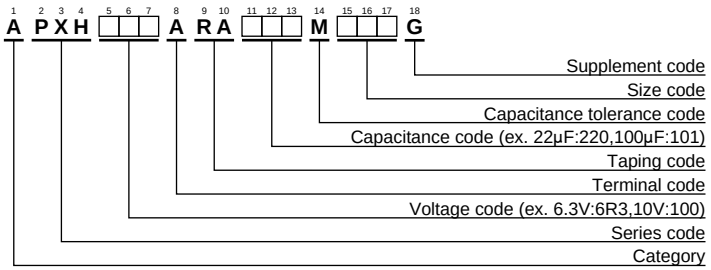
Size code	φD	L	A	B	C	W	P
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H70	8	6.7	8.3	8.3	9.0	0.7 to 1.1	3.1
J80	10	7.7	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 20V22μF



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

CAT. No. E1001H

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Surface Mount

NPCAP™-PXH Series

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Size code	Leakage current (μAmax/after 2min.)	ESR (mΩmax/20℃, 100kHz)	Rated ripple current (mArms/100k to 300kHz)		Part No.
					-55℃ to +105℃	+105℃ to +125℃	
2.5	220	F60	110	35	2,500	770	APXH2R5ARA221MF60G
	560	H70	280	30	3,100	960	APXH2R5ARA561MH70G
	1,000	J80	500	25	3,700	1,100	APXH2R5ARA102MJ80G
4	150	F60	120	35	2,450	770	APXH4R0ARA151MF60G
	220	H70	176	30	3,020	960	APXH4R0ARA221MH70G
	680	J80	544	25	3,700	1,100	APXH4R0ARA681MJ80G
6.3	82	F60	103	40	2,400	720	APXH6R3ARA820MF60G
	100	F60	126	40	2,400	720	APXH6R3ARA101MF60G
	150	H70	189	30	3,020	960	APXH6R3ARA151MH70G
	220	H70	277	30	3,020	960	APXH6R3ARA221MH70G
	470	J80	592	25	3,700	1,100	APXH6R3ARA471MJ80G
10	56	F60	112	45	2,250	680	APXH100ARA560MF60G
	120	H70	240	35	2,800	880	APXH100ARA121MH70G
	150	H70	300	35	2,800	880	APXH100ARA151MH70G
	330	J80	660	30	3,700	1,010	APXH100ARA331MJ80G
16	39	F60	125	50	2,050	650	APXH160ARA390MF60G
	82	H70	262	40	2,700	830	APXH160ARA820MH70G
	150	J80	480	35	3,020	930	APXH160ARA151MJ80G
	180	J80	576	35	3,020	930	APXH160ARA181MJ80G
20	22	F60	88	60	1,650	590	APXH200ARA220MF60G
	47	H70	188	45	2,000	780	APXH200ARA470MH70G
	82	J80	328	45	2,400	820	APXH200ARA820MJ80G

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSC Series

- ●Super low ESR, high ripple current capability
- ●Lower profile than PSA (φ8×8L to φ10×12.5L)
- ●Rated voltage range : 2.5 to 16Vdc
- ●Nominal capacitance range : 270 to 2,700μF
- ●Endurance : 2,000 hours at 105℃
- ●Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards
- ●Added 2.5V 820μF (ESR 5mΩ max.)
- ●**RoHS Compliant**

PSC
↑ Low profile
Lower ESR
PSA

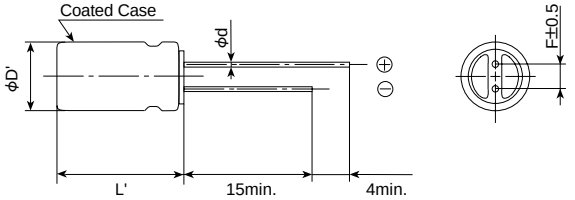
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV or 500μA, whichever is greater. Where, I : Leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.10 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.
	Appearance : No significant damage
	Capacitance change : ≦±20% of the initial value
	D.F. (tanδ) : ≦150% of the initial specified value
	ESR : ≦150% of the initial specified value
	Leakage current : ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance : No significant damage
	Capacitance change : ≦±20% of the initial value
	D.F. (tanδ) : ≦150% of the initial specified value
	ESR : ≦150% of the initial specified value
	Leakage current : ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance : No significant damage
	Capacitance change : ≦±20% of the initial value
	D.F. (tanδ) : ≦150% of the initial specified value
	ESR : ≦150% of the initial specified value
	Leakage current : ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 60 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : E

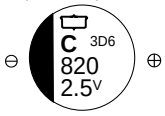


Size code	H08	HB5	JB5	JC5
φD	8.0	8.0	10.0	10.0
φd	0.6	0.8(Note1)	0.8(Note1)	0.6
F	3.5	3.5	5.0	5.0
φD'	φD+0.5max.			
L'	L+1.0max.	L+1.5max.		

Note1 : 0.6 for rated volt 16V.

◆MARKING

EX) 2.5V820μF



NIPPON CHEMI-CON

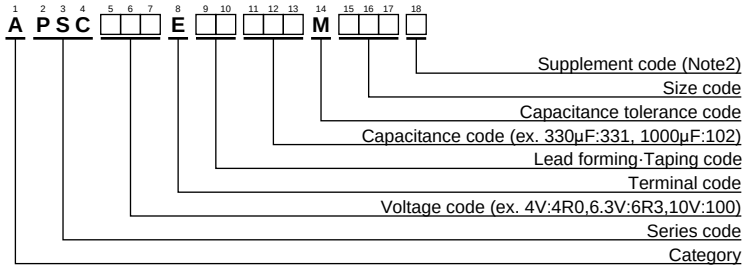
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSC Series

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

(Note2) PSC series, 2.5V820μF(ESR 5mΩ max.) has supplement code "J".
Can case, terminal and terminal plating are the same as all others in PSC series.

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	Leakage Current (μA)	ESR (mΩ max/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	560	8×8	500	7	6,100	APSC2R5E□□561MH08S
	820	8×8	500	5	6,100	APSC2R5E□□821MH08J
	820	8×8	500	7	6,100	APSC2R5E□□821MH08S
	1,000	8×8	500	7	6,100	APSC2R5E□□102MH08S
	1,000	8×11.5	500	7	6,100	APSC2R5E□□102MHB5S
	1,500	8×11.5	750	7	6,100	APSC2R5E□□152MHB5S
	2,700	10×11.5	1,350	8	5,560	APSC2R5E□□272MJB5S
4	560	8×8	500	7	6,100	APSC4R0E□□561MH08S
	680	8×11.5	544	7	6,100	APSC4R0E□□681MHB5S
	1,000	10×11.5	800	6	6,640	APSC4R0E□□102MJB5S
6.3	470	8×8	592	8	5,700	APSC6R3E□□471MH08S
	560	8×8	706	8	5,700	APSC6R3E□□561MH08S
	820	10×11.5	1,033	7	6,640	APSC6R3E□□821MJB5S
	1,500	10×11.5	1,890	10	5,560	APSC6R3E□□152MJB5S
10	390	8×11.5	780	9	5,650	APSC100E□□391MHB5S
	680	10×11.5	1,360	7	6,100	APSC100E□□681MJB5S
16	270	8×11.5	864	11	5,080	APSC160E□□271MHB5S
	330	10×12.5	1,056	10	6,100	APSC160E□□331MJC5S
	470	10×11.5	1,504	10	6,100	APSC160E□□471MJB5S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

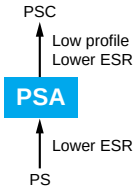
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSA Series

- Super low ESR, high temperature resistance and high ripple current capability
- Rated voltage range : 2.5 to 16Vdc
- Endurance : 2,000 hours at 105℃
- Suitable for DC-DC converters, voltage regulators and decoupling applications for computer motherboards
- **RoHS Compliant**



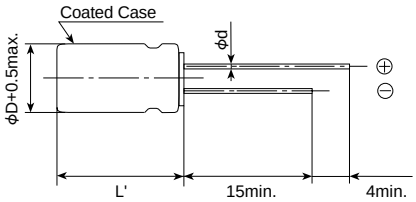
◆SPECIFICATIONS

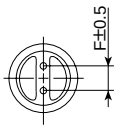
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 16Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV (max.) Where, I : Leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.08 max. (FA5 size : 0.12max.) (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial measured value
	D.F. (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial measured value
	D.F. (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds.
	Appearance: No significant damage
	Capacitance change: ≦±20% of the initial measured value
	D.F. (tanδ): ≦150% of the initial specified value
	ESR: ≦150% of the initial specified value
	Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : E

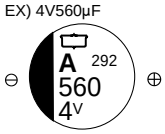




ϕD	6.3	8	10
ϕd	0.5	0.8	
F	2.5	3.5	5.0
ϕD'	ϕD+0.5max		
L'	L+0.3max	L+1.5max	

◆MARKING

EX) 4V560μF



CAT. No. E1001H

NIPPON CHEMI-CON

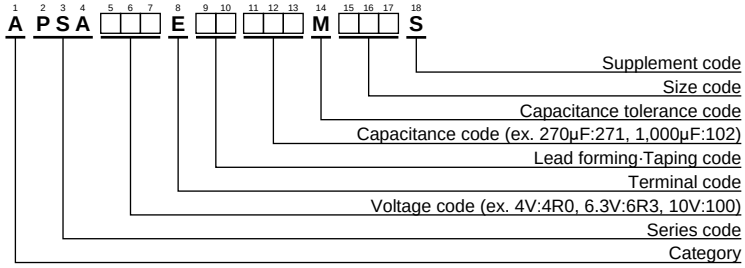
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PSA Series

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	390	6.3×10.5	20	3,160	APSA2R5E□□391MFA5S
	680	8×11.5	7	5,580	APSA2R5E□□681MHB5S
	820	8×11.5	7	5,580	APSA2R5E□□821MHB5S
	1,000	10×11.5	6	5,860	APSA2R5E□□102MJB5S
	1,500	10×11.5	7	5,860	APSA2R5E□□152MJB5S
4	270	6.3×10.5	20	3,160	APSA4R0E□□271MFA5S
	390	6.3×10.5	24	3,300	APSA4R0E□□391MFA5S
	560	8×11.5	7	5,580	APSA4R0E□□561MHB5S
	820	10×11.5	6	5,860	APSA4R0E□□821MJB5S
6.3	220	6.3×10.5	20	3,160	APSA6R3E□□221MFA5S
	330	6.3×10.5	28	3,190	APSA6R3E□□331MFA5S
	390	8×11.5	8	5,080	APSA6R3E□□391MHB5S
	470	8×11.5	7	5,700	APSA6R3E□□471MHB5S
	680	10×11.5	7	5,860	APSA6R3E□□681MJB5S
10	47	6.3×10.5	25	2,820	APSA100E□□470MFA5S
	68	6.3×10.5	25	2,820	APSA100E□□680MFA5S
	100	6.3×10.5	25	2,820	APSA100E□□101MFA5S
	150	6.3×10.5	25	2,820	APSA100E□□151MFA5S
	270	8×11.5	9	4,710	APSA100E□□271MHB5S
	470	10×11.5	8	5,650	APSA100E□□471MJB5S
16	100	6.3×10.5	25	2,820	APSA160E□□101MFA5S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PS Series

- Super low ESR, high temperature resistance
- Large capacitance & Improved high ripple current capability
- Rated voltage range : 2.5 to 35Vdc
- Endurance : 2,000 hours at 105℃
- Suitable for DC-DC converters, voltage regulators and decoupling applications
  For computer motherboards
- **RoHS Compliant**

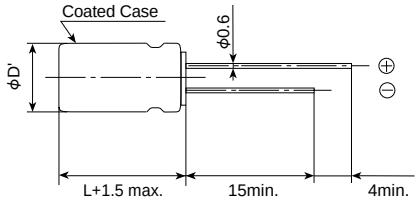
◆SPECIFICATIONS

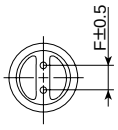
Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	2.5 to 35Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Surge Voltage	Rated voltage(V)×1.15 (at 105℃)
Leakage Current *Note	I=0.2CV (max.) (Rated voltage 2.5 to 25Vdc) / I=0.5CV (max.) (Rated voltage 35Vdc) Where, I : Leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−25℃)/Z(+20℃)≦1.15 Z(−55℃)/Z(+20℃)≦1.25 (at 100kHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃. Appearance: No significant damage Capacitance change: ≦±20% of the initial measured value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to DC voltage at 60℃, 90 to 95% RH for 1,000 hours. Appearance: No significant damage Capacitance change: ≦±20% of the initial measured value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Surge Voltage Test	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105℃ for 30 seconds through a protective resistor(R=1kΩ) and discharge for 5 minutes 30 seconds. Appearance: No significant damage Capacitance change: ≦±20% of the initial measured value D.F. (tanδ): ≦150% of the initial specified value ESR: ≦150% of the initial specified value Leakage current: ≦The initial specified value
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% at 105℃)

*Note : If any doubt arises, measure the leakage current after the following voltage treatment.
Voltage treatment : DC rated voltage is applied to the capacitors for 120 minutes at 105℃.

◆DIMENSIONS [mm]

●Terminal Code : E

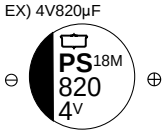




ϕD	8	10
ϕd	0.6	
F	3.5	5.0
ϕD'	ϕD+0.5max.	
L	L+1.5max.	

◆MARKING

EX) 4V820μF



NIPPON CHEMI-CON

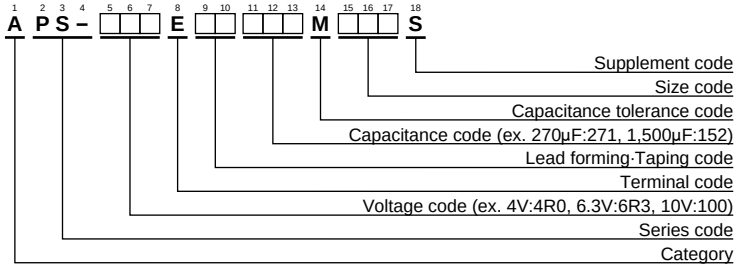
CONDUCTIVE POLYMER ALUMINUM SOLID CAPACITORS

Radial Lead

Upgrade!

NPCAP™-PS Series

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (conductive polymer type)"

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	ESR (mΩmax/20℃, 100k to 300kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
2.5	680	8 ×11.5	10	5,230	APS-2R5E□□681MHB5S
	820	8 ×11.5	10	5,230	APS-2R5E□□821MHB5S
	1500	10 ×12.5	8	5,500	APS-2R5E□□152MJC5S
4	560	8 ×11.5	10	5,230	APS-4R0E□□561MHB5S
	820	10 ×12.5	8	5,500	APS-4R0E□□821MJC5S
	1000	10 ×12.5	8	5,500	APS-4R0E□□102MJC5S
	1200	10 ×12.5	8	5,500	APS-4R0E□□122MJC5S
6.3	390	8 ×11.5	12	4,770	APS-6R3E□□391MHB5S
	470	8 ×11.5	12	4,770	APS-6R3E□□471MHB5S
	680	10 ×12.5	10	5,500	APS-6R3E□□681MJC5S
	820	10 ×12.5	10	5,500	APS-6R3E□□821MJC5S
	1000	10 ×12.5	10	5,500	APS-6R3E□□102MJC5S
10	270	8 ×11.5	14	4,420	APS-100E□□271MHB5S
	330	8 ×11.5	14	4,420	APS-100E□□331MHB5S
	470	10 ×12.5	12	5,300	APS-100E□□471MJC5S
	560	10 ×12.5	12	5,300	APS-100E□□561MJC5S
16	100	8 ×11.5	16	4,360	APS-160E□□101MHB5S
	180	8 ×11.5	16	4,360	APS-160E□□181MHB5S
	270	10 ×12.5	14	5,050	APS-160E□□271MJC5S
	330	10 ×12.5	14	5,050	APS-160E□□331MJC5S
20	100	8 ×11.5	24	3,320	APS-200E□□101MHB5S
	150	10 ×12.5	20	4,320	APS-200E□□151MJC5S
25	68	8 ×11.5	24	3,320	APS-250E□□680MHB5S
	100	10 ×12.5	20	4,320	APS-250E□□101MJC5S
35	18	8 ×11.5 S	34	2,830	APS-350E□□180MHB5S
	33	10 ×12.5	30	3,270	APS-350E□□330MJC5S

□□ : Enter the appropriate lead forming or taping code.

Aluminum Electrolytic Capacitors

PRECAUTIONS AND GUIDELINES

For conductive polymer aluminum electrolytic solid capacitors, please refer to PRECAUTIONS AND GUIDELINES (Conductive Polymer)

Designing Device Circuits

1 Select the capacitors to suit installation and operating conditions, and use the capacitors to meet the performance limits prescribed in this catalog or the product specifications.

2 Polarity

Aluminum Electrolytic Capacitors are polarized.
Apply neither reverse voltage nor AC voltage to polarized capacitors. Using reversed polarity causes a short circuit or venting. Before use, refer to the catalog, product specifications or capacitor body to identify the polarity marking. (The shape of rubber seal does not represent the directional rule for polarity.)
Use a bi-polar type of non-solid aluminum electrolytic capacitor for a circuit where the polarity is occasionally reversed.
However, note that even a bi-polar aluminum electrolytic capacitor must not be used for AC voltage applications.

3 Operating voltage

Do not apply a DC voltage which exceeds the full rated voltage. The peak voltage of a superimposed AC voltage (ripple voltage) on the DC voltage must not exceed the full rated voltage.
A surge voltage value, which exceeds the full rated voltage, is prescribed in the catalogs, but it is a restricted condition, for especially short periods of time.

4 Ripple current

The rated ripple current has been specified at a certain ripple frequency. The rated ripple current at several frequencies must be calculated by multiplying the rated ripple current at the original frequency using the frequency multipliers for each product series. For more details, refer to the paragraph on Aluminum Electrolytic Capacitor Life.

5 Category temperature

The use of a capacitor outside the maximum rated category temperature will considerably shorten the life or cause the capacitor to vent.
The relation between the lifetime of aluminum electrolytic capacitors and ambient temperature follows Arrhenius' rule that the lifetime is approximately halved with each 10℃ rise in ambient temperature.

6 Life expectancy

Select the capacitors to meet the service life of a device.

7 Charge and discharge

Do not use capacitors in circuits where heavy charge and discharge cycles are frequently repeated. Frequent and sharp heavy discharging cycles will result in decreasing capacitance and damage to the capacitors due to generated heat. Specified capacitors can be designed to meet the requirements of charging-discharging cycles, frequency, operating temperature, etc.

8 Failure mode of capacitors

Non-solid aluminum electrolytic capacitors, in general, have a lifetime which ends in an open circuit, the period is dependent upon temperature. Consequently the lifetime of capacitors can be extended by reducing the ambient temperature and/or ripple current.

9 Insulating

a) Electrically isolate the following parts of a capacitor from the negative terminal, the positive terminal and the circuit traces.
- The outer can case of a non-solid aluminum capacitor.
- The dummy terminal of a non-solid aluminum capacitor, which is designed for mounting stability.

b) The outer sleeve of a capacitor is not assured as an insulator (Except for screw type). For applications that require an insulated outer sleeve, a custom-design capacitor is recommended.

10 Condition

Do not use/expose capacitors to the following conditions.
a) Oil, water, salty water storage in damp locations.
b) Direct sunlight
c) Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or its compounds, and ammonium
d) Ozone, ultraviolet rays or radiation
e) Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalogs or the product specification.

11 Mounting

a) The paper separators and the electrolytic-conductive electrolytes in a non-solid aluminum electrolytic capacitor are flammable.
Leaking electrolyte on a printed circuit board can gradually erode the copper traces, possibly causing smoke or burning by short-circuiting the copper traces.
Verify the following points when designing a PC board.
- Provide the appropriate hole spacing on the PC board to match the terminal spacing of the capacitor.
- Make the following open space over the vent so that the vent can operate correctly.

Case diameter	Clearance
φ6.3 to φ16mm	2mm minimum
φ18 to φ35mm	3mm minimum
φ40mm and up	5mm minimum

- Do not place any wires or copper traces over the vent of the capacitor.
- Installing a capacitor with the vent facing the PC board needs an appropriate ventilation hole in PC board.
- Do not pass any copper traces beneath the seal side of a capacitor. The trace must pass 1 or 2mm to the side of the capacitor.
- Avoid placing any heat-generating objects adjacent to a capacitor or even on the reverse side of the PC board.
- Do not pass any via holes underneath a capacitor.
- In designing double-sided PC boards, do not locate any copper trace under the seal side of a capacitor.

b) Do not mount the terminal side of a screw mount capacitor downwards. If a screw terminal capacitor is mounted on its side, make sure the positive terminal is higher than the negative terminal.
Do not tighten the screws of the terminals and the mounting clamps over the specified torque prescribed in the catalog or the production specification.
c) For a surface mount capacitor, design the copper pads of the PC board in accordance with the catalog or the product specifications.

12 Others

a) The electrical characteristics of capacitors vary in respect to temperature, frequency and service life. Design the device circuits by taking these changes into account.
b) Capacitors mounted in parallel need the current to flow equally through the individual capacitors.
c) Capacitors mounted in series require resistors in parallel with the individual capacitors to balance the voltage.
d) Using capacitor for applications which always consider safety. Consult with our factory before use in applications which can affect human life.(space equipment, aerial equipment, nuclear equipment, medical equipment, vehicle control equipment, etc) Please note that the product, which is

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NIPPON CHEMI-CON

PRECAUTIONS AND GUIDELINES

designed only for specific usage can not be used in other usages.(ex. Photo flash type, etc.)

Installing Capacitors

1 Installing

a) Used capacitors are not reusable, except in the case that the capacitors are detached from a device for periodic inspection to measure their electrical characteristics.
b) If the capacitors have self charged, discharge in the capacitors through a resistor of approximately 1kΩ before use.
c) If capacitors are stored at a temperature of 35℃ or more and more than 75%RH, the leakage current may increase. In this case, they can be reformed by applying the rated voltage through a resistor of approximately 1kΩ.
d) Verify the rated capacitance and voltages of the capacitors when installing.
e) Verify the polarity of the capacitors.
f) Do not use the capacitors if they have been dropped on the floor.
g) Do not deform the cases of capacitors.
h) Verify that the lead spacing of the capacitor fits the hole spacing in the PC board before installing the capacitors. Some standard pre-formed leads are available.
i) For pin terminals or snap-in terminals, insert the terminals into PC board and press the capacitor downward until the bottom of the capacitor body reaches PC board surface.
j) Do not apply any mechanical force in excess of the limits prescribed in the catalogs or the product specifications of the capacitors.
Also, note the capacitors may be damaged by mechanical shocks caused by the vacuum/insertion head, component checker or centering operation of an automatic mounting or insertion machine.

2 Soldering and Solderability

a) When soldering with a soldering iron
- Soldering conditions (temperature and time) should be within the limits prescribed in the catalogs or the product specifications.
- If the terminal spacing of a capacitor does not fit the terminal hole spacing of the PC board, reform the terminals in a manner to minimize a mechanical stress into the body of the capacitor.
- Remove the capacitors from the PC board, after the solder is completely melted, reworking by using a soldering iron minimizes the mechanical stress to the capacitors.
- Do not touch the capacitor body with the hot tip of the soldering iron.

b) Flow soldering
- Do not dip the body of a capacitor into the solder bath only dip the terminals in. The soldering must be done on the reverse side of PC board.
- Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the catalogs or the product specifications.
- Do not apply flux to any part of capacitors other than their terminals.
- Make sure the capacitors do not come into contact with any other components while soldering.

c) Reflow soldering
- Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the catalogs or the product specifications.
- When setting the temperature infrared heaters, consider that the infrared absorption causes material to be discolored and change in appearance.
- Do not solder capacitors more than once using reflow. If you need to twice, be sure to consult with us.
- Make sure capacitors do not come into contact with copper traces.

d) Do not re-use surface mount capacitors which have already been soldered.
In addition, when installing a new capacitor onto the assembly board to rework, remove old residual flux from the surface of the PC board, and then use a soldering iron within the prescribed conditions.
e) Confirm before running into soldering that the capacitors are for reflow soldering.

3 Handling after soldering

Do not apply any mechanical stress to the capacitor after soldering onto the PC board.
a) Do not lean or twist the body of the capacitor after soldering the capacitors onto the PC board.
b) Do not use the capacitors for lifting or carrying the assembly board.
c) Do not hit or poke the capacitor after soldering to PC board.
When stacking the assembly board, be careful that other components do not touch the aluminum electrolytic capacitors.
d) Do not drop the assembly board.

4 Cleaning PC boards

a) Do not wash capacitors by using the following cleaning agents.
- Halogenated solvents; cause capacitors to fail due to corrosion.
- Alkali system solvents; corrode (dissolve) an aluminum case.
- Petroleum and terpene system solvents; cause the rubber seal material to deteriorate.
- Xylene; causes the rubber seal material to deteriorate.
- Acetone; erases the marking.

Solvent resistant capacitors are only suitable for washing using the cleaning conditions prescribed in the catalogs or the product specifications. In particular, ultrasonic cleaning will accelerate damaging capacitors.
b) Verify the following points when washing capacitors.
- Monitor conductivity, pH, specific gravity, and the water content of cleaning agents. Contamination adversely affects these characteristics.
- Be sure not to expose the capacitors under solvent rich conditions or keep capacitors inside a closed container. In addition, please dry the solvent sufficiently on the PC board and the capacitor with an air knife (temperature should be less than the maximum rated category temperature of the capacitor) over 10 minutes.
Aluminum electrolytic capacitors can be characteristically and catastrophically damaged by halogen ions, particularly by chlorine ions, though the degree of the damage mainly depends upon the characteristics of the electrolyte and rubber seal material. When halogen ions come into contact with the capacitors, the foil corrodes when voltages applied. This corrsion causes ; extremely high leakage current, which causes in line with, venting, and an open circuit.
Global environmental warnings (Greenhouse effects and other environmental destruction by depletion of the ozone layer), new types of cleaning agents have been developed and commercialized as substitutes for CFC-113,1,1,2-trichloroethlene and 1,1,1-trichloroethylene. The following are recommended as cleaning conditions for some of new cleaning agents.

–Higher alcohol system cleaning agents
Recommended cleaning agents:
Pine Alpha ST-100S (Arakawa Chemical)
Clean Through 750H, 750K, 750L, and 710M (Kao)
Technocare FRW-14,15,16,17 (Momentive performance materials)
Cleaning conditions:

PRECAUTIONS AND GUIDELINES

Using these cleaning agents capacitors are capable of withstanding immersion or ultrasonic cleaning for 10 minutes at a maximum liquid temperature of 60℃. Find optimum condition for washing, rinsing, and drying. Be sure not to rub the marking off the capacitor by contacting any other components or the PC board. Note that shower cleaning adversely affects the markings on the sleeve.

–Non-Halogenated Solvent Cleaning
AK225AES (Asahi Glass)
Cleaning conditions:
Solvent resistant capacitors are capable of withstanding any one of immersion, ultrasonic or vapor cleaning for 5 minutes; ex-ception is 2 minutes max. for KRE, and KRE-BP series capacitors and 3 minutes for SRM series capacitors. However, from a view of the global environmental problems, these types of solvent will be banned in near future. We would recommended not using them as much as possible.

Isopropyl alcohol cleaning agents
IPA (Isopropyl Alcohol) is one of the most acceptable cleaning agents; it is necessary to maintain a flux content in the cleaning liquid at a maximum limit of 2 Wt.%.

5 Precautions for using adhesives and coating materials

a) Do not use any adhesive and coating materials containing halogenated solvent.
b) Verify the following before using adhesive and coating material.
- Remove flux and dust leftover between the rubber seal and the PC board before applying adhesive or coating materials to the capacitor.
- Dry and remove any residual cleaning agents before applying adhesive and coating materials to the capacitors. Do not cover over the whole surface of the rubber seal with the adhesive or coating materials.
- For permissible heat conditions for curing adhesives or coating materials, follow the instructions in the catalogs or the product specifications of the capacitors.
- Covering over the whole surface of the capacitor rubber seal with resin may result in a hazardous condition because the inside pressure cannot release completely. Also, a large amount of halogen ions in resins will cause the capacitors to fail because the halogen ions penetrate into the rubber seal and the inside of the capacitor.

c) Some of coating material cannot be curred over the capacitor. Please note that loose luster and whitening on the surface of the outer sleeve might be caused according to the kind of solvents used for mounting adhesives and coating agents.

6 Fumigation

In many cases when exporting or importing electronic devices, such as capacitors, wooden packaging is used. In order to control insects, many times, it becomes necessary to fumigate the shipments. Precautions during “Fumigation” using halogenated chemical such as Methyl Bromide must be taken. Halogen gas can penetrate packaging materials used, such as, cardboard boxes and vinyl bags. Penetration of the halogenide gas can cause corrosion of Electrolytic capacitors.

The Operation of Devices

a) Do not touch a capacitor directly with bare hands.
b) Do not short-circuit the terminal of a capacitor by letting it come into contact with any conductive object.
Also, do not spill electric-conductive liquid such as acid or alkaline solution over the capacitor.
c) Do not use capacitors in circumstance where they would be subject to exposure to the following materials exist or expose.
- Oil, water, salty water or damp location.
- Direct sunlight.
- Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or its compounds, and ammonium.
- Ozone, ultraviolet rays or radiation.
- Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalogs or product specification.

Maintenance Inspection

a) Make periodic inspections of capacitors that have been used in industrial applications. Before inspection, turn off the power supply and carefully discharge the electricity in the capacitors. Verify the polarity when measuring the capacitors with a volt-ohm meter. Also, do not apply any mechanical stress to the terminals of the capacitors.
b) The following items should be checked during the periodic inspections.
- Significant damage in appearance : venting and electrolyte leakage.
- Electrical characteristics: leakage current, capacitance, tanδ and other characteristics prescribed in the catalogs or product specifications.
We recommend replacing the capacitors if the parts are out of specification.

In Case of Venting

a) If a non-solid aluminum electrolytic capacitor expells gas when venting, it will discharge odors or smoke, or burn in the case of a short-circuit failure. Immediately turn off or unplug the main power supply of the device.
b) When venting, a non-solid aluminum electrolytic capacitor blows out gas with a temperature of over 100℃. (A solid aluminum electrolytic capacitor discharges decomposition gas or burning gas while the outer resin case is burning.) Never expose the face close to a venting capacitor. If your eyes should inadvertently become exposed to the spouting gas or you inhale it, immediately flush the open eyes with large amounts of water and gargle with water respectively. If electrolyte is on the skin, wash the electrolyte away from the skin with soap and plenty of water. Do not lick the electrolyte of non-solid aluminum electrolytic capacitors.

Storage

We recommend the following conditions for storage.
a) Do not store capacitors at a high temperature or in high humidity. Store the capacitors indoors at a temperature of 5 to 35℃ and a humidity of less than 75%RH.
b) Store the capacitors in places free from water, oil or salt water.
c) Store the capacitors in places free from toxic gasses (hydrogen sulfide, sulfurous acid, chlorine, ammonium, etc.)
d) Store the capacitors in places free from ozone, ultraviolet rays or radiation.
e) Keep capacitors in the original package.
f) It is not applied to a regulation of JEDEC J-STD-020(Rev.C).

Disposal

Please consult with a local industrial waste disposal specialist when disposing of aluminum electrolytic capacitors.

Catalogs

Specifications in catalogs may be subject to change without notice. For more details of precautions and guidelines for aluminum electrolytic capacitors, please refer to Engineering Bulletin No. 634A.

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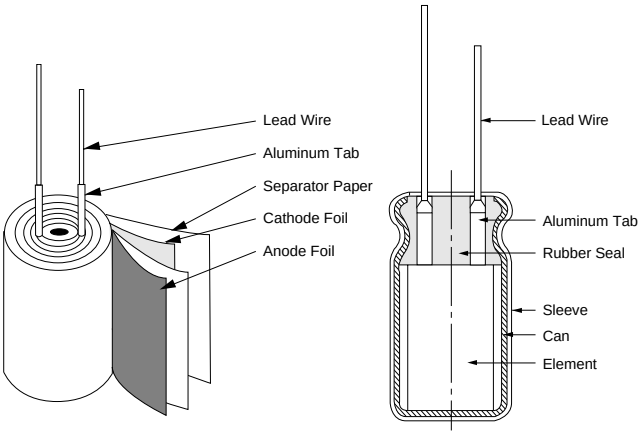
Structure of Aluminum Electrolytic Capacitors

The aluminum electrolytic capacitor contains an internal element of an anode foil, a cathode foil and paper separator rolled together, impregnated with an electrolyte, then attached to external terminals connecting the tabs with the anode or the cathode foils, and sealed in a can case.



Among various types of capacitors, an aluminum electrolytic capacitor offers large CV to volume and features low cost. The capacitance (C) of aluminum electrolytic capacitors, as well as other capacitors, is expressed by the following equation:

$$C=8.854\times10^{-12}\times\frac{\varepsilon S}{d}\ (F)$$

Where : ε=Dielectric constant
S=Surface area of dielectric (m^2)
d=Thickness of dielectric (m)

This equation shows that the capacitance increases in proportion as the dielectric constant becomes high, its surface area becomes large and the thickness of dielectric becomes thin. In aluminum electrolytic capacitors the dielectric constant of an aluminum oxide (Al_2O_3) layer is 8 to 10, which is not as high as compared with the other types of capacitors. However, the dielectric layer of the aluminum oxide is extremely thin (about 15Å per volt) and the surface area is very large. An electrochemical formed electrode foil makes the dielectric on the etched surface of aluminum electrode foil. Electrochemical etching creates 20 to 100 times more surface area as plain foil. Therefore, an aluminum electrolytic capacitor can offer a large capacitance compared with other types.

Primary of Composition Material

Anode aluminum foil:
First, the etching process is carried out electromechanically with a chloride solution which dissolves metal and increases the surface area of the foil; forming a dense network like innumerable microscopic channels. Secondly, the formation process is carried out with a solution such as ammonium borate which forms the aluminum oxide layer (Al_2O_3) as a dielectric at a thickness of about 1.1 to 1.5nm / volt. The process needs to charge more the rated voltage into the foil.

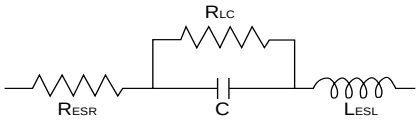
Cathode aluminum foil:
As in the first manufacturing process of the positive foil, the cathode foil requires etching process. Generally, it does not require the formation process; therefore, the natural oxide layer of Al_2O_3, which gives a characteristic dielectric voltage of 1.0 volts, is formed.

Electrolyte and separator:
In a non-solid aluminum electrolytic capacitor, the electrolyte, an electrically conductive liquid, functions as a true cathode by contacting the dielectric oxide layer. Accordingly, the “cathode foil” serves as an electrical connection between the electrolyte and terminal.
The separator functions to retain the electrolyte and prevent the anode and cathode foils from short-circuiting.

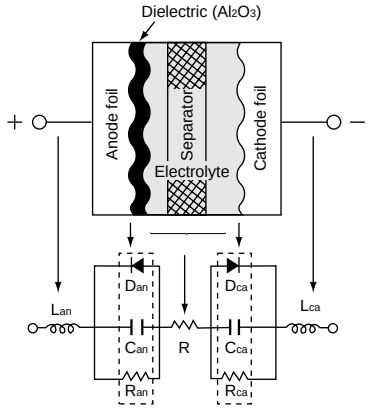
Can case and sealing materials:
The foils and separator are wound into a cylinder to make an internal element, which is impregnated with the electrolyte, inserted into an aluminum can case and sealed. During the service life of a capacitor, electrolyte slowly and naturally vaporizes by electrochemical reaction on the boundary of the aluminum foils. The gas will increase the pressure inside the case and finally cause the pressure relief vent to open or the sealing materials to bulge. The sealing material functions not only to prevent electrolyte from drying out but also to allow the gas to escape out of the can case in a controlled manner.

The Equivalent Circuit

As the equivalent circuit of an aluminum electrolytic capacitor is shown below, it forms a capacitance, a series resistance, an inductance, and a parallel resistance.



R_{ESR}=Equivalent series resistance (ESR)
R_{LC} =Resistance due to leakage current
C =Capacitance
L_{ESL} =Equivalent series inductance



From a composition material point wise, the equivalent circuit is subdivided as follows.

C_{an}, C_{ca}=Capacitance due to anode and cathodes foils
R =Resistance of electrolyte and separator
R_{an}, R_{ca}=Internal resistance of oxide layer on anode and cathode foils
D_{an}, D_{ca}=Diode effects due to oxide layer on anode and cathode foils
L_{an}, L_{ca} =Inductance due to anode and cathode terminals

Basic Electrical Characteristics

Capacitance:
The capacitance of capacitor is expressed as AC capacitance

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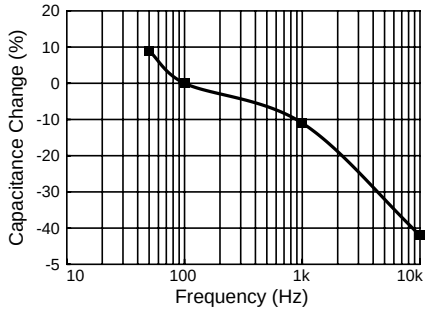
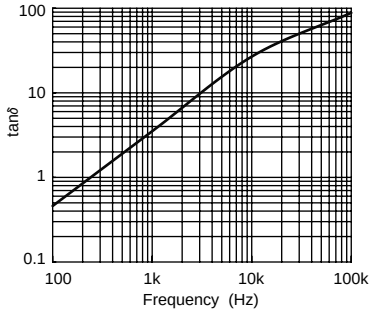
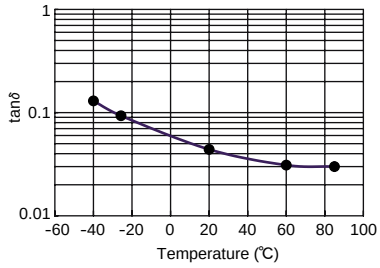
by measuring impedance and separating factors. Also, the AC capacitance depends upon frequency, voltage and other measuring methods. In fact, JIS C 5101 prescribes that the series capacitive factor of an equivalent series( ) circuit shall be the capacitance measured at a frequency of 120Hz and applying a maximum AC voltage of 0.5V rms with a DC bias voltage of 1.5 or 2.0V to aluminum electrolytic capacitors. The capacitance of an aluminum electrolytic capacitor becomes smaller with increasing frequency. See the typical behavior shown below.



Capacitance VS. Frequency

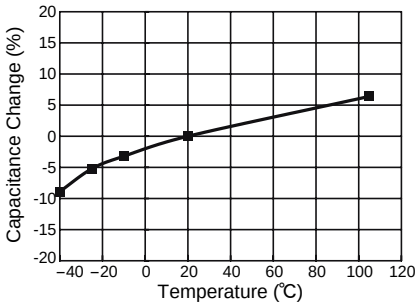


tanδ VS. Frequency



Temperature Characteristics of tanδ

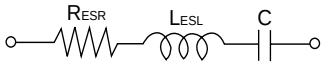
The capacitance value is highly dependent upon temperature and frequency. As the temperature decreases, the capacitance becomes smaller. See the typical behavior shown below.

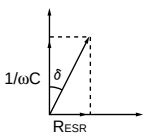


Temperature Characteristics of Capacitance

On the other hand, DC capacitance, which can be measured by applying a DC voltage, shows a slightly larger value than the AC capacitance at a normal temperature and has the flatter characteristic over the temperature range.

tanδ(tangent of loss angle or dissipation factor):
The tanδ is expressed as the ratio of the resistive component (R_{ESR}) to the capacitive reactance ($1/\omega C$) in the equivalent series circuit. Its measuring conditions are the same as the capacitance.





$\tan\delta = R_{ESR} / (1/\omega C) = \omega C R_{ESR}$

Where : R_{ESR}=ESR at 120Hz
ω =2πf
f =120Hz

The tanδ shows higher values as the measured frequency increases and the measured temperature decreases.

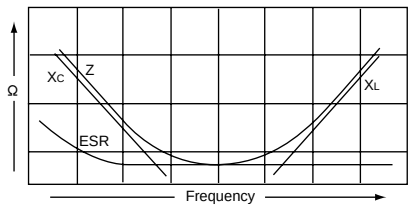
Equivalent series resistance (ESR):
The ESR is the series resistance consisting of the aluminum oxide layer, electrolyte/separator combination, and other resistance related factors, foil length, foil surface area and others.
The ESR value depends upon the temperature. Decreasing the temperature makes the resistivity of the electrolyte increase and leads to increasing ESR.
As the measuring frequency increases, the ESR decreases and reaches an almost constant value that mainly dominates the frequency-independent resistance relating electrolyte/separator combination.

Impedance (Z):
The impedance is the resistance of the alternating current at a specific frequency. It is related to capacitance (C) and inductance (L) in terms of capacitive and inductive reactance, and also related to the ESR. It is expressed as follows:

$$Z = \sqrt{ESR^2 + (X_L - X_C)^2}$$

Where : $X_C = 1/\omega C = 1/2\pi fC$
$X_L = \omega L = 2\pi fL$

As shown below, the capacitive reactance (Xc) dominates at the range of low frequencies, and the impedance decreases with increasing frequency until it reaches the ESR in the middle frequency range. At the range of the higher frequencies the inductive reactance (XL) comes to dominate, so that the impedance increases when increasing the measuring frequency.



Impedance VS.Frequency

As shown at the next page, the impedance value varies with temperature because the resistance of the electrolyte is strongly affected by temperature.

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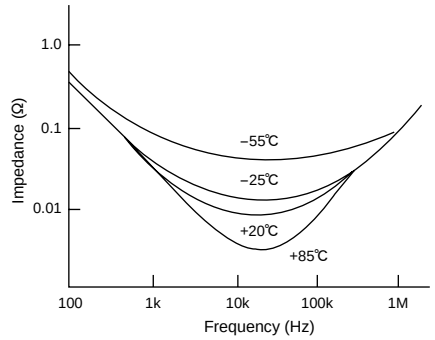
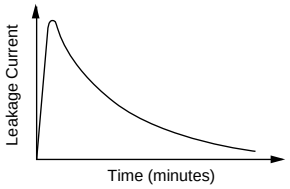


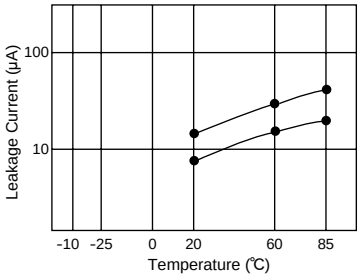
Temperature Characteristics of Impedance

Leakage current:
The dielectric of a capacitor has a very high resistance that does not allow DC current to flow. However, due to the characteristics of the aluminum oxide layer that functions as a dielectric in contact with electrolyte, a small amount of current, called leakage current, will flow to reform and repair the oxide layer when a voltage is being applied. As shown below, a high leakage current flows to charge voltage to the capacitor for the first seconds, and then the leakage current will decrease and reach an almost steady-state value with time.



Leakage Current VS. Time

Measuring temperature and voltage influences the leakage current. The leakage current shows higher values as the temperature and voltage increase.

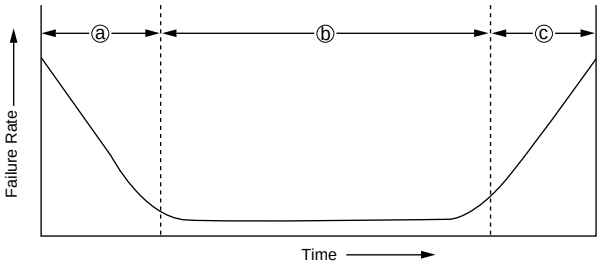


Typical Temperature Characteristics

In general, the leakage current is measured at 20℃ by applying the rated voltage to capacitor through a resistor of 1000Ω in series. The leakage current is the value several minutes later after the capacitor has reached the rated voltage. The catalog prescribes the measuring temperature and time.

Reliability

The bathtub curve:
Aluminum electrolytic capacitors feature failure rates shown by the following bathtub curve.



a) Infant failure period
This initial period accounts for the failures caused by deficiencies in design, structure, the manufacturing process or severe misapplications. In other words the initial failures occur as soon as the components are installed in a circuit. In the case of aluminum electrolytic capacitors, these failures do not occur at customers' field because aging process reforms an incomplete oxide layer, or eliminate the defective parts at the aging process and the sorting process.
Misapplication of the capacitor such as inappropriate ambient conditions, over-voltage, reverse voltage, or excessive ripple current should be avoided for proper use of the capacitor in a circuit.

b) Useful life period
This random failure period exhibits an extremely low failure rate. These failures are not related to operating time but to application conditions. During this period, non-solid aluminum electrolytic capacitors lose a small amount of electrolyte. The electrolyte loss shows as a slow decrease in capacitance and a slow increase in tanδ and ESR. Non-solid aluminum electrolytic capacitors still exhibit lower catastrophic failures than semiconductors and solid tantalum capacitors.

c) Wear-out failure period
This period reflects a deterioration in the component properties of the capacitor ; the failure rate increases with time. Non-solid aluminum electrolytic capacitors end their useful life during this period.

Failure types:
The two types of failures are classified as catastrophic failures and wear-out failures as follows.

1) Catastrophic failures
This is a failure mode that destroys the function of the capacitor like a short circuit or open circuit failure.

2) Wear-out failures
This is a failure mode where gradually deteriorates; the electrical parameters of the capacitor. The criteria of judging the failures, vary with application and design factors. Capacitance decreases and tanδ increases are caused by the loss of electrolyte in the wear-out failure period. This is primary due to loss of electrolyte by diffusion (as vapor) through the sealing material. Gas molecules can diffuse out through the material of the end seal. High temperature increase the electrolyte vapor pressure within the capacitor and the diffusion rate is therefore increased. This increases internal pressure may cause the seal to bulge caused by elevated temperatures. This bulging may accelerate diffusion and mechanically degrade the seal. Factors that can increase the capacitor temperature, such as ambient temperature and ripple current, can accelerate the wear-out phase of a capacitor.

Failure modes:
Aluminum electrolytic capacitors show various failure modes in different applications. (See Table 1.)

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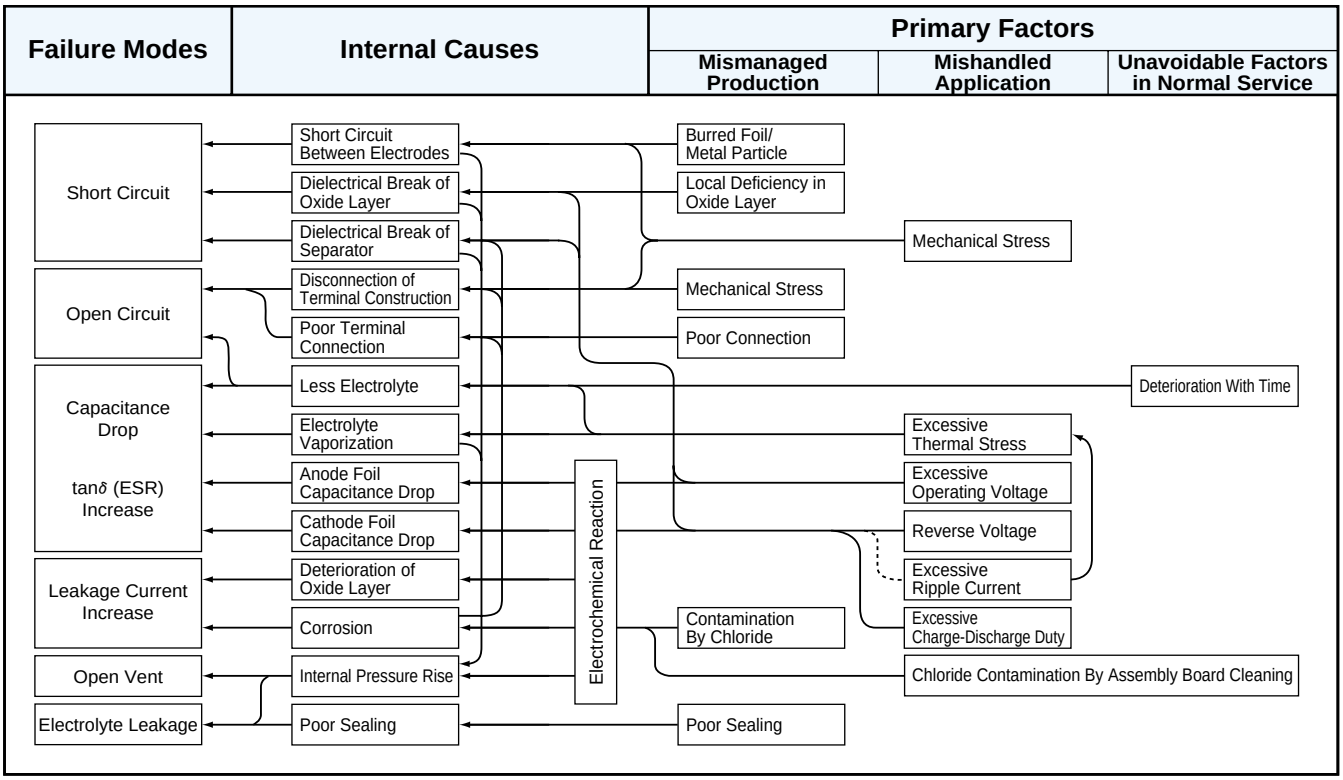

Table1

Life of Aluminum Electrolytic Capacitors

The life of aluminum electrolytic capacitors is largely dependent on environmental and electrical factors. Environmental factors include temperature, humidity, atmospheric pressure and vibration. Electrical factors include operating voltage, ripple current and charge-discharge duty cycles. The factor of temperature (ambient temperature and internal heating due to ripple current) is the most critical to the life of aluminum electrolytic capacitors.

General formula to estimate lifetime:
The lifetime of non-solid aluminum electrolytic capacitors is generally expressed by using three elements representing the effects of ambient temperature, applying voltage and ripple current, which is shown by the following equation:

$$L_X = L \cdot K_{Temp} \cdot K_{Voltage} \cdot K_{Ripple}$$

Where : L_X =Lifetime of capacitor to be estimated
L_o =Base lifetime of capacitor
K_{Temp} =Ambient temperature accelation term
$K_{Voltage}$=Voltage accelation term
K_{Ripple} =Ripple current accelation term

K_{Temp} (Effects of ambient temperature on life):
Because an aluminum electrolytic capacitor is essentially an electrochemical component, increased temperatures accelerate the chemical reaction producing gas within the capacitor which is diffused through the end seal, and consequently accelerates a gradual decrease in capacitance and a gradual increase in tanδ and ESR. The following equation has been experimentally found to express the relationship between the temperature acceleration factor and the deterioration of the capacitor.

$$L_X = L_O \cdot K_{Temp} = L_O \cdot B^{(T_O - T_X)/10}$$
$$K_{Temp} = B^{(T_O - T_X)/10}$$

Where : L_X =Lifetime (hour) of capacitor to be estimated
L_o =Base lifetime (hour) of capacitor
T_o =Maximum rated category temperature (℃) of capacitor shown in catalog
T_X =Actual ambient temperature (℃) of capacitor
B =Temperature accelation factor (≃2)

This equation is similar to Arrhenius' equation that expresses a relationship between chemical reaction rates and temperature, and called Arrhenius' rule of aluminum electrolytic capacitors. The temperature acceleration factor (B) is approximately 2 over an ambient temperature range (Tx) from 40℃ to the maximum rated category temperature of each capacitor. It means that the lifetime is approximately halved with every 10℃ rise in ambient temperature and can be extended by using the capacitors at low temperatures. For an ambient temperature range (Tx) of 20℃ to 40℃, the factor B will be close to 2, and the lifetime will actually be extended. However, operating and surrounding conditions, especially the operating conditions influence ambient temperatures mutually. The ambient temperature in this range will be very changeable; therefore, lifetime estimation under 40℃ should use 40 as Tx.

$K_{voltage}$ (Effects of applying voltage to life):
Miniature and large sized aluminum electrolytic capacitors for popular applications, such as surface mount types, radial lead types, snap-in types and block types, have little voltage effect on their life. Other factors like temperature and ripple current determine the life in comparison with voltage, as long as the capacitors are used at voltages and temperatures within the specifications prescribed in the catalog. Consequently, $K_{voltage}$=1 is used for these capacitors. 350V and higher screw-mount terminal types of capacitors for customer-use power electronics applications allow the life time to extend by applying low voltage, relating to the characteristics of their aluminum oxide layer. RWE, RWY, RWL, RWF, LX(Screw-mount), LXA(Screw-mount) and LXR series are applicable to the method. For $K_{voltage}$ values of these products, please contact a representative of Nippon Chemi-Con.

K_{ripple} (Effects of ripple current to life):
Aluminum electrolytic capacitors have higher tanδ than any other types of capacitors; therefore, the ripple current gives aluminum electrolytic capacitors higher internal heat. Be sure to check the rated ripple current which is specified in the catalog for assuring the life.

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The ripple current through the capacitor produces heat by dissipating power from the capacitor. This leads to temperature increase. Internal heating produced by ripple currents can be expressed by:

$$W=(I_{Ripple})^2 \cdot R_{ESR}+V \cdot I_{Leakage}$$

Where : W =Internal power loss
I_{Ripple} =R.M.S. ripple current
R_{ESR} =Internal resistance (ESR) at ripple frequency
V =Applied voltage
$I_{Leakage}$=Leakage current

Leakage current may be 5 to 10 times higher than the values measured at 20℃, but compared with Iripple , the leakage current value is very small and negligible.
Thus, the above equation can be simplified:

$$W=(I_{Ripple})^2 \cdot R_{ESR}$$

The following equation gives the internal heat rise; it is heat rise to stable condition. (It is necessary to input several factors.):

$$(I_{Ripple})^2 \cdot R_{ESR}= \beta \cdot A \cdot \Delta T$$

Where : β =Heat transfer constant
A =Surface area of can case
A=$(\pi/4) \cdot D \cdot (D+4L)$
Where : D=Can diameter
L=Can length
ΔT=An increase in core temperature by internal heating due to ripple current
(ΔT=Core temperature−Ambient temperature)

From the above equation, internal temperature rise (ΔT) produced by ripple current is given by:

$$\Delta T=(I_{Ripple})^2 \cdot R_{ESR} / (\beta \cdot A)$$

When the ripple frequency is 120Hz, R_{ESR} at 120Hz is expressed by

$$R_{ESR}=\tan\delta / (\omega \cdot C)$$

$$\Delta T=(I_{Ripple})^2 \cdot \tan\delta / (\beta \cdot A \cdot \omega \cdot C)$$

Where : tanδ=120Hz value
ω =$2\pi \cdot f=2\pi \cdot 120$Hz
C =120Hz capacitance value

As above equation, ΔT varies with frequency of ripple, frequency and temperature dependent ESR, and application dependent β (even ripple current is constant). We really recommend that customers measure ΔT with a thermocouple at the actual operating conditions of the application in lieu of using the above equation. (Another approximation of ΔT will be stated later.)
As mentioned in the paragraph of K_{Temp}, aluminum electrolytic capacitors will slowly increase in tanδ and ESR during their service life. The application without ripple current has no influence on the life of the capacitor even though the ESR will increase during life. In other words, the application with ripple current makes ΔT increase; furthermore, a ΔT increase results in ESR increase. The ESR increase then makes ΔT increase. It is a chain reaction. Theoretically, the ripple current acceleration term (K_{Ripple}) cannot be simply expressed like the ambient temperature acceleration term (K_{Temp}). Practically, the ripple current acceleration term (K_{Ripple}) can be approximately expressed by an equation using a ΔT initially measured. The following table shows the ripple current acceleration term (K_{Ripple}) for each capacitor design group.

K_{Ripple}		Products	
		Type	Series
$2^{(-\Delta T/5)}$		Surface mount	MVS, MVA, MV, MVE, MVK, MKA, MZA, MVY, MLA MVJ, MVL, MVH, MV-BP, MVK-BP
		Radial lead	KMA, KME-BP, KRE, KRG, LLA, SME, SMQ, SME-BP, SMG, SRA, SRE,SRG,SRM
		Screw-mount terminal	KW
$2^{(\Delta To-\Delta T)/5}$	ΔTo=5 deg Contact us for details	Radial lead	FL, GXE(To≦105℃), KLG, KME, KMQ, KMF, KMG, KMH, KMX, KXG, PAG, LBG, LXV, LXY, LXZ, KZM, KZH, KZE, KY, KXJ, GPA, KLJ, KMR
		Pin terminal	KMH, KMM, KMQ, LXG, LXM, LXH, LXQ, CHA
		Screw-mount terminal	LXA (10 to 250Vdc), KMH
	ΔTo=5 to 10 deg Contact us for details	Radial lead	SMH
		Pin terminal	SMH, SMM, SMQ, SLM, RWE-LR
		Screw-mount terminal	SME
$2^{[-2+(25-\Delta T)/b]}$		Screw-insert terminal	LXA (350 to 525Vdc), RWE, RWF, RWL, LXR, RWY, RWG

Note : ΔT = An increase (deg) in core temperature produced by internal heating due to actual operating ripple current. The ΔT is the difference between the core temperature and ambient temperature measured at the actual operating conditions.
ΔTo = An increase (deg) in core temperature by internal heating due to rated ripple current.
b = Factor b varies from 5 to 10 by the conditions of ripple frequency and ΔT. Please contact a representative of Nippon Chemi-Con for the details

Note that a ΔT over a certain maximum limit may over-heat the capacitors, though the lifetime estimation will not give you practical lifetime. For instance, the following shows a guide limit of ΔT at each ambient temperature for 105℃ maximum rated products.

Ambient temperature Tx (℃)	85	105
Guide limit of ΔT (deg)	15	5
Core temperature (=Tx+ΔT)	100	110

Approximation of ΔT

Estimation of the lifetime requires two temperature measurements; first obtain ΔT by actually measuring the core temperature, inserting the thermocouple inside the operating capacitor and secondary, the ambient temperature. A more convenient way to get the ΔT is to convert the surface temperature of the capacitor case and the ambient temperature by using a coefficient specified for each case diameter as follows:

$$\Delta T=Kc \cdot (Ts-Tx)$$

Where : Kc=Coefficient from table below
Ts=Surface temperature (deg) of capacitor can case
Tx=Ambient temperature (deg)

No air flow conditions.

Diameter (mm)	ϕ5 to ϕ8		ϕ10	ϕ12.5	ϕ16	ϕ18	ϕ22	ϕ25
Kc	1.10		1.15	1.20	1.25	1.30	1.35	1.40
Diameter (mm)	**ϕ30**	**ϕ35**	**ϕ40**	**ϕ50**	**ϕ63.5**	**ϕ76**	**ϕ89**	**ϕ100**
Kc	1.50	1.65	1.75	1.90	2.20	2.50	2.80	3.10

Also, you can roughly estimate a ΔT by using the following equation without need to measure.

PRECAUTIONS AND GUIDELINES

$$\Delta T=\Delta T_0 \cdot (Ix/Io)^2$$

Where : ΔT_0=5 deg for 105℃ maximum rated capacitors.
Io =Rated ripple current (A_{RMS}) : if its frequency is different from operating ripple current Ix, it needs converting by using a frequency multiplier prescribed in the catalog.
Ix =Operating ripple current (A_{RMS}) actually flowing into a capacitor

Like switching power supplies, if the operating ripple current consists of commercial frequency element and switching frequency element(s), an internal power loss is expressed by the following equation.

$$W= (If_1)^2 \cdot ESR_{f1} + (If_2)^2 \cdot ESR_{f2} + \cdots + (If_n)^2 \cdot ESR_{fn}$$

Where : W =Internal power loss
$I_{f1} \cdots I_{fn}$ =Ripple currents at every frequencies f1···fn
$ESR_{f1} \cdots ESR_{fn}$=ESR's at every frequencies f1···fn

The above equation can be transformed into another equation to get a ripple current value in accordance with the frequency of the rated ripple current, each of $ESR_{f1}, \cdots ESR_{fn}$ is approximately equal to ESR_{f0} divided by square value of the frequency multiplier ($F_{f1} \cdots F_{fn}$). Here ESR^{f0} is the value at the frequency of the rated ripple current and $F_{f1} \cdots F_{fn}$ is a conversion coefficient from one frequency to another in accordance with the frequency f1···fn.

$$ESR_{f1}=ESR_{f0} / (Ff_1)^2$$
$$\vdots \qquad \vdots$$
$$ESR_{fn}=ESR_{f0} / (Ff_n)^2$$

Relationship of $w=(L_{Ripple})^2 \cdot R_{ESR}$ leads Ix as follows:

$$Ix=\sqrt{W/ESR_{f0}}$$

The above is rewritten in the following equation:

$$Ix=\sqrt{(If_1/F_{f1})^2+(If_2/F_{f2})^2+\cdots\cdots(If_n/F_{fn})^2}$$

Where : Ix =Ripple current in accordance with the frequency of the rated ripple current
$I_{f1} \cdots\cdots I_{fn}$ =Operating ripple currents at every frequency f1···fn
$F_{f1} \cdots\cdots F_{fn}$=Frequency multipliers for every frequency f1···fn prescribed in the catalog, based on the fact that the internal resistance of a capacitor varies with frequency.

Cleaning Agents

a. Cleaning agents penetrate into a capacitor.
Solvent contacts the rubber seal of a capacitor. Some percentage of solvent does not penetrate but a percentage suceeds in entering and defusing inside the capacitor.

b. Cleaning agents decompose and release halogen ions.
In the electrolyte of the inside element, the halides in the cleaning agents become hydrolyzed and release halogen ions as follows,

$$RX+H_2O \rightarrow ROH+H^+ +X^-$$

RX : Halide
X^- : Halogen ion

c. Corrosion
The halogen ions attack the aluminum foil by the following anodic half-cell reaction:

$$Al+3X^- \rightarrow AlX_3+3e$$

The AlX3 further becomes hydrolyzed and release the halogen ion again:

$$AlX_3+3H_2O \rightarrow Al(OH)^3+3H^+ +3X^-$$

The halogen ions release by this hydrolysis reaction further attacks the aluminum according to the previous reaction formula, and these reactions are repeated and accelerated when voltage and temperature is applied. Also, the hydrogen ions increase the local acidity which causes the oxide dielectric to dissolve. Thus, localized corrosion accelerates to corrode both the aluminum metal and the dielectric. In addition, a terpene or petroleum system cleaning solvent will be absorbed into the rubber seal of the capacitor. The rubber seal finally weakens. An alkaline saponification detergent will damage the aluminum metal and marking. In summary, recommended cleaning agents are halogen free. Terpene, petroleum, alkali detergent and any solvent making the rubber seal material deteriorate are not recommended.

Compatible cleaning agents:
In line with recent global environmental warnings (Greenhouse effect and other environmental destruction by depletion of the ozone layer), new types of cleaning agents have been commercialized and substituted as CFC-113,1,1,2-trichloroethlene and 1,1,1-trichloroethylene. The following are recommended cleaning conditions for some of new cleaning agents.

Higher alcohol system cleaning agents
Recommended cleaning agents:
Pine Alpha ST-100S (Arakawa Chemical)
Clean Through 750H, 750K, 750L, and 710M (Kao)
Technocare FRW-14 through 17 (GE Toshiba Silicones)
Cleaning conditions:
1) Capacitors are capable of withstanding immersion or ultrasonic cleaning for 10 minutes at a maximum liquid temperature of 60℃ using the above cleaning agents. Find the optimum conditions for washing, rinsing, and drying. Be sure not to rub the marking off the capacitor by contact with any other components on the PC board. Note that shower cleaning adversely affects the marking.
2) To rinse by water, control the conditions such as temperature and water pressure to avoid sleeve shrinkage.
3) Clean Through 750H and similar are weak-alkaline solvents. Do not leave the alkaline on the capacitor after cleaning process.

CFCs substitute solvents (HCFC system)
Asahi Glass AK225AES solvent is usable only with solvent resistant type capacitors, which are designed with reinforced seal constructions and modified electrolyte. This product does not penetrate the capacitor and deactivate halogen ions. However, AK225AES is one of the solvents which will have a restricted usage in future from the environmental point of view.

PRECAUTIONS AND GUIDELINES

Non-Halogenated Solvent Cleaning

HCFC solvents: AK225AES (Asahi Glass)
Cleaning conditions:
Solvent resistant type capacitors are capable of withstanding immersion, ultrasonic or vapor cleaning for 5 minutes; exception is 2 minutes max. for KRE and KRE-BP series capacitors for 3 minutes and SRM series capacitors.
Applicable series (only for solvent resistant products):

Surface mount : PXF, PXE, PXH, MVS, MVA(4 to 63Vdc), MV, MVE(6.3 to 63Vdc), MVK, MKA, MZA, MVY(6.3 to 63Vdc), MZE, MZD, MLA, MVJ, MLE, MLD, MVL, MVH(10 to 50Vdc), MHB, MV-BP, MVK-BP

Radial lead : PSC, PSA, PS, SRM, KRE, KMA, SRG, KRG, KMQ(6.3 to 100Vdc), SMG(6.3 to 250Vdc), KMG(6.3 to 250Vdc), SME-BP, KME-BP, LXZ, LXY, LXV, GPA, GXE(10 to 50Vdc), GXL, LLA

Isopropyl alcohol cleaning agents
IPA (Isopropyl Alcohol) is one of the most acceptable cleaning agents; it is necessary to maintain a flux content in the cleaning liquid at a maximum limit of 2 Wt. %, because chlorides in flux dissolves in the cleaning liquid during the cleaning process.
Xylene -additive IPA may make the rubber seal deteriorate.

Non-clean flux
Both ionic halogen and non-ionic halogens damage the capacitor when they penetrate in through the rubber seal. Note that some of the fluxes called non-halogenated flux contains less ionic halogen activator but actually a large amount of non-ionic halogen.
Per our analysis, AHQ3100K(Asahi) and POZ6(Senjyu) minimize ionic and non-ionic halogens.

Other Precautions to wash capacitors
a) Monitor conductivity, pH, specific gravity and water content of cleaning agents. Contamination adversely affects the characteristics.
b) The solvent may stay between the end seal and the PC board if the capacitor is mounted directly onto the PCB without a small gap. The residual solvent can cause defects. Also, washing for more than the specified time causes solvent residual. Therefore, wash the assembly board for at least 10 minutes at the recommended temperature. Be sure not to expose the capacitors under solvent rich conditions or keep capacitors inside a closed container.
c) Reforming the leads of the capacitor to fit lead spacing on the PC board causes cleaning agents to get into the inside capacitor. This may result in corrosion to the foil. Therefore, use the capacitors, which fit the hole spacing on the PC board or reform the lead wires in a manner which will not cause mechanical stress to the capacitor body.

CAT. No. E1001H

Surface Mount Aluminum Electrolytic Capacitors

NIPPON CHEMI-CON

PART NUMBERING SYSTEM

Product code guide (Surface mount type)

(Example : MVA series, 25V-47μF, ϕ6.3×5.2L)

Please refer to the following table

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	M	V	A	2	5	0	A	D	A	4	7	0	M	F	5	5	G

- 18 Supplement code⑨
- 15 16 17 Size code⑧
- 14 Capacitance tolerance⑦
- 11 12 13 Capacitance code⑥
- 9 10 Taping /Tray code⑤
- 8 Terminal code④
- 5 6 7 Voltage code③
- 4 Series code②
- 1 Category①

①Category

Contents	Code
	1st
Polar	E
Bi-polar	B

②Series code

Series name	Code		
	2nd	3rd	4th
MVA	M	V	A
MV	M	V	—
No series name	C	S	T

③Voltage code

Voltage (V)	Code		
	5th	6th	7th
4	4	R	0
6.3	6	R	3
10	1	0	0
16	1	6	0
25	2	5	0
35	3	5	0
50	5	0	0
63	6	3	0
80	8	0	0
100	1	0	1
160	1	6	1
200	2	0	1
250	2	5	1
400	4	0	1
450	4	5	1

④Terminal code

Type		Code
		8th
Vertical	No dummy terminal	A
	With dummy terminal	G
Horizontal	No dummy terminal	C
	With dummy terminal	D

⑤Taping / Tray code

Taping type	Reel dia. ϕ(mm)	Code		Application size ϕD (mm)
		9th	10th	
Reel (Cardboard)	380	D	A	ϕD=3 to 18 (not ϕD=12.5)
Reel (Cardboard)	330	D	B	ϕD=3 to 18
Reel (Plastic)	380	P	A	ϕD=3 to 10
Reel for reuse	380	R	A	ϕD=3 to 12.5

Package	Code		Application size ϕD(mm)
	9th	10th	
Tray	T	R	ϕD=12.5 to 18

Refer to product guide for taping and tray specifications.

⑥Capacitance code

Cap. (μF)	Code		
	11th	12th	13th
0.1	R	1	0
0.15	R	1	5
0.22	R	2	2
0.33	R	3	3
0.47	R	4	7
0.68	R	6	8
1.0	1	R	0
1.5	1	R	5
2.2	2	R	2
3.3	3	R	3
4.7	4	R	7
6.8	6	R	8
10	1	0	0
15	1	5	0
22	2	2	0
33	3	3	0
47	4	7	0
56	5	6	0
68	6	8	0
100	1	0	1
150	1	5	1
180	1	8	1
220	2	2	1
330	3	3	1
470	4	7	1
680	6	8	1
820	8	2	1
1,000	1	0	2
1,500	1	5	2
2,200	2	2	2
3,300	3	3	2
4,700	4	7	2
6,800	6	8	2
8,200	8	2	2
10,000	1	0	3

⑦Capacitance tolerance

Tol. (%)	Code
	14th
±20	M

⑧Size code (Vertical)

ϕD (mm)	Code
	15th
3	B
4	D
5	E
6.3	F
8	H
10	J
12.5	K
16	L
18	M

L (mm)	Code	
	16th	17th
4.5	4	6
5.2	5	5
5.7	6	0
5.8	6	1
6.3	6	3
7.0	7	3
7.7	8	0
8.7	9	0
10	A	0
13.5	E	0
16	G	5
16.5	H	0
21.5	N	0

⑨Supplement code

ϕD (mm)	Terminal plating material	Code
		18th
～10	Sn-Pb	N
	Sn-Bi	G
12.5～	Sn-Pb	N
	Sn100%	S

* Refer to the appendix (Part number) for codes not listed here.

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

4.5mm height, 85℃

Alchip™-MVS Series

- 4.5mm height
- Endurance : 2,000 hours at 85℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

MVS
Low profile
MV

◆SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	−40 to +85℃								
Rated Voltage Range	4 to 50Vdc								
Capacitance Tolerance	±20% (M)								(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)								(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.50	0.30	0.24	0.19	0.16	0.14	0.14	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	7	4	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	15	8	8	4	4	3	3	(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃.

Rated voltage	4 & 6.3Vdc	10 to 50Vdc
Capacitance change	≦±30% of the initial value	≦±25% of the initial value
DF (tanδ)	≦300% of the initial specified value	≦300% of the initial specified value
Leakage current	≦The initial specified value	≦The initial specified value

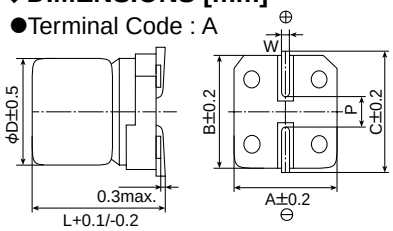
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Rated voltage	4 & 6.3Vdc	10 to 50Vdc
Capacitance change	≦±30% of the initial value	≦±25% of the initial value
DF (tanδ)	≦300% of the initial specified value	≦300% of the initial specified value
Leakage current	≦The initial specified value	≦The initial specified value

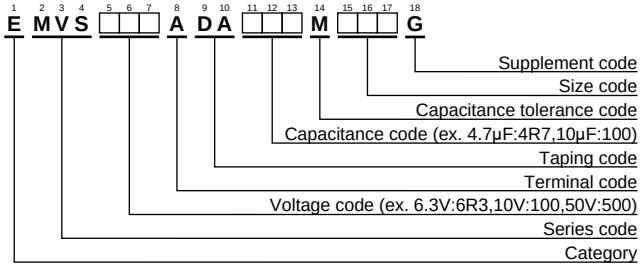
◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
D46	4	4.5	4.3	4.3	5.1	0.5 to 0.8	1.0
E46	5	4.5	5.3	5.3	5.9	0.5 to 0.8	1.4
F46	6.3	4.5	6.6	6.6	7.2	0.5 to 0.8	1.9

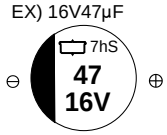
◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V47μF



◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	33	D46	0.50	28	EMVS4R0ADA330MD46G
	47	D46	0.50	33	EMVS4R0ADA470MD46G
	100	E46	0.50	56	EMVS4R0ADA101ME46G
	220	F46	0.50	96	EMVS4R0ADA221MF46G
6.3	22	D46	0.30	28	EMVS6R3ADA220MD46G
	47	E46	0.30	45	EMVS6R3ADA470ME46G
	100	F46	0.30	70	EMVS6R3ADA101MF46G
10	33	E46	0.24	41	EMVS100ADA330ME46G
16	10	D46	0.19	23	EMVS160ADA100MD46G
	22	E46	0.19	37	EMVS160ADA220ME46G
	47	F46	0.19	58	EMVS160ADA470MF46G
25	33	F46	0.16	52	EMVS250ADA330MF46G

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
35	4.7	D46	0.14	18	EMVS350ADA4R7MD46G
	10	E46	0.14	29	EMVS350ADA100ME46G
	22	F46	0.14	46	EMVS350ADA220MF46G
50	0.10	D46	0.14	1.0	EMVS500ADAR10MD46G
	0.22	D46	0.14	2.0	EMVS500ADAR22MD46G
	0.33	D46	0.14	2.8	EMVS500ADAR33MD46G
	0.47	D46	0.14	4.0	EMVS500ADAR47MD46G
	1.0	D46	0.14	8.4	EMVS500ADA1R0MD46G
	2.2	D46	0.14	13	EMVS500ADA2R2MD46G
	3.3	D46	0.14	17	EMVS500ADA3R3MD46G
	4.7	E46	0.14	20	EMVS500ADA4R7ME46G
	10	F46	0.14	33	EMVS500ADA100MF46G

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

Alchip™-MVA Series

- ϕ4 through ϕ18 case sizes are fully lined up
- Endurance : 2,000 hours at 85℃
- Suitable to fit for downsized equipment
- Solvent resistant type except 100 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

MVA
↑ Downsized, Expanded case sizes
MV

◆SPECIFICATIONS

Items	Characteristics												
Category Temperature Range	−40 to +85℃												
Rated Voltage Range	4 to 450Vdc												
Capacitance Tolerance	±20% (M)												(at 20℃, 120Hz)
Leakage Current	Rated voltage (Vdc)	4 to 100V						160 to 450V					
	D55 to JA0	I=0.01CV or 3μA, whichever is greater.(after 2 minutes)						—					
	KE0 to MN0	I=0.03CV or 4μA, whichever is greater.(after 1 minute)						I=0.04CV+100μA max.(after 1 minute)					
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)												(at 20℃)
Dissipation Factor (tanδ)	Rated voltage (Vdc)		4V	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	400 & 450V
	tanδ (Max.)	D55 to JA0	0.42	0.35	0.30	0.26	0.16	0.14	0.12	0.12	0.12	—	—
		KE0 to MN0	—	0.38	0.34	0.30	0.26	0.22	0.18	0.14	0.10	0.20	0.25
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase.												(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)		4V	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	400 & 450V
	D55 to JA0	Z(−25℃)/Z(+20℃)	7	4	3	2	2	2	2	2	3	—	—
		Z(−40℃)/Z(+20℃)	17	10	8	6	4	3	3	3	4	—	—
	KE0 to MN0	Z(−25℃)/Z(+20℃)	—	5	4	3	2	2	2	2	2	3	6
		Z(−40℃)/Z(+20℃)	—	12	10	8	5	4	3	3	3	6	10 (at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃.

Size code	D55 to JA0	D55 to JA0	KE0 to MN0
Rated voltage (Vdc)	4V & 6.3V	10 to 100V	6.3 to 450V
Capacitance change	≦±30% of the initial value	≦±20% of the initial value	
DF (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value	
Leakage current	≦The initial specified value	≦The initial specified value	

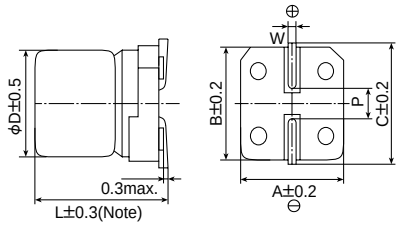
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Size code	D55 to JA0	D55 to JA0	KE0 to MN0
Rated voltage	4V & 6.3V	10 to 100V	6.3 to 450V
Capacitance change	≦±30% of the initial value	≦±20% of the initial value	
DF (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value	
Leakage current	≦The initial specified value	≦The initial specified value	

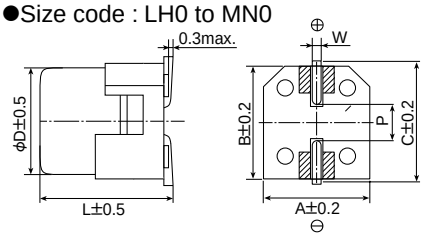
◆DIMENSIONS [mm]

- Terminal Code : A
- Size code : D55 to MN0



Note : L±0.5 for HA0 to MN0

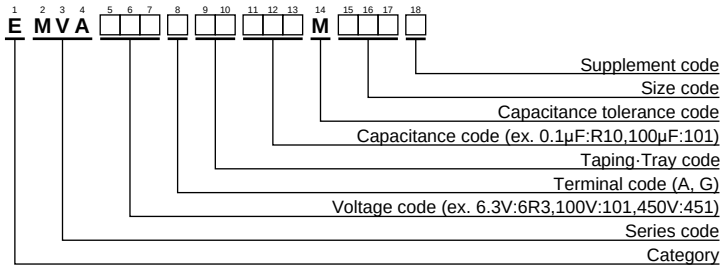
- Terminal Code : G
- Size code : LH0 to MN0



: Dummy terminals

Size code	D	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E55	5	5.2	5.3	5.3	5.9	0.5 to 0.8	1.4
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2
LH0	16	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5
LN0	16	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5
MH0	18	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5
MN0	18	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5

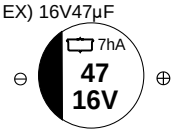
◆PART NUMBERING SYSTEM



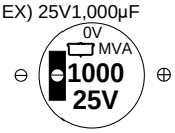
Please refer to "Product code guide (surface mount type)"

◆MARKING

D55 to JA0
EX) 16V47μF



KE0 to HN0
EX) 25V1,000μF



CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

Alchip™-MVA Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	33	D55	0.42	25	EMVA4R0ADA330MD55G
	47	D55	0.42	30	EMVA4R0ADA470MD55G
	100	E55	0.42	50	EMVA4R0ADA101ME55G
	220	F55	0.42	80	EMVA4R0ADA221MF55G
	330	F80	0.42	135	EMVA4R0ADA331MF80G
	470	F80	0.42	150	EMVA4R0ADA471MF80G
	1,000	HA0	0.42	320	EMVA4R0ADA102MHA0G
6.3	33	D55	0.35	30	EMVA6R3ADA330MD55G
	47	D55	0.35	33	EMVA6R3ADA470MD55G
	100	E55	0.35	55	EMVA6R3ADA101ME55G
	220	F55	0.35	88	EMVA6R3ADA221MF55G
	330	F80	0.35	135	EMVA6R3ADA331MF80G
	470	HA0	0.35	280	EMVA6R3ADA471MHA0G
	680	HA0	0.35	290	EMVA6R3ADA681MHA0G
	820	HA0	0.35	320	EMVA6R3ADA821MHA0G
	1,000	JA0	0.35	430	EMVA6R3ADA102MJA0G
	1,500	JA0	0.35	480	EMVA6R3ADA152MJA0G
	2,200	KE0	0.40	890	EMVA6R3ARA222MKE0S
	3,300	KG5	0.42	1,000	EMVA6R3ARA332MKG5S
	3,300	LH0	0.42	1,200	EMVA6R3□DA332MLH0S
	4,700	LH0	0.44	1,400	EMVA6R3□DA472MLH0S
	6,800	LN0	0.48	1,750	EMVA6R3□DA682MLN0S
	6,800	MH0	0.48	1,700	EMVA6R3□DA682MMH0S
	10,000	MN0	0.56	2,000	EMVA6R3□DA103MMN0S
10	22	D55	0.30	26	EMVA100ADA220MD55G
	33	D55	0.30	30	EMVA100ADA330MD55G
	47	E55	0.30	44	EMVA100ADA470ME55G
	100	F55	0.30	70	EMVA100ADA101MF55G
	150	F55	0.30	79	EMVA100ADA151MF55G
	220	F80	0.30	130	EMVA100ADA221MF80G
	330	HA0	0.30	270	EMVA100ADA331MHA0G
	470	HA0	0.30	280	EMVA100ADA471MHA0G
	1,000	JA0	0.30	430	EMVA100ADA102MJA0G
	2,200	KE0	0.36	960	EMVA100ARA222MKE0S
	3,300	LH0	0.38	1,300	EMVA100□DA332MLH0S
	4,700	LN0	0.40	1,550	EMVA100□DA472MLN0S
	4,700	MH0	0.40	1,600	EMVA100□DA472MMH0S
	6,800	MN0	0.44	1,850	EMVA100□DA682MMN0S
16	22	D55	0.26	26	EMVA160ADA220MD55G
	33	E55	0.26	37	EMVA160ADA330ME55G
	47	E55	0.26	44	EMVA160ADA470ME55G
	100	F55	0.26	70	EMVA160ADA101MF55G
	150	F80	0.26	110	EMVA160ADA151MF80G
	220	F80	0.26	130	EMVA160ADA221MF80G
	330	HA0	0.26	270	EMVA160ADA331MHA0G
	470	HA0	0.26	280	EMVA160ADA471MHA0G
	680	JA0	0.26	380	EMVA160ADA681MJA0G
	1,000	KE0	0.30	710	EMVA160ARA102MKE0S
	2,200	LH0	0.32	1,150	EMVA160□DA222MLH0S
	3,300	LN0	0.34	1,450	EMVA160□DA332MLN0S
	3,300	MH0	0.34	1,450	EMVA160□DA332MMH0S
	4,700	MN0	0.36	1,750	EMVA160□DA472MMN0S
25	10	D55	0.16	24	EMVA250ADA100MD55G
	22	E55	0.16	41	EMVA250ADA220ME55G
	33	E55	0.16	47	EMVA250ADA330ME55G
	47	F55	0.16	60	EMVA250ADA470MF55G
	56	F55	0.16	66	EMVA250ADA560MF55G
	100	F80	0.16	120	EMVA250ADA101MF80G
	150	HA0	0.16	210	EMVA250ADA151MHA0G
	220	HA0	0.16	260	EMVA250ADA221MHA0G
	330	HA0	0.16	300	EMVA250ADA331MHA0G
	470	JA0	0.16	400	EMVA250ADA471MJA0G
	1,000	KE0	0.26	820	EMVA250ARA102MKE0S
	2,200	LN0	0.28	1,450	EMVA250□DA222MLN0S
	2,200	MH0	0.28	1,400	EMVA250□DA222MMH0S
	3,300	MN0	0.30	1,800	EMVA250□DA332MMN0S
35	4.7	D55	0.14	18	EMVA350ADA4R7MD55G
	10	D55	0.14	24	EMVA350ADA100MD55G
	22	E55	0.14	41	EMVA350ADA220ME55G
	33	F55	0.14	54	EMVA350ADA330MF55G
	47	F60	0.14	64	EMVA350ADA470MF60G
	100	F80	0.14	120	EMVA350ADA101MF80G

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
35	150	HA0	0.14	210	EMVA350ADA151MHA0G
	220	HA0	0.14	260	EMVA350ADA221MHA0G
	330	JA0	0.14	360	EMVA350ADA331MJA0G
	470	KE0	0.22	600	EMVA350ARA471MKE0S
	1,000	LH0	0.22	1,100	EMVA350□DA102MLH0S
	2,200	MN0	0.24	1,700	EMVA350□DA222MMN0S
50	3.3	D55	0.12	15	EMVA500ADA3R3MD55G
	4.7	D55	0.12	18	EMVA500ADA4R7MD55G
	10	E55	0.12	30	EMVA500ADA100ME55G
	22	F55	0.12	47	EMVA500ADA220MF55G
	33	F80	0.12	70	EMVA500ADA330MF80G
	47	F80	0.12	85	EMVA500ADA470MF80G
	100	HA0	0.12	190	EMVA500ADA101MHA0G
	220	JA0	0.12	320	EMVA500ADA221MJA0G
	330	KE0	0.18	600	EMVA500ARA331MKE0S
	470	KG5	0.18	740	EMVA500ARA471MKG5S
	470	LH0	0.18	850	EMVA500□DA471MLH0S
	1,000	LN0	0.18	1,300	EMVA500□DA102MLN0S
	1,000	MN0	0.18	1,400	EMVA500□DA102MMN0S
63	0.10	D55	0.12	1.3	EMVA630ADAR10MD55G
	0.22	D55	0.12	3.0	EMVA630ADAR22MD55G
	0.33	D55	0.12	4.0	EMVA630ADAR33MD55G
	0.47	D55	0.12	5.0	EMVA630ADAR47MD55G
	1.0	D55	0.12	8.0	EMVA630ADA1R0MD55G
	2.2	D55	0.12	12	EMVA630ADA2R2MD55G
	3.3	E55	0.12	17	EMVA630ADA3R3ME55G
	4.7	E55	0.12	20	EMVA630ADA4R7ME55G
	10	F55	0.12	32	EMVA630ADA100MF55G
	22	F80	0.12	60	EMVA630ADA220MF80G
	33	HA0	0.12	110	EMVA630ADA330MHA0G
	47	HA0	0.12	130	EMVA630ADA470MHA0G
	56	JA0	0.12	160	EMVA630ADA560MJA0G
	68	JA0	0.12	170	EMVA630ADA680MJA0G
	100	KE0	0.14	380	EMVA630ARA101MKE0S
	220	KE0	0.14	580	EMVA630ARA221MKE0S
	330	KG5	0.14	720	EMVA630ARA331MKG5S
	330	LH0	0.14	820	EMVA630□DA331MLH0S
	470	LH0	0.14	950	EMVA630□DA471MLH0S
	470	MH0	0.14	1,000	EMVA630□DA471MMH0S
100	22	HA0	0.12	90	EMVA101ADA220MHA0G
	33	JA0	0.12	120	EMVA101ADA330MJA0G
	68	KE0	0.10	380	EMVA101ARA680MKE0S
	100	KE0	0.10	440	EMVA101ARA101MKE0S
	220	LN0	0.10	850	EMVA101□DA221MLN0S
	220	MH0	0.10	800	EMVA101□DA221MMH0S
	330	MN0	0.10	1,000	EMVA101□DA331MMN0S
160	47	KG5	0.20	370	EMVA161ARA470MKG5S
	68	LH0	0.20	500	EMVA161□DA680MLH0S
	100	LN0	0.20	590	EMVA161□DA101MLN0S
	100	MH0	0.20	590	EMVA161□DA101MMH0S
200	22	KE0	0.20	240	EMVA201ARA220MKE0S
	33	KG5	0.20	310	EMVA201ARA330MKG5S
	47	LH0	0.20	420	EMVA201□DA470MLH0S
	68	LN0	0.20	510	EMVA201□DA680MLN0S
	68	MH0	0.20	510	EMVA201□DA680MMH0S
	100	MN0	0.20	590	EMVA201□DA101MMN0S
250	10	KE0	0.20	150	EMVA251ARA100MKE0S
	22	KG5	0.20	240	EMVA251ARA220MKG5S
	33	LH0	0.20	340	EMVA251□DA330MLH0S
	47	LN0	0.20	420	EMVA251□DA470MLN0S
	47	MH0	0.20	420	EMVA251□DA470MMH0S
	68	MN0	0.20	490	EMVA251□DA680MMN0S
400	4.7	KE0	0.25	120	EMVA401ARA4R7MKE0S
	10	LH0	0.25	140	EMVA401□DA100MLH0S
	22	LN0	0.25	280	EMVA401□DA220MLN0S
	22	MH0	0.25	280	EMVA401□DA220MMH0S
	33	MN0	0.25	350	EMVA401□DA330MMN0S
450	4.7	KE0	0.25	120	EMVA451ARA4R7MKE0S
	10	LH0	0.25	140	EMVA451□DA100MLH0S
	22	LN0	0.25	280	EMVA451□DA220MLN0S
	33	MN0	0.25	350	EMVA451□DA330MMN0S

□ : Enter the appropriate terminal code.

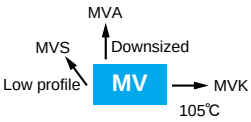
NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Standard, 85℃

Alchip™-MV Series

- From 5.2L height
- Suitable to fit for downsized equipment
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

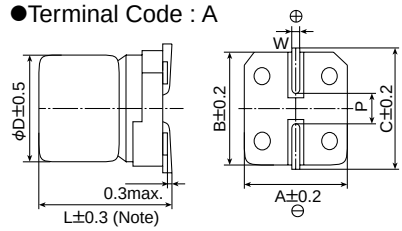


◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	−40 to +85℃									
Rated Voltage Range	4 to 63Vdc									
Capacitance Tolerance	±20% (M)									(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)									(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)		4V	6.3V	10V	16V	25V	35V	50V	63V
	tanδ (Max.)	B55	0.42	0.27	0.23	0.19	0.16	0.14	0.12	—
		D55 to F60	0.42	0.24	0.20	0.16	0.14	0.12	0.10	0.12
		H63 to JA0	—	0.40	0.30	0.26	0.16	0.14	0.12	0.12 (at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)		4V	6.3V	10V	16V	25V	35V	50V	63V
	Z(−25℃)/Z(+20℃)		7	4	3	2	2	2	2	2
	Z(−40℃)/Z(+20℃)	B55	17	10	8	6	4	3	3	—
		D55 to F60	15	10	8	6	4	3	3	3
		H63 to JA0	—	10	8	6	4	3	3	3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (B55 size 1,000 hours) at 85℃.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.									
	Case code	B55	D55 to JA0							
	Capacitance change	≦±20% of the initial value	≦±15% of the initial value							
	D.F. (tanδ)	≦200% of the initial specified value	≦150% of the initial specified value							
	Leakage current	≦The initial specified value	≦The initial specified value							

◆DIMENSIONS [mm]

●Terminal Code : A

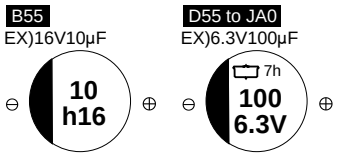


Note : L±0.5 for H63 to JA0

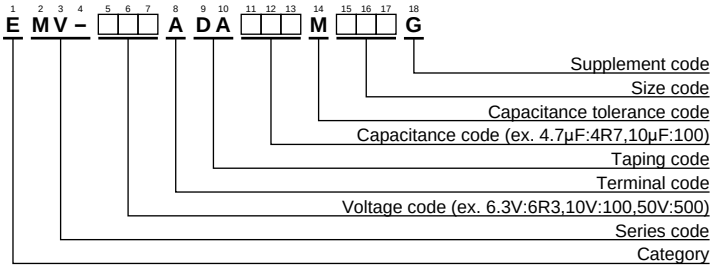
Size code	D	L	A	B	C	W	P
B55	3	5.2	3.3	3.3	3.7	0.45 to 0.75	0.8
D55 & D60	4	*5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E55 & E60	5	*5.2	5.3	5.3	5.9	0.5 to 0.8	1.4
F55 & F60	6.3	*5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
H63	8	6.3	8.3	8.3	9.0	0.5 to 0.8	2.3
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

* : L=5.7 for D60, E60 and F60.

◆MARKING



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Standard, 85℃

Alchip™-MV Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	22	B55	0.42	14	EMV-4R0ADA220MB55G
	33	D55	0.42	23	EMV-4R0ADA330MD55G
	47	D55	0.42	27	EMV-4R0ADA470MD55G
	(68)	(E55)	(0.42)	(38)	EMV-4R0ADA680ME55G
	100	E55	0.42	46	EMV-4R0ADA101ME55G
	220	F55	0.42	74	EMV-4R0ADA221MF55G
6.3	(15)	(B55)	(0.27)	(14.5)	EMV-6R3ADA150MB55G
	22	B55	0.27	17.5	EMV-6R3ADA220MB55G
	22	D55	0.24	23	EMV-6R3ADA220MD55G
	47	E55	0.24	38	EMV-6R3ADA470ME55G
	100	F55	0.24	60	EMV-6R3ADA101MF55G
	330	H63	0.40	190	EMV-6R3ADA331MH63G
	470	HA0	0.40	265	EMV-6R3ADA471MHA0G
	1,000	JA0	0.40	400	EMV-6R3ADA102MJA0G
10	10	B55	0.23	12.8	EMV-100ADA100MB55G
	(15)	(D55)	(0.20)	(20)	EMV-100ADA150MD55G
	33	E55	0.20	35	EMV-100ADA330ME55G
	(68)	(F55)	(0.20)	(54)	EMV-100ADA680MF55G
	100	F60	0.20	70	EMV-100ADA101MF60G
	220	H63	0.30	175	EMV-100ADA221MH63G
16	(6.8)	(B55)	(0.19)	(11.6)	EMV-160ADA6R8MB55G
	10	B55	0.19	14	EMV-160ADA100MB55G
	10	D55	0.16	17	EMV-160ADA100MD55G
	(15)	(E55)	(0.16)	(26)	EMV-160ADA150ME55G
	22	E55	0.16	32	EMV-160ADA220ME55G
	47	F55	0.16	50	EMV-160ADA470MF55G
	(68)	(F60)	(0.16)	(78)	EMV-160ADA680MF60G
	220	HA0	0.26	215	EMV-160ADA221MHA0G
	330	HA0	0.26	270	EMV-160ADA331MHA0G
	470	JA0	0.26	330	EMV-160ADA471MJA0G
25	4.7	B55	0.16	10.5	EMV-250ADA4R7MB55G
	(6.8)	(D55)	(0.14)	(16)	EMV-250ADA6R8MD55G
	33	F55	0.14	45	EMV-250ADA330MF55G
	47	F60	0.14	65	EMV-250ADA470MF60G
	(68)	(H63)	(0.16)	(115)	EMV-250ADA680MH63G
	100	H63	0.16	145	EMV-250ADA101MH63G
	330	JA0	0.16	305	EMV-250ADA331MJA0G
35	2.2	B55	0.14	7.7	EMV-350ADA2R2MB55G
	3.3	B55	0.14	9.4	EMV-350ADA3R3MB55G
	4.7	D55	0.12	15	EMV-350ADA4R7MD55G
	(6.8)	(E55)	(0.12)	(20)	EMV-350ADA6R8ME55G
	10	E55	0.12	25	EMV-350ADA100ME55G
	(15)	(F55)	(0.12)	(33)	EMV-350ADA150MF55G
	22	F55	0.12	40	EMV-350ADA220MF55G
	33	F60	0.12	55	EMV-350ADA330MF60G
	47	H63	0.14	105	EMV-350ADA470MH63G
	(68)	(HA0)	(0.14)	(157)	EMV-350ADA680MHA0G
	100	HA0	0.14	175	EMV-350ADA101MHA0G
	220	JA0	0.14	265	EMV-350ADA221MJA0G

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
50	0.10	B55	0.12	1.0	EMV-500ADAR10MB55G
	0.10	D55	0.10	1.3	EMV-500ADAR10MD55G
	(0.15)	(B55)	(0.12)	(2.0)	EMV-500ADAR15MB55G
	(0.15)	(D55)	(0.10)	(2.0)	EMV-500ADAR15MD55G
	0.22	B55	0.12	2.0	EMV-500ADAR22MB55G
	0.22	D55	0.10	2.9	EMV-500ADAR22MD55G
	0.33	B55	0.12	3.0	EMV-500ADAR33MB55G
	0.33	D55	0.10	3.5	EMV-500ADAR33MD55G
	0.47	B55	0.12	3.8	EMV-500ADAR47MB55G
	0.47	D55	0.10	4.2	EMV-500ADAR47MD55G
	(0.68)	(B55)	(0.12)	(4.6)	EMV-500ADAR68MB55G
	(0.68)	(D55)	(0.10)	(5.1)	EMV-500ADAR68MD55G
	1.0	B55	0.12	5.6	EMV-500ADA1R0MB55G
	1.0	D55	0.10	6.2	EMV-500ADA1R0MD55G
	(1.5)	(B55)	(0.12)	(6.9)	EMV-500ADA1R5MB55G
	(1.5)	(D55)	(0.10)	(7.5)	EMV-500ADA1R5MD55G
	2.2	B55	0.12	8.3	EMV-500ADA2R2MB55G
	2.2	D55	0.10	10	EMV-500ADA2R2MD55G
	3.3	D55	0.10	14	EMV-500ADA3R3MD55G
	4.7	E55	0.10	19	EMV-500ADA4R7ME55G
	(6.8)	(F55)	(0.10)	(24)	EMV-500ADA6R8MF55G
	10	F55	0.10	29	EMV-500ADA100MF55G
	(15)	(F60)	(0.10)	(32)	EMV-500ADA150MF60G
	22	F60	0.10	45	EMV-500ADA220MF60G
	33	H63	0.12	95	EMV-500ADA330MH63G
	47	HA0	0.12	140	EMV-500ADA470MHA0G
	(68)	(JA0)	(0.12)	(170)	EMV-500ADA680MJA0G
	100	JA0	0.12	195	EMV-500ADA101MJA0G
63	0.10	D55	0.12	1.3	EMV-630ADAR10MD55G
	(0.15)	(D55)	(0.12)	(2.0)	EMV-630ADAR15MD55G
	0.22	D55	0.12	2.9	EMV-630ADAR22MD55G
	0.33	D55	0.12	3.5	EMV-630ADAR33MD55G
	0.47	D55	0.12	4.2	EMV-630ADAR47MD55G
	(0.68)	(D55)	(0.12)	(5.1)	EMV-630ADAR68MD55G
	1.0	D60	0.12	7.0	EMV-630ADA1R0MD60G
	(1.5)	(D60)	(0.12)	(8.4)	EMV-630ADA1R5MD60G
	2.2	D60	0.12	10	EMV-630ADA2R2MD60G
	3.3	E60	0.12	13	EMV-630ADA3R3ME60G
	4.7	F60	0.12	18.5	EMV-630ADA4R7MF60G
	(6.8)	(F60)	(0.12)	(21)	EMV-630ADA6R8MF60G
	10	HA0	0.12	46	EMV-630ADA100MHA0G
	(15)	(HA0)	(0.12)	(52)	EMV-630ADA150MHA0G
	22	HA0	0.12	69	EMV-630ADA220MHA0G
	33	HA0	0.12	85	EMV-630ADA330MHA0G
	47	HA0	0.12	101	EMV-630ADA470MHA0G
	(68)	(JA0)	(0.12)	(125)	EMV-630ADA680MJA0G

( ) : Second standard

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

Alchip™-MVE Series

- Rated voltage range : 6.3 to 450V, capacitance range : 0.47 to 6,800μF
- Endurance : 1,000 to 2,000 hours at 105℃
- Case size range : φ4×5.2L to φ18×21.5L
- Solvent resistant type except 100 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

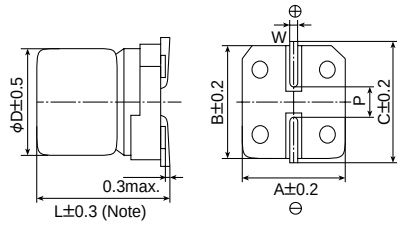
MVE
↑ Downsized, Expanded case sizes
MVK

◆SPECIFICATIONS

Items	Characteristics											
Category Temperature Range	-40 to +105℃											
Rated Voltage Range	6.3 to 450Vdc											
Capacitance Tolerance	±20%(M)											(20℃, 120Hz)
Leakage Current	Rated voltage(Vdc)	6.3 to 100V								160 to 450V		
	D55 to JA0	I=0.01CV or 3μA, whichever is greater (2 minutes)								—		
	KE0 to MN0	I=0.03CV or 4μA, whichever is greater (1 minute)								I=0.04CV+100μA (1minute)		
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)											(20℃)
Dissipation Factor (tanδ)	See STANDARD RATINGS											(20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	400 to 450V
	D55 to JA0	Z(-25℃)/Z(+20℃)	4	3	2	2	2	2	2	3	—	—
		Z(-40℃)/Z(+20℃)	12	8	6	4	3	3	3	4	—	—
	KE0 to MN0	Z(-25℃)/Z(+20℃)	5	4	3	2	2	2	2	2	3	6
		Z(-40℃)/Z(+20℃)	10	8	6	4	3	3	3	3	6	10
												(120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for the specified period of time at 105℃.											
	Size code	D55 to F80	HA0 to MN0									
	Time	1,000 hours	2,000 hours									
	Capacitance change	≦±30% of the initial value	≦±20% of the initial value									
	D.F. (tanδ)	≦300% of the initial specified value	≦200% of the initial specified value									
	Leakage current	≦The initial specified value	≦The initial specified value									
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours (500 hours for B55 to F80 size) at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.											
	Size code	D55 to F80	HA0 to MN0									
	Capacitance change	≦±25% of the initial value	≦±20% of the initial value									
	D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value									
	Leakage current	≦The initial specified value	≦The initial specified value									

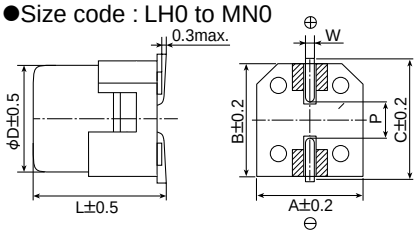
◆DIMENSIONS [mm]

- Terminal Code : A
- Size code : D55 to MN0



Note : L±0.5 for HA0 to MN0

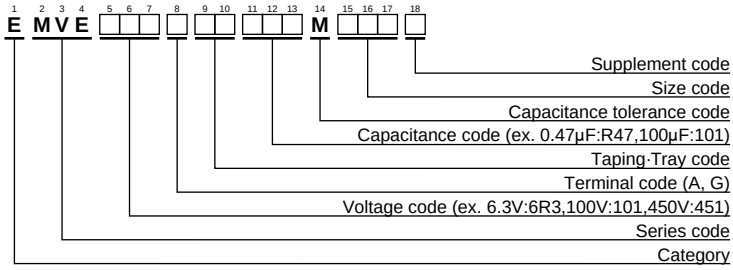
- Terminal Code : G
- Size code : LH0 to MN0



▨ : Dummy terminals

Size code	D	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E55	5	5.2	5.3	5.3	5.9	0.5 to 0.8	1.4
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2
LH0	16	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5
LN0	16	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5
MH0	18	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5
MN0	18	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5

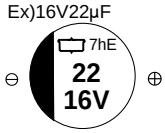
◆PART NUMBERING SYSTEM



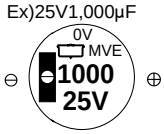
Please refer to "Product code guide (surface mount type)"

◆MARKING

D55 to JA0
Ex)16V22μF



KE0 to MN0
Ex)25V1,000μF



CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

Alchip™-MVE Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	22	D55	0.30	22	EMVE6R3ADA220MD55G
	33	E55	0.30	34	EMVE6R3ADA330ME55G
	47	E55	0.30	38	EMVE6R3ADA470ME55G
	100	F55	0.30	69	EMVE6R3ADA101MF55G
	220	F80	0.45	120	EMVE6R3ADA221MF80G
	330	HA0	0.40	290	EMVE6R3ADA331MHA0G
	470	HA0	0.45	320	EMVE6R3ADA471MHA0G
	680	HA0	0.45	340	EMVE6R3ADA681MHA0G
	1,000	JA0	0.40	410	EMVE6R3ADA102MJA0G
	1,500	JA0	0.45	550	EMVE6R3ADA152MJA0G
	2,200	KE0	0.40	680	EMVE6R3ARA222MKE0S
	2,200	LH0	0.40	840	EMVE6R3□DA222MLH0S
	3,300	KG5	0.42	850	EMVE6R3ARA332MKG5S
	3,300	MH0	0.42	1,000	EMVE6R3□DA332MMH0S
	4,700	LN0	0.44	1,200	EMVE6R3□DA472MLN0S
	4,700	MH0	0.44	1,200	EMVE6R3□DA472MMH0S
	6,800	LN0	0.48	1,200	EMVE6R3□DA682MLN0S
	6,800	MN0	0.48	1,350	EMVE6R3□DA682MMN0S
10	22	E55	0.24	30	EMVE100ADA220ME55G
	33	E55	0.24	34	EMVE100ADA330ME55G
	47	F55	0.24	48	EMVE100ADA470MF55G
	100	F55	0.30	69	EMVE100ADA101MF55G
	150	F80	0.35	100	EMVE100ADA151MF80G
	220	F80	0.35	120	EMVE100ADA221MF80G
	330	HA0	0.35	290	EMVE100ADA331MHA0G
	470	HA0	0.35	320	EMVE100ADA471MHA0G
	1,000	JA0	0.35	410	EMVE100ADA102MJA0G
	2,200	KG5	0.36	750	EMVE100ARA222MKG5S
	2,200	LH0	0.36	850	EMVE100□DA222MLH0S
	3,300	LH0	0.38	1,000	EMVE100□DA332MLH0S
	3,300	MH0	0.38	1,100	EMVE100□DA332MMH0S
	4,700	LN0	0.40	1,300	EMVE100□DA472MLN0S
	4,700	MN0	0.40	1,350	EMVE100□DA472MMN0S
16	10	D55	0.20	17	EMVE160ADA100MD55G
	22	E55	0.20	30	EMVE160ADA220ME55G
	33	F55	0.20	45	EMVE160ADA330MF55G
	47	F55	0.20	48	EMVE160ADA470MF55G
	100	F55	0.26	69	EMVE160ADA101MF55G
	150	F80	0.28	100	EMVE160ADA151MF80G
	220	F80	0.28	120	EMVE160ADA221MF80G
	330	HA0	0.28	290	EMVE160ADA331MHA0G
	470	HA0	0.28	320	EMVE160ADA471MHA0G
	680	JA0	0.28	470	EMVE160ADA681MJA0G
	1,000	KE0	0.30	550	EMVE160ARA102MKE0S
	1,000	LH0	0.30	650	EMVE160□DA102MLH0S
	2,200	LH0	0.32	950	EMVE160□DA222MLH0S
	2,200	MH0	0.32	1,000	EMVE160□DA222MMH0S
	3,300	LN0	0.34	1,200	EMVE160□DA332MLN0S
	3,300	MH0	0.34	1,200	EMVE160□DA332MMH0S
25	10	E55	0.16	27	EMVE250ADA100ME55G
	22	F55	0.16	44	EMVE250ADA220MF55G
	33	F55	0.16	50	EMVE250ADA330MF55G
	47	F55	0.16	60	EMVE250ADA470MF55G
	100	F80	0.18	100	EMVE250ADA101MF80G
	150	HA0	0.18	240	EMVE250ADA151MHA0G
	220	HA0	0.18	320	EMVE250ADA221MHA0G
	330	JA0	0.16	450	EMVE250ADA331MJA0G
	470	JA0	0.18	490	EMVE250ADA471MJA0G
	1,000	LH0	0.26	820	EMVE250□DA102MLH0S
	1,000	MH0	0.26	880	EMVE250□DA102MMH0S
	2,200	LN0	0.28	1,250	EMVE250□DA222MLN0S
	2,200	MN0	0.28	1,300	EMVE250□DA222MMN0S
35	4.7	D55	0.14	16	EMVE350ADA4R7MD55G
	10	E55	0.14	27	EMVE350ADA100ME55G
	22	F55	0.14	44	EMVE350ADA220MF55G
	33	F60	0.14	54	EMVE350ADA330MF60G
	47	F80	0.16	80	EMVE350ADA470MF80G
	100	F80	0.16	100	EMVE350ADA101MF80G
	150	HA0	0.16	260	EMVE350ADA151MHA0G
	220	JA0	0.16	375	EMVE350ADA221MJA0G
	330	JA0	0.16	450	EMVE350ADA331MJA0G

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
35	470	KE0	0.22	520	EMVE350ARA471MKE0S
	470	LH0	0.22	650	EMVE350□DA471MLH0S
	1,000	LH0	0.22	750	EMVE350□DA102MLH0S
	1,000	MH0	0.22	1,000	EMVE350□DA102MMH0S
	2,200	MN0	0.24	1,450	EMVE350□DA222MMN0S
50	0.47	D55	0.12	5.0	EMVE500ADAR47MD55G
	1.0	D55	0.12	8.0	EMVE500ADA1R0MD55G
	2.2	D55	0.12	12	EMVE500ADA2R2MD55G
	3.3	D55	0.12	15	EMVE500ADA3R3MD55G
	4.7	E55	0.12	20	EMVE500ADA4R7ME55G
	10	F55	0.12	32	EMVE500ADA100MF55G
	22	F60	0.12	47	EMVE500ADA220MF60G
	33	F80	0.14	65	EMVE500ADA330MF80G
	47	F80	0.14	80	EMVE500ADA470MF80G
	100	HA0	0.14	230	EMVE500ADA101MHA0G
	220	JA0	0.14	375	EMVE500ADA221MJA0G
	330	KE0	0.18	500	EMVE500ARA331MKE0S
	330	LH0	0.18	600	EMVE500□DA331MLH0S
	470	LH0	0.18	700	EMVE500□DA471MLH0S
	470	MH0	0.18	750	EMVE500□DA471MMH0S
	1,000	MN0	0.18	1,200	EMVE500□DA102MMN0S
63	0.47	D55	0.12	5.0	EMVE630ADAR47MD55G
	1.0	D55	0.12	8.0	EMVE630ADA1R0MD55G
	2.2	D55	0.12	12	EMVE630ADA2R2MD55G
	3.3	E55	0.12	17	EMVE630ADA3R3ME55G
	4.7	F55	0.12	22	EMVE630ADA4R7MF55G
	10	F55	0.12	32	EMVE630ADA100MF55G
	22	F80	0.12	58	EMVE630ADA220MF80G
	33	HA0	0.12	140	EMVE630ADA330MHA0G
	47	HA0	0.12	170	EMVE630ADA470MHA0G
	100	JA0	0.12	310	EMVE630ADA101MJA0G
	220	KE0	0.14	470	EMVE630ARA221MKE0S
	220	LH0	0.14	560	EMVE630□DA221MLH0S
	330	LH0	0.14	700	EMVE630□DA331MLH0S
	330	MH0	0.14	750	EMVE630□DA331MMH0S
	470	LN0	0.14	900	EMVE630□DA471MLN0S
	470	MH0	0.14	900	EMVE630□DA471MMH0S
100	22	HA0	0.12	100	EMVE101ADA220MHA0G
	33	JA0	0.12	150	EMVE101ADA330MJA0G
	47	KE0	0.10	250	EMVE101ARA470MKE0S
	68	KE0	0.10	300	EMVE101ARA680MKE0S
	100	KE0	0.10	380	EMVE101ARA101MKE0S
	100	LH0	0.10	450	EMVE101□DA101MLH0S
	220	LN0	0.10	750	EMVE101□DA221MLN0S
	220	MH0	0.10	750	EMVE101□DA221MMH0S
	330	MN0	0.10	980	EMVE101□DA331MMN0S
160	33	KE0	0.15	95	EMVE161ARA330MKE0S
	47	LH0	0.15	260	EMVE161□DA470MLH0S
	68	LN0	0.15	320	EMVE161□DA680MLN0S
	68	MH0	0.15	320	EMVE161□DA680MMH0S
	100	LN0	0.15	380	EMVE161□DA101MLN0S
200	10	KE0	0.15	80	EMVE201ARA100MKE0S
	22	KG5	0.15	110	EMVE201ARA220MKG5S
	33	LH0	0.15	220	EMVE201□DA330MLH0S
	47	LN0	0.15	270	EMVE201□DA470MLN0S
	47	MH0	0.15	270	EMVE201□DA470MMH0S
	68	MN0	0.15	330	EMVE201□DA680MMN0S
250	4.7	KE0	0.15	65	EMVE251ARA4R7MKE0S
	10	KG5	0.15	105	EMVE251ARA100MKG5S
	22	LH0	0.15	180	EMVE251□DA220MLH0S
	33	LN0	0.15	230	EMVE251□DA330MLN0S
	33	MH0	0.15	230	EMVE251□DA330MMH0S
	47	MN0	0.15	280	EMVE251□DA470MMN0S
400	4.7	KG5	0.20	50	EMVE401ARA4R7MKG5S
	10	LH0	0.20	85	EMVE401□DA100MLH0S
	22	MN0	0.20	130	EMVE401□DA220MMN0S
450	3.3	KE0	0.20	40	EMVE451ARA3R3MKE0S
	4.7	KG5	0.20	50	EMVE451ARA4R7MKG5S
	10	LH0	0.20	85	EMVE451□DA100MLH0S
	22	MN0	0.20	130	EMVE451□DA220MMN0S

□ : Enter the appropriate terminal code.

CAT. No. E1001H

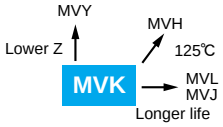
NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Standard, 105℃

Alchip™-MVK Series

- Endurance : 1,000 to 2,000 hours at 105℃
- Suitable to fit for downsized equipment
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

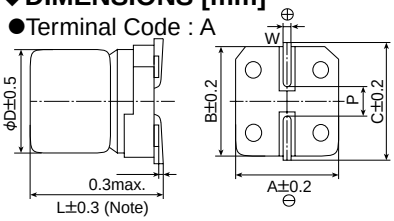


◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−40 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20% (M)							(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V
	tanδ (Max.)	D55 to F55	0.30	0.24	0.20	0.16	0.14	0.12
		H63 to JA0	0.40	0.30	0.26	0.16	0.14	0.12
								(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V
	Z(−25℃)/Z(+20℃)		4	3	2	2	2	2
	Z(−40℃)/Z(+20℃)		10	8	6	4	3	3
								(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for the specified period of time at 105℃.							
	Case code		D55 to F55		H63 to JA0			
	Time		1,000hours		2,000hours			
	Capacitance change		≦±30% of the initial value		≦±20% of the initial value			
	D.F. (tanδ)		≦300% of the initial specified value		≦200% of the initial specified value			
	Leakage current		≦The initial specified value		≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for the specified time at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Case code		D55 to F55		H63 to JA0			
	Time		500hours		1,000hours			
	Capacitance change		≦±25% of the initial value		≦±20% of the initial value			
	D.F. (tanδ)		≦200% of the initial specified value		≦200% of the initial specified value			
	Leakage current		≦The initial specified value		≦The initial specified value			

◆DIMENSIONS [mm]

●Terminal Code : A

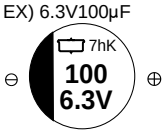


Note : L±0.5 for H63 to JA0

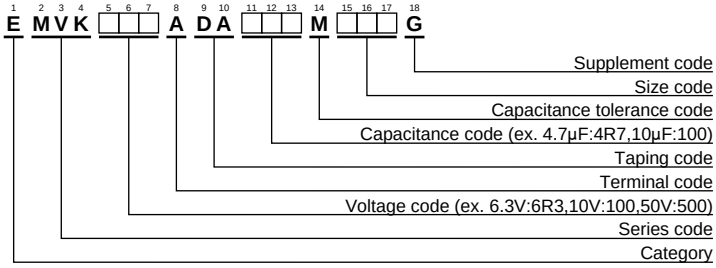
Size code	D	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E55	5	5.2	5.3	5.3	5.9	0.5 to 0.8	1.4
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
H63	8	6.3	8.3	8.3	9.0	0.5 to 0.8	2.3
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 6.3V100μF



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Standard, 105℃

Alchip™-MVK Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case code	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
6.3	22	D55	0.30	21	EMVK6R3ADA220MD55G
	47	E55	0.30	36	EMVK6R3ADA470ME55G
	100	F55	0.30	56	EMVK6R3ADA101MF55G
	330	HA0	0.40	290	EMVK6R3ADA331MHA0G
	1,000	JA0	0.40	410	EMVK6R3ADA102MJA0G
10	33	E55	0.24	34	EMVK100ADA330ME55G
	100	H63	0.30	90	EMVK100ADA101MH63G
	220	HA0	0.30	180	EMVK100ADA221MHA0G
16	10	D55	0.20	16	EMVK160ADA100MD55G
	22	E55	0.20	30	EMVK160ADA220ME55G
	47	F55	0.20	48	EMVK160ADA470MF55G
	470	JA0	0.26	460	EMVK160ADA471MJA0G
25	33	F55	0.16	45	EMVK250ADA330MF55G
	47	H63	0.16	80	EMVK250ADA470MH63G
	100	HA0	0.16	180	EMVK250ADA101MHA0G
	330	JA0	0.16	450	EMVK250ADA331MJA0G
35	4.7	D55	0.14	15	EMVK350ADA4R7MD55G
35	10	E55	0.14	25	EMVK350ADA100ME55G
	22	F55	0.14	40	EMVK350ADA220MF55G
	33	H63	0.14	80	EMVK350ADA330MH63G
	220	JA0	0.14	375	EMVK350ADA221MJA0G
50	0.10	D55	0.12	1.3	EMVK500ADAR10MD55G
	0.22	D55	0.12	2.6	EMVK500ADAR22MD55G
	0.33	D55	0.12	3.2	EMVK500ADAR33MD55G
	0.47	D55	0.12	3.8	EMVK500ADAR47MD55G
	1.0	D55	0.12	5.6	EMVK500ADA1R0MD55G
	2.2	D55	0.12	10	EMVK500ADA2R2MD55G
	3.3	D55	0.12	14	EMVK500ADA3R3MD55G
	4.7	E55	0.12	19	EMVK500ADA4R7ME55G
	10	F55	0.12	29	EMVK500ADA100MF55G
	22	H63	0.12	70	EMVK500ADA220MH63G
	33	HA0	0.12	140	EMVK500ADA330MHA0G
	47	HA0	0.12	170	EMVK500ADA470MHA0G
	100	JA0	0.12	310	EMVK500ADA101MJA0G

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Lower impedance, 105℃

Alchip™-MZA Series

- Lowest impedance, 105℃ 2,000 hour-life
- Solvent resistant type
- **RoHS Compliant**

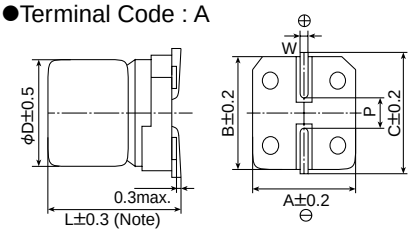
MZA
↑ Lower Z
MVY

◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	-55 to +105℃									
Rated Voltage Range	6.3 to 80Vdc									
Capacitance Tolerance	±20%(M)									(20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)									(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage(Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	
	tanδ (Max.)	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.08	(20℃, 120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	
	Z(-25℃)/Z(+20℃)	2	2	2	2	2	2	2	2	
	Z(-40℃)/Z(+20℃)	3	3	3	3	3	3	3	3	
	Z(-55℃)/Z(+20℃)	4	4	4	3	3	3	3	3	(120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.									
	Capacitance change	≦±30% of the initial measured value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

◆DIMENSIONS [mm]

●Terminal Code : A

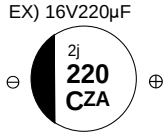


Note : L±0.5 for HA0 and JA0

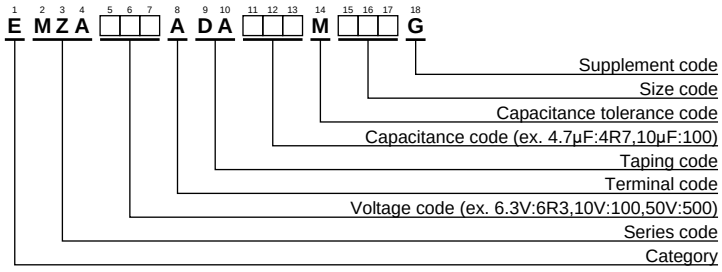
Size code	D	L	A	B	C	W	P
D61	4	5.8	4.3	4.3	5.1	0.5 to 0.8	1.0
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 16V220μF



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆RATED VOLTAGE SYMBOL

Rated voltage (Vdc)	Symbol
6.3	j
10	A
16	C
25	E
35	V
50	H
63	J
80	K

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Lower impedance, 105℃

Alchip™-MZA Series

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case code	tanδ	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	22	D61	0.26	1.35	90	EMZA6R3ADA220MD61G
	47	D61	0.26	1.35	90	EMZA6R3ADA470MD61G
	47	E61	0.26	0.70	160	EMZA6R3ADA470ME61G
	100	E61	0.26	0.70	160	EMZA6R3ADA101ME61G
	100	F61	0.26	0.36	240	EMZA6R3ADA101MF61G
	220	F61	0.26	0.36	240	EMZA6R3ADA221MF61G
	330	F80	0.26	0.34	280	EMZA6R3ADA331MF80G
	470	HA0	0.26	0.16	600	EMZA6R3ADA471MHA0G
	1,000	HA0	0.26	0.16	600	EMZA6R3ADA102MHA0G
	1,500	JA0	0.26	0.08	850	EMZA6R3ADA152MJA0G
10	22	D61	0.19	1.35	90	EMZA100ADA220MD61G
	33	D61	0.19	1.35	90	EMZA100ADA330MD61G
	33	E61	0.19	0.70	160	EMZA100ADA330ME61G
	220	F80	0.19	0.34	280	EMZA100ADA221MF80G
	330	HA0	0.19	0.16	600	EMZA100ADA331MHA0G
	470	HA0	0.19	0.16	600	EMZA100ADA471MHA0G
	680	HA0	0.19	0.16	600	EMZA100ADA681MHA0G
	1,000	JA0	0.19	0.08	850	EMZA100ADA102MJA0G
16	10	D61	0.16	1.35	90	EMZA160ADA100MD61G
	22	D61	0.16	1.35	90	EMZA160ADA220MD61G
	22	E61	0.16	0.70	160	EMZA160ADA220ME61G
	47	E61	0.16	0.70	160	EMZA160ADA470ME61G
	47	F61	0.16	0.36	240	EMZA160ADA470MF61G
	100	F61	0.16	0.36	240	EMZA160ADA101MF61G
	220	F80	0.16	0.34	280	EMZA160ADA221MF80G
	330	HA0	0.16	0.16	600	EMZA160ADA331MHA0G
	470	HA0	0.16	0.16	600	EMZA160ADA471MHA0G
	680	JA0	0.16	0.08	850	EMZA160ADA681MJA0G
25	10	D61	0.14	1.35	90	EMZA250ADA100MD61G
	22	E61	0.14	0.70	160	EMZA250ADA220ME61G
	33	E61	0.14	0.70	160	EMZA250ADA330ME61G
	33	F61	0.14	0.36	240	EMZA250ADA330MF61G
	47	F61	0.14	0.36	240	EMZA250ADA470MF61G
	100	F80	0.14	0.34	280	EMZA250ADA101MF80G
	220	HA0	0.14	0.16	600	EMZA250ADA221MHA0G
	330	HA0	0.14	0.16	600	EMZA250ADA331MHA0G
	470	JA0	0.14	0.08	850	EMZA250ADA471MJA0G
35	4.7	D61	0.12	1.35	90	EMZA350ADA4R7MD61G
	10	D61	0.12	1.35	90	EMZA350ADA100MD61G
	10	E61	0.12	0.70	160	EMZA350ADA100ME61G
	22	E61	0.12	0.70	160	EMZA350ADA220ME61G
	33	F61	0.12	0.36	240	EMZA350ADA330MF61G
	47	F61	0.12	0.36	240	EMZA350ADA470MF61G
	100	F80	0.12	0.34	280	EMZA350ADA101MF80G
	100	HA0	0.12	0.16	600	EMZA350ADA101MHA0G
	220	HA0	0.12	0.16	600	EMZA350ADA221MHA0G
	330	JA0	0.12	0.08	850	EMZA350ADA331MJA0G
50	4.7	D61	0.10	2.90	60	EMZA500ADA4R7MD61G
	10	E61	0.10	1.52	85	EMZA500ADA100ME61G
	10	F61	0.10	0.88	165	EMZA500ADA100MF61G
	22	F61	0.10	0.88	165	EMZA500ADA220MF61G
	33	F80	0.10	0.68	195	EMZA500ADA330MF80G
	47	F80	0.10	0.68	195	EMZA500ADA470MF80G
	100	HA0	0.10	0.34	350	EMZA500ADA101MHA0G
	220	JA0	0.10	0.18	670	EMZA500ADA221MJA0G
63	4.7	E61	0.08	4.8	50	EMZA630ADA4R7ME61G
	10	F61	0.08	2.2	80	EMZA630ADA100MF61G
	22	F80	0.08	2.1	120	EMZA630ADA220MF80G
	33	HA0	0.08	0.70	250	EMZA630ADA330MHA0G
	47	HA0	0.08	0.70	250	EMZA630ADA470MHA0G
	68	HA0	0.08	0.70	250	EMZA630ADA680MHA0G
	100	JA0	0.08	0.45	400	EMZA630ADA101MJA0G
80	3.3	E61	0.08	5.0	25	EMZA800ADA3R3ME61G
	4.7	F61	0.08	3.0	40	EMZA800ADA4R7MF61G
	10	F80	0.08	2.4	60	EMZA800ADA100MF80G
	22	HA0	0.08	1.3	130	EMZA800ADA220MHA0G
	33	HA0	0.08	1.3	130	EMZA800ADA330MHA0G
	47	JA0	0.08	0.70	200	EMZA800ADA470MJA0G

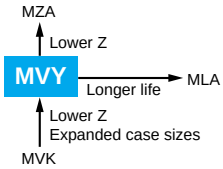
NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Alchip™-MVY Series

- Endurance : 1,000 to 5,000 hours at 105℃
- Low impedance
- For digital equipment, especially DC-DC converters
- Solvent resistant type except 80 & 100Vdc (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

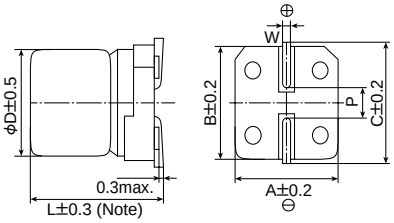


◆SPECIFICATIONS

Items	Characteristics											
Category Temperature Range	−55 to +105℃ (6.3 to 63Vdc) -40 to +105℃ (80 & 100Vdc)											
Rated Voltage Range	6.3 to 100Vdc											
Capacitance Tolerance	±20% (M)											(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)											(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63V	80V	100V	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
	tanδ (Max.)	D55 to F80	0.24	0.20	0.16	0.14	0.12	0.12	—	—	—	
		HA0 & JA0	0.28	0.24	0.20	0.16	0.14	0.12	—	—	—	
		KE0 to MN0	0.26	0.22	0.18	0.16	0.14	0.12	0.14	0.10	0.10	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	Z(−40℃)/Z(+20℃)	D55 to JA0	3	2	2	2	2	2	—	—	—	
		KE0 to MN0	10	8	6	4	3	3	3	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for specified time at 105℃.											
	Time	D55 to F80 : 1,000 hours HA0 & JA0 : 2,000 hours KE0 to MN0 : 5,000 hours										
	Rated voltage	6.3Vdc (D55 to JA0)	6.3 to 100Vdc									
	Capacitance change	≦±30% of the initial value	≦±20% of the initial value									
	D.F. (tanδ)	≦300% of the initial specified value	≦200% of the initial specified value									
	Leakage current	≦The initial specified value	≦The initial specified value									
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.											
	Rated voltage	6.3Vdc (D55 to JA0)	6.3 to 100Vdc									
	Capacitance change	≦±30% of the initial value	≦±20% of the initial value									
	D.F. (tanδ)	≦300% of the initial specified value	≦200% of the initial specified value									
	Leakage current	≦The initial specified value	≦The initial specified value									

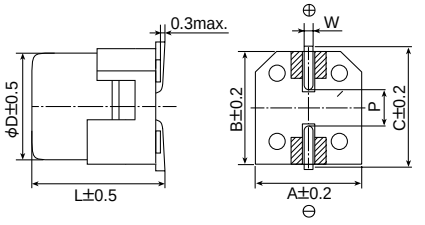
◆DIMENSIONS [mm]

- Terminal Code : A
- Size code : D55 to MN0



Note : L±0.5 for HA0 to MN0

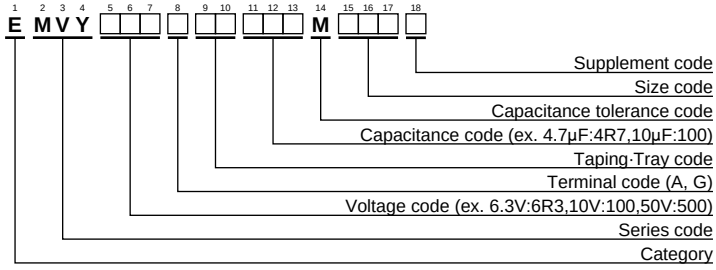
- Terminal Code : G
- Size code : LH0 to MN0



: Dummy terminals

Size code	ΦD	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E55	5	5.2	5.3	5.3	5.9	0.5 to 0.8	1.4
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2
LH0	16	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5
LN0	16	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5
MH0	18	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5
MN0	18	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5

◆PART NUMBERING SYSTEM

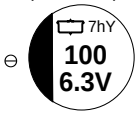


Please refer to "Product code guide (surface mount type)"

◆MARKING

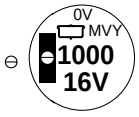
D55 to JA0

EX) 6.3V100μF



KE0 to MN0

EX) 16V1,000μF



CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Alchip™-MVY Series

◆STANDARD RATINGS

is not solvent resistant (80/100Vdc).

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	22	D55	3.0	60	EMVY6R3ADA220MD55G
	33	E55	1.8	95	EMVY6R3ADA330ME55G
	47	E55	1.8	95	EMVY6R3ADA470ME55G
	100	F55	1.0	140	EMVY6R3ADA101MF55G
	220	F55	1.0	140	EMVY6R3ADA221MF55G
	330	F80	0.34	280	EMVY6R3ADA331MF80G
	470	HA0	0.30	450	EMVY6R3ADA471MHA0G
	680	HA0	0.30	450	EMVY6R3ADA681MHA0G
	1,000	HA0	0.30	450	EMVY6R3ADA102MHA0G
	1,500	JA0	0.15	670	EMVY6R3ADA152MJA0G
	2,200	KE0	0.070	820	EMVY6R3ARA222MKE0S
	2,200	LH0	0.054	1,260	EMVY6R3□DA222MLH0S
	3,300	KG5	0.060	950	EMVY6R3ARA332MKG5S
	3,300	MH0	0.054	1,350	EMVY6R3□DA332MMH0S
	4,700	LN0	0.038	1,630	EMVY6R3□DA472MLN0S
	4,700	MH0	0.054	1,350	EMVY6R3□DA472MMH0S
	6,800	LN0	0.038	1,630	EMVY6R3□DA682MLN0S
	6,800	MN0	0.038	1,750	EMVY6R3□DA682MMN0S
	8,200	MN0	0.038	1,750	EMVY6R3□DA822MMN0S
10	22	E55	1.8	95	EMVY100ADA220ME55G
	33	E55	1.8	95	EMVY100ADA330ME55G
	47	F55	1.0	140	EMVY100ADA470MF55G
	100	F55	1.0	140	EMVY100ADA101MF55G
	220	F80	0.34	280	EMVY100ADA221MF80G
	330	HA0	0.30	450	EMVY100ADA331MHA0G
	470	HA0	0.30	450	EMVY100ADA471MHA0G
	680	JA0	0.15	670	EMVY100ADA681MJA0G
	1,000	JA0	0.15	670	EMVY100ADA102MJA0G
	2,200	KG5	0.060	950	EMVY100ARA222MKG5S
	2,200	LH0	0.054	1,260	EMVY100□DA222MLH0S
	3,300	LH0	0.054	1,260	EMVY100□DA332MLH0S
	3,300	MH0	0.054	1,350	EMVY100□DA332MMH0S
	4,700	LN0	0.038	1,630	EMVY100□DA472MLN0S
	4,700	MN0	0.038	1,750	EMVY100□DA472MMN0S
	6,800	MN0	0.038	1,750	EMVY100□DA682MMN0S
16	10	D55	3.0	60	EMVY160ADA100MD55G
	22	E55	1.8	95	EMVY160ADA220ME55G
	33	F55	1.0	140	EMVY160ADA330MF55G
	47	F55	1.0	140	EMVY160ADA470MF55G
	100	F55	1.0	140	EMVY160ADA101MF55G
	220	F80	0.34	280	EMVY160ADA221MF80G
	330	HA0	0.30	450	EMVY160ADA331MHA0G
	470	HA0	0.30	450	EMVY160ADA471MHA0G
	680	JA0	0.15	670	EMVY160ADA681MJA0G
	1,000	KE0	0.070	820	EMVY160ARA102MKE0S
	1,000	LH0	0.054	1,260	EMVY160□DA102MLH0S
	2,200	LH0	0.054	1,260	EMVY160□DA222MLH0S
	2,200	MH0	0.054	1,350	EMVY160□DA222MMH0S
	3,300	LN0	0.038	1,630	EMVY160□DA332MLN0S
	3,300	MH0	0.054	1,350	EMVY160□DA332MMH0S
	4,700	MN0	0.038	1,750	EMVY160□DA472MMN0S
25	10	E55	1.8	95	EMVY250ADA100ME55G
	22	F55	1.0	140	EMVY250ADA220MF55G
	33	F55	1.0	140	EMVY250ADA330MF55G
	47	F55	1.0	140	EMVY250ADA470MF55G
	100	F80	0.34	280	EMVY250ADA101MF80G
	220	HA0	0.30	450	EMVY250ADA221MHA0G
25	330	HA0	0.30	450	EMVY250ADA331MHA0G
	470	JA0	0.15	670	EMVY250ADA471MJA0G
	1,000	LH0	0.054	1,260	EMVY250□DA102MLH0S
	1,000	MH0	0.054	1,350	EMVY250□DA102MMH0S
	2,200	LN0	0.038	1,630	EMVY250□DA222MLN0S
	2,200	MN0	0.038	1,750	EMVY250□DA222MMN0S
	3,300	MN0	0.038	1,750	EMVY250□DA332MMN0S
35	4.7	D55	3.0	60	EMVY350ADA4R7MD55G
	10	E55	1.8	95	EMVY350ADA100ME55G
	22	F55	1.0	140	EMVY350ADA220MF55G
	33	F55	1.0	140	EMVY350ADA330MF55G
	47	F55	1.0	140	EMVY350ADA470MF55G
	47	F61	1.0	140	EMVY350ADA470MF61G
	68	F80	0.34	280	EMVY350ADA680MF80G
	100	HA0	0.30	450	EMVY350ADA101MHA0G
	220	HA0	0.30	450	EMVY350ADA221MHA0G
	330	JA0	0.15	670	EMVY350ADA331MJA0G
	470	KE0	0.070	820	EMVY350ARA471MKE0S
	470	LH0	0.054	1,260	EMVY350□DA471MLH0S
	1,000	LH0	0.054	1,260	EMVY350□DA102MLH0S
	1,000	MH0	0.054	1,350	EMVY350□DA102MMH0S
	2,200	MN0	0.038	1,750	EMVY350□DA222MMN0S
50	1.0	D55	5.0	30	EMVY500ADA1R0MD55G
	2.2	D55	5.0	30	EMVY500ADA2R2MD55G
	3.3	D55	5.0	30	EMVY500ADA3R3MD55G
	4.7	E55	3.0	50	EMVY500ADA4R7ME55G
	10	F55	2.0	70	EMVY500ADA100MF55G
	22	F55	2.0	70	EMVY500ADA220MF55G
	33	F80	0.60	170	EMVY500ADA330MF80G
	47	F80	0.60	170	EMVY500ADA470MF80G
	68	HA0	0.60	300	EMVY500ADA680MHA0G
	100	HA0	0.60	300	EMVY500ADA101MHA0G
	220	JA0	0.30	500	EMVY500ADA221MJA0G
	330	KE0	0.11	650	EMVY500ARA331MKE0S
	330	LH0	0.087	900	EMVY500□DA331MLH0S
	470	LH0	0.087	900	EMVY500□DA471MLH0S
	470	MH0	0.087	1,060	EMVY500□DA471MMH0S
	1,000	MN0	0.050	1,520	EMVY500□DA102MMN0S
63	68	KE0	0.19	500	EMVY630ARA680MKE0S
	100	KE0	0.19	500	EMVY630ARA101MKE0S
	220	KE0	0.19	500	EMVY630ARA221MKE0S
	220	LH0	0.12	845	EMVY630□DA221MLH0S
	330	LH0	0.12	845	EMVY630□DA331MLH0S
	330	MH0	0.12	905	EMVY630□DA331MMH0S
	470	LN0	0.085	1,100	EMVY630□DA471MLN0S
	470	MH0	0.12	905	EMVY630□DA471MMH0S
80	100	KE0	0.33	450	EMVY800ARA101MKE0S
	220	KG5	0.26	550	EMVY800ARA221MKG5S
	330	LN0	0.16	900	EMVY800□DA331MLN0S
	330	MH0	0.24	700	EMVY800□DA331MMH0S
	470	MN0	0.16	950	EMVY800□DA471MMN0S
100	47	KE0	0.33	450	EMVY101ARA470MKE0S
	68	KE0	0.33	450	EMVY101ARA680MKE0S
	100	KE0	0.33	450	EMVY101ARA101MKE0S
	100	LH0	0.24	650	EMVY101□DA101MLH0S
	220	LN0	0.16	900	EMVY101□DA221MLN0S
	220	MH0	0.24	700	EMVY101□DA221MMH0S
	330	MN0	0.16	950	EMVY101□DA331MMN0S

□ : Enter the appropriate terminal code.

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS Low impedance, 7000 to 8000-hours-life, 105℃

New! Alchip™-MZE Series

- Endurance : 7,000 to 8,000 hours at 105℃
- Low impedance
- Rated voltage range : 6.3 to 50V
- Nominal capacitance range : 10 to 470μF
- Suitable for high reliability products
- **RoHS Compliant**

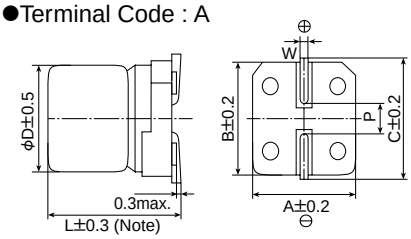
MVY → (Longer life) MZD → (Longer life) **MZE**

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	-25 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20%(M)							(at 20℃,120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.32	0.28	0.26	0.16	0.14	0.14	(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage(Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(-10℃)/Z(+20℃)	4	3	2	2	2	2	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for specified time at 105℃.							
	Time	E73 & F73 : 7,000 hours F90 to JA0 : 8,000 hours						
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						

◆DIMENSIONS [mm]

●Terminal Code : A



Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
E73	5	7.0	5.3	5.3	5.9	0.5 to 0.8	1.4
F73	6.3	7.0	6.6	6.6	7.2	0.5 to 0.8	1.9
F90	6.3	8.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	M	Z	E				A	D	A				M				G

- 18 : Supplement code
- 15–17 : Size code
- 14 : Capacitance tolerance code
- 11–13 : Capacitance code (ex. 47μF:470,100μF:101)
- 9–10 : Taping code
- 8 : Terminal code
- 5–7 : Voltage code (ex. 6.3V:6R3,10V:100,25V:250)
- 4 : Series code
- 1 : Category

◆MARKING

EX) 16V47μF

●Rated voltage code

Rated voltage	6.3	10	16	25	35	50
Code	j	A	C	E	V	H

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	47	E73	2.2	95	EMZE6R3ADA470ME73G
	100	F73	1.1	140	EMZE6R3ADA101MF73G
	220	F90	1.0	230	EMZE6R3ADA221MF90G
	330	F90	1.0	230	EMZE6R3ADA331MF90G
	470	HA0	0.22	600	EMZE6R3ADA471MHA0G
10	33	E73	2.2	95	EMZE100ADA330ME73G
	150	F73	1.1	140	EMZE100ADA151MF73G
16	22	E73	2.2	95	EMZE160ADA220ME73G
	47	F73	1.1	140	EMZE160ADA470MF73G
	100	F73	1.1	140	EMZE160ADA101MF73G
	150	F90	1.0	230	EMZE160ADA151MF90G
	220	F90	1.0	230	EMZE160ADA221MF90G
	330	HA0	0.22	600	EMZE160ADA331MHA0G
	470	JA0	0.16	850	EMZE160ADA471MJA0G
25	22	E73	2.2	95	EMZE250ADA220ME73G

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
25	33	F73	1.1	140	EMZE250ADA330MF73G
	47	F73	1.1	140	EMZE250ADA470MF73G
	100	F90	1.0	230	EMZE250ADA101MF90G
	220	HA0	0.22	600	EMZE250ADA221MHA0G
	330	JA0	0.16	850	EMZE250ADA331MJA0G
35	10	E73	2.2	95	EMZE350ADA100ME73G
	10	F73	1.1	140	EMZE350ADA100MF73G
	22	E73	2.2	95	EMZE350ADA220ME73G
	22	F73	1.1	140	EMZE350ADA220MF73G
	33	F90	1.0	230	EMZE350ADA330MF90G
	47	F90	1.0	230	EMZE350ADA470MF90G
	100	HA0	0.22	600	EMZE350ADA101MHA0G
	220	JA0	0.16	850	EMZE350ADA221MJA0G
50	47	HA0	0.53	350	EMZE500ADA470MHA0G
	100	JA0	0.35	670	EMZE500ADA101MJA0G

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS Low impedance, 5000-hours-life, 105℃

Alchip™-MZD Series

- ●Endurance : 5,000 hours at 105℃
- ●Low impedance
- ●Rated voltage range : 6.3 to 50V
- ●Nominal capacitance range : 10 to 470μF
- ●Suitable for high reliability products
- ●**RoHS Compliant**

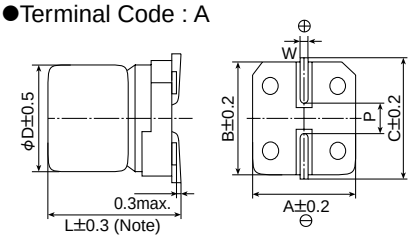
MVY — Longer life → **MZD** — Longer life → MZE
MZD — Lower Z → MLD

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	-25 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20%(M)							(at 20℃,120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.32	0.28	0.26	0.16	0.14	0.14	(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage(Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(-10℃)/Z(+20℃)	4	3	2	2	2	2	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃.							
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						

◆DIMENSIONS [mm]

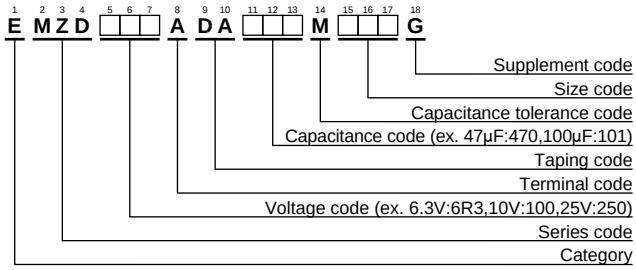
●Terminal Code : A



Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
E73	5	7.0	5.3	5.3	5.9	0.5 to 0.8	1.4
F73	6.3	7.0	6.6	6.6	7.2	0.5 to 0.8	1.9
F90	6.3	8.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

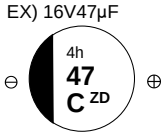
◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V47μF



●Rated voltage code

Rated voltage	6.3	10	16	25	35	50
Code	j	A	C	E	V	H

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	47	E73	2.2	95	EMZD6R3ADA470ME73G
	100	F73	1.1	140	EMZD6R3ADA101MF73G
	220	F90	1.0	230	EMZD6R3ADA221MF90G
	330	F90	1.0	230	EMZD6R3ADA331MF90G
	470	HA0	0.22	600	EMZD6R3ADA471MHA0G
10	33	E73	2.2	95	EMZD100ADA330ME73G
	150	F73	1.1	140	EMZD100ADA151MF73G
16	22	E73	2.2	95	EMZD160ADA220ME73G
	47	F73	1.1	140	EMZD160ADA470MF73G
	100	F73	1.1	140	EMZD160ADA101MF73G
	150	F90	1.0	230	EMZD160ADA151MF90G
	220	F90	1.0	230	EMZD160ADA221MF90G
	330	HA0	0.22	600	EMZD160ADA331MHA0G
	470	HA0	0.22	600	EMZD160ADA471MHA0G
25	22	E73	2.2	95	EMZD250ADA220ME73G
	33	F73	1.1	140	EMZD250ADA330MF73G

WV (Vdc)	Cap (μF)	Size code	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
25	47	F73	1.1	140	EMZD250ADA470MF73G
	100	F90	1.0	230	EMZD250ADA101MF90G
	220	HA0	0.22	600	EMZD250ADA221MHA0G
	330	HA0	0.22	600	EMZD250ADA331MHA0G
	470	JA0	0.16	850	EMZD250ADA471MJA0G
35	10	E73	2.2	95	EMZD350ADA100ME73G
	10	F73	1.1	140	EMZD350ADA100MF73G
	22	E73	2.2	95	EMZD350ADA220ME73G
	22	F73	1.1	140	EMZD350ADA220MF73G
	33	F90	1.0	230	EMZD350ADA330MF90G
	47	F90	1.0	230	EMZD350ADA470MF90G
	220	HA0	0.22	600	EMZD350ADA221MHA0G
	330	JA0	0.16	850	EMZD350ADA331MJA0G
50	47	HA0	0.53	350	EMZD500ADA470MHA0G
	100	HA0	0.53	350	EMZD500ADA101MHA0G
	220	JA0	0.35	670	EMZD500ADA221MJA0G

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Alchip™-MLA Series

- Low impedance, long life
- Rated voltage 6.3 to 50V, Capacitance 10 to 1,000μF
- Case size φ5×5.8L to φ10×10L
- Suitable for applications requiring long life and low impedance such as equipment in continuous operation, industrial applications, etc.
- **RoHS Compliant**

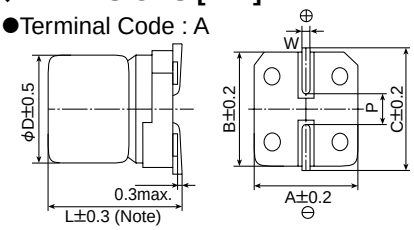
MVY — Longer life → **MLA**
MVY → Lower Z → MVK

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	-40 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20%(M)							(20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage(Vdc)		6.3V	10V	16V	25V	35V	50V
	tanδ (Max.)	E61 to F61	0.28	0.24	0.22	0.16	0.13	0.12
		F80	0.32	0.27	0.24	0.16	0.13	0.12
		HA0 to JA0	0.28	0.24	0.22	0.16	0.13	0.12
								(20℃, 120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(Vdc)		6.3V	10V	16V	25V	35V	50V
	Z(-25℃)/Z(+20℃)		4	3	2	2	2	2
	Z(-40℃)/Z(+20℃)		10	7	5	3	3	3
								(120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 3,000 hours at 105℃.							
	Capacitance change	≦±30% of the initial measured value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						

◆DIMENSIONS [mm]

●Terminal Code : A

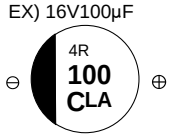


Note : L±0.5 for HA0 and JA0

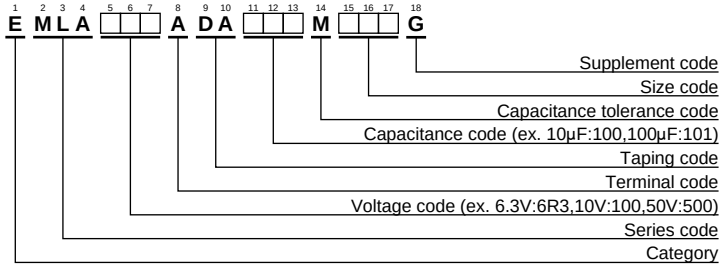
Case code	D	L	A	B	C	W	P
E61	5	5.8	5.3	5.3	5.9	0.5 to 0.8	1.4
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 16V100μF



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆RATED VOLTAGE SYMBOL

Rated voltage (Vdc)	Symbol
6.3	j
10	A
16	C
25	E
35	V
50	H

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

Alchip™-MLA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	47	E61	0.28	1.30	95	EMLA6R3ADA470ME61G
	100	F61	0.28	0.70	140	EMLA6R3ADA101MF61G
	150	F61	0.28	0.70	140	EMLA6R3ADA151MF61G
	220	F80	0.32	0.70	230	EMLA6R3ADA221MF80G
	330	F80	0.32	0.70	230	EMLA6R3ADA331MF80G
	330	HA0	0.28	0.16	600	EMLA6R3ADA331MHA0G
	470	HA0	0.28	0.16	600	EMLA6R3ADA471MHA0G
	1,000	JA0	0.28	0.08	850	EMLA6R3ADA102MJA0G
10	33	E61	0.24	1.30	95	EMLA100ADA330ME61G
	47	F61	0.24	0.70	140	EMLA100ADA470MF61G
	100	F61	0.24	0.70	140	EMLA100ADA101MF61G
	150	F61	0.24	0.70	140	EMLA100ADA151MF61G
	220	F80	0.27	0.70	230	EMLA100ADA221MF80G
	220	HA0	0.24	0.16	600	EMLA100ADA221MHA0G
	330	HA0	0.24	0.16	600	EMLA100ADA331MHA0G
	470	HA0	0.24	0.16	600	EMLA100ADA471MHA0G
16	22	E61	0.22	1.30	95	EMLA160ADA220ME61G
	33	F61	0.22	0.70	140	EMLA160ADA330MF61G
	47	F61	0.22	0.70	140	EMLA160ADA470MF61G
	100	F61	0.22	0.70	140	EMLA160ADA101MF61G
	100	F80	0.24	0.70	230	EMLA160ADA101MF80G
	150	F80	0.24	0.70	230	EMLA160ADA151MF80G
	220	F80	0.24	0.70	230	EMLA160ADA221MF80G
	220	HA0	0.22	0.16	600	EMLA160ADA221MHA0G
	330	HA0	0.22	0.16	600	EMLA160ADA331MHA0G
	470	HA0	0.22	0.16	600	EMLA160ADA471MHA0G
	470	JA0	0.22	0.08	850	EMLA160ADA471MJA0G
25	10	E61	0.16	1.30	95	EMLA250ADA100ME61G
	22	E61	0.16	1.30	95	EMLA250ADA220ME61G
	22	F61	0.16	0.70	140	EMLA250ADA220MF61G

WV (Vdc)	Cap (μF)	Size code	tanδ	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
25	33	F61	0.16	0.70	140	EMLA250ADA330MF61G
	47	F61	0.16	0.70	140	EMLA250ADA470MF61G
	47	F80	0.16	0.70	230	EMLA250ADA470MF80G
	100	F80	0.16	0.70	230	EMLA250ADA101MF80G
	100	HA0	0.16	0.16	600	EMLA250ADA101MHA0G
	150	HA0	0.16	0.16	600	EMLA250ADA151MHA0G
	220	HA0	0.16	0.16	600	EMLA250ADA221MHA0G
	330	HA0	0.16	0.16	600	EMLA250ADA331MHA0G
	330	JA0	0.16	0.08	850	EMLA250ADA331MJA0G
	470	JA0	0.16	0.08	850	EMLA250ADA471MJA0G
35	10	E61	0.13	1.30	95	EMLA350ADA100ME61G
	22	F61	0.13	0.70	140	EMLA350ADA220MF61G
	33	F61	0.13	0.70	140	EMLA350ADA330MF61G
	33	F80	0.13	0.70	230	EMLA350ADA330MF80G
	47	F80	0.13	0.70	230	EMLA350ADA470MF80G
	100	F80	0.13	0.70	230	EMLA350ADA101MF80G
	100	HA0	0.13	0.16	600	EMLA350ADA101MHA0G
	150	HA0	0.13	0.16	600	EMLA350ADA151MHA0G
	220	HA0	0.13	0.16	600	EMLA350ADA221MHA0G
	220	JA0	0.13	0.08	850	EMLA350ADA221MJA0G
	330	JA0	0.13	0.08	850	EMLA350ADA331MJA0G
50	10	F61	0.12	2.00	70	EMLA500ADA100MF61G
	22	F61	0.12	2.00	70	EMLA500ADA220MF61G
	33	F80	0.12	1.60	100	EMLA500ADA330MF80G
	47	F80	0.12	1.60	100	EMLA500ADA470MF80G
	47	HA0	0.12	0.34	350	EMLA500ADA470MHA0G
	100	HA0	0.12	0.34	350	EMLA500ADA101MHA0G
	100	JA0	0.12	0.18	670	EMLA500ADA101MJA0G
	150	JA0	0.12	0.18	670	EMLA500ADA151MJA0G
	220	JA0	0.12	0.18	670	EMLA500ADA221MJA0G

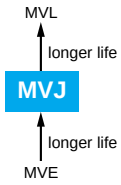
NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

2000-hours-life, 105℃

Alchip™-MVJ Series

- Endurance : 105℃ 2,000 hours
- Solvent resistant type
- **RoHS Compliant**



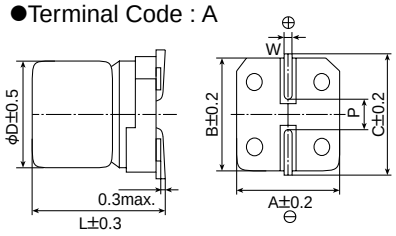
◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−40 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20% (M)							(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.30	0.24	0.20	0.16	0.14	0.12	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	12	8	6	4	3	3	(at 120Hz)

Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.			
	Rated voltage	6.3Vdc	10 & 16Vdc	25 to 50Vdc
	Capacitance change	≦±30% of the initial value	≦±25% of the initial value	≦±20% of the initial value
	D.F. (tanδ)	≦300% of the initial specified value	≦300% of the initial specified value	≦200% of the initial specified value
	Leakage current	The initial specified value	≦The initial specified value	≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Rated voltage	6.3Vdc	10 & 16Vdc	25 to 50Vdc
	Capacitance change	≦±30% of the initial value	≦±25% of the initial value	≦±20% of the initial value
	D.F. (tanδ)	≦300% of the initial specified value	≦300% of the initial specified value	≦200% of the initial specified value
	Leakage current	≦The initial specified value	≦The initial specified value	≦The initial specified value

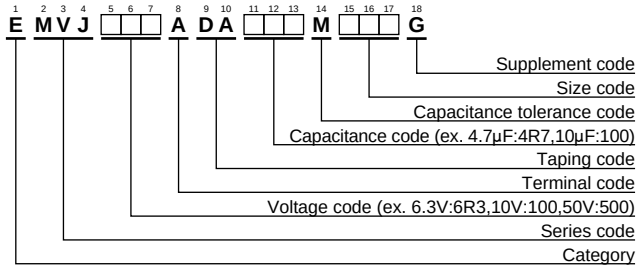
◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
D60	4	5.7	4.3	4.3	5.1	0.5 to 0.8	1.0
E60	5	5.7	5.3	5.3	5.9	0.5 to 0.8	1.4
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9

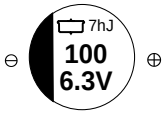
◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 6.3V100μF



◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
6.3	22	D60	0.30	21	EMVJ6R3ADA220MD60G
	47	E60	0.30	36	EMVJ6R3ADA470ME60G
	100	F60	0.30	56	EMVJ6R3ADA101MF60G
10	33	E60	0.24	34	EMVJ100ADA330ME60G
16	10	D60	0.20	16	EMVJ160ADA100MD60G
	22	E60	0.20	30	EMVJ160ADA220ME60G
	47	F60	0.20	48	EMVJ160ADA470MF60G
25	33	F60	0.16	45	EMVJ250ADA330MF60G
35	4.7	D60	0.14	15	EMVJ350ADA4R7MD60G
	10	E60	0.14	25	EMVJ350ADA100ME60G

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
35	22	F60	0.14	40	EMVJ350ADA220MF60G
50	0.10	D60	0.12	1.3	EMVJ500ADAR10MD60G
	0.22	D60	0.12	2.6	EMVJ500ADAR22MD60G
	0.33	D60	0.12	3.2	EMVJ500ADAR33MD60G
	0.47	D60	0.12	3.8	EMVJ500ADAR47MD60G
	1.0	D60	0.12	5.6	EMVJ500ADA1R0MD60G
	2.2	D60	0.12	10	EMVJ500ADA2R2MD60G
	3.3	D60	0.12	14	EMVJ500ADA3R3MD60G
	4.7	E60	0.12	19	EMVJ500ADA4R7ME60G
	10	F60	0.12	29	EMVJ500ADA100MF60G

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

7000 to 8000-hours-life, 105℃

New! Alchip™-MLE Series

- Endurance : 7,000 to 8,000 hours at 105℃
- Rated voltage range : 6.3 to 50V
- Nominal capacitance range : 0.1 to 1,000μF
- Suitable for high reliability products
- **RoHS Compliant**

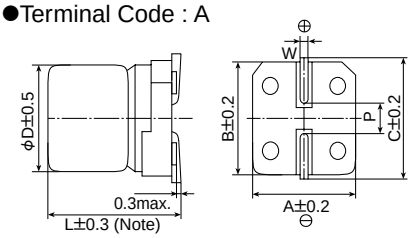
MVL → (Longer life) MLD → (Longer life) **MLE**

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	-25 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20%(M)							(at 20℃,120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.32	0.28	0.26	0.16	0.14	0.14	(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage(Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(-10℃)/Z(+20℃)	4	3	2	2	2	2	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for specified time at 105℃.							
	Time	D73 to F73 : 7,000 hours F90 to JA0 : 8,000 hours						
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						

◆DIMENSIONS [mm]

●Terminal Code : A



Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
D73	4	7.0	4.3	4.3	5.1	0.5 to 0.8	1.0
E73	5	7.0	5.3	5.3	5.9	0.5 to 0.8	1.4
F73	6.3	7.0	6.6	6.6	7.2	0.5 to 0.8	1.9
F90	6.3	8.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

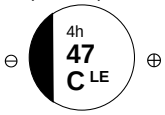
◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	M	L	E				A	D	A				M				G

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,10V:100,25V:250)
- Series code
- Category

◆MARKING

EX) 16V47μF



●Rated voltage code

Rated voltage	6.3	10	16	25	35	50
Code	j	A	C	E	V	H

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mArms/105℃, 120Hz)	Part No.
6.3	22	D73	22	EMLE6R3ADA220MD73G
	47	E73	36	EMLE6R3ADA470ME73G
	100	F73	60	EMLE6R3ADA101MF73G
	220	F90	101	EMLE6R3ADA221MF90G
	330	HA0	160	EMLE6R3ADA331MHA0G
	1,000	JA0	313	EMLE6R3ADA102MJA0G
10	33	E73	35	EMLE100ADA330ME73G
	220	HA0	141	EMLE100ADA221MHA0G
16	10	D73	18	EMLE160ADA100MD73G
	22	E73	30	EMLE160ADA220ME73G
	47	F73	50	EMLE160ADA470MF73G
	100	F90	81	EMLE160ADA101MF90G
	470	JA0	254	EMLE160ADA471MJA0G
25	33	F73	48	EMLE250ADA330MF73G
	47	F90	63	EMLE250ADA470MF90G
	100	HA0	116	EMLE250ADA101MHA0G
35	0.10	D73	1.0	EMLE350ADAR10MD73G

WV (Vdc)	Cap (μF)	Size code	Rated ripple current (mArms/105℃, 120Hz)	Part No.
35	0.22	D73	2.6	EMLE350ADAR22MD73G
	0.33	D73	3.2	EMLE350ADAR33MD73G
	0.47	D73	3.8	EMLE350ADAR47MD73G
	1.0	D73	6.2	EMLE350ADA1R0MD73G
	2.2	D73	11	EMLE350ADA2R2MD73G
	3.3	D73	14	EMLE350ADA3R3MD73G
	4.7	D73	15	EMLE350ADA4R7MD73G
	4.7	E73	19	EMLE350ADA4R7ME73G
	10	E73	25	EMLE350ADA100ME73G
	10	F73	30	EMLE350ADA100MF73G
	22	F73	42	EMLE350ADA220MF73G
	22	F90	49	EMLE350ADA220MF90G
	33	F90	57	EMLE350ADA330MF90G
	220	JA0	216	EMLE350ADA221MJA0G
50	33	HA0	77	EMLE500ADA330MHA0G
	47	HA0	92	EMLE500ADA470MHA0G
	100	JA0	151	EMLE500ADA101MJA0G

CAT. No. E1001H

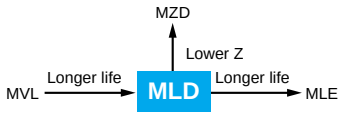
NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

5000-hours-life, 105℃

Alchip™-MLD Series

- Endurance : 5,000 hours at 105℃
- Rated voltage range : 6.3 to 50V
- Nominal capacitance range : 0.1 to 1,000μF
- Suitable for high reliability products
- **RoHS Compliant**

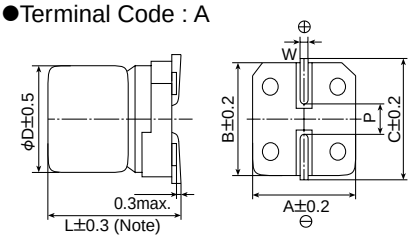


◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	-25 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20%(M)							(at 20℃,120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.32	0.28	0.26	0.16	0.14	0.14	(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage(Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(-10℃)/Z(+20℃)	4	3	2	2	2	2	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 5,000 hours at 105℃.							
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						

◆DIMENSIONS [mm]

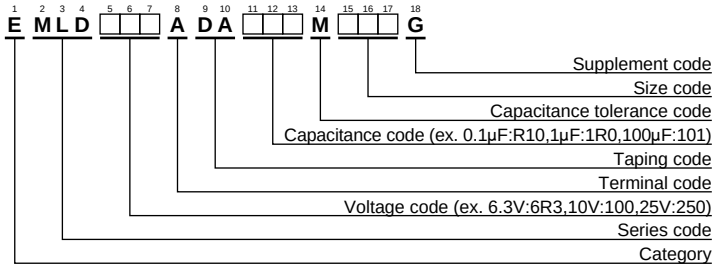
●Terminal Code : A



Note : L±0.5 for HA0 and JA0

Size code	D	L	A	B	C	W	P
D73	4	7.0	4.3	4.3	5.1	0.5 to 0.8	1.0
E73	5	7.0	5.3	5.3	5.9	0.5 to 0.8	1.4
F73	6.3	7.0	6.6	6.6	7.2	0.5 to 0.8	1.9
F90	6.3	8.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

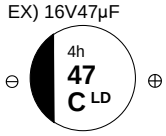
◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V47μF



●Rated voltage code

Rated voltage	6.3	10	16	25	35	50
Code	j	A	C	E	V	H

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/105℃, 120Hz)	Part No.
6.3	22	D73	0.32	22	EMLD6R3ADA220MD73G
	47	E73	0.32	36	EMLD6R3ADA470ME73G
	100	F73	0.32	60	EMLD6R3ADA101MF73G
	220	F90	0.32	101	EMLD6R3ADA221MF90G
	330	HA0	0.32	160	EMLD6R3ADA331MHA0G
	1,000	JA0	0.32	313	EMLD6R3ADA102MJA0G
10	33	E73	0.28	35	EMLD100ADA330ME73G
	220	HA0	0.28	141	EMLD100ADA221MHA0G
16	10	D73	0.26	18	EMLD160ADA100MD73G
	22	E73	0.26	30	EMLD160ADA220ME73G
	47	F73	0.26	50	EMLD160ADA470MF73G
	100	F90	0.26	81	EMLD160ADA101MF90G
	470	JA0	0.26	254	EMLD160ADA471MJA0G
25	33	F73	0.16	48	EMLD250ADA330MF73G
	47	F90	0.16	63	EMLD250ADA470MF90G
	100	HA0	0.16	116	EMLD250ADA101MHA0G

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/105℃, 120Hz)	Part No.
35	0.1	D73	0.14	1.0	EMLD350ADAR10MD73G
	0.22	D73	0.14	2.6	EMLD350ADAR22MD73G
	0.33	D73	0.14	3.2	EMLD350ADAR33MD73G
	0.47	D73	0.14	3.8	EMLD350ADAR47MD73G
	1.0	D73	0.14	6.2	EMLD350ADA1R0MD73G
	2.2	D73	0.14	11	EMLD350ADA2R2MD73G
	3.3	D73	0.14	14	EMLD350ADA3R3MD73G
	4.7	D73	0.14	15	EMLD350ADA4R7MD73G
	4.7	E73	0.14	19	EMLD350ADA4R7ME73G
	10	E73	0.14	25	EMLD350ADA100ME73G
	10	F73	0.14	30	EMLD350ADA100MF73G
	22	F73	0.14	42	EMLD350ADA220MF73G
	22	F90	0.14	49	EMLD350ADA220MF90G
	33	F90	0.14	57	EMLD350ADA330MF90G
	220	JA0	0.14	216	EMLD350ADA221MJA0G
50	33	HA0	0.14	77	EMLD500ADA330MHA0G
	47	HA0	0.14	92	EMLD500ADA470MHA0G
	100	JA0	0.14	151	EMLD500ADA101MJA0G

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

3000 to 5000-hours-life, 105℃

Alchip™-MVL Series

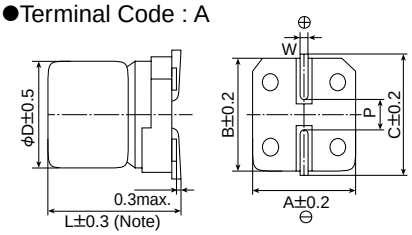
- Endurance : 3,000 to 5,000 hours at 105℃
- Suitable for applications requiring long life such as continuously operating equipment, industrial applications, etc
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	-40 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20%(M)							(at 20℃,120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃, after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	Max. tanδ	0.28	0.24	0.20	0.16	0.13	0.12	(at 20℃,120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(-25℃)/Z(+20℃)	4	3	2	2	2	2	
	Z(-40℃)/Z(+20℃)	10	7	5	3	3	3	(120Hz)
Endurance	After the capacitors are subjected to the rated DC voltage for 3,000 hours (HA0 & JA0 sizes 5,000 hours) at 105℃, the following specifications shall be satisfied when the capacitors are restored to 20℃.							
	Capacitance change	≦±30% of the initial measured value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±30% of the initial measured value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						

◆DIMENSIONS [mm]

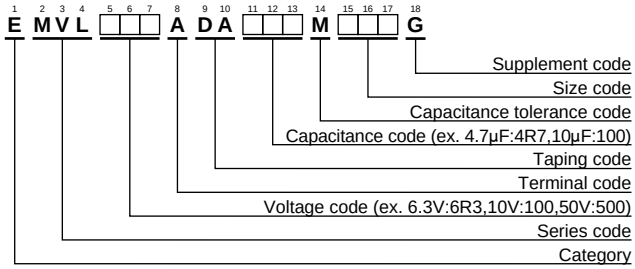
●Terminal Code : A



Note : L±0.5 for H63 to JA0

Size code	D	L	A	B	C	W	P
D60	4	5.7	4.3	4.3	5.1	0.5 to 0.8	1.0
E60	5	5.7	5.3	5.3	5.9	0.5 to 0.8	1.4
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H63	8	6.3	8.3	8.3	9.0	0.5 to 0.8	2.3
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

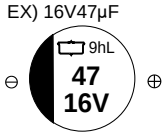
◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 16V47μF



◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	22	D60	0.28	22	EMVL6R3ADA220MD60G
	47	E60	0.28	36	EMVL6R3ADA470ME60G
	100	F60	0.28	60	EMVL6R3ADA101MF60G
	220	F80	0.28	101	EMVL6R3ADA221MF80G
	330	HA0	0.28	160	EMVL6R3ADA331MHA0G
	1,000	JA0	0.28	313	EMVL6R3ADA102MJA0G
10	33	E60	0.24	35	EMVL100ADA330ME60G
	220	HA0	0.24	141	EMVL100ADA221MHA0G
16	10	D60	0.20	18	EMVL160ADA100MD60G
	22	E60	0.20	30	EMVL160ADA220ME60G
	47	F60	0.20	50	EMVL160ADA470MF60G
	100	F80	0.20	81	EMVL160ADA101MF80G
	470	JA0	0.20	254	EMVL160ADA471MJA0G
25	33	F60	0.16	48	EMVL250ADA330MF60G
	47	F80	0.16	63	EMVL250ADA470MF80G
	100	HA0	0.16	116	EMVL250ADA101MHA0G
	330	JA0	0.16	238	EMVL250ADA331MJA0G

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
35	4.7	D60	0.13	15	EMVL350ADA4R7MD60G
	10	E60	0.13	25	EMVL350ADA100ME60G
	22	F60	0.13	42	EMVL350ADA220MF60G
	33	F80	0.13	57	EMVL350ADA330MF80G
	220	JA0	0.13	216	EMVL350ADA221MJA0G
50	0.10	D60	0.12	1.0	EMVL500ADAR10MD60G
	0.22	D60	0.12	2.6	EMVL500ADAR22MD60G
	0.33	D60	0.12	3.2	EMVL500ADAR33MD60G
	0.47	D60	0.12	3.8	EMVL500ADAR47MD60G
	1.0	D60	0.12	6.2	EMVL500ADA1R0MD60G
	2.2	D60	0.12	11	EMVL500ADA2R2MD60G
	3.3	D60	0.12	14	EMVL500ADA3R3MD60G
	4.7	E60	0.12	19	EMVL500ADA4R7ME60G
	10	F60	0.12	30	EMVL500ADA100MF60G
	22	F80	0.12	49	EMVL500ADA220MF80G
	33	HA0	0.12	77	EMVL500ADA330MHA0G
	47	HA0	0.12	92	EMVL500ADA470MHA0G
	100	JA0	0.12	151	EMVL500ADA101MJA0G

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

Alchip™-MVH Series

- Lower ESR, Higher ripple current
- Endurance : 1,000 to 5,000 hours at 125℃
- Suitable to fit for automotive equipment
- Solvent resistant type (10 to 50V)
- **RoHS Compliant**

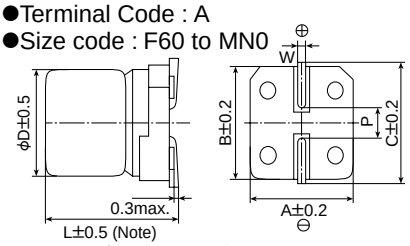
MVH
125℃
Expanded case sizes
MVK

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-40 to +125℃
Rated Voltage Range	10 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	Rated voltage (Vdc): 10 to 100Vdc / 160 to 450Vdc F60 to JA0: I=0.01CV or 3μA, whichever is greater. / I=0.04CV+100 KE0 to MN0: I=0.03CV or 4μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 10V / 16V / 25V / 35V / 50V / 63V / 80V / 100V / 160 to 250V / 400 & 450V tanδ (Max.) F60 to JA0: 0.24 / 0.20 / 0.16 / 0.14 / 0.14 / 0.12 / 0.12 / 0.10 / — / — tanδ (Max.) KE0 to MN0: 0.22 / 0.18 / 0.16 / 0.14 / 0.12 / 0.14 / — / 0.10 / 0.20 / 0.24 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 10V / 16V / 25V / 35V / 50V / 63V / 80V / 100V / 160 to 250V / 400 & 450V F60 to JA0 Z(−25℃)/Z(+20℃): 3 / 2 / 2 / 2 / 2 / 2 / 2 / 2 / — / — F60 to JA0 Z(−40℃)/Z(+20℃): 6 / 4 / 4 / 3 / 3 / 3 / 3 / 3 / — / — KE0 to MN0 Z(−25℃)/Z(+20℃): 4 / 3 / 2 / 2 / 2 / 2 / — / 2 / 3 / 6 KE0 to MN0 Z(−40℃)/Z(+20℃): 8 / 6 / 4 / 3 / 3 / 3 / — / 3 / 6 / 10 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for the specified time at 125℃. Time: F60 to H63 (10 to 100Vdc) : 1,000hours; HA0 to JA0 (10 to 100Vdc) : 2,000hours; KE0 to MN0 (10 to 100Vdc) : 5,000hours; KE0 to MN0 (160 to 450Vdc) : 2,000hours Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours (500 hours for 400 to 450WV) at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Rated voltage(Vdc): 10 to 50Vdc / 63 to 450Vdc Capacitance change: ≦±30% of the initial value / ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value / ≦300% of the initial specified value Leakage current: ≦The initial specified value / ≦500% of the initial specified value

◆DIMENSIONS [mm]

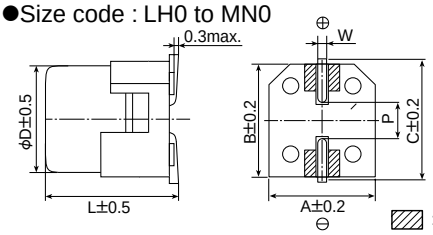
- Terminal Code : A
- Size code : F60 to MN0



Note : L±0.3 for F60 and F80

Size code	D	L	A	B	C	W	P
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
H63	8	6.3	8.3	8.3	9.0	0.5 to 0.8	2.3
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5
KE0	12.5	13.5	13.0	13.0	13.7	1.0 to 1.3	4.2
KG5	12.5	16.0	13.0	13.0	13.7	1.0 to 1.3	4.2
LH0	16	16.5	17.0	17.0	18.0	1.0 to 1.3	6.5
LN0	16	21.5	17.0	17.0	18.0	1.0 to 1.3	6.5
MH0	18	16.5	19.0	19.0	20.0	1.0 to 1.3	6.5
MN0	18	21.5	19.0	19.0	20.0	1.0 to 1.3	6.5

- Terminal Code : G
- Size code : LH0 to MN0



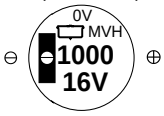
◆MARKING

F60 to JA0

EX) 35V47μF

KE0 to MN0

EX) 16V1,000μF



CAT. No. E1001H

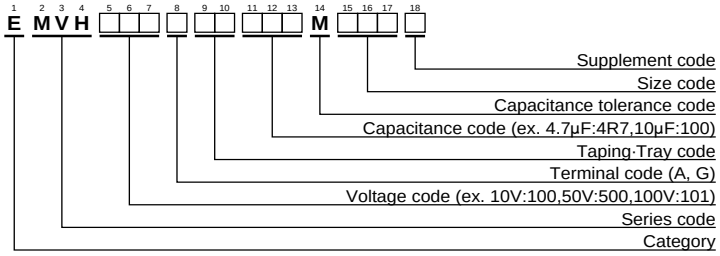
NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

Alchip™-MVH Series

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆STANDARD RATINGS

is not solvent resistant (63 to 450Vdc).

WV (Vdc)	Cap (μF)	Size code	ESR (Ωmax/ 100kHz) 20℃	ESR (Ωmax/ 100kHz) -40℃	Rated ripple current (mArms/125℃) 100kHz	Rated ripple current (mArms/125℃) 120kHz	Part No.
10	100	F80	0.90	14.0	110	—	EMVH100ADA101MF80G
	100	H63	0.90	14.0	110	—	EMVH100ADA101MH63G
	220	F80	0.90	14.0	110	—	EMVH100ADA221MF80G
	220	H63	0.90	14.0	110	—	EMVH100ADA221MH63G
	220	HA0	0.40	6.0	220	—	EMVH100ADA221MHA0G
	330	HA0	0.40	6.0	220	—	EMVH100ADA331MHA0G
	330	JA0	0.30	4.5	296	—	EMVH100ADA331MJA0G
	470	JA0	0.30	4.5	296	—	EMVH100ADA471MJA0G
	1,000	KE0	0.14	2.1	750	—	EMVH100ARA102MKE0S
	2,200	LH0	0.10	1.5	1,000	—	EMVH100□DA222MLH0S
	2,200	MH0	0.10	1.5	1,200	—	EMVH100□DA222MMH0S
	3,300	MH0	0.10	1.5	1,200	—	EMVH100□DA332MMH0S
	4,700	MN0	0.058	0.87	1,550	—	EMVH100□DA472MMN0S
16	47	F60	1.6	24.0	69	—	EMVH160ADA470MF60G
	100	HA0	0.40	6.0	220	—	EMVH160ADA101MHA0G
	220	HA0	0.40	6.0	220	—	EMVH160ADA221MHA0G
	220	JA0	0.30	4.5	296	—	EMVH160ADA221MJA0G
	330	JA0	0.30	4.5	296	—	EMVH160ADA331MJA0G
	470	KE0	0.14	2.1	750	—	EMVH160ARA471MKE0S
	680	KE0	0.14	2.1	750	—	EMVH160ARA681MKE0S
	680	LH0	0.10	1.5	1,000	—	EMVH160□DA681MLH0S
	1,000	MH0	0.10	1.5	1,200	—	EMVH160□DA102MMH0S
	2,200	MH0	0.10	1.5	1,200	—	EMVH160□DA222MMH0S
25	33	F60	1.6	24.0	69	—	EMVH250ADA330MF60G
	47	F80	0.90	14.0	110	—	EMVH250ADA470MF80G
	47	H63	0.90	14.0	110	—	EMVH250ADA470MH63G
	100	F80	0.90	14.0	110	—	EMVH250ADA101MF80G
	100	H63	0.90	14.0	110	—	EMVH250ADA101MH63G
	100	HA0	0.40	6.0	220	—	EMVH250ADA101MHA0G
	220	HA0	0.40	6.0	220	—	EMVH250ADA221MHA0G
	220	JA0	0.30	4.5	296	—	EMVH250ADA221MJA0G
	330	JA0	0.30	4.5	296	—	EMVH250ADA331MJA0G
	330	KE0	0.14	2.1	750	—	EMVH250ARA331MKE0S
	470	KE0	0.14	2.1	750	—	EMVH250ARA471MKE0S
	470	LH0	0.10	1.5	1,000	—	EMVH250□DA471MLH0S
	680	LH0	0.10	1.5	1,000	—	EMVH250□DA681MLH0S
	680	MH0	0.10	1.5	1,200	—	EMVH250□DA681MMH0S
	1,000	MN0	0.058	0.87	1,550	—	EMVH250□DA102MMN0S
35	10	F60	1.6	24.0	69	—	EMVH350ADA100MF60G
	22	F60	1.6	24.0	69	—	EMVH350ADA220MF60G
	33	F80	0.90	14.0	110	—	EMVH350ADA330MF80G
	33	H63	0.90	14.0	110	—	EMVH350ADA330MH63G
	47	F80	0.90	14.0	110	—	EMVH350ADA470MF80G
	47	H63	0.90	14.0	110	—	EMVH350ADA470MH63G
	47	HA0	0.40	6.0	220	—	EMVH350ADA470MHA0G
	100	HA0	0.40	6.0	220	—	EMVH350ADA101MHA0G
	100	JA0	0.30	4.5	296	—	EMVH350ADA101MJA0G
	220	JA0	0.30	4.5	296	—	EMVH350ADA221MJA0G
	330	KE0	0.14	2.1	750	—	EMVH350ARA331MKE0S
	330	LH0	0.10	1.5	1,000	—	EMVH350□DA331MLH0S
	470	KG5	0.11	1.5	900	—	EMVH350ARA471MKG5S
	470	LH0	0.10	1.5	1,000	—	EMVH350□DA471MLH0S
	680	MH0	0.10	1.5	1,200	—	EMVH350□DA681MMH0S
50	10	F60	2.8	42.0	51	—	EMVH500ADA100MF60G
	10	H63	1.6	30.0	83	—	EMVH500ADA100MH63G
	22	F80	2.0	30.0	83	—	EMVH500ADA220MF80G
	22	H63	1.6	30.0	83	—	EMVH500ADA220MH63G

WV (Vdc)	Cap (μF)	Size code	ESR (Ωmax/ 100kHz) 20℃	ESR (Ωmax/ 100kHz) -40℃	Rated ripple current (mArms/125℃) 100kHz	Rated ripple current (mArms/125℃) 120kHz	Part No.
50	33	F80	2.0	30.0	83	—	EMVH500ADA330MF80G
	33	H63	1.6	30.0	83	—	EMVH500ADA330MH63G
	33	HA0	0.70	11.0	160	—	EMVH500ADA330MHA0G
	47	HA0	0.70	11.0	160	—	EMVH500ADA470MHA0G
	47	JA0	0.50	7.5	247	—	EMVH500ADA470MJA0G
	100	JA0	0.50	7.5	247	—	EMVH500ADA101MJA0G
	100	KE0	0.23	3.5	550	—	EMVH500ARA101MKE0S
	220	KE0	0.23	3.5	550	—	EMVH500ARA221MKE0S
	220	LH0	0.15	2.3	850	—	EMVH500□DA221MLH0S
	330	KG5	0.18	2.7	700	—	EMVH500ARA331MKG5S
	330	LH0	0.15	2.3	850	—	EMVH500□DA331MLH0S
	470	MH0	0.15	2.3	920	—	EMVH500□DA471MMH0S
63	10	F80	2.0	100	60	—	EMVH630ADA100MF80G
	10	H63	2.0	110	60	—	EMVH630ADA100MH63G
	22	HA0	0.70	35.0	100	—	EMVH630ADA220MHA0G
	33	HA0	0.70	35.0	100	—	EMVH630ADA330MHA0G
	33	JA0	0.50	25.0	170	—	EMVH630ADA330MJA0G
	47	HA0	0.70	35.0	100	—	EMVH630ADA470MHA0G
	47	JA0	0.50	25.0	170	—	EMVH630ADA470MJA0G
	100	KE0	0.25	12.5	500	—	EMVH630ARA101MKE0S
	220	KG5	0.20	10.0	600	—	EMVH630ARA221MKG5S
	330	LH0	0.18	9.0	820	—	EMVH630□DA331MLH0S
	470	LN0	0.11	5.5	1,100	—	EMVH630□DA471MLN0S
80	10	HA0	0.75	50.0	70	—	EMVH800ADA100MHA0G
	22	HA0	0.75	50.0	70	—	EMVH800ADA220MHA0G
	22	JA0	0.55	35.0	115	—	EMVH800ADA220MJA0G
	33	HA0	0.75	50.0	70	—	EMVH800ADA330MHA0G
	33	JA0	0.55	35.0	115	—	EMVH800ADA330MJA0G
	47	JA0	0.55	35.0	115	—	EMVH800ADA470MJA0G
100	10	HA0	0.75	50.0	70	—	EMVH101ADA100MHA0G
	22	HA0	0.75	50.0	70	—	EMVH101ADA220MHA0G
	22	JA0	0.55	35.0	115	—	EMVH101ADA220MJA0G
	33	JA0	0.55	35.0	115	—	EMVH101ADA330MJA0G
	47	KE0	0.33	16.5	450	—	EMVH101ARA470MKE0S
	68	KG5	0.26	13.0	550	—	EMVH101ARA680MKG5S
	100	LH0	0.24	12.0	650	—	EMVH101□DA101MLH0S
	220	MN0	0.16	8.0	950	—	EMVH101□DA221MMN0S
160	10	KE0	—	—	—	100	EMVH161ARA100MKE0S
	22	LH0	—	—	—	180	EMVH161□DA220MLH0S
	33	MH0	—	—	—	245	EMVH161□DA330MMH0S
	68	MN0	—	—	—	380	EMVH161□DA680MMN0S
200	10	KE0	—	—	—	100	EMVH201ARA100MKE0S
	22	LH0	—	—	—	180	EMVH201□DA220MLH0S
	33	LN0	—	—	—	250	EMVH201□DA330MLN0S
	33	MH0	—	—	—	245	EMVH201□DA330MMH0S
	47	MN0	—	—	—	315	EMVH201□DA470MMN0S
250	10	KG5	—	—	—	110	EMVH251ARA100MKG5S
	22	LN0	—	—	—	200	EMVH251□DA220MLN0S
	22	MH0	—	—	—	205	EMVH251□DA220MMH0S
	33	MN0	—	—	—	260	EMVH251□DA330MMN0S
400	4.7	KE0	—	—	—	70	EMVH401ARA4R7MKE0S
	6.8	LH0	—	—	—	100	EMVH401□DA6R8MLH0S
	10	LN0	—	—	—	140	EMVH401□DA100MLN0S
	10	MH0	—	—	—	135	EMVH401□DA100MMH0S
450	3.3	KG5	—	—	—	65	EMVH451ARA3R3MKG5S
	4.7	LH0	—	—	—	85	EMVH451□DA4R7MLH0S
	10	MN0	—	—	—	145	EMVH451□DA100MMN0S

□ : Enter the appropriate terminal code.

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

High heat resistance, 125℃

New! Alchip™-MHB Series

- ESR : Less than MVH
- Endurance : 2,000 hours at 125℃
- Rated Voltage Range : 10 to 35V
- Nominal capacitance range : 47 to 330μF
- Solvent-proof type
- **RoHS Compliant**

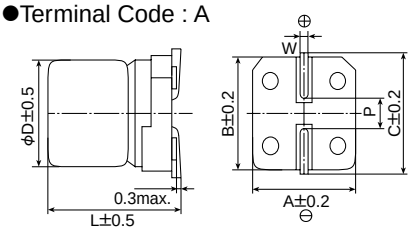
MHB
↑ Lower Z
MVH

◆SPECIFICATIONS

Items	Characteristics					
Category Temperature Range	-40 to +125℃					
Rated Voltage Range	10 to 35Vdc					
Capacitance Tolerance	±20%(M)					(20℃, 120Hz)
Leakage Current	I≦0.01CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)					(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage(Vdc)	10V	16V	25V	35V	
	tanδ (Max.)	0.24	0.20	0.16	0.14	(20℃, 120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(Vdc)	10V	16V	25V	35V	
	Z(-25℃)/Z(+20℃)	3	2	2	2	
	Z(-40℃)/Z(+20℃)	4	3	3	3	(120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 125℃.					
	Capacitance change	≦±30% of the initial measured value				
	D.F. (tanδ)	≦300% of the initial specified value				
	Leakage current	≦The initial specified value				
	ESR(-40℃, 400kHz)	HA0 : ≦6Ω				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.					
	Capacitance change	≦±30% of the initial measured value				
	D.F. (tanδ)	≦300% of the initial specified value				
	Leakage current	≦The initial specified value				

◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	M	H	B				A	D	A				M				G

- 18 : Supplement code
- 15 16 17 : Size code
- 14 : Capacitance tolerance code
- 11 12 13 : Capacitance code (ex. 47μF:470, 470μF:471)
- 9 10 : Taping code
- 8 : Terminal code
- 5 6 7 : Voltage code (ex. 10V:100, 35V:350)
- 2 3 4 : Series code
- 1 : Category

◆MARKING

EX) 16V220μF

◆RATED VOLTAGE SYMBOL

Rated voltage (Vdc)	Symbol
10	A
16	C
25	E
35	V

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Size code	ESR (Ωmax/100k to 400kHz)		Rated ripple current (mArms/125℃, 100k to 400kHz)	Part No.
			20℃	-40℃		
10	330	HA0	0.3	3.0	240	EMHB100ADA331MHA0G
16	100	HA0	0.3	3.0	240	EMHB160ADA101MHA0G
	220	HA0	0.3	3.0	240	EMHB160ADA221MHA0G
25	100	HA0	0.3	3.0	240	EMHB250ADA101MHA0G
	220	HA0	0.3	3.0	240	EMHB250ADA221MHA0G
35	47	HA0	0.3	3.0	240	EMHB350ADA470MHA0G
	100	HA0	0.3	3.0	240	EMHB350ADA101MHA0G

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Low ESR, 105℃

Alchip™-MKB Series

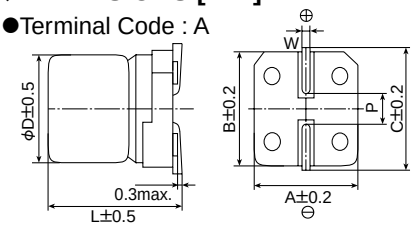
- Low ESR
- Endurance : 3,000 hours at 105℃
- Rated voltage 400V, Capacitance 2.2 to 4.7μF
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics		
Category Temperature Range	-40 to +105℃		
Rated Voltage Range	400Vdc		
Capacitance Tolerance	±20%(M)		(20℃, 120Hz)
Leakage Current	I=0.04CV+100(max.) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)		(at 20℃ after 1 minute)
Dissipation Factor (tanδ)	Rated voltage(Vdc)	400V	
	tanδ (Max.)	0.25	(20℃, 120Hz)
Low Temperature Characteristics (Max. impedance Ratio)	Rated voltage(Vdc)	400V	
	Z(-25℃)/Z(+20℃)	6	
	Z(-40℃)/Z(+20℃)	10	(120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 3,000 hours at 105℃.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	
Shelf life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	

◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆MARKING

EX) 400V3.9μF

◆PART NUMBERING SYSTEM

1	2 3 4	5 6 7	8	9 10	11 12 13	14	15 16 17	18
E	MKB	401	A	DA		M		G

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 2.2μF:2R2)
Taping code
Terminal code
Voltage code
Series code
Category

Please refer to "Product code guide (surface mount type)"

◆RATED VOLTAGE SYMBOL

Rated voltage (Vdc)	Symbol
400	2G

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	ESR (Ωmax/120Hz)		Rated ripple current (mArms/105℃,120Hz)	Part No.
			20℃	-40℃		
400	2.2	HA0	20	1,000	26	EMKB401ADA2R2MHA0G
	3.3	JA0	10	500	37	EMKB401ADA3R3MJA0G
	3.9	JA0	10	500	38	EMKB401ADA3R9MJA0G
	4.7	JA0	10	500	39	EMKB401ADA4R7MJA0G

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 85℃

Alchip™-MV-BP Series

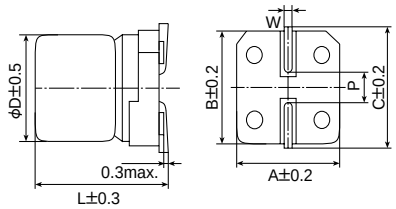
- Bi-polar chip type for the circuit, of which polarity is frequently reversed
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	−40 to +85℃								
Rated Voltage Range	4 to 50Vdc								
Capacitance Tolerance	±20% (M)								(at 20℃, 120Hz)
Leakage Current	I=0.05CV or 10μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)								(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.45	0.32	0.26	0.24	0.22	0.20	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	7	4	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	15	10	8	6	4	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃, however the polarization shall be reversed every 250 hours.								
	Capacitance change	≦±20% of the initial value							
	D.F. (tanδ)	≦200% of the initial specified value							
	Leakage current	≦The initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.								
	Capacitance change	≦±15% of the initial value							
	D.F. (tanδ)	≦150% of the initial specified value							
	Leakage current	≦The initial specified value							

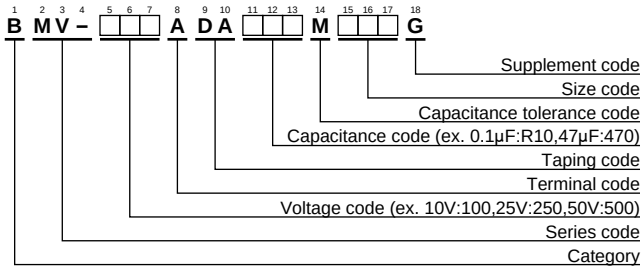
◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
D55	4	5.2	4.3	4.3	5.1	0.5 to 0.8	1.0
E55	5	5.2	5.3	5.3	5.9	0.5 to 0.8	1.4
F55	6.3	5.2	6.6	6.6	7.2	0.5 to 0.8	1.9

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 35V4.7μF

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	(15)	(D55)	(0.45)	(14)	BMV-4R0ADA150MD55G
6.3	10	D55	0.32	13	BMV-6R3ADA100MD55G
	22	E55	0.32	23	BMV-6R3ADA220ME55G
	47	F55	0.32	36	BMV-6R3ADA470MF55G
10	(6.8)	(D55)	(0.26)	(12)	BMV-100ADA6R8MD55G
	(15)	(E55)	(0.26)	(21)	BMV-100ADA150ME55G
	33	F55	0.26	33	BMV-100ADA330MF55G
16	4.7	D55	0.24	11	BMV-160ADA4R7MD55G
	10	E55	0.24	18	BMV-160ADA100ME55G
	22	F55	0.24	28	BMV-160ADA220MF55G
25	3.3	D55	0.22	9.0	BMV-250ADA3R3MD55G
	(6.8)	(E55)	(0.22)	(15)	BMV-250ADA6R8ME55G
	(15)	(F55)	(0.22)	(24)	BMV-250ADA150MF55G
35	2.2	D55	0.20	8.0	BMV-350ADA2R2MD55G
35	4.7	E55	0.20	13	BMV-350ADA4R7ME55G
	(6.8)	(F55)	(0.20)	(17)	BMV-350ADA6R8MF55G
	10	F55	0.20	21	BMV-350ADA100MF55G
50	0.10	D55	0.20	1.3	BMV-500ADAR10MD55G
	(0.15)	(D55)	(0.20)	(1.9)	BMV-500ADAR15MD55G
	0.22	D55	0.20	2.3	BMV-500ADAR22MD55G
	0.33	D55	0.20	2.8	BMV-500ADAR33MD55G
	0.47	D55	0.20	3.4	BMV-500ADAR47MD55G
	(0.68)	(D55)	(0.20)	(4.1)	BMV-500ADAR68MD55G
	1.0	D55	0.20	5.5	BMV-500ADA1R0MD55G
	(1.5)	(D55)	(0.20)	(6.5)	BMV-500ADA1R5MD55G
	2.2	E55	0.20	9.0	BMV-500ADA2R2ME55G
	3.3	E55	0.20	11	BMV-500ADA3R3ME55G
	4.7	F55	0.20	14	BMV-500ADA4R7MF55G

( ) : Second standard

CAT. No. E1001H

NIPPON CHEMI-CON

SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 105℃

Alchip™-MVK-BP Series

- Bi-polar chip type for the circuit, of which polarity is frequently reversed
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

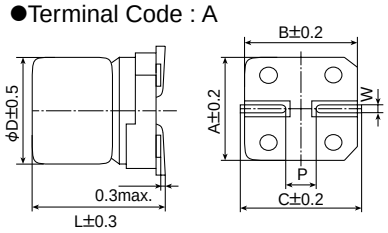
MVK-BP
↑ Bi-polar
MVK

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−40 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20% (M)							(at 20℃, 120Hz)
Leakage Current	I=0.05CV or 10μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.35	0.26	0.24	0.20	0.18	0.18	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	10	8	6	4	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃, however the polarization shall be reversed every 250 hours.							
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±25% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						

◆DIMENSIONS [mm]

●Terminal Code : A



Size code	D	L	A	B	C	W	P
D60	4	5.7	4.3	4.3	5.1	0.5 to 0.8	1.0
E60	5	5.7	5.3	5.3	5.9	0.5 to 0.8	1.4
F60	6.3	5.7	6.6	6.6	7.2	0.5 to 0.8	1.9

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
B	M	V	K				A	D	A				M				G

- 18 G : Supplement code
- 15 16 17 : Size code
- 14 M : Capacitance tolerance code
- 11 12 13 : Capacitance code (ex. 4.7μF:4R7,10μF:100)
- 9 10 DA : Taping code
- 8 A : Terminal code
- 5 6 7 : Voltage code (ex. 6.3V:6R3,10V:100,50V:500)
- 4 K : Series code
- 1 2 3 B MVK : Category

Please refer to "Product code guide (surface mount type)"

◆MARKING

EX) 35V4.7μF

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	10	D60	0.35	14	BMVK6R3ADA100MD60G
	22	E60	0.35	25	BMVK6R3ADA220ME60G
	47	F60	0.35	39	BMVK6R3ADA470MF60G
10	(6.8)	(D60)	(0.26)	(13)	BMVK100ADA6R8MD60G
	(15)	(E60)	(0.26)	(22)	BMVK100ADA150ME60G
	33	F60	0.26	35	BMVK100ADA330MF60G
16	4.7	D60	0.24	12	BMVK160ADA4R7MD60G
	10	E60	0.24	20	BMVK160ADA100ME60G
	22	F60	0.24	32	BMVK160ADA220MF60G
25	3.3	D60	0.20	10	BMVK250ADA3R3MD60G
	(6.8)	(E60)	(0.20)	(17)	BMVK250ADA6R8ME60G
	(15)	(F60)	(0.20)	(28)	BMVK250ADA150MF60G
35	2.2	D60	0.18	8.8	BMVK350ADA2R2MD60G
	4.7	E60	0.18	15	BMVK350ADA4R7ME60G
	10	F60	0.18	23	BMVK350ADA100MF60G

WV (Vdc)	Cap (μF)	Size code	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
50	0.10	D60	0.18	1.3	BMVK500ADAR10MD60G
	(0.15)	(D60)	(0.18)	(1.9)	BMVK500ADAR15MD60G
	0.22	D60	0.18	2.3	BMVK500ADAR22MD60G
	0.33	D60	0.18	2.8	BMVK500ADAR33MD60G
	0.47	D60	0.18	3.4	BMVK500ADAR47MD60G
	(0.68)	(D60)	(0.18)	(4.1)	BMVK500ADAR68MD60G
	1.0	D60	0.18	5.5	BMVK500ADA1R0MD60G
	(1.5)	(D60)	(0.18)	(7.5)	BMVK500ADA1R5MD60G
	2.2	E60	0.18	10	BMVK500ADA2R2ME60G
	3.3	E60	0.18	13	BMVK500ADA3R3ME60G
	4.7	F60	0.18	16	BMVK500ADA4R7MF60G
	(6.8)	(F60)	(0.18)	(20)	BMVK500ADA6R8MF60G

( ) : Second standard

CAT. No. E1001H

Miniature Aluminum Electrolytic Capacitors

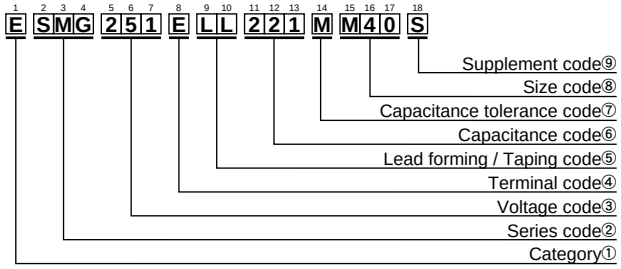
NIPPON CHEMI-CON

PART NUMBERING SYSTEM

Product code guide (Radial lead type)

(Example : SMG series, 250V-220μF, ϕ18×40L, Straight lead with bulk)

Please refer to the following table



①Category

Type	Code
	1th
Polar	E
Bi-polar	B

②Series code

Series name	Code		
	2th	3th	4th
SMG	S	M	G
FL	F	L	–
No series name	C	S	T

③Voltage code

Voltage (V)	Code		
	5th	6th	7th
4	4	R	0
6.3	6	R	3
10	1	0	0
16	1	6	0
25	2	5	0
35	3	5	0
50	5	0	0
63	6	3	0
80	8	0	0
100	1	0	1
160	1	6	1
200	2	0	1
250	2	5	1
315	3	B	1
350	3	5	1
400	4	0	1
420	4	2	1
450	4	5	1
500	5	0	1

④Terminal code

Type	Code
	8th
Radial lead	E

⑤Lead forming / Taping code

Type	Contents	Code	
		9th	10th
Lead forming (Radial lead /Bulk)	Straight	L	L
	CC(3.5mm)	C	3
	CC(5.0mm)	C	5
	FC	F	C
	FM	F	M
	MC	M	C
	BC	B	C
	RC	R	C
Taping (Radial lead)	Straight	T	D
	Sloping clinch		
	Straight (Skip a hole)	T	E
	Clinch (F=2.5mm)	T	A
	Clinch (F=3.5mm)	T	B
	Clinch (F=5.0mm)	T	C

Refer to product guide for lead forming and taping specifications.

⑥Capacitance code

Cap. (μF)	Code		
	11th	12th	13th
0.10	R	1	0
0.22	R	2	2
0.33	R	3	3
0.47	R	4	7
0.68	R	6	8
1.0	1	R	0
2.2	2	R	2
3.3	3	R	3
4.7	4	R	7
6.8	6	R	8
10	1	0	0
22	2	2	0
33	3	3	0
47	4	7	0
68	6	8	0
100	1	0	1
220	2	2	1
330	3	3	1
470	4	7	1
680	6	8	1
1,000	1	0	2
2,200	2	2	2
3,300	3	3	2
4,700	4	7	2
6,800	6	8	2
10,000	1	0	3
22,000	2	2	3
33,000	3	3	3
47,000	4	7	3
68,000	6	8	3

⑦Capacitance tolerance

Tol. (%)	Code
	14th
±20	M
±10	K
-10 to +30	Q
-10 to +50	T

⑧Size code

ϕD	Code
	15th
4	D
5	E
6.3	F
8	H
10	J
12.5	K
14.5	U
16	L
18	M
20	N
22	P
25.4	Q

L	Code	
	16th	17th
5	0	5
7	0	7
9	0	9
11	1	1
11.5	B	5
12.0	1	2
12.5	C	5
13	1	3
15	1	5
16	1	6
20	2	0
25	2	5
30	3	0
31.5	N	3
35	3	5
35.5	P	1
40	4	0
45	4	5
50	5	0
55	5	5
60	6	0

⑨Supplement code

Sleeve material	Terminal plating material	Code
		18th
PET	Sn100%	S
	Sn-Bi	D
	Sn-Pb	C
Sleeveless (Coating case)	Sn-Bi	G
	Sn-Pb	F
PVC	Sn100%	B
	Sn-Bi	A
	Sn-Pb	N

* Refer to the appendix (Part number) for codes not listed here.

CAT. No. E1001H

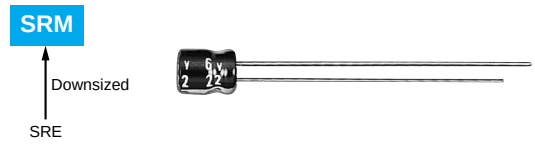
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 5mm height, 85℃

SRM Series

- Downsized from current standard SRE series
- 5mm height
- Endurance : 1,000 hours at 85℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

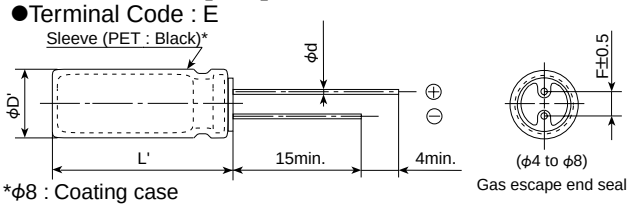


◆SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	−40 to +85℃								
Rated Voltage Range	4 to 50Vdc								
Capacitance Tolerance	±20% (M)								(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)								(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.40	0.38	0.30	0.23	0.17	0.15	0.13	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	7	4	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	15	8	8	6	4	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 85℃.								
	Capacitance change	≦±20% of the initial value							
	D.F. (tanδ)	≦200% of the initial specified value							
	Leakage current	≦The initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.								
	Capacitance change	≦±20% of the initial value							
	D.F. (tanδ)	≦200% of the initial specified value							
	Leakage current	≦The initial specified value							

◆DIMENSIONS [mm]

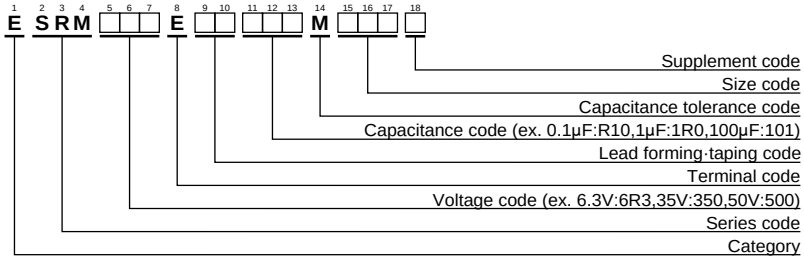
●Terminal Code : E



*φ8 : Coating case

φD	4	5	6.3	8
φd	0.45	0.45	0.45	0.45
F	1.5	2.0	2.5	2.5
φD'	φD+0.5max.			
L'	L+1.0max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	100	5X5	0.40	55	ESRM4R0E□□101ME05D
	220	6.3X5	0.40	88	ESRM4R0E□□221MF05D
6.3	22	4X5	0.38	22	ESRM6R3E□□220MD05D
	47	4X5	0.38	40	ESRM6R3E□□470MD05D
	330	8X5	0.38	141	ESRM6R3E□□331MH05G
10	33	4X5	0.30	36	ESRM100E□□330MD05D
	100	6.3X5	0.30	78	ESRM100E□□101MF05D
	220	8X5	0.30	148	ESRM100E□□221MH05G
16	10	4X5	0.23	18	ESRM160E□□100MD05D
	22	4X5	0.23	33	ESRM160E□□220MD05D
	33	5X5	0.23	47	ESRM160E□□330ME05D
	47	5X5	0.23	55	ESRM160E□□470ME05D
25	4.7	4X5	0.17	13	ESRM250E□□4R7MD05D
	10	4X5	0.17	25	ESRM250E□□100MD05D
	22	5X5	0.17	41	ESRM250E□□220ME05D
	47	6.3X5	0.17	63	ESRM250E□□470MF05D

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
25	100	8X5	0.17	116	ESRM250E□□101MH05G
35	3.3	4X5	0.15	12	ESRM350E□□3R3MD05D
	33	6.3X5	0.15	56	ESRM350E□□330MF05D
	47	8X5	0.15	85	ESRM350E□□470MH05G
50	0.10	4X5	0.13	1.3	ESRM500E□□R10MD05D
	0.22	4X5	0.13	2.9	ESRM500E□□R22MD05D
	0.33	4X5	0.13	4.2	ESRM500E□□R33MD05D
	0.47	4X5	0.13	5.0	ESRM500E□□R47MD05D
	1.0	4X5	0.13	7.2	ESRM500E□□1R0MD05D
	2.2	4X5	0.13	10	ESRM500E□□2R2MD05D
	3.3	4X5	0.13	14	ESRM500E□□3R3MD05D
	4.7	4X5	0.13	19	ESRM500E□□4R7MD05D
	10	5X5	0.13	31	ESRM500E□□100ME05D
	22	6.3X5	0.13	49	ESRM500E□□220MF05D
	33	8X5	0.13	76	ESRM500E□□330MH05G

□□ : Enter the appropriate lead forming or taping code.

Note : □ unified to φ4X5.

CAT. No. E1001H

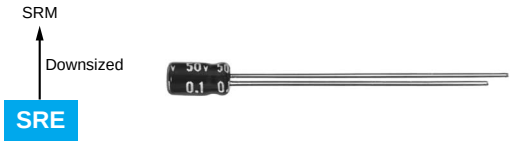
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

5mm height, 85℃

SRE Series

- ●5mm height
- ●Endurance : 1,000 hours at 85℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

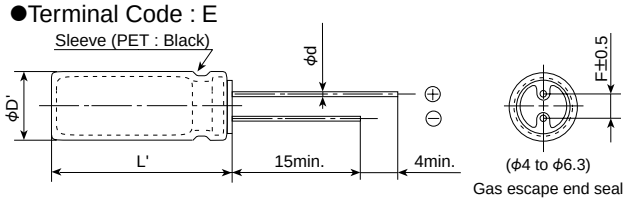


◆SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	−40 to +85℃								
Rated Voltage Range	4 to 50Vdc								
Capacitance Tolerance	±20% (M)								(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)								(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.35	0.24	0.20	0.16	0.14	0.12	0.10	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	7	4	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	15	10	8	6	4	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 85℃.								
	Capacitance change	≦±20% of the initial value							
	D.F. (tanδ)	≦200% of the initial specified value							
	Leakage current	≦The initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.								
	Capacitance change	≦±20% of the initial value							
	D.F. (tanδ)	≦200% of the initial specified value							
	Leakage current	≦The initial specified value							

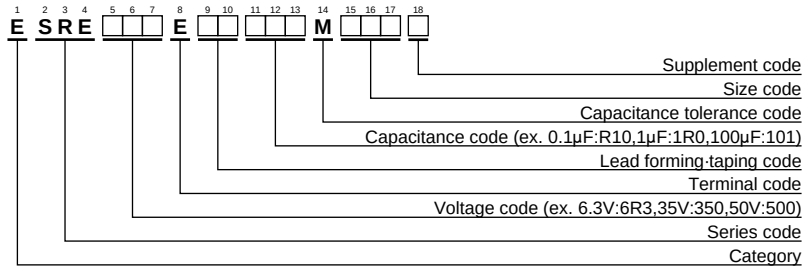
◆DIMENSIONS [mm]

●Terminal Code : E



φD	4	5	6.3
φd	0.45	0.45	0.45
F	1.5	2.0	2.5
φD'	φD+0.5max.		
L'	L+1.0max.		

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

5mm height, 85℃

SRE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	33	4×5	0.35	23	ESRE4R0E□□330MD05D
6.3	10	4×5	0.24	12	ESRE6R3E□□100MD05D
	15	4×5	0.24	17	ESRE6R3E□□150MD05D
	22	4×5	0.24	23	ESRE6R3E□□220MD05D
	47	5×5	0.24	38	ESRE6R3E□□470ME05D
	100	6.3×5	0.24	60	ESRE6R3E□□101MF05D
10	6.8	4×5	0.20	11	ESRE100E□□6R8MD05D
	15	4×5	0.20	20	ESRE100E□□150MD05D
	33	5×5	0.20	35	ESRE100E□□330ME05D
	68	6.3×5	0.20	54	ESRE100E□□680MF05D
16	4.7	4×5	0.16	10	ESRE160E□□4R7MD05D
	6.8	4×5	0.16	14	ESRE160E□□6R8MD05D
	10	4×5	0.16	17	ESRE160E□□100MD05D
	15	5×5	0.16	26	ESRE160E□□150ME05D
	22	5×5	0.16	32	ESRE160E□□220ME05D
	47	6.3×5	0.16	50	ESRE160E□□470MF05D
25	3.3	4×5	0.14	9.3	ESRE250E□□3R3MD05D
	4.7	4×5	0.14	12	ESRE250E□□4R7MD05D
	6.8	4×5	0.14	16	ESRE250E□□6R8MD05D
	33	6.3×5	0.14	45	ESRE250E□□330MF05D

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
35	2.2	4×5	0.12	8.3	ESRE350E□□2R2MD05D
	3.3	4×5	0.12	11	ESRE350E□□3R3MD05D
	4.7	4×5	0.12	15	ESRE350E□□4R7MD05D
	6.8	5×5	0.12	20	ESRE350E□□6R8ME05D
	10	5×5	0.12	25	ESRE350E□□100ME05D
	15	6.3×5	0.12	33	ESRE350E□□150MF05D
	22	6.3×5	0.12	40	ESRE350E□□220MF05D
50	0.10	4×5	0.10	1.3	ESRE500E□□R10MD05D
	0.15	4×5	0.10	2.0	ESRE500E□□R15MD05D
	0.22	4×5	0.10	2.9	ESRE500E□□R22MD05D
	0.33	4×5	0.10	3.5	ESRE500E□□R33MD05D
	0.47	4×5	0.10	4.2	ESRE500E□□R47MD05D
	0.68	4×5	0.10	5.1	ESRE500E□□R68MD05D
	1.0	4×5	0.10	6.2	ESRE500E□□1R0MD05D
	1.5	4×5	0.10	7.5	ESRE500E□□1R5MD05D
	2.2	4×5	0.10	10	ESRE500E□□2R2MD05D
	3.3	4×5	0.10	14	ESRE500E□□3R3MD05D
	4.7	5×5	0.10	19	ESRE500E□□4R7ME05D
	6.8	6.3×5	0.10	24	ESRE500E□□6R8MF05D
	10	6.3×5	0.10	29	ESRE500E□□100MF05D

□□ : Enter the appropriate lead forming or taping code.
Note : ▭ unified to φ4×5.

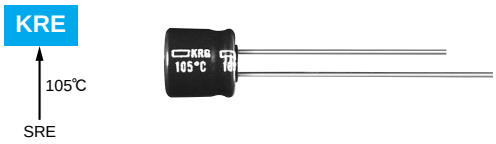
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

5mm height, 105℃

KRE Series

- ●5mm height
- ●Endurance : 1,000 hours at 105℃
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

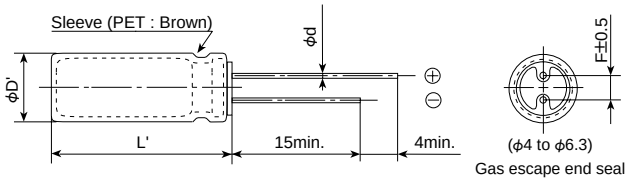


◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−55 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20% (M)							(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.27	0.23	0.19	0.15	0.13	0.11	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	3	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	9	7	5	3	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃.							
	Capacitance change	≦±20% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±20% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						

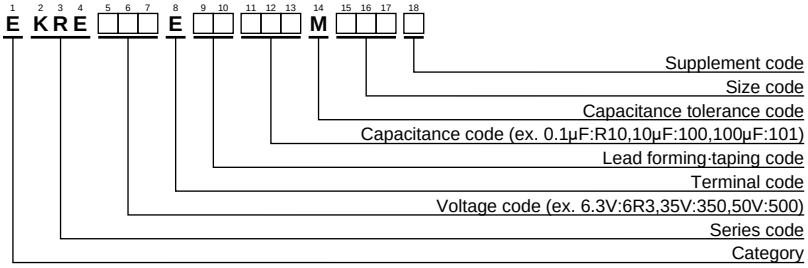
◆DIMENSIONS [mm]

●Terminal Code : E



φD	4	5	6.3
φd	0.45	0.45	0.45
F	1.5	2.0	2.5
φD'	φD+0.5max.		
L'	L+1.0max.		

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

5mm height, 105℃

KRE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	10	4×5	0.27	12	EKRE6R3E□□100MD05D
	15	4×5	0.27	16	EKRE6R3E□□150MD05D
	22	4×5	0.27	21	EKRE6R3E□□220MD05D
	47	5×5	0.27	36	EKRE6R3E□□470ME05D
	100	6.3×5	0.27	56	EKRE6R3E□□101MF05D
10	6.8	4×5	0.23	11	EKRE100E□□6R8MD05D
	15	4×5	0.23	20	EKRE100E□□150MD05D
	33	5×5	0.23	34	EKRE100E□□330ME05D
	68	6.3×5	0.23	52	EKRE100E□□680MF05D
16	4.7	4×5	0.19	9.4	EKRE160E□□4R7MD05D
	6.8	4×5	0.19	13	EKRE160E□□6R8MD05D
	10	4×5	0.19	16	EKRE160E□□100MD05D
	15	5×5	0.19	25	EKRE160E□□150ME05D
	22	5×5	0.19	30	EKRE160E□□220ME05D
	47	6.3×5	0.19	48	EKRE160E□□470MF05D
25	3.3	4×5	0.15	8.8	EKRE250E□□3R3MD05D
	4.7	4×5	0.15	12	EKRE250E□□4R7MD05D
	6.8	4×5	0.15	16	EKRE250E□□6R8MD05D
	33	6.3×5	0.15	45	EKRE250E□□330MF05D
35	2.2	4×5	0.13	7.7	EKRE350E□□2R2MD05D
	3.3	4×5	0.13	11	EKRE350E□□3R3MD05D
	4.7	4×5	0.13	15	EKRE350E□□4R7MD05D
	6.8	5×5	0.13	20	EKRE350E□□6R8ME05D
	10	5×5	0.13	25	EKRE350E□□100ME05D
	15	6.3×5	0.13	33	EKRE350E□□150MF05D
	22	6.3×5	0.13	40	EKRE350E□□220MF05D
50	0.10	4×5	0.11	1.3	EKRE500E□□R10MD05D
	0.15	4×5	0.11	2.0	EKRE500E□□R15MD05D
	0.22	4×5	0.11	2.6	EKRE500E□□R22MD05D
	0.33	4×5	0.11	3.2	EKRE500E□□R33MD05D
	0.47	4×5	0.11	3.8	EKRE500E□□R47MD05D
	0.68	4×5	0.11	4.6	EKRE500E□□R68MD05D
	1.0	4×5	0.11	5.6	EKRE500E□□1R0MD05D
	1.5	4×5	0.11	6.9	EKRE500E□□1R5MD05D
	2.2	4×5	0.11	10	EKRE500E□□2R2MD05D
	3.3	4×5	0.11	14	EKRE500E□□3R3MD05D
	4.7	5×5	0.11	19	EKRE500E□□4R7ME05D
	6.8	6.3×5	0.11	24	EKRE500E□□6R8MF05D
	10	6.3×5	0.11	29	EKRE500E□□100MF05D

□□ : Enter the appropriate lead forming or taping code.
Note : ▭ unified to φ4×5.

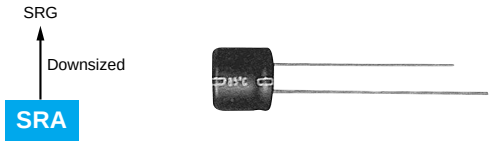
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

7mm height, 85℃

SRA Series

- 7mm height
- Endurance : 1,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

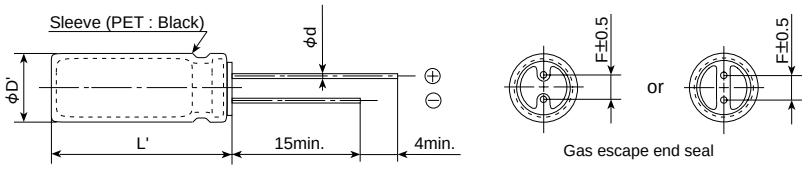


◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	−40 to +85℃									
Rated Voltage Range	4 to 63Vdc									
Capacitance Tolerance	±20% (M)									(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)									(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	63V	
	tanδ (Max.)	0.35	0.24	0.20	0.16	0.14	0.12	0.10	0.08	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	63V	
	Z(−25℃)/Z(+20℃)	4	4	3	2	2	2	2	2	
	Z(−40℃)/Z(+20℃)	10	10	8	6	4	3	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 85℃.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

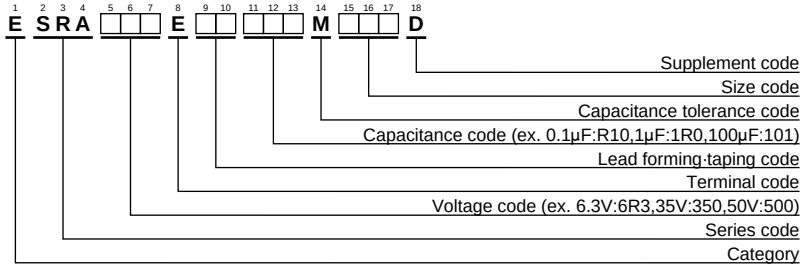
◆DIMENSIONS [mm]

●Terminal Code : E



φD	4	5	6.3	8
φd	0.45	0.45	0.45	0.45
F	1.5	2.0	2.5	3.5
φD'	φD+0.5max.			
L'	L+1.0max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

7mm height, 85℃

SRA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	33	4×7	0.35	26	ESRA4R0E□□330MD07D
	47	4×7	0.35	34	ESRA4R0E□□470MD07D
	100	5×7	0.35	61	ESRA4R0E□□101ME07D
	220	6.3×7	0.35	95	ESRA4R0E□□221MF07D
	470	8×7	0.35	154	ESRA4R0E□□471MH07D
6.3	22	4×7	0.24	31	ESRA6R3E□□220MD07D
	47	5×7	0.24	47	ESRA6R3E□□470ME07D
	330	8×7	0.24	156	ESRA6R3E□□331MH07D
10	33	5×7	0.20	43	ESRA100E□□330ME07D
	100	6.3×7	0.20	80	ESRA100E□□101MF07D
	220	8×7	0.20	140	ESRA100E□□221MH07D
16	10	4×7	0.16	25	ESRA160E□□100MD07D
	22	5×7	0.16	39	ESRA160E□□220ME07D
	47	6.3×7	0.16	59	ESRA160E□□470MF07D
	100	6.3×7	0.16	97	ESRA160E□□101MF07D
25	33	6.3×7	0.14	53	ESRA250E□□330MF07D
	47	6.3×7	0.14	71	ESRA250E□□470MF07D
35	4.7	4×7	0.12	20	ESRA350E□□4R7MD07D
	10	5×7	0.12	30	ESRA350E□□100ME07D
	22	6.3×7	0.12	47	ESRA350E□□220MF07D
	33	6.3×7	0.12	64	ESRA350E□□330MF07D
	47	8×7	0.12	83	ESRA350E□□470MH07D

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
50	0.10	4×7	0.10	1.3	ESRA500E□□R10MD07D
	0.22	4×7	0.10	2.9	ESRA500E□□R22MD07D
	0.33	4×7	0.10	3.5	ESRA500E□□R33MD07D
	0.47	4×7	0.10	5.0	ESRA500E□□R47MD07D
	1.0	4×7	0.10	10	ESRA500E□□1R0MD07D
	2.2	4×7	0.10	15	ESRA500E□□2R2MD07D
	3.3	4×7	0.10	18	ESRA500E□□3R3MD07D
	4.7	5×7	0.10	23	ESRA500E□□4R7ME07D
	10	6.3×7	0.10	34	ESRA500E□□100MF07D
	22	6.3×7	0.10	57	ESRA500E□□220MF07D
	33	8×7	0.10	76	ESRA500E□□330MH07D
63	0.10	4×7	0.08	1.3	ESRA630E□□R10MD07D
	0.22	4×7	0.08	2.9	ESRA630E□□R22MD07D
	0.33	4×7	0.08	4.4	ESRA630E□□R33MD07D
	0.47	4×7	0.08	7.9	ESRA630E□□R47MD07D
	1.0	4×7	0.08	11	ESRA630E□□1R0MD07D
	2.2	4×7	0.08	17	ESRA630E□□2R2MD07D
	3.3	5×7	0.08	21	ESRA630E□□3R3ME07D
	4.7	6.3×7	0.08	26	ESRA630E□□4R7MF07D
	10	6.3×7	0.08	47	ESRA630E□□100MF07D

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

7mm height, 105℃

KMA Series

KMA
105℃
SRA

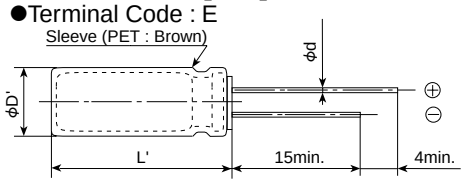
- ●7mm height
- ●Endurance : 1,000 hours at 105℃
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

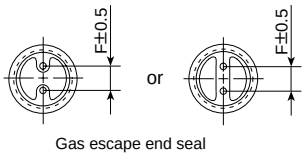
◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	−55 to +105℃									
Rated Voltage Range	4 to 63Vdc									
Capacitance Tolerance	±20% (M)									(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)									(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	63V	
	tanδ (Max.)	0.35	0.22	0.19	0.16	0.14	0.12	0.10	0.08	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V	63V	
	Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	2	2	
	Z(−40℃)/Z(+20℃)	10	6	5	3	3	3	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃.									
	Rated voltage	4 to 16Vdc				25 to 63Vdc				
	Capacitance change	≦±25% of the initial value				≦±20% of the initial value				
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.									
	Rated voltage	4 to 16Vdc				25 to 63Vdc				
	Capacitance change	≦±25% of the initial value				≦±20% of the initial value				
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

◆DIMENSIONS [mm]

●Terminal Code : E





φD	4	5	6.3
φd	0.45	0.45	0.45
F	1.5	2.0	2.5
φD'	φD+0.5max.		
L'	L+1.0max.		

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	M	A				E						M				D

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 0.1μF:R10,10μF:100,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,35V:350,50V:500)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

7mm height, 105℃

KMA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
4	33	4X7	0.35	26	EKMA4R0E□□330MD07D
	47	4X7	0.35	34	EKMA4R0E□□470MD07D
	100	5X7	0.35	61	EKMA4R0E□□101ME07D
	220	6.3X7	0.35	95	EKMA4R0E□□221MF07D
6.3	22	4X7	0.22	31	EKMA6R3E□□220MD07D
	47	5X7	0.22	47	EKMA6R3E□□470ME07D
10	15	4X7	0.19	28	EKMA100E□□150MD07D
	33	5X7	0.19	43	EKMA100E□□330ME07D
	68	6.3X7	0.19	63	EKMA100E□□680MF07D
	100	6.3X7	0.19	80	EKMA100E□□101MF07D
16	6.8	4X7	0.16	20	EKMA160E□□6R8MD07D
	10	4X7	0.16	25	EKMA160E□□100MD07D
	15	5X7	0.16	31	EKMA160E□□150ME07D
	22	5X7	0.16	39	EKMA160E□□220ME07D
	47	6.3X7	0.16	59	EKMA160E□□470MF07D
	100	6.3X7	0.16	97	EKMA160E□□101MF07D
25	33	6.3X7	0.14	53	EKMA250E□□330MF07D
	47	6.3X7	0.14	71	EKMA250E□□470MF07D
35	4.7	4X7	0.12	20	EKMA350E□□4R7MD07D
	6.8	5X7	0.12	24	EKMA350E□□6R8ME07D
	10	5X7	0.12	30	EKMA350E□□100ME07D
	15	6.3X7	0.12	37	EKMA350E□□150MF07D
	22	6.3X7	0.12	47	EKMA350E□□220MF07D
	33	6.3X7	0.12	64	EKMA350E□□330MF07D

□□ : Enter the appropriate lead forming or taping code.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
50	0.10	4X7	0.10	1.3	EKMA500E□□R10MD07D
	0.15	4X7	0.10	2.0	EKMA500E□□R15MD07D
	0.22	4X7	0.10	2.9	EKMA500E□□R22MD07D
	0.33	4X7	0.10	3.5	EKMA500E□□R33MD07D
	0.47	4X7	0.10	5.0	EKMA500E□□R47MD07D
	0.68	4X7	0.10	7.1	EKMA500E□□R68MD07D
	1.0	4X7	0.10	10	EKMA500E□□1R0MD07D
	1.5	4X7	0.10	12	EKMA500E□□1R5MD07D
	2.2	4X7	0.10	15	EKMA500E□□2R2MD07D
	3.3	4X7	0.10	18	EKMA500E□□3R3MD07D
	4.7	5X7	0.10	23	EKMA500E□□4R7ME07D
	6.8	6.3X7	0.10	28	EKMA500E□□6R8MF07D
	10	6.3X7	0.10	34	EKMA500E□□100MF07D
	22	6.3X7	0.10	57	EKMA500E□□220MF07D
63	0.10	4X7	0.08	1.3	EKMA630E□□R10MD07D
	0.15	4X7	0.08	1.9	EKMA630E□□R15MD07D
	0.22	4X7	0.08	2.9	EKMA630E□□R22MD07D
	0.33	4X7	0.08	4.4	EKMA630E□□R33MD07D
	0.47	4X7	0.08	7.9	EKMA630E□□R47MD07D
	0.68	4X7	0.08	9.2	EKMA630E□□R68MD07D
	1.0	4X7	0.08	11	EKMA630E□□1R0MD07D
	1.5	4X7	0.08	13	EKMA630E□□1R5MD07D
	2.2	4X7	0.08	17	EKMA630E□□2R2MD07D
	3.3	5X7	0.08	21	EKMA630E□□3R3ME07D
	4.7	6.3X7	0.08	26	EKMA630E□□4R7MF07D
	10	6.3X7	0.08	43	EKMA630E□□100MF07D

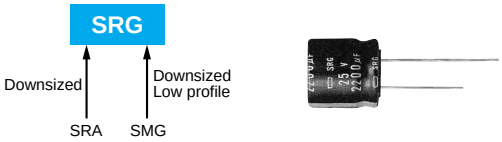
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 85℃

SRG Series

- Low profile : φ4×7mm to φ18×25mm
- Endurance : 1,000 to 2,000 hours at 85℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

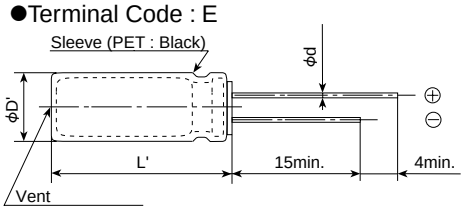


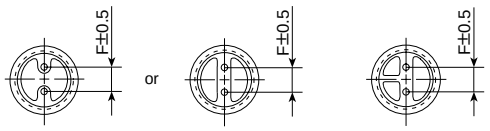
◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−40 to +85℃							
Rated Voltage Range	4 to 50Vdc							
Capacitance Tolerance	±20% (M)							(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V
	tanδ (Max.)	0.38	0.28	0.24	0.20	0.16	0.14	0.12
	When nominal capacitance exceeds 1,000μF, add 0.03 to the value above for each 1,000μF increase.							(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	4V	6.3V	10V	16V	25V	35V	50V
	Z(−25℃)/Z(+20℃)	6	5	4	3	2	2	2
	Z(−40℃)/Z(+20℃)	12	12	10	8	5	4	3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours (1,000 hours for φ8 and smaller) at 85℃.							
	Capacitance change	≦±20% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±20% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						

◆DIMENSIONS [mm]

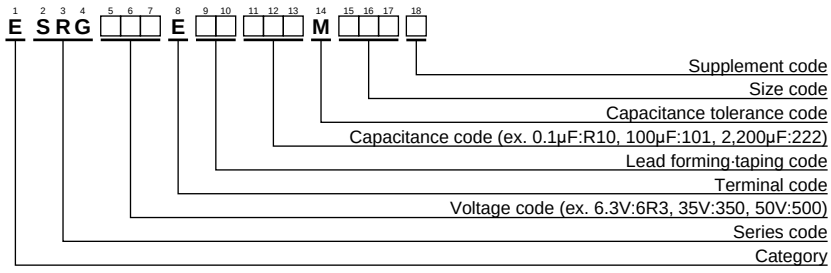
- Terminal Code : E





φD		4	5	6.3	8	10 & 12.5	16 & 18
φd	7L	0.45	0.45	0.45	0.45	—	—
	≧9L	–	0.5	0.5	0.6	0.6	0.8
F		1.5	2.0	2.5	3.5	5.0	7.5
φD'		φD+0.5max.					
L'		L+1.5max. (7L : L+1.0max.)					

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 85℃

SRG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case code φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
4	470	8×7	0.38	154	ESRG4R0E□□471MH07D
6.3	47	4×7	0.28	50	ESRG6R3E□□470MD07D
	100	5×7	0.28	87	ESRG6R3E□□101ME07D
	220	6.3×7	0.28	133	ESRG6R3E□□221MF07D
	330	6.3×9	0.28	247	ESRG6R3E□□331MF09D
	330	8×7	0.28	191	ESRG6R3E□□331MH07D
	1,000	10×9	0.28	505	ESRG6R3E□□102MJ09S
	4,700	16×15	0.37	1,410	ESRG6R3E□□472ML15S
	6,800	18×15	0.43	1,660	ESRG6R3E□□682MM15S
	10,000	18×20	0.55	2,020	ESRG6R3E□□103MM20S
10	33	4×7	0.24	46	ESRG100E□□330MD07D
	100	5×9	0.24	132	ESRG100E□□101ME09D
	220	6.3×9	0.24	218	ESRG100E□□221MF09D
	220	8×7	0.24	171	ESRG100E□□221MH07D
	470	8×9	0.24	385	ESRG100E□□471MH09D
	1,000	10×12.5	0.24	625	ESRG100E□□102MJC5S
	2,200	12.5×15	0.27	970	ESRG100E□□222MK15S
	3,300	16×15	0.30	1,310	ESRG100E□□332ML15S
	4,700	18×15	0.33	1,560	ESRG100E□□472MM15S
	6,800	18×20	0.39	1,870	ESRG100E□□682MM20S
	10,000	18×25	0.51	2,370	ESRG100E□□103MM25S
16	22	4×7	0.20	42	ESRG160E□□220MD07D
	47	5×7	0.20	73	ESRG160E□□470ME07D
	100	6.3×7	0.20	110	ESRG160E□□101MF07D
	220	8×9	0.20	290	ESRG160E□□221MH09D
	330	8×9	0.20	355	ESRG160E□□331MH09D
	470	10×9	0.20	410	ESRG160E□□471MJ09S
	1,000	12.5×13	0.20	715	ESRG160E□□102MK13S
	2,200	16×15	0.23	1,160	ESRG160E□□222ML15S
	3,300	18×15	0.26	1,460	ESRG160E□□332MM15S
	4,700	18×20	0.29	1,770	ESRG160E□□472MM20S
	6,800	18×25	0.35	2,170	ESRG160E□□682MM25S
25	33	5×7	0.16	66	ESRG250E□□330ME07D
	47	5×9	0.16	105	ESRG250E□□470ME09D
	47	6.3×7	0.16	80	ESRG250E□□470MF07D
	100	6.3×9	0.16	172	ESRG250E□□101MF09D
	330	10×9	0.16	380	ESRG250E□□331MJ09S
	470	10×12.5	0.16	525	ESRG250E□□471MJC5S
	1,000	12.5×15	0.16	830	ESRG250E□□102MK15S

WV (Vdc)	Cap (μF)	Case code φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
25	2,200	18×15	0.19	1,360	ESRG250E□□222MM15S
	3,300	18×20	0.22	1,720	ESRG250E□□332MM20S
	4,700	18×25	0.25	2,070	ESRG250E□□472MM25S
35	10	4×7	0.14	32	ESRG350E□□100MD07D
	22	5×7	0.14	57	ESRG350E□□220ME07D
	33	5×9	0.14	94	ESRG350E□□330ME09D
	33	6.3×7	0.14	73	ESRG350E□□330MF07D
	47	8×7	0.14	101	ESRG350E□□470MH07D
	100	8×9	0.14	220	ESRG350E□□101MH09D
	220	10×9	0.14	335	ESRG350E□□221MJ09S
	330	10×12.5	0.14	475	ESRG350E□□331MJC5S
	470	12.5×13	0.14	585	ESRG350E□□471MK13S
	1,000	16×15	0.14	1,010	ESRG350E□□102ML15S
	2,200	18×20	0.17	1,560	ESRG350E□□222MM20S
50	0.10	4×7	0.12	1.3	ESRG500E□□R10MD07D
	0.22	4×7	0.12	2.9	ESRG500E□□R22MD07D
	0.33	4×7	0.12	3.5	ESRG500E□□R33MD07D
	0.47	4×7	0.12	5.0	ESRG500E□□R47MD07D
	1.0	4×7	0.12	10	ESRG500E□□1R0MD07D
	1.0	5×9	0.12	13	ESRG500E□□1R0ME09D
	2.2	4×7	0.12	15	ESRG500E□□2R2MD07D
	2.2	5×9	0.12	26	ESRG500E□□2R2ME09D
	3.3	4×7	0.12	19	ESRG500E□□3R3MD07D
	3.3	5×9	0.12	32	ESRG500E□□3R3ME09D
	4.7	4×7	0.12	24	ESRG500E□□4R7MD07D
	4.7	5×9	0.12	38	ESRG500E□□4R7ME09D
	10	5×7	0.12	42	ESRG500E□□100ME07D
	10	5×9	0.12	64	ESRG500E□□100ME09D
	22	5×9	0.12	86	ESRG500E□□220ME09D
	22	6.3×7	0.12	64	ESRG500E□□220MF07D
	33	6.3×9	0.12	113	ESRG500E□□330MF09D
	33	8×7	0.12	93	ESRG500E□□330MH07D
	47	6.3×9	0.12	135	ESRG500E□□470MF09D
	100	10×9	0.12	240	ESRG500E□□101MJ09S
	220	10×12.5	0.12	415	ESRG500E□□221MJC5S
	330	12.5×13	0.12	525	ESRG500E□□331MK13S
	470	16×15	0.12	745	ESRG500E□□471ML15S
	1,000	18×20	0.12	1,160	ESRG500E□□102MM20S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

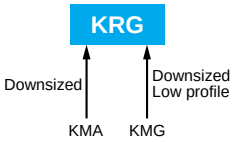
NIPPON CHEMI-CON

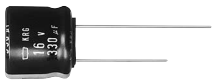
MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 105℃

KRG Series

- Low profile : φ4×7mm to φ18×25mm
- Endurance : 1,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**



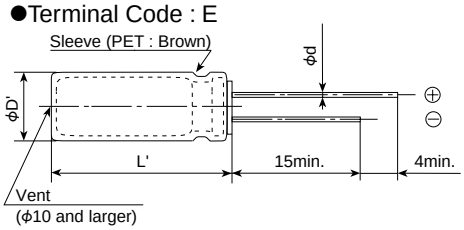


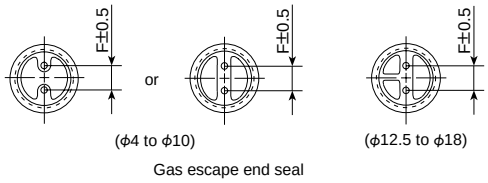
◆SPECIFICATIONS

Items	Characteristics						
Category Temperature Range	−55 to +105℃						
Rated Voltage Range	6.3 to 50Vdc						
Capacitance Tolerance	±20% (M)						(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)						(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V
	tanδ (Max.)	0.28	0.24	0.20	0.16	0.14	0.12
	When nominal capacitance exceeds 1,000μF, add 0.03 to the value above for each 1,000μF increase.						(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V
	Z(−25℃)/Z(+20℃)	5	4	3	2	2	2
	Z(−40℃)/Z(+20℃)	10	8	6	4	3	3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃.						
	Rated voltage	6.3 to 16Vdc		25 to 50Vdc			
	Capacitance change	≦±25% of the initial value		≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value		≦200% of the initial specified value			
	Leakage current	≦The initial specified value		≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.						
	Rated voltage	6.3 to 16Vdc		25 to 50Vdc			
	Capacitance change	≦±25% of the initial value		≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value		≦200% of the initial specified value			
	Leakage current	≦The initial specified value		≦The initial specified value			

◆DIMENSIONS [mm]

●Terminal Code : E





φD		4	5	6.3	8	10 & 12.5	16 & 18
φd	7L	0.45	0.45	0.45	–	—	—
	≧9L	–	0.5	0.5	0.6	0.6	0.8
F		1.5	2.0	2.5	3.5	5.0	7.5
φD'		φD+0.5max.					
L'		L+1.5max. (7L : L+1.0max.)					

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	R	G				E						M				

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 0.1μF:R10, 10μF:100, 1,000μF:102)
Lead forming·taping code
Terminal code
Voltage code (ex. 6.3V:6R3, 35V:350, 50V:500)
Series code
Category

Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low profile, 105℃

KRG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	47	5X7	0.28	50	EKRG6R3E□□470ME07D
	330	6.3X9	0.28	175	EKRG6R3E□□331MF09D
	1,000	10X9	0.28	365	EKRG6R3E□□102MJ09S
	4,700	16X15	0.37	1,010	EKRG6R3E□□472ML15S
	6,800	18X15	0.43	1,190	EKRG6R3E□□682MM15S
	10,000	18X20	0.55	1,440	EKRG6R3E□□103MM20S
10	22	4X7	0.24	35	EKRG100E□□220MD07D
	100	5X9	0.24	93	EKRG100E□□101ME09D
	100	6.3X7	0.24	80	EKRG100E□□101MF07D
	220	6.3X9	0.24	154	EKRG100E□□221MF09D
	470	8X9	0.24	272	EKRG100E□□471MH09D
	1,000	10X12.5	0.24	445	EKRG100E□□102MJC5S
	2,200	12.5X15	0.27	690	EKRG100E□□222MK15S
	3,300	16X15	0.30	940	EKRG100E□□332ML15S
	4,700	18X15	0.33	1,120	EKRG100E□□472MM15S
	6,800	18X20	0.39	1,330	EKRG100E□□682MM20S
	10,000	18X25	0.51	1,700	EKRG100E□□103MM25S
16	33	5X7	0.20	53	EKRG160E□□330ME07D
	47	6.3X7	0.20	68	EKRG160E□□470MF07D
	100	6.3X7	0.20	97	EKRG160E□□101MF07D
	220	8X9	0.20	205	EKRG160E□□221MH09D
	330	8X9	0.20	251	EKRG160E□□331MH09D
	470	10X9	0.20	290	EKRG160E□□471MJ09S
	1,000	12.5X13	0.20	515	EKRG160E□□102MK13S
	2,200	16X15	0.23	830	EKRG160E□□222ML15S
	3,300	18X15	0.26	1,050	EKRG160E□□332MM15S
	4,700	18X20	0.29	1,260	EKRG160E□□472MM20S
	6,800	18X25	0.35	1,560	EKRG160E□□682MM25S
25	10	4X7	0.16	30	EKRG250E□□100MD07D
	22	5X7	0.16	46	EKRG250E□□220ME07D
	33	6.3X7	0.16	63	EKRG250E□□330MF07D
	47	5X9	0.16	75	EKRG250E□□470ME09D
	47	6.3X7	0.16	71	EKRG250E□□470MF07D
	100	6.3X9	0.16	121	EKRG250E□□101MF09D
	330	10X9	0.16	270	EKRG250E□□331MJ09S
	470	10X12.5	0.16	370	EKRG250E□□471MJC5S
	1,000	12.5X15	0.16	590	EKRG250E□□102MK15S

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
25	2,200	18X15	0.19	970	EKRG250E□□222MM15S
	3,300	18X20	0.22	1,220	EKRG250E□□332MM20S
	4,700	18X25	0.25	1,470	EKRG250E□□472MM25S
35	10	5X7	0.14	36	EKRG350E□□100ME07D
	22	6.3X7	0.14	57	EKRG350E□□220MF07D
	33	5X9	0.14	67	EKRG350E□□330ME09D
	33	6.3X7	0.14	64	EKRG350E□□330MF07D
	100	8X9	0.14	155	EKRG350E□□101MH09D
	220	10X9	0.14	235	EKRG350E□□221MJ09S
	330	10X12.5	0.14	340	EKRG350E□□331MJC5S
	470	12.5X13	0.14	415	EKRG350E□□471MK13S
	1,000	16X15	0.14	720	EKRG350E□□102ML15S
	2,200	18X20	0.17	1,110	EKRG350E□□222MM20S
50	0.10	4X7	0.12	1.3	EKRG500E□□R10MD07D
	0.22	4X7	0.12	2.9	EKRG500E□□R22MD07D
	0.33	4X7	0.12	3.5	EKRG500E□□R33MD07D
	0.47	4X7	0.12	5.0	EKRG500E□□R47MD07D
	1.0	4X7	0.12	10	EKRG500E□□1R0MD07D
	1.0	5X9	0.12	12	EKRG500E□□1R0ME09D
	2.2	4X7	0.12	15	EKRG500E□□2R2MD07D
	2.2	5X9	0.12	18	EKRG500E□□2R2ME09D
	3.3	4X7	0.12	18	EKRG500E□□3R3MD07D
	3.3	5X9	0.12	22	EKRG500E□□3R3ME09D
	4.7	4X7	0.12	25	EKRG500E□□4R7MD07D
	4.7	5X9	0.12	27	EKRG500E□□4R7ME09D
	10	5X9	0.12	46	EKRG500E□□100ME09D
	10	6.3X7	0.12	44	EKRG500E□□100MF07D
	22	5X9	0.12	61	EKRG500E□□220ME09D
	22	6.3X7	0.12	57	EKRG500E□□220MF07D
	33	6.3X9	0.12	80	EKRG500E□□330MF09D
	47	6.3X9	0.12	95	EKRG500E□□470MF09D
	100	10X9	0.12	170	EKRG500E□□101MJ09S
	220	10X12.5	0.12	290	EKRG500E□□221MJC5S
	330	12.5X13	0.12	370	EKRG500E□□331MK13S
	470	16X15	0.12	535	EKRG500E□□471ML15S
	1,000	18X20	0.12	830	EKRG500E□□102MM20S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
0.1 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMQ Series

- Downsized from current standard SMG series
- Endurance : 2,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

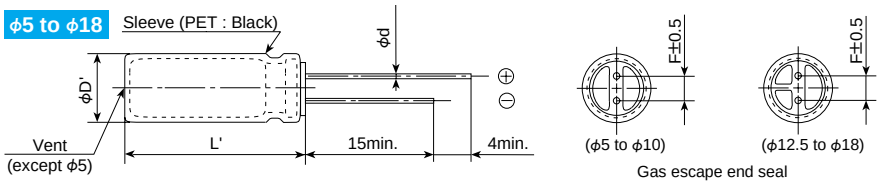
SMQ ↑ Downsized SMG

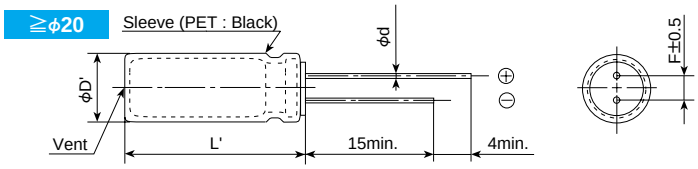
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃(6.3 to 400Vdc)　−25 to +85℃(450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc / 160 to 450Vdc ≦φ18: I=0.03CV or 4μA, whichever is greater. (at 20C after 1 minute) CV \ Time: CV≦1,000 → I=0.1CV+40 max.; CV>1,000 → I=0.04CV+100 max. (at 20℃) ≧φ20: I=0.03CV (at 20℃ after 3 minutes) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63V / 100V / 160 to 250V / 315 to 400V / 450V tanδ (Max.): 0.28 / 0.24 / 0.20 / 0.16 / 0.14 / 0.12 / 0.09 / 0.08 / 0.20 / 0.24 / 0.24 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63V / 100V / 160 to 200V / 250V / 350V / 400V / 450V Z(−25℃)/Z(+20℃) ≦φ8: 5 / 4 / 3 / 2 / 2 / 2 / 2 / 2 / 3 / 3 / 4 / 4 / 6 Z(−25℃)/Z(+20℃) ≧φ10: 5 / 4 / 3 / 2 / 2 / 2 / 2 / 2 / 3 / 3 / 4 / 4 / 6 Z(−40℃)/Z(+20℃) ≦φ8: 12 / 10 / 8 / 5 / 4 / 3 / 3 / 3 / 8 / 10 / 8 / 8 / — Z(−40℃)/Z(+20℃) ≧φ10: 12 / 10 / 8 / 5 / 4 / 3 / 3 / 3 / 4 / 4 / 6 / 6 / — (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Rated voltage: 6.3 to 100Vdc / 160 to 450Vdc Capacitance change: ≦±20% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value / ≦200% of the initial specified value Leakage current: ≦The initial specified value / ≦500% of the initial specified value

◆DIMENSIONS [mm]

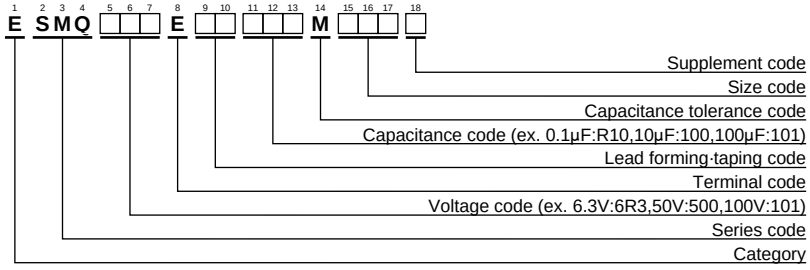
- Terminal Code : E





φD	5	6.3	8	10	12.5	16	18	20	22
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0
φD'	φD+0.5max.							φD+0.5max.	
L'	L+1.5max.							L+2.0max.	

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
6.3	1,000	8X11.5	0.28	540	ESMQ6R3E□□102MHB5D
	2,200	10X16	0.30	890	ESMQ6R3E□□222MJ16S
	3,300	10X20	0.32	1,190	ESMQ6R3E□□332MJ20S
	4,700	12.5X20	0.34	1,550	ESMQ6R3E□□472MK20S
	6,800	12.5X25	0.38	1,920	ESMQ6R3E□□682MK25S
	10,000	16X25	0.46	2,350	ESMQ6R3E□□103ML25S
	15,000	16X31.5	0.56	2,550	ESMQ6R3E□□153MLN3S
	22,000	18X35.5	0.70	3,200	ESMQ6R3E□□223MMP1S
	33,000	20X40	0.92	3,500	ESMQ6R3E□□333MN40S
	47,000	22X50	1.20	3,900	ESMQ6R3E□□473MP50S
10	220	5X11	0.24	240	ESMQ100E□□221ME11D
	330	6.3X11	0.24	290	ESMQ100E□□331MF11D
	470	6.3X11	0.24	350	ESMQ100E□□471MF11D
	1,000	10X12.5	0.24	650	ESMQ100E□□102MJC5S
	2,200	10X16	0.26	990	ESMQ100E□□222MJ16S
	3,300	12.5X20	0.28	1,450	ESMQ100E□□332MK20S
	4,700	12.5X25	0.30	1,800	ESMQ100E□□472MK25S
	6,800	16X25	0.34	2,250	ESMQ100E□□682ML25S
	10,000	16X31.5	0.42	2,550	ESMQ100E□□103MLN3S
	15,000	16X35.5	0.52	2,880	ESMQ100E□□153MLP1S
	22,000	18X40	0.66	3,400	ESMQ100E□□223MM40S
	33,000	22X50	0.88	4,500	ESMQ100E□□333MP50S
16	220	6.3X11	0.20	260	ESMQ160E□□221MF11D
	330	6.3X11	0.20	320	ESMQ160E□□331MF11D
	470	8X11.5	0.20	440	ESMQ160E□□471MHB5D
	1,000	10X12.5	0.20	700	ESMQ160E□□102MJC5S
	2,200	10X20	0.22	1,000	ESMQ160E□□222MJ20S
	3,300	12.5X25	0.24	1,700	ESMQ160E□□332MK25S
	4,700	16X25	0.26	2,100	ESMQ160E□□472ML25S
	6,800	16X25	0.30	2,250	ESMQ160E□□682ML25S
	10,000	16X35.5	0.38	2,710	ESMQ160E□□103MLP1S
	15,000	18X40	0.48	3,100	ESMQ160E□□153MM40S
	22,000	22X40	0.62	3,800	ESMQ160E□□223MP40S
25	100	5X11	0.16	180	ESMQ250E□□101ME11D
	220	6.3X11	0.16	280	ESMQ250E□□221MF11D
	330	8X11.5	0.16	440	ESMQ250E□□331MHB5D
	470	10X12.5	0.16	550	ESMQ250E□□471MJC5S
	1,000	10X16	0.16	860	ESMQ250E□□102MJ16S
	2,200	12.5X25	0.18	1,550	ESMQ250E□□222MK25S
	3,300	16X25	0.20	1,980	ESMQ250E□□332ML25S
	4,700	16X25	0.22	2,200	ESMQ250E□□472ML25S
	6,800	16X35.5	0.26	2,600	ESMQ250E□□682MLP1S
	10,000	18X40	0.34	2,800	ESMQ250E□□103MM40S
	15,000	22X50	0.44	3,800	ESMQ250E□□153MP50S
35	47	5X11	0.14	130	ESMQ350E□□470ME11D
	68	6.3X11	0.14	160	ESMQ350E□□680MF11D
	100	6.3X11	0.14	210	ESMQ350E□□101MF11D
	220	8X11.5	0.14	385	ESMQ350E□□221MHB5D
	330	10X12.5	0.14	490	ESMQ350E□□331MJC5S
	470	10X16	0.14	650	ESMQ350E□□471MJ16S
	1,000	12.5X20	0.14	1,150	ESMQ350E□□102MK20S
	2,200	16X25	0.16	1,800	ESMQ350E□□222ML25S
	3,300	16X31.5	0.18	2,100	ESMQ350E□□332MLN3S
	4,700	16X35.5	0.20	2,500	ESMQ350E□□472MLP1S
	6,800	18X40	0.24	2,800	ESMQ350E□□682MM40S
	10,000	22X50	0.32	3,700	ESMQ350E□□103MP50S
50	0.10	5X11	0.12	1.3	ESMQ500E□□R10ME11D
	0.22	5X11	0.12	2.9	ESMQ500E□□R22ME11D
	0.33	5X11	0.12	4.3	ESMQ500E□□R33ME11D
	0.47	5X11	0.12	6.2	ESMQ500E□□R47ME11D
	1.0	5X11	0.12	17	ESMQ500E□□1R0ME11D
	2.2	5X11	0.12	28	ESMQ500E□□2R2ME11D
	3.3	5X11	0.12	35	ESMQ500E□□3R3ME11D
	4.7	5X11	0.12	41	ESMQ500E□□4R7ME11D
	10	5X11	0.12	60	ESMQ500E□□100ME11D
	22	5X11	0.12	95	ESMQ500E□□220ME11D
	33	5X11	0.12	125	ESMQ500E□□330ME11D

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
50	47	6.3X11	0.12	155	ESMQ500E□□470MF11D
	68	6.3X11	0.12	210	ESMQ500E□□680MF11D
	100	8X11.5	0.12	260	ESMQ500E□□101MHB5D
	220	10X12.5	0.12	430	ESMQ500E□□221MJC5S
	330	10X16	0.12	590	ESMQ500E□□331MJ16S
	470	10X20	0.12	760	ESMQ500E□□471MJ20S
	1,000	12.5X25	0.12	1,350	ESMQ500E□□102MK25S
	2,200	16X31.5	0.14	1,980	ESMQ500E□□222MLN3S
	3,300	18X35.5	0.16	2,500	ESMQ500E□□332MMP1S
	4,700	20X40	0.18	2,900	ESMQ500E□□472MN40S
	6,800	22X50	0.22	3,500	ESMQ500E□□682MP50S
63	22	5X11	0.09	100	ESMQ630E□□220ME11D
	33	6.3X11	0.09	140	ESMQ630E□□330MF11D
	47	6.3X11	0.09	170	ESMQ630E□□470MF11D
	68	8X11.5	0.09	220	ESMQ630E□□680MHB5D
	100	8X11.5	0.09	280	ESMQ630E□□101MHB5D
	220	10X16	0.09	490	ESMQ630E□□221MJ16S
	330	10X20	0.09	710	ESMQ630E□□331MJ20S
	470	12.5X20	0.09	900	ESMQ630E□□471MK20S
	1,000	16X25	0.09	1,300	ESMQ630E□□102ML25S
	2,200	18X35.5	0.11	2,300	ESMQ630E□□222MMP1S
	3,300	20X40	0.13	2,700	ESMQ630E□□332MN40S
	4,700	22X50	0.15	3,400	ESMQ630E□□472MP50S
100	0.10	5X11	0.08	2.1	ESMQ101E□□R10ME11D
	0.22	5X11	0.08	4.7	ESMQ101E□□R22ME11D
	0.33	5X11	0.08	7.0	ESMQ101E□□R33ME11D
	0.47	5X11	0.08	10	ESMQ101E□□R47ME11D
	1.0	5X11	0.08	21	ESMQ101E□□1R0ME11D
	2.2	5X11	0.08	30	ESMQ101E□□2R2ME11D
	3.3	5X11	0.08	40	ESMQ101E□□3R3ME11D
	4.7	5X11	0.08	45	ESMQ101E□□4R7ME11D
	10	5X11	0.08	70	ESMQ101E□□100ME11D
	22	6.3X11	0.08	130	ESMQ101E□□220MF11D
	33	8X11.5	0.08	180	ESMQ101E□□330MHB5D
	47	8X11.5	0.08	200	ESMQ101E□□470MHB5D
	68	10X12.5	0.08	270	ESMQ101E□□680MJC5S
	100	10X16	0.08	340	ESMQ101E□□101MJ16S
	220	12.5X20	0.08	550	ESMQ101E□□221MK20S
	330	12.5X25	0.08	760	ESMQ101E□□331MK25S
	470	16X25	0.08	1,000	ESMQ101E□□471ML25S
	1,000	18X35.5	0.08	1,350	ESMQ101E□□102MMP1S
	2,200	22X50	0.08	2,400	ESMQ101E□□222MP50S
160	10	8X11.5	0.20	80	ESMQ161E□□100MHB5D
	22	10X12.5	0.20	130	ESMQ161E□□220MJC5S
	33	10X16	0.20	180	ESMQ161E□□330MJ16S
	47	10X20	0.20	210	ESMQ161E□□470MJ20S
	68	12.5X20	0.20	350	ESMQ161E□□680MK20S
	100	12.5X25	0.20	430	ESMQ161E□□101MK25S
	220	16X31.5	0.20	760	ESMQ161E□□221MLN3S
	330	18X35.5	0.20	995	ESMQ161E□□331MMP1S
	470	18X40	0.20	1,200	ESMQ161E□□471MM40S
200	1.0	6.3X11	0.20	22	ESMQ201E□□1R0MF11D
	2.2	6.3X11	0.20	33	ESMQ201E□□2R2MF11D
	3.3	6.3X11	0.20	40	ESMQ201E□□3R3MF11D
	4.7	6.3X11	0.20	50	ESMQ201E□□4R7MF11D
	10	8X11.5	0.20	80	ESMQ201E□□100MHB5D
	22	10X16	0.20	150	ESMQ201E□□220MJ16S
	33	10X20	0.20	205	ESMQ201E□□330MJ20S
	47	12.5X20	0.20	270	ESMQ201E□□470MK20S
	68	12.5X25	0.20	350	ESMQ201E□□680MK25S
	100	16X25	0.20	475	ESMQ201E□□101ML25S
	220	16X35.5	0.20	700	ESMQ201E□□221MLP1S
	330	18X40	0.20	950	ESMQ201E□□331MM40S
250	3.3	6.3X11	0.20	40	ESMQ251E□□3R3MF11D
	4.7	6.3X11	0.20	50	ESMQ251E□□4R7MF11D
	10	10X12.5	0.20	100	ESMQ251E□□100MJC5S
	22	10X20	0.20	170	ESMQ251E□□220MJ20S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
250	33	10×20	0.20	200	ESMQ251E□□330MJ20S
	47	12.5×20	0.20	270	ESMQ251E□□470MK20S
	68	16×25	0.20	380	ESMQ251E□□680ML25S
	100	16×25	0.20	440	ESMQ251E□□101ML25S
	220	18×35.5	0.20	680	ESMQ251E□□221MMP1S
350	2.2	6.3×11	0.24	30	ESMQ351E□□2R2MF11D
	3.3	8×11.5	0.24	46	ESMQ351E□□3R3MHB5D
	4.7	8×11.5	0.24	55	ESMQ351E□□4R7MHB5D
	10	10×12.5	0.24	90	ESMQ351E□□100MJC5S
	22	12.5×20	0.24	185	ESMQ351E□□220MK20S
	33	12.5×25	0.24	240	ESMQ351E□□330MK25S
	47	16×25	0.24	325	ESMQ351E□□470ML25S
	68	16×25	0.24	400	ESMQ351E□□680ML25S
	100	18×31.5	0.24	530	ESMQ351E□□101MMN3S
400	0.47	6.3×11	0.24	12	ESMQ401E□□R47MF11D
	1.0	6.3×11	0.24	22	ESMQ401E□□1R0MF11D
	2.2	8×11.5	0.24	38	ESMQ401E□□2R2MHB5D

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
400	3.3	8×11.5	0.24	48	ESMQ401E□□3R3MHB5D
	4.7	10×12.5	0.24	60	ESMQ401E□□4R7MJC5S
	10	10×16	0.24	90	ESMQ401E□□100MJ16S
	22	12.5×25	0.24	205	ESMQ401E□□220MK25S
	33	16×25	0.24	275	ESMQ401E□□330ML25S
	47	16×25	0.24	280	ESMQ401E□□470ML25S
	68	16×31.5	0.24	340	ESMQ401E□□680MLN3S
	100	18×35.5	0.24	440	ESMQ401E□□101MMP1S
450	2.2	8×11.5	0.24	28	ESMQ451E□□2R2MHB5D
	3.3	10×12.5	0.24	40	ESMQ451E□□3R3MJC5S
	4.7	10×12.5	0.24	46	ESMQ451E□□4R7MJC5S
	10	10×20	0.24	80	ESMQ451E□□100MJ20S
	22	12.5×25	0.24	140	ESMQ451E□□220MK25S
	33	16×25	0.24	180	ESMQ451E□□330ML25S
	47	16×31.5	0.24	220	ESMQ451E□□470MLN3S
	68	18×35.5	0.24	260	ESMQ451E□□680MMP1S
	100	18×40	0.24	280	ESMQ451E□□101MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

(φ5 to φ18)

Frequency (Hz) / Capacitance (μF)	50	120	300	1k	10k	100k
0.1 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 68	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

(φ20 to φ22)

Frequency (Hz) / Rated Voltage (Vdc)	50	120	300	1k	10k	100k
6.3 to 50	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100	0.92	1.00	1.07	1.13	1.19	1.20

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

KMQ Series

- Downsized from current standard KMG series
- Solvent resistant type except 160 to 450Vdc (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

KMQ ↑ Downsized
KMG

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃(6.3 to 100Vdc) −40 to +105℃(160 to 400Vdc) -25 to +105℃(450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc: ≦φ18: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute); ≧φ20: I=0.03CV max. (at 20℃ after 3 minutes). 160 to 450Vdc: CV≦1,000: I=0.1CV+40 max.; CV>1,000: I=0.04CV+100 max. (at 20℃). Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)

Dissipation Factor (tanδ)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	350 to 400V	450V
tanδ (Max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.24	0.24

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)		6.3V	10V	16V	25V	35V	50V	63 to 100V	160 to 200V	250V	350V	400V	450V
Z(-25℃)/Z(+20℃)	≦φ8	5	4	3	2	2	2	2	3	3	4	4	6
	≧φ10	5	4	3	2	2	2	2	3	3	4	4	6
Z(-40℃)/Z(+20℃)	≦φ8	10	8	6	4	3	3	3	8	10	8	8	—
	≧φ10	10	8	6	4	3	3	3	4	4	6	6	—

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 1,000 hours (2,000 hours for φ10 and more at 105℃).

Capacitance change	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value
Leakage current	≦The initial specified value

Shelf Life

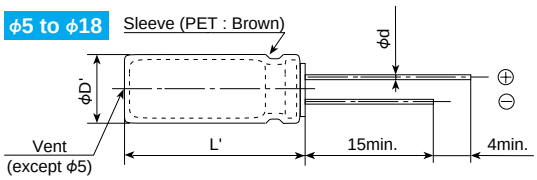
The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

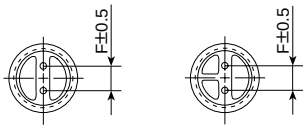
Rated voltage	6.3 to 100Vdc	160 to 450Vdc
Capacitance change	≦±20% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦500% of the initial specified value

◆DIMENSIONS [mm]

●Terminal Code : E

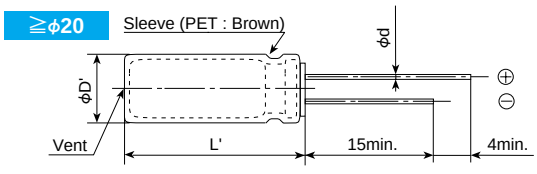
φ5 to φ18 Sleeve (PET : Brown)

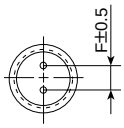




Gas escape end seal

≧φ20 Sleeve (PET : Brown)





φD	5	6.3	8	10	12.5	16	18	20	22
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0
φD'	φD+0.5max.							φD+0.5max.	
L'	L+1.5max.							L+2.0max.	

◆PART NUMBERING SYSTEM

1	2 3 4	5 6 7	8	9 10	11 12 13	14	15 16 17	18
E	KMQ	□□□	E	□□	□□□	M	□□□	□

- 18: Supplement code
- 15 16 17: Size code
- 14: Capacitance tolerance code
- 11 12 13: Capacitance code (ex. 0.1μF:R10,10μF:100,100μF:101)
- 9 10: Lead forming·taping code
- 8: Terminal code
- 5 6 7: Voltage code (ex. 6.3V:6R3,35V:350,100V:101)
- 3 4: Series code
- 1 2: Category

Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

KMQ Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
6.3	1,000	8×11.5	0.28	390	EKMQ6R3E□□102MHB5D
	2,200	10×16	0.30	635	EKMQ6R3E□□222MJ16S
	3,300	10×20	0.32	840	EKMQ6R3E□□332MJ20S
	4,700	12.5×20	0.34	1,090	EKMQ6R3E□□472MK20S
	6,800	12.5×25	0.38	1,350	EKMQ6R3E□□682MK25S
	10,000	16×25	0.46	1,650	EKMQ6R3E□□103ML25S
	15,000	16×31.5	0.56	1,820	EKMQ6R3E□□153MLN3S
	22,000	18×35.5	0.70	2,280	EKMQ6R3E□□223MMP1S
	33,000	20×40	0.92	2,500	EKMQ6R3E□□333MN40S
	47,000	22×50	1.20	2,780	EKMQ6R3E□□473MP50S
10	220	5×11	0.24	155	EKMQ100E□□221ME11D
	330	6.3×11	0.24	210	EKMQ100E□□331MF11D
	470	6.3×11	0.24	250	EKMQ100E□□471MF11D
	1,000	10×12.5	0.24	460	EKMQ100E□□102MJC5S
	2,200	10×16	0.26	705	EKMQ100E□□222MJ16S
	3,300	12.5×20	0.28	1,000	EKMQ100E□□332MK20S
	4,700	12.5×25	0.30	1,260	EKMQ100E□□472MK25S
	6,800	16×25	0.34	1,570	EKMQ100E□□682ML25S
	10,000	16×31.5	0.42	1,820	EKMQ100E□□103MLN3S
	15,000	16×35.5	0.52	2,050	EKMQ100E□□153MLP1S
	22,000	18×40	0.66	2,420	EKMQ100E□□223MM40S
	33,000	22×50	0.88	3,210	EKMQ100E□□333MP50S
16	220	6.3×11	0.20	190	EKMQ160E□□221MF11D
	330	6.3×11	0.20	225	EKMQ160E□□331MF11D
	470	8×11.5	0.20	315	EKMQ160E□□471MHB5D
	1,000	10×12.5	0.20	500	EKMQ160E□□102MJC5S
	2,200	10×20	0.22	710	EKMQ160E□□222MJ20S
	3,300	12.5×25	0.24	1,170	EKMQ160E□□332MK25S
	4,700	16×25	0.26	1,500	EKMQ160E□□472ML25S
	6,800	16×25	0.30	1,600	EKMQ160E□□682ML25S
	10,000	16×35.5	0.38	1,930	EKMQ160E□□103MLP1S
	15,000	18×40	0.48	2,210	EKMQ160E□□153MM40S
	22,000	22×40	0.62	2,710	EKMQ160E□□223MP40S
25	100	5×11	0.16	125	EKMQ250E□□101ME11D
	220	6.3×11	0.16	200	EKMQ250E□□221MF11D
	330	8×11.5	0.16	310	EKMQ250E□□331MHB5D
	470	10×12.5	0.16	380	EKMQ250E□□471MJC5S
	1,000	10×16	0.16	610	EKMQ250E□□102MJ16S
	2,200	12.5×25	0.18	1,090	EKMQ250E□□222MK25S
	3,300	16×25	0.20	1,400	EKMQ250E□□332ML25S
	4,700	16×25	0.22	1,570	EKMQ250E□□472ML25S
	6,800	16×35.5	0.26	1,850	EKMQ250E□□682MLP1S
	10,000	18×40	0.34	2,000	EKMQ250E□□103MM40S
	15,000	22×50	0.44	2,750	EKMQ250E□□153MP50S
35	47	5×11	0.14	93	EKMQ350E□□470ME11D
	68	6.3×11	0.14	110	EKMQ350E□□680MF11D
	100	6.3×11	0.14	150	EKMQ350E□□101MF11D
	220	8×11.5	0.14	270	EKMQ350E□□221MHB5D
	330	10×12.5	0.14	350	EKMQ350E□□331MJC5S
	470	10×16	0.14	460	EKMQ350E□□471MJ16S
	1,000	12.5×20	0.14	810	EKMQ350E□□102MK20S
	2,200	16×25	0.16	1,260	EKMQ350E□□222ML25S
	3,300	16×31.5	0.18	1,500	EKMQ350E□□332MLN3S
	4,700	16×35.5	0.20	1,780	EKMQ350E□□472MLP1S
	6,800	18×40	0.24	2,000	EKMQ350E□□682MM40S
	10,000	22×50	0.32	2,650	EKMQ350E□□103MP50S
50	0.10	5×11	0.12	1.3	EKMQ500E□□R10ME11D
	0.22	5×11	0.12	2.9	EKMQ500E□□R22ME11D
	0.33	5×11	0.12	4.3	EKMQ500E□□R33ME11D
	0.47	5×11	0.12	7.0	EKMQ500E□□R47ME11D
	1.0	5×11	0.12	13	EKMQ500E□□1R0ME11D
	2.2	5×11	0.12	20	EKMQ500E□□2R2ME11D
	3.3	5×11	0.12	25	EKMQ500E□□3R3ME11D
	4.7	5×11	0.12	30	EKMQ500E□□4R7ME11D
	10	5×11	0.12	46	EKMQ500E□□100ME11D
	22	5×11	0.12	68	EKMQ500E□□220ME11D
	33	5×11	0.12	90	EKMQ500E□□330ME11D
50	47	6.3×11	0.12	115	EKMQ500E□□470MF11D
	68	6.3×11	0.12	150	EKMQ500E□□680MF11D
	100	8×11.5	0.12	190	EKMQ500E□□101MHB5D
	220	10×12.5	0.12	300	EKMQ500E□□221MJC5S
	330	10×16	0.12	410	EKMQ500E□□331MJ16S
	470	10×20	0.12	540	EKMQ500E□□471MJ20S
	1,000	12.5×25	0.12	950	EKMQ500E□□102MK25S
	2,200	16×31.5	0.14	1,410	EKMQ500E□□222MLN3S
	3,300	18×35.5	0.16	1,770	EKMQ500E□□332MMP1S
	4,700	20×40	0.18	2,100	EKMQ500E□□472MN40S
	6,800	22×50	0.22	2,500	EKMQ500E□□682MP50S
63	22	5×11	0.10	71	EKMQ630E□□220ME11D
	33	6.3×11	0.10	100	EKMQ630E□□330MF11D
	47	6.3×11	0.10	120	EKMQ630E□□470MF11D
	68	8×11.5	0.10	155	EKMQ630E□□680MHB5D
	100	8×11.5	0.10	200	EKMQ630E□□101MHB5D
	220	10×16	0.10	335	EKMQ630E□□221MJ16S
	330	10×20	0.10	510	EKMQ630E□□331MJ20S
	470	12.5×20	0.10	640	EKMQ630E□□471MK20S
	1,000	16×25	0.10	930	EKMQ630E□□102ML25S
	2,200	18×35.5	0.12	1,650	EKMQ630E□□222MMP1S
	3,300	20×40	0.14	1,950	EKMQ630E□□332MN40S
	4,700	22×50	0.16	2,450	EKMQ630E□□472MP50S
100	0.10	5×11	0.08	1.5	EKMQ101E□□R10ME11D
	0.22	5×11	0.08	3.4	EKMQ101E□□R22ME11D
	0.33	5×11	0.08	5.0	EKMQ101E□□R33ME11D
	0.47	5×11	0.08	7.1	EKMQ101E□□R47ME11D
	1.0	5×11	0.08	15	EKMQ101E□□1R0ME11D
	2.2	5×11	0.08	21	EKMQ101E□□2R2ME11D
	3.3	5×11	0.08	29	EKMQ101E□□3R3ME11D
	4.7	5×11	0.08	32	EKMQ101E□□4R7ME11D
	10	5×11	0.08	50	EKMQ101E□□100ME11D
	22	6.3×11	0.08	93	EKMQ101E□□220MF11D
	33	8×11.5	0.08	130	EKMQ101E□□330MHB5D
	47	8×11.5	0.08	140	EKMQ101E□□470MHB5D
	68	10×12.5	0.08	190	EKMQ101E□□680MJC5S
	100	10×16	0.08	240	EKMQ101E□□101MJ16S
	220	12.5×20	0.08	390	EKMQ101E□□221MK20S
	330	12.5×25	0.08	540	EKMQ101E□□331MK25S
	470	16×25	0.08	715	EKMQ101E□□471ML25S
	1,000	18×35.5	0.08	960	EKMQ101E□□102MMP1S
	2,200	22×50	0.10	1,750	EKMQ101E□□222MP50S
160	10	8×11.5	0.20	41	EKMQ161E□□100MHB5D
	22	10×12.5	0.20	92	EKMQ161E□□220MJC5S
	33	10×16	0.20	125	EKMQ161E□□330MJ16S
	47	10×20	0.20	150	EKMQ161E□□470MJ20S
	68	12.5×20	0.20	250	EKMQ161E□□680MK20S
	100	12.5×25	0.20	310	EKMQ161E□□101MK25S
	220	16×31.5	0.20	540	EKMQ161E□□221MLN3S
	330	18×35.5	0.20	705	EKMQ161E□□331MMP1S
	470	18×40	0.20	855	EKMQ161E□□471MM40S
200	1.0	6.3×11	0.20	16	EKMQ201E□□1R0MF11D
	2.2	6.3×11	0.20	25	EKMQ201E□□2R2MF11D
	3.3	6.3×11	0.20	30	EKMQ201E□□3R3MF11D
	4.7	6.3×11	0.20	35	EKMQ201E□□4R7MF11D
	10	8×11.5	0.20	57	EKMQ201E□□100MHB5D
	22	10×16	0.20	105	EKMQ201E□□220MJ16S
	33	10×20	0.20	140	EKMQ201E□□330MJ20S
	47	12.5×20	0.20	195	EKMQ201E□□470MK20S
	68	12.5×25	0.20	250	EKMQ201E□□680MK25S
	100	16×25	0.20	335	EKMQ201E□□101ML25S
	220	16×35.5	0.20	500	EKMQ201E□□221MLP1S
	330	18×40	0.20	675	EKMQ201E□□331MM40S
250	3.3	6.3×11	0.20	28	EKMQ251E□□3R3MF11D
	4.7	6.3×11	0.20	35	EKMQ251E□□4R7MF11D
	10	10×12.5	0.20	71	EKMQ251E□□100MJC5S
	22	10×20	0.20	105	EKMQ251E□□220MJ20S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 105℃

KMQ Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
250	33	10×20	0.20	140	EKMQ251E□□330MJ20S
	47	12.5×20	0.20	190	EKMQ251E□□470MK20S
	68	16×25	0.20	270	EKMQ251E□□680ML25S
	100	16×25	0.20	310	EKMQ251E□□101ML25S
	220	18×35.5	0.20	485	EKMQ251E□□221MMP1S
350	2.2	6.3×11	0.24	21	EKMQ351E□□2R2MF11D
	3.3	8×11.5	0.24	30	EKMQ351E□□3R3MHB5D
	4.7	8×11.5	0.24	39	EKMQ351E□□4R7MHB5D
	10	10×12.5	0.24	64	EKMQ351E□□100MJC5S
	22	12.5×20	0.24	130	EKMQ351E□□220MK20S
	33	12.5×25	0.24	170	EKMQ351E□□330MK25S
	47	16×25	0.24	230	EKMQ351E□□470ML25S
	68	16×25	0.24	285	EKMQ351E□□680ML25S
	100	18×31.5	0.24	375	EKMQ351E□□101MMN3S
400	0.47	6.3×11	0.24	8.5	EKMQ401E□□R47MF11D
	1.0	6.3×11	0.24	15	EKMQ401E□□1R0MF11D
	2.2	8×11.5	0.24	27	EKMQ401E□□2R2MHB5D

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
400	3.3	8×11.5	0.24	34	EKMQ401E□□3R3MHB5D
	4.7	10×12.5	0.24	42	EKMQ401E□□4R7MJC5S
	10	10×16	0.24	64	EKMQ401E□□100MJ16S
	22	12.5×25	0.24	145	EKMQ401E□□220MK25S
	33	16×25	0.24	195	EKMQ401E□□330ML25S
	47	16×25	0.24	200	EKMQ401E□□470ML25S
	68	16×31.5	0.24	240	EKMQ401E□□680MLN3S
	100	18×35.5	0.24	310	EKMQ401E□□101MMP1S
450	2.2	8×11.5	0.24	20	EKMQ451E□□2R2MHB5D
	3.3	10×12.5	0.24	28	EKMQ451E□□3R3MJC5S
	4.7	10×12.5	0.24	32	EKMQ451E□□4R7MJC5S
	10	10×20	0.24	56	EKMQ451E□□100MJ20S
	22	12.5×25	0.24	100	EKMQ451E□□220MK25S
	33	16×25	0.24	125	EKMQ451E□□330ML25S
	47	16×31.5	0.24	155	EKMQ451E□□470MLN3S
	68	18×35.5	0.24	185	EKMQ451E□□680MMP1S
	100	18×40	0.24	200	EKMQ451E□□101MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

(φ5 to φ18)

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
0.1 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 68	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

(φ20 to φ22)

Rated Voltage (Vdc) \ Frequency (Hz)	50	120	300	1k	10k	100k
6.3 to 50	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100	0.92	1.00	1.07	1.13	1.19	1.20

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMG Series

- Endurance : 2,000 hours at 85℃
- Solvent resistant type except 315 to 450Vdc
  (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

SMQ
↑ Downsized
SMG

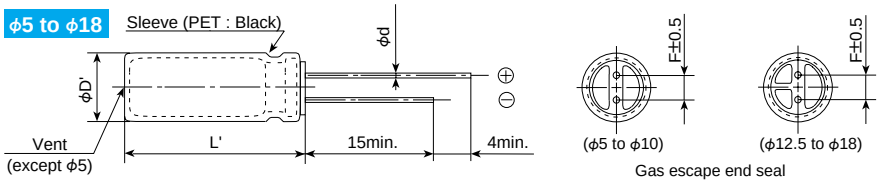
◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃(6.3 to 400Vdc)　−25 to +85℃(450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc: ≦φ18: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute); ≧φ20: I=0.03CV (at 20℃ after 3 minutes) 160 to 450Vdc: CV≦1,000: After 1minute I=0.1CV+40 max., After 5minutes I=0.03CV+15 max.; CV>1,000: After 1minute I=0.04CV+100 max., After 5minutes I=0.02CV+25 max. (at 20℃) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63V / 100V / 160 to 250V / 315 to 400V / 450V tanδ (Max.) ≦φ18: 0.34 / 0.24 / 0.20 / 0.16 / 0.14 / 0.12 / 0.09 / 0.08 / 0.20 / 0.24 / 0.24 tanδ (Max.) ≧φ20: 0.28 / 0.24 / 0.20 / 0.16 / 0.14 / 0.12 / 0.09 / 0.08 / 0.15 / 0.15 / 0.20 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63V / 100V / 160 to 250V / 315 to 400V / 450V Z(−25℃)/Z(+20℃) ≦φ18: 5 / 4 / 3 / 2 / 2 / 2 / 2 / 2 / 3 / 6 / 6 Z(−25℃)/Z(+20℃) ≧φ20: 5 / 4 / 3 / 2 / 2 / 2 / 2 / 2 / 4 / 6 / 6 Z(−40℃)/Z(+20℃) ≦φ18: 12 / 10 / 8 / 5 / 4 / 3 / 3 / 3 / 4 / 6 / — (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Rated voltage: 6.3 to 100Vdc / 160 to 450Vdc Capacitance change: ≦±20% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value / ≦200% of the initial specified value Leakage current: ≦The initial specified value / ≦500% of the initial specified value

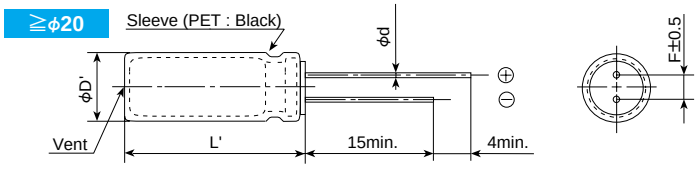
◆DIMENSIONS [mm]

- Terminal Code : E

φ5 to φ18 Sleeve (PET : Black)



≧φ20 Sleeve (PET : Black)



φD	5	6.3	8	10	12.5	16	18	20	22	25.4
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0	12.5
φD'	φD+0.5max.							φD+0.5max.		
L'	L+1.5max.							L+2.0max.		

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	S	M	G				E						M				

- 18: Supplement code
- 15–17: Size code
- 14: Capacitance tolerance code
- 11–13: Capacitance code (ex. 0.1μF:R10,10μF:100,100μF:101)
- 9–10: Lead forming·taping code
- 8: Terminal code
- 5–7: Voltage code (ex. 6.3V:6R3,100V:101,315V:3B1)
- 2–4: Series code
- 1: Category

Please refer to "Product code guide (radial lead type)"

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
6.3	33	5×11	0.34	77	ESMG6R3E□□330ME11D
	47	5×11	0.34	92	ESMG6R3E□□470ME11D
	100	5×11	0.34	134	ESMG6R3E□□101ME11D
	220	5×11	0.34	200	ESMG6R3E□□221ME11D
	330	6.3×11	0.34	270	ESMG6R3E□□331MF11D
	470	6.3×11	0.34	320	ESMG6R3E□□471MF11D
	1,000	8×11.5	0.34	540	ESMG6R3E□□102MHB5D
	2,200	10×20	0.36	1,000	ESMG6R3E□□222MJ20S
	3,300	10×20	0.38	1,185	ESMG6R3E□□332MJ20S
	4,700	12.5×20	0.40	1,545	ESMG6R3E□□472MK20S
	6,800	12.5×25	0.44	1,915	ESMG6R3E□□682MK25S
	10,000	16×25	0.52	2,330	ESMG6R3E□□103ML25S
	10,000	20×25	0.46	2,310	ESMG6R3E□□103MN25S
	15,000	16×35.5	0.62	2,845	ESMG6R3E□□153MLP1S
	15,000	20×30	0.56	2,660	ESMG6R3E□□153MN30S
	18,000	20×35	0.62	2,890	ESMG6R3E□□183MN35S
	18,000	22×30	0.62	2,860	ESMG6R3E□□183MP30S
	22,000	18×40	0.76	3,320	ESMG6R3E□□223MM40S
	22,000	20×40	0.70	3,130	ESMG6R3E□□223MN40S
	22,000	22×35	0.70	3,130	ESMG6R3E□□223MP35S
	27,000	22×40	0.80	3,280	ESMG6R3E□□273MP40S
	39,000	25.4×40	1.04	3,560	ESMG6R3E□□393MQ40S
10	22	5×11	0.24	66	ESMG100E□□220ME11D
	33	5×11	0.24	83	ESMG100E□□330ME11D
	47	5×11	0.24	100	ESMG100E□□470ME11D
	100	5×11	0.24	146	ESMG100E□□101ME11D
	220	5×11	0.24	240	ESMG100E□□221ME11D
	330	6.3×11	0.24	290	ESMG100E□□331MF11D
	470	6.3×11	0.24	350	ESMG100E□□471MF11D
	1,000	10×12.5	0.24	650	ESMG100E□□102MJC5S
	2,200	10×20	0.26	1,070	ESMG100E□□222MJ20S
	3,300	12.5×20	0.28	1,420	ESMG100E□□332MK20S
	4,700	12.5×25	0.30	1,780	ESMG100E□□472MK25S
	6,800	16×25	0.34	2,220	ESMG100E□□682ML25S
	6,800	20×20	0.34	2,080	ESMG100E□□682MN20S
	10,000	16×35.5	0.42	2,670	ESMG100E□□103MLP1S
	10,000	20×25	0.42	2,410	ESMG100E□□103MN25S
	12,000	20×30	0.46	2,620	ESMG100E□□123MN30S
	15,000	18×35.5	0.52	3,080	ESMG100E□□153MMP1S
	15,000	20×35	0.52	2,870	ESMG100E□□153MN35S
	15,000	22×30	0.52	2,660	ESMG100E□□153MP30S
	18,000	22×35	0.58	3,050	ESMG100E□□183MP35S
	22,000	22×40	0.66	3,480	ESMG100E□□223MP40S
	33,000	25.4×40	0.88	3,560	ESMG100E□□333MQ40S
16	10	5×11	0.20	50	ESMG160E□□100ME11D
	22	5×11	0.20	75	ESMG160E□□220ME11D
	33	5×11	0.20	91	ESMG160E□□330ME11D
	47	5×11	0.20	109	ESMG160E□□470ME11D
	100	5×11	0.20	160	ESMG160E□□101ME11D
	220	6.3×11	0.20	260	ESMG160E□□221MF11D
	330	8×11.5	0.20	370	ESMG160E□□331MHB5D
	470	8×11.5	0.20	440	ESMG160E□□471MHB5D
	1,000	10×16	0.20	785	ESMG160E□□102MJ16S
	2,200	12.5×20	0.22	1,295	ESMG160E□□222MK20S
	3,300	12.5×25	0.24	1,655	ESMG160E□□332MK25S
	4,700	16×25	0.26	2,090	ESMG160E□□472ML25S
	4,700	20×20	0.26	1,960	ESMG160E□□472MN20S
	6,800	16×31.5	0.30	2,520	ESMG160E□□682MLN3S
	6,800	20×25	0.30	2,330	ESMG160E□□682MN25S
	8,200	20×30	0.34	2,500	ESMG160E□□822MN30S
	10,000	18×35.5	0.38	2,920	ESMG160E□□103MMP1S
	10,000	20×35	0.38	2,720	ESMG160E□□103MN35S
	10,000	22×30	0.38	2,660	ESMG160E□□103MP30S
	12,000	20×40	0.42	2,900	ESMG160E□□123MN40S
	12,000	22×35	0.42	2,900	ESMG160E□□123MP35S
	15,000	22×40	0.48	3,380	ESMG160E□□153MP40S
	22,000	25.4×40	0.62	3,720	ESMG160E□□223MQ40S

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
25	4.7	5×11	0.16	36	ESMG250E□□4R7ME11D
	10	5×11	0.16	53	ESMG250E□□100ME11D
	22	5×11	0.16	78	ESMG250E□□220ME11D
	33	5×11	0.16	96	ESMG250E□□330ME11D
	47	5×11	0.16	115	ESMG250E□□470ME11D
	100	6.3×11	0.16	190	ESMG250E□□101MF11D
	220	8×11.5	0.16	330	ESMG250E□□221MHB5D
	330	8×11.5	0.16	440	ESMG250E□□331MHB5D
	470	10×12.5	0.16	545	ESMG250E□□471MJC5S
	1,000	10×20	0.16	955	ESMG250E□□102MJ20S
	2,200	12.5×25	0.18	1,540	ESMG250E□□222MK25S
	3,300	16×25	0.20	1,975	ESMG250E□□332ML25S
	3,300	20×20	0.20	1,850	ESMG250E□□332MN20S
	4,700	16×31.5	0.22	2,420	ESMG250E□□472MLN3S
	4,700	20×25	0.22	2,420	ESMG250E□□472MN25S
	5,600	20×30	0.24	2,430	ESMG250E□□562MN30S
	6,800	18×35.5	0.26	2,880	ESMG250E□□682MMP1S
	6,800	20×35	0.26	2,680	ESMG250E□□682MN35S
	6,800	22×30	0.26	2,510	ESMG250E□□682MP30S
	8,200	20×40	0.30	2,810	ESMG250E□□822MN40S
	8,200	22×35	0.30	2,810	ESMG250E□□822MP35S
	10,000	22×40	0.34	3,240	ESMG250E□□103MP40S
	12,000	22×40	0.38	3,240	ESMG250E□□123MP40S
	15,000	25.4×40	0.44	3,610	ESMG250E□□153MQ40S
35	4.7	5×11	0.14	41	ESMG350E□□4R7ME11D
	10	5×11	0.14	59	ESMG350E□□100ME11D
	22	5×11	0.14	88	ESMG350E□□220ME11D
	33	5×11	0.14	108	ESMG350E□□330ME11D
	47	5×11	0.14	130	ESMG350E□□470ME11D
	100	6.3×11	0.14	210	ESMG350E□□101MF11D
	220	8×11.5	0.14	385	ESMG350E□□221MHB5D
	330	10×12.5	0.14	490	ESMG350E□□331MJC5S
	470	10×16	0.14	645	ESMG350E□□471MJ16S
	1,000	12.5×20	0.14	1,145	ESMG350E□□102MK20S
	2,200	16×25	0.16	1,785	ESMG350E□□222ML25S
	2,200	20×20	0.16	1,670	ESMG350E□□222MN20S
	3,300	16×35.5	0.18	2,275	ESMG350E□□332MLP1S
	3,300	20×25	0.18	2,050	ESMG350E□□332MN25S
	3,900	20×30	0.18	2,310	ESMG350E□□392MN30S
	4,700	18×35.5	0.20	2,700	ESMG350E□□472MMP1S
	4,700	20×35	0.20	2,510	ESMG350E□□472MN35S
	4,700	22×30	0.20	2,380	ESMG350E□□472MP30S
	5,600	20×40	0.22	2,690	ESMG350E□□562MN40S
	5,600	22×35	0.22	2,690	ESMG350E□□562MP35S
	6,800	22×40	0.24	3,090	ESMG350E□□682MP40S
	10,000	25.4×40	0.32	3,480	ESMG350E□□103MQ40S
50	0.10	5×11	0.12	1.3	ESMG500E□□R10ME11D
	0.22	5×11	0.12	2.9	ESMG500E□□R22ME11D
	0.33	5×11	0.12	4.3	ESMG500E□□R33ME11D
	0.47	5×11	0.12	6.2	ESMG500E□□R47ME11D
	1.0	5×11	0.12	17	ESMG500E□□1R0ME11D
	2.2	5×11	0.12	28	ESMG500E□□2R2ME11D
	3.3	5×11	0.12	35	ESMG500E□□3R3ME11D
	4.7	5×11	0.12	41	ESMG500E□□4R7ME11D
	10	5×11	0.12	60	ESMG500E□□100ME11D
	22	5×11	0.12	95	ESMG500E□□220ME11D
	33	5×11	0.12	125	ESMG500E□□330ME11D
	47	6.3×11	0.12	155	ESMG500E□□470MF11D
	100	8×11.5	0.12	260	ESMG500E□□101MHB5D
	220	10×12.5	0.12	430	ESMG500E□□221MJC5S
	330	10×16	0.12	585	ESMG500E□□331MJ16S
	470	10×20	0.12	755	ESMG500E□□471MJ20S
	1,000	12.5×25	0.12	1,340	ESMG500E□□102MK25S
	1,500	20×20	0.12	1,570	ESMG500E□□152MN20S
	2,200	16×35.5	0.14	2,075	ESMG500E□□222MLP1S
	2,200	20×25	0.14	1,880	ESMG500E□□222MN25S
	2,700	20×30	0.14	2,150	ESMG500E□□272MN30S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMG Series

◆STANDARD RATINGS

▭ is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
50	3,300	18×35.5	0.16	2,500	ESMG500E□□332MMP1S
	3,300	20×35	0.16	2,420	ESMG500E□□332MN35S
	3,300	22×30	0.16	2,420	ESMG500E□□332MP30S
	3,900	20×40	0.16	2,590	ESMG500E□□392MN40S
	3,900	22×35	0.16	2,590	ESMG500E□□392MP35S
	4,700	22×40	0.18	2,960	ESMG500E□□472MP40S
	6,800	25.4×40	0.22	3,360	ESMG500E□□682MQ40S
63	10	5×11	0.09	65	ESMG630E□□100ME11D
	22	5×11	0.09	100	ESMG630E□□220ME11D
	33	6.3×11	0.09	140	ESMG630E□□330MF11D
	47	6.3×11	0.09	170	ESMG630E□□470MF11D
	100	10×12.5	0.09	300	ESMG630E□□101MJC5S
	220	10×16	0.09	490	ESMG630E□□221MJ16S
	330	10×20	0.09	710	ESMG630E□□331MJ20S
	470	12.5×20	0.09	900	ESMG630E□□471MK20S
	820	20×20	0.09	1,370	ESMG630E□□821MN20S
	1,000	16×25	0.09	1,300	ESMG630E□□102ML25S
	1,000	20×25	0.09	1,600	ESMG630E□□102MN25S
	1,500	20×30	0.09	1,850	ESMG630E□□152MN30S
	2,200	20×35	0.11	2,330	ESMG630E□□222MN35S
	2,200	22×30	0.11	2,190	ESMG630E□□222MP30S
	2,700	20×40	0.11	2,640	ESMG630E□□272MN40S
	3,300	22×40	0.13	2,810	ESMG630E□□332MP40S
	3,900	25.4×40	0.13	3,100	ESMG630E□□392MQ40S
100	0.10	5×11	0.08	2.1	ESMG101E□□R10ME11D
	0.22	5×11	0.08	4.7	ESMG101E□□R22ME11D
	0.33	5×11	0.08	7.0	ESMG101E□□R33ME11D
	0.47	5×11	0.08	10	ESMG101E□□R47ME11D
	1.0	5×11	0.08	21	ESMG101E□□1R0ME11D
	2.2	5×11	0.08	30	ESMG101E□□2R2ME11D
	3.3	5×11	0.08	40	ESMG101E□□3R3ME11D
	4.7	5×11	0.08	45	ESMG101E□□4R7ME11D
	10	6.3×11	0.08	75	ESMG101E□□100MF11D
	22	8×11.5	0.08	130	ESMG101E□□220MHB5D
	33	8×11.5	0.08	180	ESMG101E□□330MHB5D
	47	10×12.5	0.08	230	ESMG101E□□470MJC5S
	100	10×20	0.08	370	ESMG101E□□101MJ20S
	220	12.5×25	0.08	620	ESMG101E□□221MK25S
	330	12.5×25	0.08	760	ESMG101E□□331MK25S
	330	20×20	0.08	870	ESMG101E□□331MN20S
	470	16×25	0.08	1,000	ESMG101E□□471ML25S
	680	20×30	0.08	1,360	ESMG101E□□681MN30S
	820	22×30	0.08	1,540	ESMG101E□□821MP30S
	1,000	18×40	0.08	1,380	ESMG101E□□102MM40S
	1,000	20×35	0.08	1,720	ESMG101E□□102MN35S
	1,200	22×40	0.08	1,980	ESMG101E□□122MP40S
	1,800	25.4×40	0.08	2,490	ESMG101E□□182MQ40S
160	3.3	6.3×11	0.20	40	ESMG161E□□3R3MF11D
	4.7	6.3×11	0.20	48	ESMG161E□□4R7MF11D
	10	10×12.5	0.20	94	ESMG161E□□100MJC5S
	22	10×20	0.20	170	ESMG161E□□220MJ20S
	33	10×20	0.20	205	ESMG161E□□330MJ20S
	47	12.5×20	0.20	270	ESMG161E□□470MK20S
	100	12.5×25	0.20	430	ESMG161E□□101MK25S
	220	16×31.5	0.20	760	ESMG161E□□221MLN3S
	220	20×25	0.15	730	ESMG161E□□221MN25S
	330	18×35.5	0.20	995	ESMG161E□□331MMP1S
	330	20×30	0.15	920	ESMG161E□□331MN30S
	390	20×35	0.15	1,160	ESMG161E□□391MN35S
	390	22×30	0.15	1,160	ESMG161E□□391MP30S
	470	20×40	0.15	1,340	ESMG161E□□471MN40S
	470	22×35	0.15	1,340	ESMG161E□□471MP35S
	560	22×40	0.15	1,470	ESMG161E□□561MP40S
	680	25.4×40	0.15	1,570	ESMG161E□□681MQ40S
200	3.3	6.3×11	0.20	40	ESMG201E□□3R3MF11D
	4.7	8×11.5	0.20	55	ESMG201E□□4R7MHB5D
	10	10×12.5	0.20	94	ESMG201E□□100MJC5S

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
200	22	10×20	0.20	170	ESMG201E□□220MJ20S
	33	10×20	0.20	205	ESMG201E□□330MJ20S
	47	12.5×20	0.20	270	ESMG201E□□470MK20S
	100	16×25	0.20	475	ESMG201E□□101ML25S
	100	20×20	0.15	460	ESMG201E□□101MN20S
	180	20×25	0.15	660	ESMG201E□□181MN25S
	220	18×35.5	0.20	810	ESMG201E□□221MMP1S
	220	20×30	0.15	750	ESMG201E□□221MN30S
	270	20×30	0.15	830	ESMG201E□□271MN30S
	330	20×35	0.15	1,070	ESMG201E□□331MN35S
	330	22×30	0.15	1,070	ESMG201E□□331MP30S
	390	20×40	0.15	1,190	ESMG201E□□391MN40S
	390	22×30	0.15	1,160	ESMG201E□□391MP30S
	470	22×40	0.15	1,350	ESMG201E□□471MP40S
	560	22×40	0.15	1,430	ESMG201E□□561MP40S
	680	25.4×40	0.15	1,620	ESMG201E□□681MQ40S
250	2.2	6.3×11	0.20	32	ESMG251E□□2R2MF11D
	3.3	8×11.5	0.20	46	ESMG251E□□3R3MHB5D
	4.7	8×11.5	0.20	55	ESMG251E□□4R7MHB5D
	10	10×16	0.20	105	ESMG251E□□100MJ16S
	22	10×20	0.20	170	ESMG251E□□220MJ20S
	33	12.5×20	0.20	230	ESMG251E□□330MK20S
	47	12.5×25	0.20	295	ESMG251E□□470MK25S
	82	20×20	0.15	420	ESMG251E□□820MN20S
	100	16×31.5	0.20	515	ESMG251E□□101MLN3S
	100	20×25	0.15	490	ESMG251E□□101MN25S
	120	20×25	0.15	530	ESMG251E□□121MN25S
	180	20×30	0.15	680	ESMG251E□□181MN30S
	220	18×40	0.20	825	ESMG251E□□221MM40S
	220	20×35	0.15	780	ESMG251E□□221MN35S
	220	22×30	0.15	820	ESMG251E□□221MP30S
	270	20×40	0.15	880	ESMG251E□□271MN40S
	270	22×35	0.15	880	ESMG251E□□271MP35S
	330	22×40	0.15	1,060	ESMG251E□□331MP40S
	390	25.4×40	0.15	1,200	ESMG251E□□391MQ40S
315	47	20×20	0.15	310	ESMG3B1E□□470MN20S
	68	20×25	0.15	400	ESMG3B1E□□680MN25S
	82	20×25	0.15	440	ESMG3B1E□□820MN25S
	100	20×30	0.15	500	ESMG3B1E□□101MN30S
	120	20×30	0.15	550	ESMG3B1E□□121MN30S
	180	20×40	0.15	720	ESMG3B1E□□181MN40S
	180	22×35	0.15	720	ESMG3B1E□□181MP35S
	220	22×40	0.15	810	ESMG3B1E□□221MP40S
	270	25.4×40	0.15	920	ESMG3B1E□□271MQ40S
350	0.47	6.3×11	0.24	15	ESMG351E□□R47MF11D
	1.0	6.3×11	0.24	22	ESMG351E□□1R0MF11D
	2.2	8×11.5	0.24	38	ESMG351E□□2R2MHB5D
	3.3	8×11.5	0.24	46	ESMG351E□□3R3MHB5D
	4.7	10×12.5	0.24	65	ESMG351E□□4R7MJC5S
	10	10×20	0.24	115	ESMG351E□□100MJ20S
	22	12.5×20	0.24	185	ESMG351E□□220MK20S
	33	16×25	0.24	275	ESMG351E□□330ML25S
	47	16×25	0.24	325	ESMG351E□□470ML25S
	47	20×20	0.15	310	ESMG351E□□470MN20S
	68	20×25	0.15	400	ESMG351E□□680MN25S
	100	18×31.5	0.24	530	ESMG351E□□101MMN3S
	100	20×30	0.15	500	ESMG351E□□101MN30S
	120	20×35	0.15	560	ESMG351E□□121MN35S
	220	25.4×40	0.15	890	ESMG351E□□221MQ40S
400	1.0	6.3×11	0.24	22	ESMG401E□□1R0MF11D
	2.2	8×11.5	0.24	38	ESMG401E□□2R2MHB5D
	3.3	10×12.5	0.24	54	ESMG401E□□3R3MJC5S
	4.7	10×16	0.24	71	ESMG401E□□4R7MJ16S
	10	10×20	0.24	115	ESMG401E□□100MJ20S
	22	12.5×25	0.24	205	ESMG401E□□220MK25S
	33	16×25	0.24	275	ESMG401E□□330ML25S
	33	20×20	0.15	260	ESMG401E□□330MN20S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized, 85℃

SMG Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
400	47	16×31.5	0.24	350	ESMG401E□□470MLN3S
	56	20×25	0.15	350	ESMG401E□□560MN25S
	68	20×30	0.15	420	ESMG401E□□680MN30S
	100	20×35	0.15	520	ESMG401E□□101MN35S
	100	22×30	0.15	520	ESMG401E□□101MP30S
	120	20×40	0.15	580	ESMG401E□□121MN40S
	120	22×35	0.15	580	ESMG401E□□121MP35S
	180	25.4×40	0.15	790	ESMG401E□□181MQ40S
450	0.47	10×12.5	0.24	13	ESMG451E□□R47MJC5S
	1.0	10×12.5	0.24	19	ESMG451E□□1R0MJC5S
	2.2	10×12.5	0.24	32	ESMG451E□□2R2MJC5S
	3.3	10×16	0.24	44	ESMG451E□□3R3MJ16S
	4.7	10×20	0.24	56	ESMG451E□□4R7MJ20S
	10	12.5×20	0.24	91	ESMG451E□□100MK20S

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
450	22	16×25	0.24	165	ESMG451E□□220ML25S
	22	20×20	0.20	180	ESMG451E□□220MN20S
	33	16×31.5	0.24	215	ESMG451E□□330MLN3S
	33	20×25	0.20	240	ESMG451E□□330MN25S
	47	16×35.5	0.24	265	ESMG451E□□470MLP1S
	47	20×25	0.20	290	ESMG451E□□470MN25S
	56	20×30	0.20	320	ESMG451E□□560MN30S
	68	20×35	0.20	370	ESMG451E□□680MN35S
	68	22×30	0.20	370	ESMG451E□□680MP30S
	82	20×40	0.20	420	ESMG451E□□820MN40S
	82	22×35	0.20	420	ESMG451E□□820MP35S
	100	22×40	0.20	470	ESMG451E□□101MP40S
	120	25.4×40	0.20	520	ESMG451E□□121MQ40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

(φ5 to φ18)

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
0.1 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

(φ20 to φ25.4)

Rated Voltage (Vdc) \ Frequency (Hz)	50	120	300	1k	10k	100k
6.3 to 50	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100	0.92	1.00	1.07	1.13	1.19	1.20
160 to 250	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard, Downsized, 105℃

KMG Series

- Endurance with ripple current : 1,000 to 2,000 hours at 105℃
- Solvent resistant type except 350 to 450Vdc
  (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

KMQ ↑ Downsized KMG

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃(6.3 to 100Vdc) −40 to +105℃(160 to 400Vdc) -25 to +105℃(450Vdc)
Rated Voltage Range	6.3 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	6.3 to 100Vdc: I=0.03CV or 4μA, whichever is greater. (at 20℃ after 1 minute) 160 to 450Vdc: CV≦1,000 → I=0.1CV+40 max. (After 1minute); I=0.03CV+15 max. (After 5minutes) CV>1,000 → I=0.04CV+100 max. (After 1minute); I=0.02CV+25 max. (After 5minutes) (at 20℃) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)

Dissipation Factor (tanδ)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	350 to 400V	450V
tanδ (Max.)	0.34	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.24	0.24

When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)

Low Temperature Characteristics (Max. Impedance Ratio)

Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	350 to 400V	450V
Z(−25℃)/Z(+20℃)	5	4	3	2	2	2	2	2	3	6	6
Z(−40℃)/Z(+20℃)	12	10	8	5	4	3	3	3	4	6	—

(at 120Hz)

Endurance

The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 1,000 hours (2,000 hours to meet the following two conditions 1) : 160Vdc and larger, 2) : φ12.5 and larger) at 105℃.

Capacitance change	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value
Leakage current	≦The initial specified value

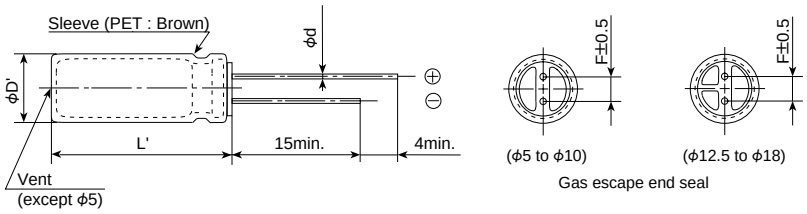
Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

Rated voltage	6.3 to 100Vdc	160 to 450Vdc
Capacitance change	≦±20% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦500% of the initial specified value

◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max						

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	M	G				E						M				

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 0.1μF:R10,10μF:100,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 6.3V:6R3,35V:350,100V:101)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard, Downsized, 105℃

KMG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
6.3	33	5×11	0.34	54	EKMG6R3E□□330ME11D
	47	5×11	0.34	64	EKMG6R3E□□470ME11D
	100	5×11	0.34	94	EKMG6R3E□□101ME11D
	220	5×11	0.34	140	EKMG6R3E□□221ME11D
	330	6.3×11	0.34	190	EKMG6R3E□□331MF11D
	470	6.3×11	0.34	230	EKMG6R3E□□471MF11D
	1,000	8×11.5	0.34	380	EKMG6R3E□□102MHB5D
	2,200	10×20	0.36	710	EKMG6R3E□□222MJ20S
	3,300	10×20	0.38	840	EKMG6R3E□□332MJ20S
	4,700	12.5×20	0.40	1,090	EKMG6R3E□□472MK20S
	6,800	12.5×25	0.44	1,350	EKMG6R3E□□682MK25S
	10,000	16×25	0.52	1,650	EKMG6R3E□□103ML25S
	15,000	16×35.5	0.62	2,010	EKMG6R3E□□153MLP1S
	22,000	18×40	0.76	2,350	EKMG6R3E□□223MM40S
10	22	5×11	0.24	46	EKMG100E□□220ME11D
	33	5×11	0.24	57	EKMG100E□□330ME11D
	47	5×11	0.24	68	EKMG100E□□470ME11D
	100	5×11	0.24	100	EKMG100E□□101ME11D
	220	6.3×11	0.24	170	EKMG100E□□221MF11D
	330	6.3×11	0.24	200	EKMG100E□□331MF11D
	470	8×11.5	0.24	250	EKMG100E□□471MHB5D
	1,000	10×12.5	0.24	460	EKMG100E□□102MJC5S
	2,200	10×20	0.26	760	EKMG100E□□222MJ20S
	3,300	12.5×20	0.28	1,000	EKMG100E□□332MK20S
	4,700	12.5×25	0.30	1,260	EKMG100E□□472MK25S
	6,800	16×25	0.34	1,570	EKMG100E□□682ML25S
	10,000	16×35.5	0.42	1,890	EKMG100E□□103MLP1S
	15,000	18×35.5	0.52	2,180	EKMG100E□□153MMP1S
16	10	5×11	0.20	34	EKMG160E□□100ME11D
	22	5×11	0.20	51	EKMG160E□□220ME11D
	33	5×11	0.20	63	EKMG160E□□330ME11D
	47	5×11	0.20	75	EKMG160E□□470ME11D
	100	5×11	0.20	110	EKMG160E□□101ME11D
	220	6.3×11	0.20	180	EKMG160E□□221MF11D
	330	8×11.5	0.20	260	EKMG160E□□331MHB5D
	470	8×11.5	0.20	310	EKMG160E□□471MHB5D
	1,000	10×16	0.20	560	EKMG160E□□102MJ16S
	2,200	12.5×20	0.22	920	EKMG160E□□222MK20S
	3,300	12.5×25	0.24	1,170	EKMG160E□□332MK25S
	4,700	16×25	0.26	1,480	EKMG160E□□472ML25S
	6,800	16×31.5	0.30	1,780	EKMG160E□□682MLN3S
	10,000	18×35.5	0.38	2,060	EKMG160E□□103MMP1S
25	4.7	5×11	0.16	25	EKMG250E□□4R7ME11D
	10	5×11	0.16	36	EKMG250E□□100ME11D
	22	5×11	0.16	54	EKMG250E□□220ME11D
	33	5×11	0.16	67	EKMG250E□□330ME11D
	47	5×11	0.16	80	EKMG250E□□470ME11D
	100	6.3×11	0.16	130	EKMG250E□□101MF11D
	220	8×11.5	0.16	230	EKMG250E□□221MHB5D
	330	8×11.5	0.16	310	EKMG250E□□331MHB5D
	470	10×12.5	0.16	380	EKMG250E□□471MJC5S
	1,000	10×20	0.16	680	EKMG250E□□102MJ20S
	2,200	12.5×25	0.18	1,090	EKMG250E□□222MK25S
	3,300	16×25	0.20	1,400	EKMG250E□□332ML25S
	4,700	16×31.5	0.22	1,710	EKMG250E□□472MLN3S
	6,800	18×35.5	0.26	2,040	EKMG250E□□682MMP1S
35	4.7	5×11	0.14	28	EKMG350E□□4R7ME11D
	10	5×11	0.14	41	EKMG350E□□100ME11D
	22	5×11	0.14	61	EKMG350E□□220ME11D
	33	5×11	0.14	75	EKMG350E□□330ME11D
	47	5×11	0.14	90	EKMG350E□□470ME11D
	100	6.3×11	0.14	150	EKMG350E□□101MF11D
	220	8×11.5	0.14	270	EKMG350E□□221MHB5D
	330	10×12.5	0.14	350	EKMG350E□□331MJC5S
	470	10×16	0.14	460	EKMG350E□□471MJ16S
	1,000	12.5×20	0.14	810	EKMG350E□□102MK20S
	2,200	16×25	0.16	1,260	EKMG350E□□222ML25S
35	3,300	16×35.5	0.18	1,610	EKMG350E□□332MLP1S
	4,700	18×35.5	0.20	1,910	EKMG350E□□472MMP1S
50	0.10	5×11	0.12	1.3	EKMG500E□□R10ME11D
	0.22	5×11	0.12	2.9	EKMG500E□□R22ME11D
	0.33	5×11	0.12	4.3	EKMG500E□□R33ME11D
	0.47	5×11	0.12	6.2	EKMG500E□□R47ME11D
	1.0	5×11	0.12	13	EKMG500E□□1R0ME11D
	2.2	5×11	0.12	20	EKMG500E□□2R2ME11D
	3.3	5×11	0.12	25	EKMG500E□□3R3ME11D
	4.7	5×11	0.12	30	EKMG500E□□4R7ME11D
	10	5×11	0.12	40	EKMG500E□□100ME11D
	22	5×11	0.12	65	EKMG500E□□220ME11D
	33	5×11	0.12	90	EKMG500E□□330ME11D
	47	6.3×11	0.12	110	EKMG500E□□470MF11D
	100	8×11.5	0.12	180	EKMG500E□□101MHB5D
	220	10×12.5	0.12	300	EKMG500E□□221MJC5S
	330	10×16	0.12	410	EKMG500E□□331MJ16S
	470	10×20	0.12	530	EKMG500E□□471MJ20S
	1,000	12.5×25	0.12	950	EKMG500E□□102MK25S
	2,200	16×35.5	0.14	1,470	EKMG500E□□222MLP1S
	3,300	18×35.5	0.16	1,770	EKMG500E□□332MMP1S
63	10	5×11	0.10	46	EKMG630E□□100ME11D
	22	5×11	0.10	71	EKMG630E□□220ME11D
	33	6.3×11	0.10	100	EKMG630E□□330MF11D
	47	6.3×11	0.10	120	EKMG630E□□470MF11D
	100	10×12.5	0.10	215	EKMG630E□□101MJC5S
	220	10×16	0.10	335	EKMG630E□□221MJ16S
	330	10×20	0.10	510	EKMG630E□□331MJ20S
	470	12.5×20	0.10	640	EKMG630E□□471MK20S
	1,000	16×25	0.10	930	EKMG630E□□102ML25S
100	0.10	5×11	0.08	1.5	EKMG101E□□R10ME11D
	0.22	5×11	0.08	3.4	EKMG101E□□R22ME11D
	0.33	5×11	0.08	5.0	EKMG101E□□R33ME11D
	0.47	5×11	0.08	7.1	EKMG101E□□R47ME11D
	1.0	5×11	0.08	15	EKMG101E□□1R0ME11D
	2.2	5×11	0.08	21	EKMG101E□□2R2ME11D
	3.3	5×11	0.08	29	EKMG101E□□3R3ME11D
	4.7	5×11	0.08	32	EKMG101E□□4R7ME11D
	10	6.3×11	0.08	54	EKMG101E□□100MF11D
	22	8×11.5	0.08	93	EKMG101E□□220MHB5D
	33	8×11.5	0.08	130	EKMG101E□□330MHB5D
	47	10×12.5	0.08	165	EKMG101E□□470MJC5S
	100	10×20	0.08	265	EKMG101E□□101MJ20S
	220	12.5×25	0.08	440	EKMG101E□□221MK25S
	330	16×25	0.08	540	EKMG101E□□331ML25S
	470	16×31.5	0.08	715	EKMG101E□□471MLN3S
	1,000	18×40	0.08	985	EKMG101E□□102MM40S
160	3.3	6.3×11	0.20	28	EKMG161E□□3R3MF11D
	4.7	6.3×11	0.20	34	EKMG161E□□4R7MF11D
	10	10×12.5	0.20	67	EKMG161E□□100MJC5S
	22	10×20	0.20	120	EKMG161E□□220MJ20S
	33	10×20	0.20	145	EKMG161E□□330MJ20S
	47	12.5×20	0.20	195	EKMG161E□□470MK20S
	100	16×25	0.20	335	EKMG161E□□101ML25S
	220	16×31.5	0.20	540	EKMG161E□□221MLN3S
	330	18×35.5	0.20	705	EKMG161E□□331MMP1S
200	3.3	6.3×11	0.20	28	EKMG201E□□3R3MF11D
	4.7	8×11.5	0.20	39	EKMG201E□□4R7MHB5D
	10	10×16	0.20	74	EKMG201E□□100MJ16S
	22	10×20	0.20	120	EKMG201E□□220MJ20S
	33	12.5×20	0.20	160	EKMG201E□□330MK20S
	47	12.5×20	0.20	195	EKMG201E□□470MK20S
	100	16×25	0.20	335	EKMG201E□□101ML25S
	220	18×35.5	0.20	575	EKMG201E□□221MMP1S
250	2.2	6.3×11	0.20	23	EKMG251E□□2R2MF11D
	3.3	8×11.5	0.20	32	EKMG251E□□3R3MHB5D
	4.7	8×11.5	0.20	39	EKMG251E□□4R7MHB5D

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Standard, Downsized, 105℃

KMG Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
250	10	10×16	0.20	74	EKMG251E□□100MJ16S
	22	12.5×20	0.20	130	EKMG251E□□220MK20S
	33	12.5×20	0.20	160	EKMG251E□□330MK20S
	47	12.5×25	0.20	210	EKMG251E□□470MK25S
	100	16×31.5	0.20	365	EKMG251E□□101MLN3S
	220	18×40	0.20	585	EKMG251E□□221MM40S
350	0.47	6.3×11	0.24	11	EKMG351E□□R47MF11D
	1.0	6.3×11	0.24	15	EKMG351E□□1R0MF11D
	2.2	8×11.5	0.24	26	EKMG351E□□2R2MHB5D
	3.3	10×12.5	0.24	38	EKMG351E□□3R3MJC5S
	4.7	10×16	0.24	50	EKMG351E□□4R7MJ16S
	10	10×20	0.24	80	EKMG351E□□100MJ20S
	22	12.5×20	0.24	130	EKMG351E□□220MK20S
	33	16×25	0.24	195	EKMG351E□□330ML25S
	47	16×25	0.24	230	EKMG351E□□470ML25S
	100	18×31.5	0.24	375	EKMG351E□□101MMN3S

□□ : Enter the appropriate lead forming or taping code.

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current (mArms/ 105℃,120Hz)	Part No.
400	1.0	6.3×11	0.24	15	EKMG401E□□1R0MF11D
	2.2	8×11.5	0.24	26	EKMG401E□□2R2MHB5D
	3.3	10×12.5	0.24	38	EKMG401E□□3R3MJC5S
	4.7	10×16	0.24	50	EKMG401E□□4R7MJ16S
	10	10×20	0.24	80	EKMG401E□□100MJ20S
	22	12.5×25	0.24	145	EKMG401E□□220MK25S
	33	16×25	0.24	195	EKMG401E□□330ML25S
	47	16×31.5	0.24	250	EKMG401E□□470MLN3S
	100	16×40	0.24	350	EKMG401E□□101ML40S
450	0.47	10×12.5	0.24	9.0	EKMG451E□□R47MJC5S
	1.0	10×12.5	0.24	13	EKMG451E□□1R0MJC5S
	2.2	10×12.5	0.24	23	EKMG451E□□2R2MJC5S
	3.3	10×16	0.24	31	EKMG451E□□3R3MJ16S
	4.7	10×20	0.24	40	EKMG451E□□4R7MJ20S
	10	12.5×20	0.24	65	EKMG451E□□100MK20S
	22	16×25	0.24	115	EKMG451E□□220ML25S
	33	16×31.5	0.24	155	EKMG451E□□330MLN3S
	47	16×35.5	0.24	185	EKMG451E□□470MLP1S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
0.1 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 47	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 85℃

SME-BP Series

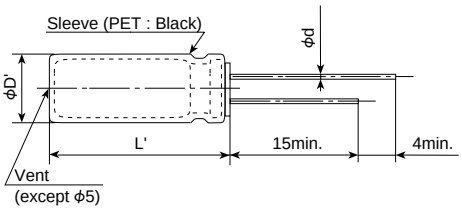
- ●Standard Bi-polar type
- ●Endurance : 2,000 hours at 85℃
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

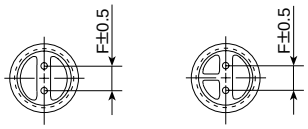
◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	−40 to +85℃									
Rated Voltage Range	6.3 to 100Vdc									
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)									
Leakage Current	I=0.06CV or 10μA, whichever is greater. (at 20℃ after 2 minutes) I=0.03CV or 3μA, whichever is greater. (at 20℃ after 5 minutes) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)									
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V
	tanδ (Max.)	0.24	0.24	0.20	0.20	0.16	0.14	0.12	0.12	0.10
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)									
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V
	Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	2	2	2
	Z(−40℃)/Z(+20℃)	10	8	6	4	3	3	3	3	3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 85℃, however the polarization shall be reversed every 250 hours.									
	Rated voltage	6.3 to 16Vdc	25 to 100Vdc							
	Capacitance change	≦±25% of the initial value	≦±20% of the initial value							
	D.F. (tanδ)	≦150% of the initial specified value								
	Leakage current	≦The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.									
	Rated voltage	6.3 to 16Vdc	25 to 100Vdc							
	Capacitance change	≦±25% of the initial value	≦±20% of the initial value							
	D.F. (tanδ)	≦150% of the initial specified value								
	Leakage current	≦The initial specified value								

◆DIMENSIONS [mm]

●Terminal Code : E



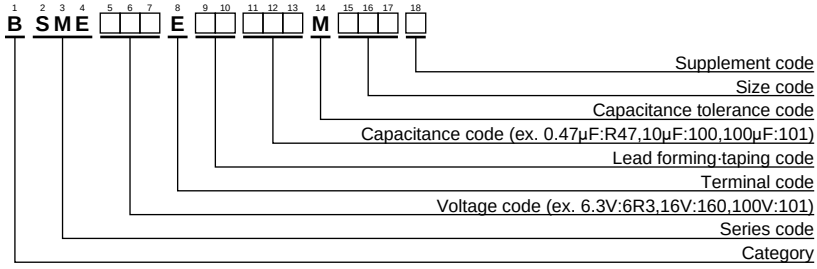


(φ5 to φ10) (φ12.5 to φ18)

Gas escape end seal

φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 85℃

SME-BP Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
6.3	33	5×11	0.24	64	BSME6R3E□□330ME11D
	47	5×11	0.24	76	BSME6R3E□□470ME11D
	100	6.3×11	0.24	125	BSME6R3E□□101MF11D
	220	8×11.5	0.24	215	BSME6R3E□□221MHB5D
	330	8×11.5	0.24	265	BSME6R3E□□331MHB5D
	470	10×12.5	0.24	370	BSME6R3E□□471MJC5S
	1,000	10×20	0.24	650	BSME6R3E□□102MJ20S
	2,200	12.5×25	0.26	1,160	BSME6R3E□□222MK25S
	3,300	16×25	0.28	1,570	BSME6R3E□□332ML25S
	4,700	16×31.5	0.30	2,020	BSME6R3E□□472MLN3S
	6,800	18×35.5	0.34	2,600	BSME6R3E□□682MMP1S
10	22	5×11	0.24	57	BSME100E□□220ME11D
	33	5×11	0.24	64	BSME100E□□330ME11D
	47	5×11	0.24	76	BSME100E□□470ME11D
	100	6.3×11	0.24	125	BSME100E□□101MF11D
	220	8×11.5	0.24	215	BSME100E□□221MHB5D
	330	10×16	0.24	345	BSME100E□□331MJ16S
	470	10×16	0.24	410	BSME100E□□471MJ16S
	1,000	12.5×20	0.24	720	BSME100E□□102MK20S
	2,200	16×25	0.26	1,280	BSME100E□□222ML25S
	3,300	16×31.5	0.28	1,690	BSME100E□□332MLN3S
	4,700	18×35.5	0.30	2,160	BSME100E□□472MMP1S
16	10	5×11	0.20	42	BSME160E□□100ME11D
	22	5×11	0.20	57	BSME160E□□220ME11D
	33	5×11	0.20	70	BSME160E□□330ME11D
	47	6.3×11	0.20	95	BSME160E□□470MF11D
	100	8×11.5	0.20	160	BSME160E□□101MHB5D
	220	10×12.5	0.20	275	BSME160E□□221MJC5S
	330	10×16	0.20	375	BSME160E□□331MJ16S
	470	10×20	0.20	485	BSME160E□□471MJ20S
	1,000	12.5×25	0.20	855	BSME160E□□102MK25S
	2,200	16×31.5	0.22	1,510	BSME160E□□222MLN3S
	3,300	18×35.5	0.24	1,980	BSME160E□□332MMP1S
25	10	5×11	0.20	42	BSME250E□□100ME11D
	22	6.3×11	0.20	65	BSME250E□□220MF11D
	33	6.3×11	0.20	80	BSME250E□□330MF11D
	47	6.3×11	0.20	95	BSME250E□□470MF11D
	100	8×11.5	0.20	160	BSME250E□□101MHB5D
	220	10×16	0.20	305	BSME250E□□221MJ16S
	330	12.5×20	0.20	450	BSME250E□□331MK20S
	470	12.5×20	0.20	540	BSME250E□□471MK20S
	1,000	16×25	0.20	950	BSME250E□□102ML25S
	2,200	18×35.5	0.22	1,620	BSME250E□□222MMP1S
35	4.7	5×11	0.16	34	BSME350E□□4R7ME11D
	10	5×11	0.16	43	BSME350E□□100ME11D
	22	6.3×11	0.16	73	BSME350E□□220MF11D
	33	8×11.5	0.16	100	BSME350E□□330MHB5D
	47	8×11.5	0.16	120	BSME350E□□470MHB5D
	100	10×16	0.16	230	BSME350E□□101MJ16S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
35	220	12.5×20	0.16	410	BSME350E□□221MK20S
	330	12.5×20	0.16	505	BSME350E□□331MK20S
	470	12.5×25	0.16	655	BSME350E□□471MK25S
	1,000	16×31.5	0.16	1,140	BSME350E□□102MLN3S
50	0.47	5×11	0.14	11	BSME500E□□R47ME11D
	1.0	5×11	0.14	17	BSME500E□□1R0ME11D
	2.2	5×11	0.14	25	BSME500E□□2R2ME11D
	3.3	5×11	0.14	27	BSME500E□□3R3ME11D
	4.7	5×11	0.14	34	BSME500E□□4R7ME11D
	10	6.3×11	0.14	52	BSME500E□□100MF11D
	22	8×11.5	0.14	89	BSME500E□□220MHB5D
	33	8×11.5	0.14	105	BSME500E□□330MHB5D
	47	10×12.5	0.14	150	BSME500E□□470MJC5S
	100	10×20	0.14	265	BSME500E□□101MJ20S
	220	12.5×25	0.14	480	BSME500E□□221MK25S
	330	16×25	0.14	650	BSME500E□□331ML25S
	470	16×31.5	0.14	835	BSME500E□□471MLN3S
63	3.3	5×11	0.12	28	BSME630E□□3R3ME11D
	4.7	6.3×11	0.12	34	BSME630E□□4R7MF11D
	10	6.3×11	0.12	57	BSME630E□□100MF11D
	22	8×11.5	0.12	95	BSME630E□□220MHB5D
	33	10×12.5	0.12	135	BSME630E□□330MJC5S
	47	10×16	0.12	180	BSME630E□□470MJ16S
	100	12.5×20	0.12	320	BSME630E□□101MK20S
	220	16×25	0.12	575	BSME630E□□221ML25S
	330	16×31.5	0.12	655	BSME630E□□331MLN3S
	470	18×35.5	0.12	965	BSME630E□□471MMP1S
80	2.2	5×11	0.12	29	BSME800E□□2R2ME11D
	3.3	6.3×11	0.12	39	BSME800E□□3R3MF11D
	4.7	6.3×11	0.12	47	BSME800E□□4R7MF11D
	10	8×11.5	0.12	65	BSME800E□□100MHB5D
	22	10×16	0.12	125	BSME800E□□220MJ16S
	33	10×16	0.12	150	BSME800E□□330MJ16S
	47	10×20	0.12	195	BSME800E□□470MJ20S
	100	12.5×25	0.12	350	BSME800E□□101MK25S
	220	16×31.5	0.12	615	BSME800E□□221MLN3S
	330	18×35.5	0.12	755	BSME800E□□331MMP1S
100	0.47	5×11	0.10	14	BSME101E□□R47ME11D
	1.0	5×11	0.10	21	BSME101E□□1R0ME11D
	2.2	6.3×11	0.10	34	BSME101E□□2R2MF11D
	3.3	6.3×11	0.10	39	BSME101E□□3R3MF11D
	4.7	6.3×11	0.10	47	BSME101E□□4R7MF11D
	10	8×11.5	0.10	71	BSME101E□□100MHB5D
	22	10×16	0.10	135	BSME101E□□220MJ16S
	33	12.5×20	0.10	220	BSME101E□□330MK20S
	47	12.5×20	0.10	240	BSME101E□□470MK20S
	100	16×25	0.10	425	BSME101E□□101ML25S
	220	18×35.5	0.10	720	BSME101E□□221MMP1S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 105℃

KME-BP Series

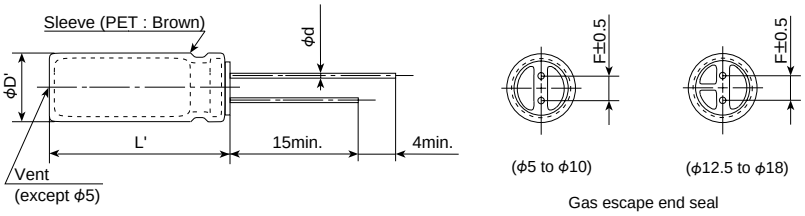
- Standard Bi-polar type
- Endurance : 1,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	6.3 to 100Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.06CV or 10μA, whichever is greater. (at 20℃ after 2 minutes) I=0.03CV or 3μA, whichever is greater. (at 20℃ after 5 minutes) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63V / 80V / 100V tanδ (Max.): 0.24 / 0.24 / 0.20 / 0.20 / 0.16 / 0.14 / 0.12 / 0.12 / 0.10 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V / 50V / 63V / 80V / 100V Z(−25℃)/Z(+20℃): 4 / 3 / 2 / 2 / 2 / 2 / 2 / 2 / 2 Z(−40℃)/Z(+20℃): 10 / 8 / 6 / 4 / 3 / 3 / 3 / 3 / 3 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 105℃, however the polarization shall be reversed every 250 hours. Rated voltage: 6.3 to 16Vdc / 25 to 100Vdc Capacitance change: ≦±25% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Rated voltage: 6.3 to 16Vdc / 25 to 100Vdc Capacitance change: ≦±25% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

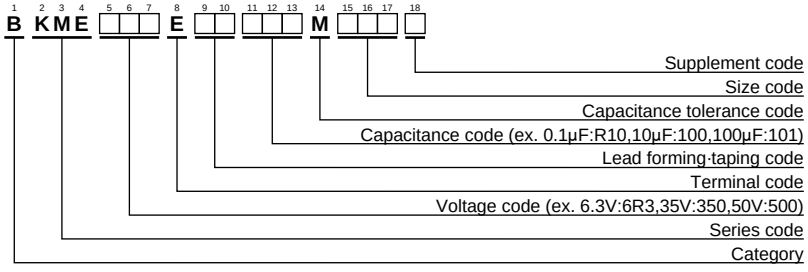
◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Bi-polar, 105℃

KME-BP Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
6.3	33	5×11	0.24	45	BKME6R3E□□330ME11D
	47	5×11	0.24	54	BKME6R3E□□470ME11D
	100	6.3×11	0.24	90	BKME6R3E□□101MF11D
	220	8×11.5	0.24	150	BKME6R3E□□221MHB5D
	330	8×11.5	0.24	185	BKME6R3E□□331MHB5D
	470	10×12.5	0.24	260	BKME6R3E□□471MJC5S
	1,000	10×20	0.24	460	BKME6R3E□□102MJ20S
	2,200	12.5×25	0.26	820	BKME6R3E□□222MK25S
	3,300	16×25	0.28	1,110	BKME6R3E□□332ML25S
	4,700	16×31.5	0.30	1,430	BKME6R3E□□472MLN3S
	6,800	18×35.5	0.34	1,830	BKME6R3E□□682MMP1S
10	22	5×11	0.24	37	BKME100E□□220ME11D
	33	5×11	0.24	45	BKME100E□□330ME11D
	47	5×11	0.24	54	BKME100E□□470ME11D
	100	6.3×11	0.24	90	BKME100E□□101MF11D
	220	8×11.5	0.24	150	BKME100E□□221MHB5D
	330	10×16	0.24	240	BKME100E□□331MJ16S
	470	10×16	0.24	290	BKME100E□□471MJ16S
	1,000	12.5×20	0.24	510	BKME100E□□102MK20S
	2,200	16×25	0.26	910	BKME100E□□222ML25S
	3,300	16×31.5	0.28	1,200	BKME100E□□332MLN3S
	4,700	18×35.5	0.30	1,520	BKME100E□□472MMP1S
16	10	5×11	0.20	27	BKME160E□□100ME11D
	22	5×11	0.20	40	BKME160E□□220ME11D
	33	5×11	0.20	49	BKME160E□□330ME11D
	47	6.3×11	0.20	67	BKME160E□□470MF11D
	100	8×11.5	0.20	110	BKME160E□□101MHB5D
	220	10×12.5	0.20	195	BKME160E□□221MJC5S
	330	10×16	0.20	265	BKME160E□□331MJ16S
	470	10×20	0.20	345	BKME160E□□471MJ20S
	1,000	12.5×25	0.20	605	BKME160E□□102MK25S
	2,200	16×31.5	0.22	1,070	BKME160E□□222MLN3S
	3,300	18×35.5	0.24	1,400	BKME160E□□332MMP1S
25	10	5×11	0.20	27	BKME250E□□100ME11D
	22	6.3×11	0.20	46	BKME250E□□220MF11D
	33	6.3×11	0.20	56	BKME250E□□330MF11D
	47	6.3×11	0.20	67	BKME250E□□470MF11D
	100	8×11.5	0.20	110	BKME250E□□101MHB5D
	220	10×16	0.20	215	BKME250E□□221MJ16S
	330	12.5×20	0.20	320	BKME250E□□331MK20S
	470	12.5×20	0.20	380	BKME250E□□471MK20S
	1,000	16×25	0.20	670	BKME250E□□102ML25S
	2,200	18×35.5	0.22	1,140	BKME250E□□222MMP1S
35	4.7	5×11	0.16	21	BKME350E□□4R7ME11D
	10	5×11	0.16	30	BKME350E□□100ME11D
	22	6.3×11	0.16	51	BKME350E□□220MF11D
	33	8×11.5	0.16	72	BKME350E□□330MHB5D
	47	8×11.5	0.16	86	BKME350E□□470MHB5D
	100	10×16	0.16	160	BKME350E□□101MJ16S
35	220	12.5×20	0.16	290	BKME350E□□221MK20S
	330	12.5×20	0.16	350	BKME350E□□331MK20S
	470	12.5×25	0.16	465	BKME350E□□471MK25S
	1,000	16×31.5	0.16	805	BKME350E□□102MLN3S
50	0.47	5×11	0.14	7.0	BKME500E□□R47ME11D
	1.0	5×11	0.14	10	BKME500E□□1R0ME11D
	2.2	5×11	0.14	15	BKME500E□□2R2ME11D
	3.3	5×11	0.14	18	BKME500E□□3R3ME11D
	4.7	5×11	0.14	22	BKME500E□□4R7ME11D
	10	6.3×11	0.14	37	BKME500E□□100MF11D
	22	8×11.5	0.14	63	BKME500E□□220MHB5D
	33	8×11.5	0.14	77	BKME500E□□330MHB5D
	47	10×12.5	0.14	105	BKME500E□□470MJC5S
	100	10×20	0.14	190	BKME500E□□101MJ20S
	220	12.5×25	0.14	340	BKME500E□□221MK25S
	330	16×25	0.14	460	BKME500E□□331ML25S
	470	16×31.5	0.14	590	BKME500E□□471MLN3S
63	3.3	5×11	0.12	20	BKME630E□□3R3ME11D
	4.7	6.3×11	0.12	24	BKME630E□□4R7MF11D
	10	6.3×11	0.12	40	BKME630E□□100MF11D
	22	8×11.5	0.12	68	BKME630E□□220MHB5D
	33	10×12.5	0.12	98	BKME630E□□330MJC5S
	47	10×16	0.12	130	BKME630E□□470MJ16S
	100	12.5×20	0.12	225	BKME630E□□101MK20S
	220	16×25	0.12	405	BKME630E□□221ML25S
	330	16×31.5	0.12	535	BKME630E□□331MLN3S
	470	18×35.5	0.12	680	BKME630E□□471MMP1S
80	2.2	5×11	0.12	16	BKME800E□□2R2ME11D
	3.3	6.3×11	0.12	23	BKME800E□□3R3MF11D
	4.7	6.3×11	0.12	27	BKME800E□□4R7MF11D
	10	8×11.5	0.12	46	BKME800E□□100MHB5D
	22	10×16	0.12	89	BKME800E□□220MJ16S
	33	10×16	0.12	105	BKME800E□□330MJ16S
	47	10×20	0.12	140	BKME800E□□470MJ20S
	100	12.5×25	0.12	245	BKME800E□□101MK25S
	220	16×31.5	0.12	435	BKME800E□□221MLN3S
	330	18×35.5	0.12	570	BKME800E□□331MMP1S
100	0.47	5×11	0.10	8.0	BKME101E□□R47ME11D
	1.0	5×11	0.10	12	BKME101E□□1R0ME11D
	2.2	6.3×11	0.10	20	BKME101E□□2R2MF11D
	3.3	6.3×11	0.10	25	BKME101E□□3R3MF11D
	4.7	6.3×11	0.10	30	BKME101E□□4R7MF11D
	10	8×11.5	0.10	50	BKME101E□□100MHB5D
	22	10×16	0.10	97	BKME101E□□220MJ16S
	33	12.5×20	0.10	140	BKME101E□□330MK20S
	47	12.5×20	0.10	170	BKME101E□□470MK20S
	100	16×25	0.10	300	BKME101E□□101ML25S
	220	18×35.5	0.10	510	BKME101E□□221MMP1S

□□ : Enter the appropriate lead forming or taping code.

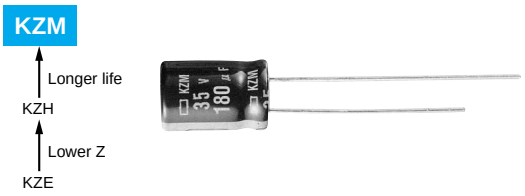
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZM Series

- Long-Life version of KZH series
- Endurance with ripple current : 6,000 to 10,000 hours at 105℃
- Newly innovative electrolyte is employed to minimize ESR
- Rated voltage range : 6.3 to 50V, Nominal capacitance range : 27 to 10,000μF
- Non solvent resistant type
- **RoHS Compliant**

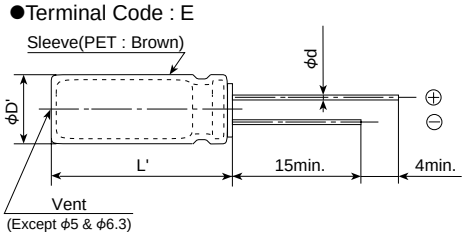


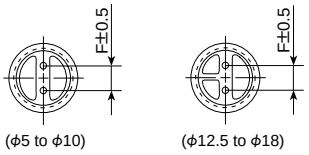
◆SPECIFICATIONS

Items	Characteristics						
Category Temperature Range	−40 to +105℃						
Rated Voltage Range	6.3 to 50Vdc						
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)						
Leakage Current	I=0.01CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)						
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V
	tanδ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)						
Low Temperature Characteristics	Z(−25℃)/Z(+20℃)	2 max.					
	Z(−40℃)/Z(+20℃)	3 max.					(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for the specified period of time at 105℃.						
	Time	φ5 & φ6.3 : 6,000hours φ8 & φ10×12.5 : 8,000hours φ10×16 to φ18 : 10,000hours					
	Capacitance change	≦±25% of the initial value (6.3, 10V : ≦±30%)					
	D.F. (tanδ)	≦200% of the initial specified value					
	Leakage current	≦The initial specified value					
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.						
	Capacitance change	≦±25% of the initial value (6.3, 10V : ≦±30%)					
	D.F. (tanδ)	≦200% of the initial specified value					
	Leakage current	≦The initial specified value					

◆DIMENSIONS [mm]

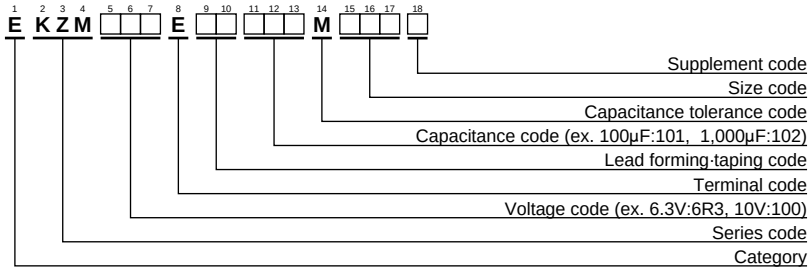
- Terminal Code : E





φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
27 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to 10,000	0.85	0.95	0.98	1.00

Note : The endurance of capacitors is reduced with internal heating produced by ripple currents at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Impedance (Ωmax/100kHz)		Rated ripple current (mArms/105℃,100kHz)	Part No.
				20℃	-10℃		
6.3	220	5 × 11	0.22	0.22	0.80	345	EKZM6R3E□□221ME11D
	470	6.3 × 11	0.22	0.094	0.35	540	EKZM6R3E□□471MF11D
	820	8 × 11.5	0.22	0.056	0.19	945	EKZM6R3E□□821MHB5D
	1,200	8 × 15	0.22	0.045	0.15	1,250	EKZM6R3E□□122MH15D
	1,200	10 × 12.5	0.22	0.039	0.14	1,330	EKZM6R3E□□122MJC5S
	1,500	8 × 20	0.22	0.029	0.11	1,500	EKZM6R3E□□152MH20D
	1,800	10 × 16	0.22	0.028	0.10	1,760	EKZM6R3E□□182MJ16S
	2,200	10 × 20	0.24	0.020	0.060	1,960	EKZM6R3E□□222MJ20S
	2,700	10 × 25	0.24	0.018	0.054	2,250	EKZM6R3E□□272MJ25S
	3,900	12.5 × 20	0.26	0.017	0.043	2,480	EKZM6R3E□□392MK20S
	4,700	12.5 × 25	0.28	0.015	0.038	2,900	EKZM6R3E□□472MK25S
	5,600	12.5 × 30	0.30	0.013	0.033	3,450	EKZM6R3E□□562MK30S
	6,800	12.5 × 35	0.32	0.012	0.031	3,570	EKZM6R3E□□682MK35S
	6,800	16 × 20	0.32	0.015	0.038	3,250	EKZM6R3E□□682ML20S
	8,200	16 × 25	0.36	0.013	0.035	3,630	EKZM6R3E□□822ML25S
	10,000	18 × 25	0.40	0.012	0.031	3,650	EKZM6R3E□□103MM25S
10	150	5 × 11	0.19	0.22	0.80	345	EKZM100E□□151ME11D
	330	6.3 × 11	0.19	0.094	0.35	540	EKZM100E□□331MF11D
	680	8 × 11.5	0.19	0.056	0.19	945	EKZM100E□□681MHB5D
	1,000	8 × 15	0.19	0.045	0.15	1,250	EKZM100E□□102MH15D
	1,000	10 × 12.5	0.19	0.039	0.14	1,330	EKZM100E□□102MJC5S
	1,500	8 × 20	0.19	0.029	0.11	1,500	EKZM100E□□152MH20D
	1,500	10 × 16	0.19	0.028	0.10	1,760	EKZM100E□□152MJ16S
	1,800	10 × 20	0.19	0.020	0.060	1,960	EKZM100E□□182MJ20S
	2,200	10 × 25	0.21	0.018	0.054	2,250	EKZM100E□□222MJ25S
	3,300	12.5 × 20	0.23	0.017	0.043	2,480	EKZM100E□□332MK20S
	3,900	12.5 × 25	0.23	0.015	0.038	2,900	EKZM100E□□392MK25S
	4,700	12.5 × 30	0.25	0.013	0.033	3,450	EKZM100E□□472MK30S
	4,700	16 × 20	0.25	0.015	0.038	3,250	EKZM100E□□472ML20S
	5,600	12.5 × 35	0.27	0.012	0.031	3,570	EKZM100E□□562MK35S
	6,800	16 × 25	0.29	0.013	0.035	3,630	EKZM100E□□682ML25S
	8,200	18 × 25	0.33	0.012	0.031	3,650	EKZM100E□□822MM25S
16	100	5 × 11	0.16	0.22	0.80	345	EKZM160E□□101ME11D
	220	6.3 × 11	0.16	0.094	0.35	540	EKZM160E□□221MF11D
	470	8 × 11.5	0.16	0.056	0.19	945	EKZM160E□□471MHB5D
	680	8 × 15	0.16	0.045	0.15	1,250	EKZM160E□□681MH15D
	680	10 × 12.5	0.16	0.039	0.14	1,330	EKZM160E□□681MJC5S
	1,000	8 × 20	0.16	0.029	0.11	1,500	EKZM160E□□102MH20D
	1,000	10 × 16	0.16	0.028	0.10	1,760	EKZM160E□□102MJ16S
	1,500	10 × 20	0.16	0.020	0.060	1,960	EKZM160E□□152MJ20S
	1,800	10 × 25	0.16	0.018	0.054	2,250	EKZM160E□□182MJ25S
	2,200	12.5 × 20	0.18	0.017	0.043	2,480	EKZM160E□□222MK20S
	2,700	12.5 × 25	0.18	0.015	0.038	2,900	EKZM160E□□272MK25S
	3,300	12.5 × 30	0.20	0.013	0.033	3,450	EKZM160E□□332MK30S
	3,300	16 × 20	0.20	0.015	0.038	3,250	EKZM160E□□332ML20S
	3,900	12.5 × 35	0.20	0.012	0.031	3,570	EKZM160E□□392MK35S
	4,700	16 × 25	0.22	0.013	0.035	3,630	EKZM160E□□472ML25S
	5,600	18 × 25	0.24	0.012	0.031	3,650	EKZM160E□□562MM25S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Impedance (Ωmax/100kHz)		Rated ripple current (mArms/105℃,100kHz)	Part No.
				20℃	-10℃		
25	68	5 × 11	0.14	0.22	0.80	345	EKZM250E□□680ME11D
	150	6.3 × 11	0.14	0.094	0.35	540	EKZM250E□□151MF11D
	330	8 × 11.5	0.14	0.056	0.19	945	EKZM250E□□331MHB5D
	390	8 × 15	0.14	0.045	0.15	1,250	EKZM250E□□391MH15D
	470	10 × 12.5	0.14	0.039	0.14	1,330	EKZM250E□□471MJC5S
	560	8 × 20	0.14	0.029	0.11	1,500	EKZM250E□□561MH20D
	680	10 × 16	0.14	0.028	0.10	1,760	EKZM250E□□681MJ16S
	820	10 × 20	0.14	0.020	0.060	1,960	EKZM250E□□821MJ20S
	1,000	10 × 25	0.14	0.018	0.054	2,250	EKZM250E□□102MJ25S
	1,500	12.5 × 20	0.14	0.017	0.043	2,480	EKZM250E□□152MK20S
	1,800	12.5 × 25	0.14	0.015	0.038	2,900	EKZM250E□□182MK25S
	2,200	12.5 × 30	0.16	0.013	0.033	3,450	EKZM250E□□222MK30S
	2,200	16 × 20	0.16	0.015	0.038	3,250	EKZM250E□□222ML20S
	2,700	12.5 × 35	0.16	0.012	0.031	3,570	EKZM250E□□272MK35S
	3,300	16 × 25	0.18	0.013	0.035	3,630	EKZM250E□□332ML25S
	3,900	18 × 25	0.18	0.012	0.031	3,650	EKZM250E□□392MM25S
35	47	5 × 11	0.12	0.22	0.80	345	EKZM350E□□470ME11D
	100	6.3 × 11	0.12	0.094	0.35	540	EKZM350E□□101MF11D
	220	8 × 11.5	0.12	0.056	0.19	945	EKZM350E□□221MHB5D
	270	8 × 15	0.12	0.045	0.15	1,250	EKZM350E□□271MH15D
	330	10 × 12.5	0.12	0.039	0.14	1,330	EKZM350E□□331MJC5S
	390	8 × 20	0.12	0.029	0.11	1,500	EKZM350E□□391MH20D
	470	10 × 16	0.12	0.028	0.10	1,760	EKZM350E□□471MJ16S
	560	10 × 20	0.12	0.020	0.060	1,960	EKZM350E□□561MJ20S
	680	10 × 25	0.12	0.018	0.054	2,250	EKZM350E□□681MJ25S
	1,000	12.5 × 20	0.12	0.017	0.043	2,480	EKZM350E□□102MK20S
	1,200	12.5 × 25	0.12	0.015	0.038	2,900	EKZM350E□□122MK25S
	1,500	12.5 × 30	0.12	0.013	0.033	3,450	EKZM350E□□152MK30S
	1,500	16 × 20	0.12	0.015	0.038	3,250	EKZM350E□□152ML20S
	1,800	12.5 × 35	0.12	0.012	0.031	3,570	EKZM350E□□182MK35S
	2,200	16 × 25	0.14	0.013	0.035	3,630	EKZM350E□□222ML25S
	2,700	18 × 25	0.14	0.012	0.031	3,650	EKZM350E□□272MM25S
50	27	5 × 11	0.10	0.34	1.18	238	EKZM500E□□270ME11D
	56	6.3 × 11	0.10	0.14	0.50	385	EKZM500E□□560MF11D
	100	8 × 11.5	0.10	0.074	0.22	724	EKZM500E□□101MHB5D
	120	8 × 15	0.10	0.061	0.18	950	EKZM500E□□121MH15D
	150	10 × 12.5	0.10	0.061	0.18	979	EKZM500E□□151MJC5S
	180	8 × 20	0.10	0.046	0.14	1,190	EKZM500E□□181MH20D
	220	10 × 16	0.10	0.042	0.12	1,370	EKZM500E□□221MJ16S
	270	10 × 20	0.10	0.030	0.090	1,580	EKZM500E□□271MJ20S
	330	10 × 25	0.10	0.028	0.085	1,870	EKZM500E□□331MJ25S
	470	12.5 × 20	0.10	0.027	0.068	2,050	EKZM500E□□471MK20S
	560	12.5 × 25	0.10	0.023	0.059	2,410	EKZM500E□□561MK25S
	680	12.5 × 30	0.10	0.021	0.052	2,860	EKZM500E□□681MK30S
	820	12.5 × 35	0.10	0.019	0.051	2,960	EKZM500E□□821MK35S
	820	16 × 20	0.10	0.023	0.059	2,730	EKZM500E□□821ML20S
	1,000	16 × 25	0.10	0.021	0.056	3,010	EKZM500E□□102ML25S
	1,500	18 × 25	0.10	0.019	0.051	3,290	EKZM500E□□152MM25S

□□ : Enter the appropriate lead forming or taping code.

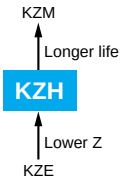
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZH Series

- Ultra Low impedance for Personal Computers Storage Equipment
- Endurance with ripple current: 5,000 to 6,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

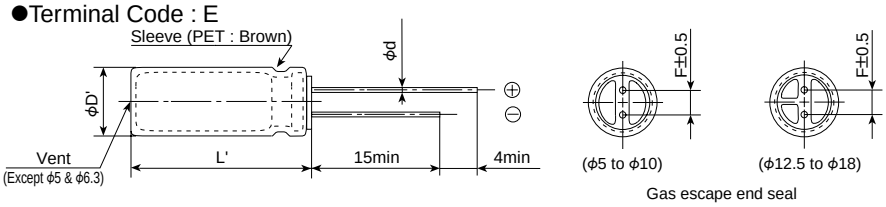


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃
Rated Voltage Range	6.3 to 35Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 6.3V / 10V / 16V / 25V / 35V tanδ (Max.): 0.22 / 0.19 / 0.16 / 0.14 / 0.12 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z (-25℃) / Z (+20℃): 2max. Z (-40℃) / Z (+20℃): 3max. (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for the specified period of time at 105℃. Time: φ5 & φ6.3 : 5,000hours φ8 to φ16 : 6,000hours Capacitance change: ≦±25% of the initial value (6.3, 10V : ≦±30%) D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±25% of the initial value (6.3, 10V : ≦±30%) D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

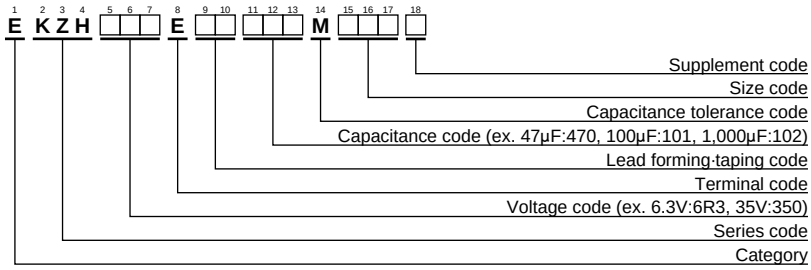
◆DIMENSIONS [mm]

●Terminal Code : E



φD	5	6.3	8	10	12.5	16
φd	0.5	0.5	0.6	0.6	0.6	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5
φD'	φD+0.5max.					
L'	L+1.5max.					

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	220	5×11	0.24	0.80	330	EKZH6R3E□□221ME11D
	470	6.3×11	0.11	0.35	500	EKZH6R3E□□471MF11D
	820	8×11.5	0.062	0.19	900	EKZH6R3E□□821MHB5D
	1,200	8×15	0.048	0.15	1,210	EKZH6R3E□□122MH15D
	1,200	10×12.5	0.045	0.14	1,240	EKZH6R3E□□122MJC5S
	1,500	8×20	0.033	0.11	1,410	EKZH6R3E□□152MH20D
	1,800	10×16	0.032	0.10	1,650	EKZH6R3E□□182MJ16S
	2,200	10×20	0.020	0.060	1,960	EKZH6R3E□□222MJ20S
	2,700	10×25	0.018	0.054	2,250	EKZH6R3E□□272MJ25S
	3,900	12.5×20	0.017	0.043	2,480	EKZH6R3E□□392MK20S
	4,700	12.5×25	0.015	0.038	2,900	EKZH6R3E□□472MK25S
	5,600	12.5×30	0.013	0.033	3,450	EKZH6R3E□□562MK30S
	6,800	12.5×35	0.012	0.031	3,570	EKZH6R3E□□682MK35S
	6,800	16×20	0.015	0.038	3,250	EKZH6R3E□□682ML20S
	8,200	16×25	0.013	0.035	3,630	EKZH6R3E□□822ML25S
10	150	5×11	0.24	0.80	330	EKZH100E□□151ME11D
	330	6.3×11	0.11	0.35	500	EKZH100E□□331MF11D
	680	8×11.5	0.062	0.19	900	EKZH100E□□681MHB5D
	1,000	8×15	0.048	0.15	1,210	EKZH100E□□102MH15D
	1,000	10×12.5	0.045	0.14	1,240	EKZH100E□□102MJC5S
	1,500	8×20	0.033	0.11	1,410	EKZH100E□□152MH20D
	1,500	10×16	0.032	0.10	1,650	EKZH100E□□152MJ16S
	1,800	10×20	0.020	0.060	1,960	EKZH100E□□182MJ20S
	2,200	10×25	0.018	0.054	2,250	EKZH100E□□222MJ25S
	3,300	12.5×20	0.017	0.043	2,480	EKZH100E□□332MK20S
	3,900	12.5×25	0.015	0.038	2,900	EKZH100E□□392MK25S
	4,700	12.5×30	0.013	0.033	3,450	EKZH100E□□472MK30S
	4,700	16×20	0.015	0.038	3,250	EKZH100E□□472ML20S
	5,600	12.5×35	0.012	0.031	3,570	EKZH100E□□562MK35S
	6,800	16×25	0.013	0.035	3,630	EKZH100E□□682ML25S
16	100	5×11	0.24	0.80	330	EKZH160E□□101ME11D
	220	6.3×11	0.11	0.35	500	EKZH160E□□221MF11D
	470	8×11.5	0.062	0.19	900	EKZH160E□□471MHB5D
	680	8×15	0.048	0.15	1,210	EKZH160E□□681MH15D
	680	10×12.5	0.045	0.14	1,240	EKZH160E□□681MJC5S
	1,000	8×20	0.033	0.11	1,410	EKZH160E□□102MH20D
	1,000	10×16	0.032	0.10	1,650	EKZH160E□□102MJ16S
	1,500	10×20	0.020	0.06	1,960	EKZH160E□□152MJ20S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
16	1,800	10×25	0.018	0.054	2,250	EKZH160E□□182MJ25S
	2,200	12.5×20	0.017	0.043	2,480	EKZH160E□□222MK20S
	2,700	12.5×25	0.015	0.038	2,900	EKZH160E□□272MK25S
	3,300	12.5×30	0.013	0.033	3,450	EKZH160E□□332MK30S
	3,300	16×20	0.015	0.038	3,250	EKZH160E□□332ML20S
	3,900	12.5×35	0.012	0.031	3,570	EKZH160E□□392MK35S
	4,700	16×25	0.013	0.035	3,630	EKZH160E□□472ML25S
25	68	5×11	0.24	0.80	330	EKZH250E□□680ME11D
	150	6.3×11	0.11	0.35	500	EKZH250E□□151MF11D
	330	8×11.5	0.062	0.19	900	EKZH250E□□331MHB5D
	390	8×15	0.048	0.15	1,210	EKZH250E□□391MH15D
	470	10×12.5	0.045	0.14	1,240	EKZH250E□□471MJC5S
	560	8×20	0.033	0.11	1,410	EKZH250E□□561MH20D
	680	10×16	0.032	0.10	1,650	EKZH250E□□681MJ16S
	820	10×20	0.020	0.060	1,960	EKZH250E□□821MJ20S
	1,000	10×25	0.018	0.054	2,250	EKZH250E□□102MJ25S
	1,500	12.5×20	0.017	0.043	2,480	EKZH250E□□152MK20S
	1,800	12.5×25	0.015	0.038	2,900	EKZH250E□□182MK25S
	2,200	12.5×30	0.013	0.033	3,450	EKZH250E□□222MK30S
	2,200	16×20	0.015	0.038	3,250	EKZH250E□□222ML20S
	2,700	12.5×35	0.012	0.031	3,570	EKZH250E□□272MK35S
	3,300	16×25	0.013	0.035	3,630	EKZH250E□□332ML25S
35	47	5×11	0.24	0.80	330	EKZH350E□□470ME11D
	100	6.3×11	0.11	0.35	500	EKZH350E□□101MF11D
	220	8×11.5	0.062	0.19	900	EKZH350E□□221MHB5D
	270	8×15	0.048	0.15	1,210	EKZH350E□□271MH15D
	330	10×12.5	0.045	0.14	1,240	EKZH350E□□331MJC5S
	390	8×20	0.033	0.11	1,410	EKZH350E□□391MH20D
	470	10×16	0.032	0.10	1,650	EKZH350E□□471MJ16S
	560	10×20	0.020	0.060	1,960	EKZH350E□□561MJ20S
	680	10×25	0.018	0.054	2,250	EKZH350E□□681MJ25S
	1,000	12.5×20	0.017	0.043	2,480	EKZH350E□□102MK20S
	1,200	12.5×25	0.015	0.038	2,900	EKZH350E□□122MK25S
	1,500	12.5×30	0.013	0.033	3,450	EKZH350E□□152MK30S
	1,500	16×20	0.015	0.038	3,250	EKZH350E□□152ML20S
	1,800	12.5×35	0.012	0.031	3,570	EKZH350E□□182MK35S
	2,200	16×25	0.013	0.035	3,630	EKZH350E□□222ML25S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance(μF) \ Frequency (Hz)	120	1k	10k	100k
0.47 to 150	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to 8,200	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

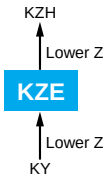
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZE Series

- Ultra Low impedance for Personal Computers Storage Equipment
- Endurance with ripple current: 1,000 to 5,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

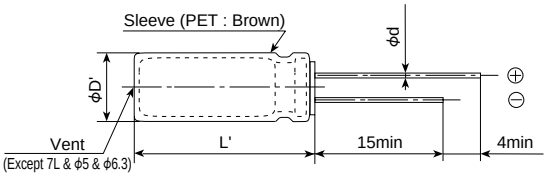


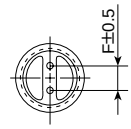
◆SPECIFICATIONS

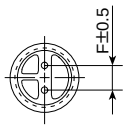
Items	Characteristics									
Category Temperature Range	−40 to +105℃									
Rated Voltage Range	6.3 to 100Vdc									
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)									
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)									
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V
	tanδ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.08
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)									
Low Temperature Characteristics (Max. Impedance Ratio)	Z (-25℃) / Z (+20℃)	2max.								
	Z (-40℃) / Z (+20℃)	3max.								
	(at 120Hz)									
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for the specified period of time at 105℃.									
	Time	7L : 1,000hours φ5 & φ6.3 : 2,000hours φ8 : 3,000hours φ10 : 4,000hours φ12.5 to φ18 : 5,000hours								
	Capacitance change	≦±25% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.									
	Capacitance change	≦±25% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

◆DIMENSIONS [mm]

- Terminal Code : E







Gas escape end seal

φD		5	6.3	8	10, 12.5	16, 18
φd	7L	0.45	0.45	0.45	—	—
	11L～	0.5	0.5	0.6	0.6	0.8
F		2.0	2.5	3.5	5.0	7.5
φD'		φD+0.5max.				
L'		L+1.5max.(7L : L+1.0max.)				

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	Z	E				E						M				

- 18 : Supplement code
- 15 16 17 : Size code
- 14 : Capacitance tolerance code
- 11 12 13 : Capacitance code (ex. 6.8μF:6R8, 10μF:100, 1,000μF:102)
- 9 10 : Lead forming·taping code
- 8 : Terminal code
- 5 6 7 : Voltage code (ex. 6.3V:6R3, 10V:100, 100V:101)
- 2 3 4 : Series code
- 1 : Category

Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	68	5×7	0.43	1.3	210	EKZE6R3E□□680ME07D
	150	6.3×7	0.23	0.69	300	EKZE6R3E□□151MF07D
	150	5×11	0.30	1.0	250	EKZE6R3E□□151ME11D
	220	8×7	0.15	0.45	380	EKZE6R3E□□221MH07D
	330	6.3×11	0.13	0.41	405	EKZE6R3E□□331MF11D
	560	8×11.5	0.072	0.22	760	EKZE6R3E□□561MHB5D
	820	8×15	0.056	0.17	995	EKZE6R3E□□821MH15D
	1,000	10×12.5	0.053	0.16	1,030	EKZE6R3E□□102MJC5S
	1,200	8×20	0.041	0.13	1,250	EKZE6R3E□□122MH20D
	1,200	10×16	0.038	0.12	1,430	EKZE6R3E□□122MJ16S
	1,500	10×20	0.023	0.069	1,820	EKZE6R3E□□152MJ20S
	2,200	10×25	0.022	0.066	2,150	EKZE6R3E□□222MJ25S
	3,300	12.5×20	0.021	0.053	2,360	EKZE6R3E□□332MK20S
	3,900	12.5×25	0.018	0.045	2,770	EKZE6R3E□□392MK25S
	4,700	12.5×30	0.016	0.041	3,290	EKZE6R3E□□472MK30S
	5,600	12.5×35	0.015	0.039	3,400	EKZE6R3E□□562MK35S
	5,600	16×20	0.018	0.045	3,140	EKZE6R3E□□562ML20S
	6,800	16×25	0.016	0.043	3,460	EKZE6R3E□□682ML25S
10	56	5×7	0.44	1.4	210	EKZE100E□□560ME07D
	100	5×11	0.30	1.0	250	EKZE100E□□101ME11D
	120	6.3×7	0.23	0.69	300	EKZE100E□□121MF07D
	180	8×7	0.15	0.45	380	EKZE100E□□181MH07D
	220	6.3×11	0.13	0.41	405	EKZE100E□□221MF11D
	470	8×11.5	0.072	0.22	760	EKZE100E□□471MHB5D
	680	8×15	0.056	0.17	995	EKZE100E□□681MH15D
	680	10×12.5	0.053	0.16	1,030	EKZE100E□□681MJC5S
	1,000	8×20	0.041	0.13	1,250	EKZE100E□□102MH20D
	1,000	10×16	0.038	0.12	1,430	EKZE100E□□102MJ16S
	1,200	10×20	0.023	0.069	1,820	EKZE100E□□122MJ20S
	1,500	10×25	0.022	0.066	2,150	EKZE100E□□152MJ25S
	2,200	12.5×20	0.021	0.053	2,360	EKZE100E□□222MK20S
	3,300	12.5×25	0.018	0.045	2,770	EKZE100E□□332MK25S
	3,900	12.5×30	0.016	0.041	3,290	EKZE100E□□392MK30S
	3,900	16×20	0.018	0.045	3,140	EKZE100E□□392ML20S
	4,700	12.5×35	0.015	0.039	3,400	EKZE100E□□472MK35S
	5,600	16×25	0.016	0.043	3,460	EKZE100E□□562ML25S
16	33	5×7	0.45	1.4	210	EKZE160E□□330ME07D
	56	5×11	0.30	1.0	250	EKZE160E□□560ME11D
	68	6.3×7	0.24	0.72	300	EKZE160E□□680MF07D
	120	8×7	0.15	0.45	380	EKZE160E□□121MH07D
	120	6.3×11	0.13	0.41	405	EKZE160E□□121MF11D
	330	8×11.5	0.072	0.22	760	EKZE160E□□331MHB5D
	470	8×15	0.056	0.17	995	EKZE160E□□471MH15D
	470	10×12.5	0.053	0.16	1,030	EKZE160E□□471MJC5S
	680	8×20	0.041	0.13	1,250	EKZE160E□□681MH20D
	680	10×16	0.038	0.12	1,430	EKZE160E□□681MJ16S
	1,000	10×20	0.023	0.069	1,820	EKZE160E□□102MJ20S
	1,200	10×25	0.022	0.066	2,150	EKZE160E□□122MJ25S
	1,500	12.5×20	0.021	0.053	2,360	EKZE160E□□152MK20S
	2,200	12.5×25	0.018	0.045	2,770	EKZE160E□□222MK25S
	2,700	12.5×30	0.016	0.041	3,290	EKZE160E□□272MK30S
	2,700	16×20	0.018	0.045	3,140	EKZE160E□□272ML20S
	3,300	12.5×35	0.015	0.039	3,400	EKZE160E□□332MK35S
	3,900	16×25	0.016	0.043	3,460	EKZE160E□□392ML25S
25	27	5×7	0.46	1.4	210	EKZE250E□□270ME07D
	47	5×11	0.30	1.0	250	EKZE250E□□470ME11D
	56	6.3×7	0.24	0.72	300	EKZE250E□□560MF07D
	100	8×7	0.15	0.45	380	EKZE250E□□101MH07D
	100	6.3×11	0.13	0.41	405	EKZE250E□□101MF11D
	220	8×11.5	0.072	0.22	760	EKZE250E□□221MHB5D
	330	8×15	0.056	0.17	995	EKZE250E□□331MH15D
	330	10×12.5	0.053	0.16	1,030	EKZE250E□□331MJC5S
	470	8×20	0.041	0.13	1,250	EKZE250E□□471MH20D
	470	10×16	0.038	0.12	1,430	EKZE250E□□471MJ16S
	680	10×20	0.023	0.069	1,820	EKZE250E□□681MJ20S
25	820	10×25	0.022	0.066	2,150	EKZE250E□□821MJ25S
	1,000	12.5×20	0.021	0.053	2,360	EKZE250E□□102MK20S
	1,500	12.5×25	0.018	0.045	2,770	EKZE250E□□152MK25S
	1,800	12.5×30	0.016	0.041	3,290	EKZE250E□□182MK30S
	1,800	16×20	0.018	0.045	3,140	EKZE250E□□182ML20S
	2,200	12.5×35	0.015	0.039	3,400	EKZE250E□□222MK35S
	2,700	16×25	0.016	0.043	3,460	EKZE250E□□272ML25S
35	18	5×7	0.47	1.5	210	EKZE350E□□180ME07D
	33	5×11	0.30	1.0	250	EKZE350E□□330ME11D
	39	6.3×7	0.25	0.75	300	EKZE350E□□390MF07D
	56	8×7	0.16	0.48	380	EKZE350E□□560MH07D
	56	6.3×11	0.13	0.41	405	EKZE350E□□560MF11D
	150	8×11.5	0.072	0.22	760	EKZE350E□□151MHB5D
	220	8×15	0.056	0.17	995	EKZE350E□□221MH15D
	220	10×12.5	0.053	0.16	1,030	EKZE350E□□221MJC5S
	270	8×20	0.041	0.13	1,250	EKZE350E□□271MH20D
	330	10×16	0.038	0.12	1,430	EKZE350E□□331MJ16S
	470	10×20	0.023	0.069	1,820	EKZE350E□□471MJ20S
	560	10×25	0.022	0.066	2,150	EKZE350E□□561MJ25S
	680	12.5×20	0.021	0.053	2,360	EKZE350E□□681MK20S
	1,000	12.5×25	0.018	0.045	2,770	EKZE350E□□102MK25S
	1,200	12.5×30	0.016	0.041	3,290	EKZE350E□□122MK30S
	1,200	16×20	0.018	0.045	3,140	EKZE350E□□122ML20S
	1,500	12.5×35	0.015	0.039	3,400	EKZE350E□□152MK35S
	1,800	16×25	0.016	0.043	3,460	EKZE350E□□182ML25S
50	10	5×7	0.50	1.5	210	EKZE500E□□100ME07D
	22	6.3×7	0.26	0.78	300	EKZE500E□□220MF07D
	22	5×11	0.34	1.18	238	EKZE500E□□220ME11D
	33	8×7	0.17	0.51	380	EKZE500E□□330MH07D
	56	6.3×11	0.14	0.50	385	EKZE500E□□560MF11D
	100	8×11.5	0.074	0.22	724	EKZE500E□□101MHB5D
	120	8×15	0.061	0.18	950	EKZE500E□□121MH15D
	150	10×12.5	0.061	0.18	979	EKZE500E□□151MJC5S
	180	8×20	0.046	0.14	1,190	EKZE500E□□181MH20D
	220	10×16	0.042	0.12	1,370	EKZE500E□□221MJ16S
	270	10×20	0.030	0.090	1,580	EKZE500E□□271MJ20S
	330	10×25	0.028	0.085	1,870	EKZE500E□□331MJ25S
	470	12.5×20	0.027	0.068	2,050	EKZE500E□□471MK20S
	560	12.5×25	0.023	0.059	2,410	EKZE500E□□561MK25S
	680	12.5×30	0.021	0.052	2,860	EKZE500E□□681MK30S
	820	12.5×35	0.019	0.051	2,960	EKZE500E□□821MK35S
	820	16×20	0.023	0.059	2,730	EKZE500E□□821ML20S
	1,000	16×25	0.021	0.056	3,010	EKZE500E□□102ML25S
63	15	5×11	0.88	3.5	165	EKZE630E□□150ME11D
	33	6.3×11	0.35	1.4	265	EKZE630E□□330MF11D
	56	8×11.5	0.22	0.88	500	EKZE630E□□560MHB5D
	82	8×15	0.16	0.64	665	EKZE630E□□820MH15D
	82	10×12.5	0.11	0.44	690	EKZE630E□□820MJC5S
	120	8×20	0.12	0.48	820	EKZE630E□□121MH20D
	120	10×16	0.076	0.31	950	EKZE630E□□121MJ16S
	180	10×20	0.056	0.23	1,150	EKZE630E□□181MJ20S
	180	12.5×16	0.072	0.29	1,150	EKZE630E□□181MK16S
	220	10×25	0.046	0.19	1,350	EKZE630E□□221MJ25S
	270	12.5×20	0.041	0.13	1,500	EKZE630E□□271MK20S
	390	12.5×25	0.031	0.093	1,900	EKZE630E□□391MK25S
	470	12.5×30	0.028	0.084	2,300	EKZE630E□□471MK30S
	470	16×20	0.032	0.096	2,000	EKZE630E□□471ML20S
	560	12.5×35	0.024	0.072	2,500	EKZE630E□□561MK35S
	680	12.5×40	0.021	0.063	2,800	EKZE630E□□681MK40S
	680	16×25	0.025	0.075	2,600	EKZE630E□□681ML25S
	680	18×20	0.030	0.090	2,500	EKZE630E□□681MM20S
	820	16×31.5	0.021	0.063	2,850	EKZE630E□□821MLN3S
	820	18×25	0.024	0.072	2,800	EKZE630E□□821MM25S
	1,000	16×35.5	0.019	0.057	2,900	EKZE630E□□102MLP1S
	1,200	16×40	0.018	0.054	3,400	EKZE630E□□122ML40S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KZE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
63	1,200	18×31.5	0.020	0.060	3,300	EKZE630E□□122MMN3S
	1,500	18×35.5	0.018	0.054	3,400	EKZE630E□□152MMP1S
	1,800	18×40	0.017	0.051	3,500	EKZE630E□□182MM40S
80	68	10×12.5	0.17	0.66	480	EKZE800E□□680MJC5S
	100	10×16	0.11	0.47	600	EKZE800E□□101MJ16S
	120	10×20	0.084	0.34	800	EKZE800E□□121MJ20S
	150	10×25	0.069	0.28	900	EKZE800E□□151MJ25S
	150	12.5×16	0.11	0.34	750	EKZE800E□□151MK16S
	220	12.5×20	0.062	0.18	1,100	EKZE800E□□221MK20S
	330	12.5×25	0.047	0.14	1,250	EKZE800E□□331MK25S
	330	16×20	0.048	0.15	1,350	EKZE800E□□331ML20S
	390	12.5×30	0.042	0.13	1,500	EKZE800E□□391MK30S
	470	12.5×35	0.036	0.11	1,650	EKZE800E□□471MK35S
	470	16×25	0.038	0.12	1,700	EKZE800E□□471ML25S
	470	18×20	0.045	0.14	1,500	EKZE800E□□471MM20S
	560	12.5×40	0.032	0.095	1,800	EKZE800E□□561MK40S
	680	16×31.5	0.032	0.095	1,850	EKZE800E□□681MLN3S
	680	18×25	0.036	0.11	1,750	EKZE800E□□681MM25S
	820	16×35.5	0.029	0.086	2,000	EKZE800E□□821MLP1S
	820	18× 31.5	0.030	0.090	1,900	EKZE800E□□821MMN3S
	1,000	16×40	0.027	0.081	2,200	EKZE800E□□102ML40S
	1,000	18× 35.5	0.027	0.081	2,200	EKZE800E□□102MMP1S
	1,200	18× 40	0.026	0.077	2,700	EKZE800E□□122MM40S

□□ : Enter the appropriate lead forming or taping code.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
100	6.8	5× 11	1.4	5.6	125	EKZE101E□□6R8ME11D
	15	6.3× 11	0.57	2.3	205	EKZE101E□□150MF11D
	27	8× 11.5	0.36	1.4	355	EKZE101E□□270MHB5D
	39	8× 15	0.25	1.0	450	EKZE101E□□390MH15D
	47	10× 12.5	0.17	0.66	480	EKZE101E□□470MJC5S
	56	8× 20	0.19	0.76	565	EKZE101E□□560MH20D
	68	10× 16	0.11	0.47	600	EKZE101E□□680MJ16S
	82	10× 20	0.084	0.34	800	EKZE101E□□820MJ20S
	100	12.5× 16	0.11	0.34	750	EKZE101E□□101MK16S
	120	10× 25	0.069	0.28	900	EKZE101E□□121MJ25S
	150	12.5× 20	0.062	0.18	1,100	EKZE101E□□151MK20S
	220	12.5× 25	0.047	0.14	1,250	EKZE101E□□221MK25S
	220	16× 20	0.048	0.15	1,350	EKZE101E□□221ML20S
	270	12.5× 30	0.042	0.13	1,500	EKZE101E□□271MK30S
	330	12.5× 35	0.036	0.11	1,650	EKZE101E□□331MK35S
	330	16× 25	0.038	0.12	1,700	EKZE101E□□331ML25S
	330	18× 20	0.045	0.14	1,500	EKZE101E□□331MM20S
	390	12.5× 40	0.032	0.095	1,800	EKZE101E□□391MK40S
	470	16× 31.5	0.032	0.095	1,850	EKZE101E□□471MLN3S
	470	18× 25	0.036	0.11	1,750	EKZE101E□□471MM25S
	560	16× 35.5	0.029	0.086	2,000	EKZE101E□□561MLP1S
	560	18× 31.5	0.030	0.090	1,900	EKZE101E□□561MMN3S
	680	16× 40	0.027	0.081	2,200	EKZE101E□□681ML40S
	680	18× 35.5	0.027	0.081	2,200	EKZE101E□□681MMP1S
	820	18× 40	0.026	0.077	2,700	EKZE101E□□821MM40S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

7L

Capacitance(μF) \ Frequency (Hz)	120	1k	10k	100k
10 to 33	0.42	0.70	0.90	1.00
39 to 220	0.50	0.73	0.92	1.00

11L to 40L

Capacitance(μF) \ Frequency (Hz)	120	1k	10k	100k
6.8 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KY Series

- Newly innovative electrolyte is employed to minimize ESR
- Endurance with ripple current : 4,000 to 10,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

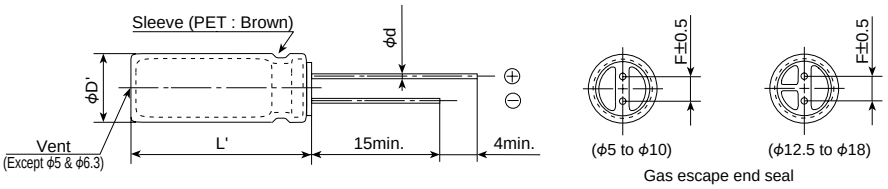
KZH
↑ Lower Z
KZE
↑ Lower Z
KY

◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	−40 to +105℃									
Rated Voltage Range	6.3 to 100Vdc									
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)									
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)									
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V
	tanδ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.08
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)									
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V
	Z(−25℃)/Z(+20℃)	4	3	2	2	2	2	2	2	2
	Z(−40℃)/Z(+20℃)	8	6	4	3	3	3	3	3	3
	(at 120Hz)									
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for the specified period of time at 105℃.									
	Time	6.3 to 10Vdc	φ5 & 6.3 : 4,000hours φ8 & 10 : 6,000hours φ12.5 to 18 : 8,000hours							
		16 to 100Vdc	φ5 & 6.3 : 5,000hours φ8 & 10 : 7,000hours φ12.5 to 18 : 10,000hours							
	Capacitance change	≦±25% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.									
	Capacitance change	≦±25% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

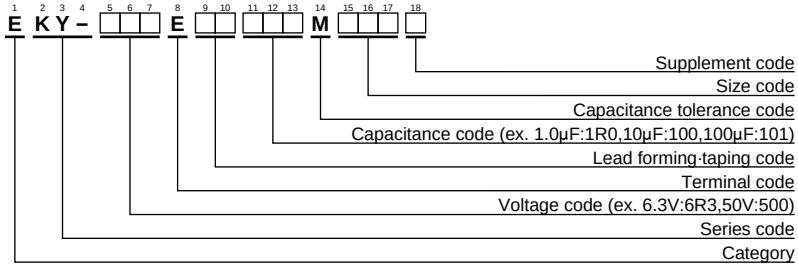
◆DIMENSIONS [mm]

●Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KY Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	150	5×11	0.58	2.3	210	EKY-6R3E□□151ME11D
	330	6.3×11	0.22	0.87	340	EKY-6R3E□□331MF11D
	680	8×11.5	0.13	0.52	640	EKY-6R3E□□681MHB5D
	820	10×12.5	0.080	0.32	865	EKY-6R3E□□821MJC5S
	1,000	8×15	0.087	0.35	840	EKY-6R3E□□102MH15D
	1,200	8×20	0.069	0.27	1,050	EKY-6R3E□□122MH20D
	1,200	10×16	0.060	0.24	1,210	EKY-6R3E□□122MJ16S
	1,500	10×20	0.046	0.18	1,400	EKY-6R3E□□152MJ20S
	1,800	12.5×15	0.049	0.16	1,450	EKY-6R3E□□182MK15S
	2,200	10×25	0.042	0.17	1,650	EKY-6R3E□□222MJ25S
	2,700	10×30	0.031	0.12	1,910	EKY-6R3E□□272MJ30S
	2,700	16×15	0.042	0.12	1,940	EKY-6R3E□□272ML15S
	3,300	12.5×20	0.035	0.12	1,900	EKY-6R3E□□332MK20S
	3,900	12.5×25	0.027	0.089	2,230	EKY-6R3E□□392MK25S
	3,900	18×15	0.043	0.11	2,210	EKY-6R3E□□392MM15S
	4,700	12.5×30	0.024	0.078	2,650	EKY-6R3E□□472MK30S
	5,600	12.5×35	0.020	0.065	2,880	EKY-6R3E□□562MK35S
	5,600	16×20	0.027	0.078	2,530	EKY-6R3E□□562ML20S
	6,800	12.5×40	0.017	0.056	3,350	EKY-6R3E□□682MK40S
	6,800	16×25	0.021	0.060	2,930	EKY-6R3E□□682ML25S
	6,800	18×20	0.026	0.067	2,860	EKY-6R3E□□682MM20S
	8,200	16×31.5	0.017	0.050	3,450	EKY-6R3E□□822MLN3S
	10,000	16×35.5	0.015	0.044	3,610	EKY-6R3E□□103MLP1S
	10,000	18×25	0.019	0.049	3,140	EKY-6R3E□□103MM25S
	12,000	16×40	0.013	0.038	4,080	EKY-6R3E□□123ML40S
	12,000	18×31.5	0.015	0.040	4,170	EKY-6R3E□□123MMN3S
	15,000	18×35.5	0.014	0.038	4,220	EKY-6R3E□□153MMP1S
	18,000	18×40	0.012	0.032	4,280	EKY-6R3E□□183MM40S
10	100	5×11	0.58	2.3	210	EKY-100E□□101ME11D
	220	6.3×11	0.22	0.87	340	EKY-100E□□221MF11D
	470	8×11.5	0.13	0.52	640	EKY-100E□□471MHB5D
	680	8×15	0.087	0.35	840	EKY-100E□□681MH15D
	680	10×12.5	0.080	0.32	865	EKY-100E□□681MJC5S
	1,000	8×20	0.069	0.27	1,050	EKY-100E□□102MH20D
	1,000	10×16	0.060	0.24	1,210	EKY-100E□□102MJ16S
	1,200	10×20	0.046	0.18	1,400	EKY-100E□□122MJ20S
	1,500	10×25	0.042	0.17	1,650	EKY-100E□□152MJ25S
	1,500	12.5×15	0.049	0.16	1,450	EKY-100E□□152MK15S
	2,200	10×30	0.031	0.12	1,910	EKY-100E□□222MJ30S
	2,200	12.5×20	0.035	0.12	1,900	EKY-100E□□222MK20S
	2,200	16×15	0.042	0.12	1,940	EKY-100E□□222ML15S
	2,700	18×15	0.043	0.11	2,210	EKY-100E□□272MM15S
	3,300	12.5×25	0.027	0.089	2,230	EKY-100E□□332MK25S
	3,900	12.5×30	0.024	0.078	2,650	EKY-100E□□392MK30S
	3,900	16×20	0.027	0.078	2,530	EKY-100E□□392ML20S
	4,700	12.5×35	0.020	0.065	2,880	EKY-100E□□472MK35S
	5,600	12.5×40	0.017	0.056	3,350	EKY-100E□□562MK40S
	5,600	16×25	0.021	0.060	2,930	EKY-100E□□562ML25S
	5,600	18×20	0.026	0.067	2,860	EKY-100E□□562MM20S
	6,800	16×31.5	0.017	0.050	3,450	EKY-100E□□682MLN3S
	6,800	18×25	0.019	0.049	3,140	EKY-100E□□682MM25S
	8,200	16×35.5	0.015	0.044	3,610	EKY-100E□□822MLP1S
	8,200	18×31.5	0.015	0.040	4,170	EKY-100E□□822MMN3S
	10,000	16×40	0.013	0.038	4,080	EKY-100E□□103ML40S
	10,000	18×35.5	0.014	0.038	4,220	EKY-100E□□103MMP1S
	12,000	18×40	0.012	0.032	4,280	EKY-100E□□123MM40S
16	56	5×11	0.58	2.3	210	EKY-160E□□560ME11D
	120	6.3×11	0.22	0.87	340	EKY-160E□□121MF11D
	330	8×11.5	0.13	0.52	640	EKY-160E□□331MHB5D
	470	8×15	0.087	0.35	840	EKY-160E□□471MH15D
	470	10×12.5	0.080	0.32	865	EKY-160E□□471MJC5S
	680	8×20	0.069	0.27	1,050	EKY-160E□□681MH20D
	680	10×16	0.060	0.24	1,210	EKY-160E□□681MJ16S
	1,000	10×20	0.046	0.18	1,400	EKY-160E□□102MJ20S
	1,000	12.5×15	0.049	0.16	1,450	EKY-160E□□102MK15S
	1,200	10×25	0.042	0.17	1,650	EKY-160E□□122MJ25S
	1,500	10×30	0.031	0.12	1,910	EKY-160E□□152MJ30S
16	1,500	12.5×20	0.035	0.12	1,900	EKY-160E□□152MK20S
	1,500	16×15	0.042	0.12	1,940	EKY-160E□□152ML15S
	2,200	12.5×25	0.027	0.089	2,230	EKY-160E□□222MK25S
	2,200	18×15	0.043	0.11	2,210	EKY-160E□□222MM15S
	2,700	12.5×30	0.024	0.078	2,650	EKY-160E□□272MK30S
	2,700	16×20	0.027	0.078	2,530	EKY-160E□□272ML20S
	3,300	12.5×35	0.020	0.065	2,880	EKY-160E□□332MK35S
	3,900	12.5×40	0.017	0.056	3,350	EKY-160E□□392MK40S
	3,900	16×25	0.021	0.060	2,930	EKY-160E□□392ML25S
	3,900	18×20	0.026	0.067	2,860	EKY-160E□□392MM20S
	4,700	16×31.5	0.017	0.050	3,450	EKY-160E□□472MLN3S
	4,700	18×25	0.019	0.049	3,140	EKY-160E□□472MM25S
	5,600	16×35.5	0.015	0.044	3,610	EKY-160E□□562MLP1S
	5,600	18×31.5	0.015	0.040	4,170	EKY-160E□□562MMN3S
	6,800	16×40	0.013	0.038	4,080	EKY-160E□□682ML40S
	8,200	18×35.5	0.014	0.038	4,220	EKY-160E□□822MMP1S
	10,000	18×40	0.012	0.032	4,280	EKY-160E□□103MM40S
25	47	5×11	0.58	2.3	210	EKY-250E□□470ME11D
	100	6.3×11	0.22	0.87	340	EKY-250E□□101MF11D
	220	8×11.5	0.13	0.52	640	EKY-250E□□221MHB5D
	330	8×15	0.087	0.35	840	EKY-250E□□331MH15D
	330	10×12.5	0.080	0.32	865	EKY-250E□□331MJC5S
	470	8×20	0.069	0.27	1,050	EKY-250E□□471MH20D
	470	10×16	0.060	0.24	1,210	EKY-250E□□471MJ16S
	680	10×20	0.046	0.18	1,400	EKY-250E□□681MJ20S
	680	12.5×15	0.049	0.16	1,450	EKY-250E□□681MK15S
	820	10×25	0.042	0.17	1,650	EKY-250E□□821MJ25S
	1,000	10×30	0.031	0.12	1,910	EKY-250E□□102MJ30S
	1,000	12.5×20	0.035	0.12	1,900	EKY-250E□□102MK20S
	1,000	16×15	0.042	0.12	1,940	EKY-250E□□102ML15S
	1,200	18×15	0.043	0.11	2,210	EKY-250E□□122MM15S
	1,500	12.5×25	0.027	0.089	2,230	EKY-250E□□152MK25S
	1,800	12.5×30	0.024	0.078	2,650	EKY-250E□□182MK30S
	1,800	16×20	0.027	0.078	2,530	EKY-250E□□182ML20S
	2,200	12.5×35	0.020	0.065	2,880	EKY-250E□□222MK35S
	2,200	18×20	0.026	0.067	2,860	EKY-250E□□222MM20S
	2,700	12.5×40	0.017	0.056	3,350	EKY-250E□□272MK40S
	2,700	16×25	0.021	0.060	2,930	EKY-250E□□272ML25S
	3,300	16×31.5	0.017	0.050	3,450	EKY-250E□□332MLN3S
	3,300	18×25	0.019	0.049	3,140	EKY-250E□□332MM25S
	3,900	16×35.5	0.015	0.044	3,610	EKY-250E□□392MLP1S
	3,900	18×31.5	0.015	0.040	4,170	EKY-250E□□392MMN3S
	4,700	16×40	0.013	0.038	4,080	EKY-250E□□472ML40S
	4,700	18×35.5	0.014	0.038	4,220	EKY-250E□□472MMP1S
	5,600	18×40	0.012	0.032	4,280	EKY-250E□□562MM40S
35	33	5×11	0.58	2.3	210	EKY-350E□□330ME11D
	56	6.3×11	0.22	0.87	340	EKY-350E□□560MF11D
	150	8×11.5	0.13	0.52	640	EKY-350E□□151MHB5D
	220	8×15	0.087	0.35	840	EKY-350E□□221MH15D
	220	10×12.5	0.080	0.32	865	EKY-350E□□221MJC5S
	270	8×20	0.069	0.27	1,050	EKY-350E□□271MH20D
	330	10×16	0.060	0.24	1,210	EKY-350E□□331MJ16S
	470	10×20	0.046	0.18	1,400	EKY-350E□□471MJ20S
	470	12.5×15	0.049	0.16	1,450	EKY-350E□□471MK15S
	560	10×25	0.042	0.17	1,650	EKY-350E□□561MJ25S
	680	10×30	0.031	0.12	1,910	EKY-350E□□681MJ30S
	680	12.5×20	0.035	0.12	1,900	EKY-350E□□681MK20S
	680	16×15	0.042	0.12	1,940	EKY-350E□□681ML15S
	1,000	12.5×25	0.027	0.089	2,230	EKY-350E□□102MK25S
	1,000	18×15	0.043	0.11	2,210	EKY-350E□□102MM15S
	1,200	12.5×30	0.024	0.078	2,650	EKY-350E□□122MK30S
	1,200	16×20	0.027	0.078	2,530	EKY-350E□□122ML20S
	1,500	12.5×35	0.020	0.065	2,880	EKY-350E□□152MK35S
	1,800	12.5×40	0.017	0.056	3,350	EKY-350E□□182MK40S
	1,800	16×25	0.021	0.060	2,930	EKY-350E□□182ML25S
	1,800	18×20	0.026	0.067	2,860	EKY-350E□□182MM20S
	2,200	16×31.5	0.017	0.050	3,450	EKY-350E□□222MLN3S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

KY Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
35	2,200	18×25	0.019	0.049	3,140	EKY-350E□□222MM25S
	2,700	16×35.5	0.015	0.044	3,610	EKY-350E□□272MLP1S
	2,700	18×31.5	0.015	0.040	4,170	EKY-350E□□272MMN3S
	3,300	16×40	0.013	0.038	4,080	EKY-350E□□332ML40S
	3,300	18×35.5	0.014	0.038	4,220	EKY-350E□□332MMP1S
	3,900	18×40	0.012	0.032	4,280	EKY-350E□□392MM40S
50	0.47	5×11	5.5	22.0	17	EKY-500E□□R47ME11D
	1.0	5×11	4.0	16.0	30	EKY-500E□□1R0ME11D
	2.2	5×11	2.5	10.0	43	EKY-500E□□2R2ME11D
	3.3	5×11	2.2	8.8	53	EKY-500E□□3R3ME11D
	4.7	5×11	1.9	7.6	88	EKY-500E□□4R7ME11D
	10	5×11	1.5	6.0	100	EKY-500E□□100ME11D
	22	5×11	0.70	2.8	180	EKY-500E□□220ME11D
	56	6.3×11	0.30	1.2	295	EKY-500E□□560MF11D
	100	8×11.5	0.17	0.68	555	EKY-500E□□101MHB5D
	120	8×15	0.12	0.48	730	EKY-500E□□121MH15D
	150	10×12.5	0.12	0.48	760	EKY-500E□□151MJC5S
	180	8×20	0.091	0.36	910	EKY-500E□□181MH20D
	220	10×16	0.084	0.34	1,050	EKY-500E□□221MJ16S
	270	10×20	0.060	0.24	1,220	EKY-500E□□271MJ20S
	270	12.5×15	0.061	0.20	1,260	EKY-500E□□271MK15S
	330	10×25	0.055	0.22	1,440	EKY-500E□□331MJ25S
	470	10×30	0.043	0.17	1,690	EKY-500E□□471MJ30S
	470	12.5×20	0.045	0.15	1,660	EKY-500E□□471MK20S
	470	16×15	0.055	0.17	1,690	EKY-500E□□471ML15S
	560	12.5×25	0.034	0.11	1,950	EKY-500E□□561MK25S
	560	18×15	0.054	0.15	1,930	EKY-500E□□561MM15S
	680	12.5×30	0.030	0.10	2,310	EKY-500E□□681MK30S
	820	12.5×35	0.025	0.083	2,510	EKY-500E□□821MK35S
	820	16×20	0.034	0.10	2,210	EKY-500E□□821ML20S
	1,000	12.5×40	0.021	0.069	2,920	EKY-500E□□102MK40S
	1,000	16×25	0.025	0.075	2,555	EKY-500E□□102ML25S
	1,000	18×20	0.036	0.097	2,490	EKY-500E□□102MM20S
	1,200	16×31.5	0.022	0.066	3,010	EKY-500E□□122MLN3S
	1,200	18×25	0.026	0.070	2,740	EKY-500E□□122MM25S
	1,500	16×35.5	0.019	0.057	3,150	EKY-500E□□152MLP1S
	1,800	16×40	0.016	0.048	3,710	EKY-500E□□182ML40S
	1,800	18×31.5	0.021	0.057	3,635	EKY-500E□□182MMN3S
	2,200	18×35.5	0.017	0.046	3,680	EKY-500E□□222MMP1S
	2,700	18×40	0.014	0.038	3,800	EKY-500E□□272MM40S
63	15	5×11	0.88	3.5	165	EKY-630E□□150ME11D
	33	6.3×11	0.35	1.4	265	EKY-630E□□330MF11D
	56	8×11.5	0.22	0.88	500	EKY-630E□□560MHB5D
	82	8×15	0.16	0.64	665	EKY-630E□□820MH15D
	82	10×12.5	0.11	0.44	690	EKY-630E□□820MJC5S
	120	8×20	0.12	0.48	820	EKY-630E□□121MH20D
	120	10×16	0.076	0.31	950	EKY-630E□□121MJ16S
	180	10×20	0.056	0.23	1,150	EKY-630E□□181MJ20S
	180	12.5×16	0.072	0.29	1,150	EKY-630E□□181MK16S
	220	10×25	0.046	0.19	1,350	EKY-630E□□221MJ25S
	270	12.5×20	0.041	0.13	1,500	EKY-630E□□271MK20S
	390	12.5×25	0.031	0.093	1,900	EKY-630E□□391MK25S
	470	12.5×30	0.028	0.084	2,300	EKY-630E□□471MK30S
	470	16×20	0.032	0.096	2,000	EKY-630E□□471ML20S
	560	12.5×35	0.024	0.072	2,500	EKY-630E□□561MK35S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
63	680	12.5×40	0.021	0.063	2,800	EKY-630E□□681MK40S
	680	16×25	0.025	0.075	2,600	EKY-630E□□681ML25S
	680	18×20	0.030	0.090	2,500	EKY-630E□□681MM20S
	820	16×31.5	0.021	0.063	2,850	EKY-630E□□821MLN3S
	820	18×25	0.024	0.072	2,800	EKY-630E□□821MM25S
	1,000	16×35.5	0.019	0.057	2,900	EKY-630E□□102MLP1S
	1,200	16×40	0.018	0.054	3,400	EKY-630E□□122ML40S
	1,200	18×31.5	0.020	0.060	3,300	EKY-630E□□122MMN3S
	1,500	18×35.5	0.018	0.054	3,400	EKY-630E□□152MMP1S
	1,800	18×40	0.017	0.051	3,500	EKY-630E□□182MM40S
80	68	10×12.5	0.17	0.66	480	EKY-800E□□680MJC5S
	100	10×16	0.11	0.47	600	EKY-800E□□101MJ16S
	120	10×20	0.084	0.34	800	EKY-800E□□121MJ20S
	150	10×25	0.069	0.28	900	EKY-800E□□151MJ25S
	150	12.5×16	0.11	0.34	750	EKY-800E□□151MK16S
	220	12.5×20	0.062	0.18	1,100	EKY-800E□□221MK20S
	330	12.5×25	0.047	0.14	1,250	EKY-800E□□331MK25S
	330	16×20	0.048	0.15	1,350	EKY-800E□□331ML20S
	390	12.5×30	0.042	0.13	1,500	EKY-800E□□391MK30S
	470	12.5×35	0.036	0.11	1,650	EKY-800E□□471MK35S
	470	16×25	0.038	0.12	1,700	EKY-800E□□471ML25S
	470	18×20	0.045	0.14	1,500	EKY-800E□□471MM20S
	560	12.5×40	0.032	0.095	1,800	EKY-800E□□561MK40S
	680	16×31.5	0.032	0.095	1,850	EKY-800E□□681MLN3S
	680	18×25	0.036	0.11	1,750	EKY-800E□□681MM25S
	820	16×35.5	0.029	0.086	2,000	EKY-800E□□821MLP1S
	820	18× 31.5	0.030	0.090	1,900	EKY-800E□□821MMN3S
	1,000	16×40	0.027	0.081	2,200	EKY-800E□□102ML40S
	1,000	18× 35.5	0.027	0.081	2,200	EKY-800E□□102MMP1S
	1,200	18× 40	0.026	0.077	2,700	EKY-800E□□122MM40S
100	6.8	5× 11	1.4	5.6	125	EKY-101E□□6R8ME11D
	15	6.3× 11	0.57	2.3	205	EKY-101E□□150MF11D
	27	8× 11.5	0.36	1.4	355	EKY-101E□□270MHB5D
	39	8× 15	0.25	1.0	450	EKY-101E□□390MH15D
	47	10× 12.5	0.17	0.66	480	EKY-101E□□470MJC5S
	56	8× 20	0.19	0.76	565	EKY-101E□□560MH20D
	68	10× 16	0.11	0.47	600	EKY-101E□□680MJ16S
	82	10× 20	0.084	0.34	800	EKY-101E□□820MJ20S
	100	12.5× 16	0.11	0.34	750	EKY-101E□□101MK16S
	120	10× 25	0.069	0.28	900	EKY-101E□□121MJ25S
	150	12.5× 20	0.062	0.18	1,100	EKY-101E□□151MK20S
	220	12.5× 25	0.047	0.14	1,250	EKY-101E□□221MK25S
	220	16× 20	0.048	0.15	1,350	EKY-101E□□221ML20S
	270	12.5× 30	0.042	0.13	1,500	EKY-101E□□271MK30S
	330	12.5× 35	0.036	0.11	1,650	EKY-101E□□331MK35S
	330	16× 25	0.038	0.12	1,700	EKY-101E□□331ML25S
	330	18× 20	0.045	0.14	1,500	EKY-101E□□331MM20S
	390	12.5× 40	0.032	0.095	1,800	EKY-101E□□391MK40S
	470	16× 31.5	0.032	0.095	1,850	EKY-101E□□471MLN3S
	470	18× 25	0.036	0.11	1,750	EKY-101E□□471MM25S
	560	16× 35.5	0.029	0.086	2,000	EKY-101E□□561MLP1S
	560	18× 31.5	0.030	0.090	1,900	EKY-101E□□561MMN3S
	680	16× 40	0.027	0.081	2,200	EKY-101E□□681ML40S
	680	18× 35.5	0.027	0.081	2,200	EKY-101E□□681MMP1S
	820	18× 40	0.026	0.077	2,700	EKY-101E□□821MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
0.47 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, Downsized, 105℃

LXZ Series

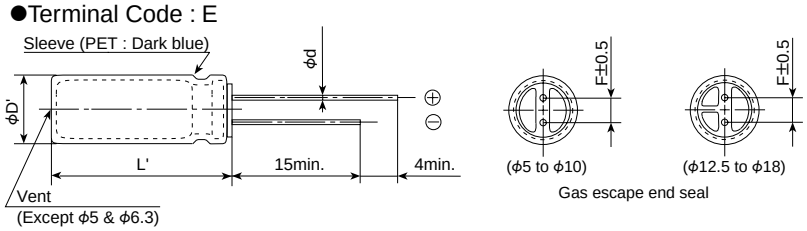
- Innovative electrolyte and internal architecture are employed
- Very low impedance at high frequency
- Endurance with ripple current: 2,000 to 8,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−55 to +105℃							
Rated Voltage Range	6.3 to 63Vdc							
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)							
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)							
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V
	tanδ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.08
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)							
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for the specified period of time at 105℃.							
	Time	φ5 & 6.3 : 2,000hours φ8 : 3,000hours φ10 : 5,000hours φ12.5 : 7,000hours φ16 & 18 : 8,000hours						
	Capacitance change	≦±20% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±20% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						

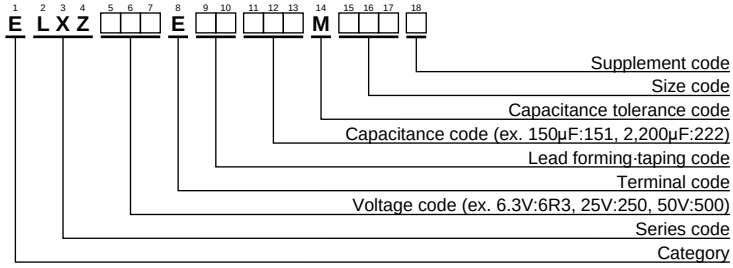
◆DIMENSIONS [mm]

●Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, Downsized, 105℃

LXZ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	150	5×11.5	0.50	1.0	175	ELXZ6R3E□□151MEB5D
	330	6.3×11.5	0.25	0.50	290	ELXZ6R3E□□331MFB5D
	470	6.3×15	0.18	0.36	400	ELXZ6R3E□□471MF15D
	680	8×12	0.12	0.24	555	ELXZ6R3E□□681MH12D
	820	10×12.5	0.090	0.18	760	ELXZ6R3E□□821MJC5S
	1,000	8×15	0.090	0.18	730	ELXZ6R3E□□102MH15D
	1,200	8×20	0.080	0.16	810	ELXZ6R3E□□122MH20D
	1,200	10×16	0.068	0.136	1,050	ELXZ6R3E□□122MJ16S
	1,500	10×20	0.052	0.104	1,220	ELXZ6R3E□□152MJ20S
	2,200	10×25	0.045	0.090	1,440	ELXZ6R3E□□222MJ25S
	2,700	10×30	0.037	0.074	1,690	ELXZ6R3E□□272MJ30S
	3,300	12.5×20	0.038	0.076	1,660	ELXZ6R3E□□332MK20S
	3,900	12.5×25	0.030	0.060	1,950	ELXZ6R3E□□392MK25S
	4,700	12.5×30	0.025	0.050	2,310	ELXZ6R3E□□472MK30S
	5,600	12.5×35	0.022	0.044	2,510	ELXZ6R3E□□562MK35S
	5,600	16×20	0.029	0.058	2,210	ELXZ6R3E□□562ML20S
	6,800	12.5×40	0.017	0.034	2,870	ELXZ6R3E□□682MK40S
	6,800	16×25	0.022	0.044	2,560	ELXZ6R3E□□682ML25S
	6,800	18×20	0.028	0.056	2,490	ELXZ6R3E□□682MM20S
	8,200	16×30	0.019	0.038	3,010	ELXZ6R3E□□822ML30S
	10,000	16×35	0.017	0.034	3,150	ELXZ6R3E□□103ML35S
	10,000	18×25	0.020	0.040	2,740	ELXZ6R3E□□103MM25S
	12,000	16×40	0.015	0.030	3,710	ELXZ6R3E□□123ML40S
	12,000	18×30	0.018	0.036	3,330	ELXZ6R3E□□123MM30S
	15,000	18×35	0.016	0.032	3,680	ELXZ6R3E□□153MM35S
	18,000	18×40	0.015	0.030	3,800	ELXZ6R3E□□183MM40S
10	100	5×11.5	0.50	1.0	175	ELXZ100E□□101MEB5D
	220	6.3×11.5	0.25	0.50	290	ELXZ100E□□221MFB5D
	330	6.3×15	0.18	0.36	400	ELXZ100E□□331MF15D
	470	8×12	0.12	0.24	555	ELXZ100E□□471MH12D
	680	8×15	0.090	0.18	730	ELXZ100E□□681MH15D
	680	10×12.5	0.090	0.18	760	ELXZ100E□□681MJC5S
	1,000	8×20	0.080	0.16	810	ELXZ100E□□102MH20D
	1,000	10×16	0.068	0.136	1,050	ELXZ100E□□102MJ16S
	1,200	10×20	0.052	0.104	1,220	ELXZ100E□□122MJ20S
	1,500	10×25	0.045	0.090	1,440	ELXZ100E□□152MJ25S
	1,800	10×30	0.037	0.074	1,690	ELXZ100E□□182MJ30S
	2,200	12.5×20	0.038	0.076	1,660	ELXZ100E□□222MK20S
	3,300	12.5×25	0.030	0.060	1,950	ELXZ100E□□332MK25S
	3,900	12.5×30	0.025	0.050	2,310	ELXZ100E□□392MK30S
	3,900	16×20	0.029	0.058	2,210	ELXZ100E□□392ML20S
	4,700	12.5×35	0.022	0.044	2,510	ELXZ100E□□472MK35S
	5,600	12.5×40	0.017	0.034	2,870	ELXZ100E□□562MK40S
	5,600	16×25	0.022	0.044	2,560	ELXZ100E□□562ML25S
	5,600	18×20	0.028	0.056	2,490	ELXZ100E□□562MM20S
	6,800	16×30	0.019	0.038	3,010	ELXZ100E□□682ML30S
	6,800	18×25	0.020	0.040	2,740	ELXZ100E□□682MM25S
	8,200	16×35	0.017	0.034	3,150	ELXZ100E□□822ML35S
	8,200	18×30	0.018	0.036	3,330	ELXZ100E□□822MM30S
	10,000	16×40	0.015	0.030	3,710	ELXZ100E□□103ML40S
	10,000	18×35	0.016	0.032	3,680	ELXZ100E□□103MM35S
	12,000	18×40	0.015	0.030	3,800	ELXZ100E□□123MM40S
16	47	5×11.5	0.50	1.0	175	ELXZ160E□□470MEB5D
	100	6.3×11.5	0.25	0.50	290	ELXZ160E□□101MFB5D
	220	6.3×15	0.18	0.36	400	ELXZ160E□□221MF15D
	330	8×12	0.12	0.24	555	ELXZ160E□□331MH12D
	470	8×15	0.090	0.18	730	ELXZ160E□□471MH15D
	470	10×12.5	0.090	0.18	760	ELXZ160E□□471MJC5S
	560	8×20	0.080	0.16	810	ELXZ160E□□561MH20D
	680	10×16	0.068	0.136	1,050	ELXZ160E□□681MJ16S
	1,000	10×20	0.052	0.104	1,220	ELXZ160E□□102MJ20S
	1,200	10×25	0.045	0.090	1,440	ELXZ160E□□122MJ25S
	1,500	10×30	0.037	0.074	1,690	ELXZ160E□□152MJ30S
	1,500	12.5×20	0.038	0.076	1,660	ELXZ160E□□152MK20S
	2,200	12.5×25	0.030	0.060	1,950	ELXZ160E□□222MK25S
	2,700	12.5×30	0.025	0.050	2,310	ELXZ160E□□272MK30S
	2,700	16×20	0.029	0.058	2,210	ELXZ160E□□272ML20S
	3,300	12.5×35	0.022	0.044	2,510	ELXZ160E□□332MK35S
	3,900	12.5×40	0.017	0.034	2,870	ELXZ160E□□392MK40S
	3,900	16×25	0.022	0.044	2,560	ELXZ160E□□392ML25S
	3,900	18×20	0.028	0.056	2,490	ELXZ160E□□392MM20S
	4,700	16×30	0.019	0.038	3,010	ELXZ160E□□472ML30S
	4,700	18×25	0.020	0.040	2,740	ELXZ160E□□472MM25S
	5,600	16×35	0.017	0.034	3,150	ELXZ160E□□562ML35S
	5,600	18×30	0.018	0.036	3,330	ELXZ160E□□562MM30S
	6,800	16×40	0.015	0.030	3,710	ELXZ160E□□682ML40S
	8,200	18×35	0.016	0.032	3,680	ELXZ160E□□822MM35S
	10,000	18×40	0.015	0.030	3,800	ELXZ160E□□103MM40S
25	47	5×11.5	0.50	1.0	175	ELXZ250E□□470MEB5D
	100	6.3×11.5	0.25	0.50	290	ELXZ250E□□101MFB5D
	150	6.3×15	0.18	0.36	400	ELXZ250E□□151MF15D
	220	8×12	0.12	0.24	555	ELXZ250E□□221MH12D
	330	8×15	0.090	0.18	730	ELXZ250E□□331MH15D
	330	10×12.5	0.090	0.18	760	ELXZ250E□□331MJC5S
	390	8×20	0.080	0.16	810	ELXZ250E□□391MH20D
	470	10×16	0.068	0.136	1,050	ELXZ250E□□471MJ16S
	680	10×20	0.052	0.104	1,220	ELXZ250E□□681MJ20S
	820	10×25	0.045	0.090	1,440	ELXZ250E□□821MJ25S
	1,000	10×30	0.037	0.074	1,690	ELXZ250E□□102MJ30S
	1,000	12.5×20	0.038	0.076	1,660	ELXZ250E□□102MK20S
	1,500	12.5×25	0.030	0.060	1,950	ELXZ250E□□152MK25S
	1,800	12.5×30	0.025	0.050	2,310	ELXZ250E□□182MK30S
	1,800	16×20	0.029	0.058	2,210	ELXZ250E□□182ML20S
	2,200	12.5×35	0.022	0.044	2,510	ELXZ250E□□222MK35S
	2,200	18×20	0.028	0.056	2,490	ELXZ250E□□222MM20S
	2,700	12.5×40	0.017	0.034	2,870	ELXZ250E□□272MK40S
	2,700	16×25	0.022	0.044	2,560	ELXZ250E□□272ML25S
	3,300	16×30	0.019	0.038	3,010	ELXZ250E□□332ML30S
	3,300	18×25	0.020	0.040	2,740	ELXZ250E□□332MM25S
	3,900	16×35	0.017	0.034	3,150	ELXZ250E□□392ML35S
	3,900	18×30	0.018	0.036	3,330	ELXZ250E□□392MM30S
	4,700	16×40	0.015	0.030	3,710	ELXZ250E□□472ML40S
	4,700	18×35	0.016	0.032	3,680	ELXZ250E□□472MM35S
	5,600	18×40	0.015	0.030	3,800	ELXZ250E□□562MM40S
35	33	5×11.5	0.50	1.0	175	ELXZ350E□□330MEB5D
	56	6.3×11.5	0.25	0.50	290	ELXZ350E□□560MFB5D
	100	6.3×15	0.18	0.36	400	ELXZ350E□□101MF15D
	150	8×12	0.12	0.24	555	ELXZ350E□□151MH12D
	220	8×15	0.090	0.18	730	ELXZ350E□□221MH15D
	220	10×12.5	0.090	0.18	760	ELXZ350E□□221MJC5S
	270	8×20	0.080	0.16	810	ELXZ350E□□271MH20D
	330	10×16	0.068	0.136	1,050	ELXZ350E□□331MJ16S
	470	10×20	0.052	0.104	1,220	ELXZ350E□□471MJ20S
	560	10×25	0.045	0.090	1,440	ELXZ350E□□561MJ25S
	680	10×30	0.037	0.074	1,690	ELXZ350E□□681MJ30S
	680	12.5×20	0.038	0.076	1,660	ELXZ350E□□681MK20S
	1,000	12.5×25	0.030	0.060	1,950	ELXZ350E□□102MK25S
	1,200	12.5×30	0.025	0.050	2,310	ELXZ350E□□122MK30S
	1,200	16×20	0.029	0.058	2,210	ELXZ350E□□122ML20S
	1,500	12.5×35	0.022	0.044	2,510	ELXZ350E□□152MK35S
	1,800	12.5×40	0.017	0.034	2,870	ELXZ350E□□182MK40S
	1,800	16×25	0.022	0.044	2,560	ELXZ350E□□182ML25S
	1,800	18×20	0.028	0.056	2,490	ELXZ350E□□182MM20S
	2,200	16×30	0.019	0.038	3,010	ELXZ350E□□222ML30S
	2,200	18×25	0.020	0.040	2,740	ELXZ350E□□222MM25S
	2,700	16×35	0.017	0.034	3,150	ELXZ350E□□272ML35S
	2,700	18×30	0.018	0.036	3,330	ELXZ350E□□272MM30S
	3,300	16×40	0.015	0.030	3,710	ELXZ350E□□332ML40S
	3,300	18×35	0.016	0.032	3,680	ELXZ350E□□332MM35S
	3,900	18×40	0.015	0.030	3,800	ELXZ350E□□392MM40S
50	22	5×11.5	0.90	1.8	155	ELXZ500E□□220MEB5D
	47	6.3×11.5	0.45	0.90	260	ELXZ500E□□470MFB5D
	68	6.3×15	0.31	0.62	360	ELXZ500E□□680MF15D
	100	8×12	0.22	0.44	485	ELXZ500E□□101MH12D

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, Downsized, 105℃

LXZ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
50	120	8×15	0.16	0.32	635	ELXZ500E□□121MH15D
	120	10×12.5	0.16	0.32	620	ELXZ500E□□121MJC5S
	180	8×20	0.12	0.24	730	ELXZ500E□□181MH20D
	180	10×16	0.13	0.26	850	ELXZ500E□□181MJ16S
	220	10×20	0.088	0.18	1,050	ELXZ500E□□221MJ20S
	330	10×25	0.073	0.15	1,250	ELXZ500E□□331MJ25S
	390	10×30	0.054	0.11	1,500	ELXZ500E□□391MJ30S
	390	12.5×20	0.059	0.12	1,480	ELXZ500E□□391MK20S
	560	12.5×25	0.044	0.088	1,840	ELXZ500E□□561MK25S
	680	12.5×30	0.039	0.078	2,220	ELXZ500E□□681MK30S
	680	16×20	0.048	0.096	1,840	ELXZ500E□□681ML20S
	820	12.5×35	0.033	0.066	2,290	ELXZ500E□□821MK35S
	820	18×20	0.042	0.084	1,980	ELXZ500E□□821MM20S
	1,000	12.5×40	0.029	0.058	2,500	ELXZ500E□□102MK40S
	1,000	16×25	0.034	0.068	2,240	ELXZ500E□□102ML25S
	1,200	16×30	0.028	0.056	2,700	ELXZ500E□□122ML30S
	1,200	18×25	0.029	0.058	2,610	ELXZ500E□□122MM25S
	1,500	16×35	0.025	0.050	2,800	ELXZ500E□□152ML35S
	1,800	16×40	0.021	0.042	3,200	ELXZ500E□□182ML40S
	1,800	18×30	0.025	0.050	3,000	ELXZ500E□□182MM30S
	2,200	18×35	0.023	0.046	3,100	ELXZ500E□□222MM35S
	2,700	18×40	0.020	0.040	3,400	ELXZ500E□□272MM40S
63	12	5×11.5	1.9	4.0	145	ELXZ630E□□120MEB5D
	22	6.3×11.5	1.0	2.0	240	ELXZ630E□□220MFB5D

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
63	39	6.3×15	0.61	1.4	330	ELXZ630E□□390MF15D
	68	8×12	0.34	0.75	405	ELXZ630E□□680MH12D
	100	8×15	0.27	0.65	535	ELXZ630E□□101MH15D
	100	10×12.5	0.255	0.51	540	ELXZ630E□□101MJC5S
	120	10×16	0.19	0.38	600	ELXZ630E□□121MJ16S
	150	8×20	0.21	0.52	690	ELXZ630E□□151MH20D
	180	10×20	0.145	0.29	890	ELXZ630E□□181MJ20S
	220	10×25	0.13	0.26	1,050	ELXZ630E□□221MJ25S
	330	10×30	0.090	0.18	1,300	ELXZ630E□□331MJ30S
	330	12.5×20	0.085	0.17	1,290	ELXZ630E□□331MK20S
	390	12.5×25	0.070	0.14	1,720	ELXZ630E□□391MK25S
	470	12.5×30	0.055	0.11	2,090	ELXZ630E□□471MK30S
	470	16×20	0.059	0.12	1,770	ELXZ630E□□471ML20S
	680	12.5×35	0.047	0.094	2,270	ELXZ630E□□681MK35S
	680	16×25	0.050	0.10	2,160	ELXZ630E□□681ML25S
	680	18×20	0.055	0.11	2,290	ELXZ630E□□681MM20S
	820	12.5×40	0.042	0.084	2,560	ELXZ630E□□821MK40S
	820	16×30	0.043	0.086	2,670	ELXZ630E□□821ML30S
	820	18×25	0.043	0.086	2,590	ELXZ630E□□821MM25S
	1,000	16×35	0.036	0.072	2,770	ELXZ630E□□102ML35S
	1,200	16×40	0.030	0.060	2,850	ELXZ630E□□122ML40S
	1,200	18×30	0.032	0.064	2,950	ELXZ630E□□122MM30S
	1,500	18×35	0.030	0.060	3,100	ELXZ630E□□152MM35S
	1,800	18×40	0.025	0.050	3,210	ELXZ630E□□182MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
12 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to 18,000	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

High reliability, Low impedance, 105℃

LXY Series

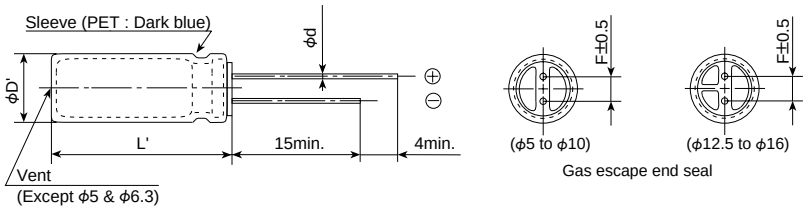
- Newly innovative electrolyte and internal architecture are employed
- Endurance with ripple current : 2,000 to 8,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−55 to +105℃
Rated Voltage Range	10 to 63Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 10V / 16V / 25V / 35V / 50V / 63V tanδ (Max.): 0.19 / 0.16 / 0.14 / 0.12 / 0.10 / 0.10 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Z(−55℃)/Z(+20℃): 10Vdc to 50Vdc : 3max. / 63Vdc : 6max. (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for the specified period of time at 105℃. Time: φ5 & 6.3 : 2,000hours φ8 : 3,000hours φ10 : 5,000hours φ12.5 : 7,000hours φ16 & 18 : 8,000hours Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

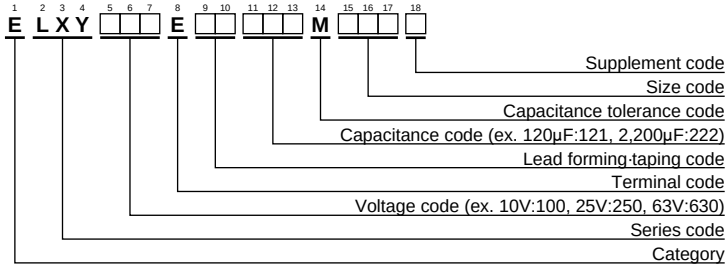
◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16
φd	0.5	0.5	0.6	0.6	0.6	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5
φD'	φD+0.5max.					
L'	L+1.5max.					

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
10 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to 8,200	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

High reliability, Low impedance, 105℃

LXY Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
10	82	5×11.5	0.75	1.5	163	ELXY100E□□820MEB5D
	180	6.3×11.5	0.35	0.70	273	ELXY100E□□181MFB5D
	220	6.3×15	0.25	0.50	390	ELXY100E□□221MF15D
	330	8×12	0.17	0.34	445	ELXY100E□□331MH12D
	390	10×12.5	0.12	0.24	625	ELXY100E□□391MJC5S
	470	8×15	0.13	0.26	555	ELXY100E□□471MH15D
	680	8×20	0.095	0.19	740	ELXY100E□□681MH20D
	680	10×16	0.084	0.17	825	ELXY100E□□681MJ16S
	1,000	10×20	0.062	0.13	1,040	ELXY100E□□102MJ20S
	1,200	10×25	0.052	0.11	1,260	ELXY100E□□122MJ25S
	1,500	10×30	0.044	0.088	1,440	ELXY100E□□152MJ30S
	1,800	12.5×20	0.046	0.092	1,340	ELXY100E□□182MK20S
	2,200	12.5×25	0.034	0.068	1,690	ELXY100E□□222MK25S
	2,700	12.5×30	0.030	0.060	1,950	ELXY100E□□272MK30S
	3,300	12.5×35	0.024	0.048	2,220	ELXY100E□□332MK35S
	3,300	16×20	0.038	0.076	1,630	ELXY100E□□332ML20S
	3,900	12.5×40	0.022	0.044	2,390	ELXY100E□□392MK40S
	3,900	16×25	0.028	0.056	2,070	ELXY100E□□392ML25S
	5,600	16×30	0.025	0.050	2,350	ELXY100E□□562ML30S
	6,800	16×35	0.022	0.044	2,550	ELXY100E□□682ML35S
	8,200	16×40	0.018	0.036	2,900	ELXY100E□□822ML40S
16	56	5×11.5	0.75	1.5	163	ELXY160E□□560MEB5D
	120	6.3×11.5	0.35	0.70	273	ELXY160E□□121MFB5D
	180	6.3×15	0.25	0.50	390	ELXY160E□□181MF15D
	270	8×12	0.17	0.34	445	ELXY160E□□271MH12D
	270	10×12.5	0.12	0.24	625	ELXY160E□□271MJC5S
	330	8×15	0.13	0.26	555	ELXY160E□□331MH15D
	470	8×20	0.095	0.19	740	ELXY160E□□471MH20D
	470	10×16	0.084	0.17	825	ELXY160E□□471MJ16S
	680	10×20	0.062	0.13	1,040	ELXY160E□□681MJ20S
	820	10×25	0.052	0.11	1,260	ELXY160E□□821MJ25S
	1,200	10×30	0.044	0.088	1,440	ELXY160E□□122MJ30S
	1,200	12.5×20	0.046	0.092	1,340	ELXY160E□□122MK20S
	1,500	12.5×25	0.034	0.068	1,690	ELXY160E□□152MK25S
	2,200	12.5×30	0.030	0.060	1,950	ELXY160E□□222MK30S
	2,200	16×20	0.038	0.076	1,630	ELXY160E□□222ML20S
	2,700	12.5×35	0.024	0.048	2,220	ELXY160E□□272MK35S
	2,700	16×25	0.028	0.056	2,070	ELXY160E□□272ML25S
	3,300	12.5×40	0.022	0.044	2,390	ELXY160E□□332MK40S
	3,900	16×30	0.025	0.050	2,350	ELXY160E□□392ML30S
	4,700	16×35	0.022	0.044	2,550	ELXY160E□□472ML35S
	5,600	16×40	0.018	0.036	2,900	ELXY160E□□562ML40S
25	39	5×11.5	0.75	1.5	163	ELXY250E□□390MEB5D
	82	6.3×11.5	0.35	0.70	273	ELXY250E□□820MFB5D
	120	6.3×15	0.25	0.50	390	ELXY250E□□121MF15D
	150	8×12	0.17	0.34	445	ELXY250E□□151MH12D
	180	10×12.5	0.12	0.24	625	ELXY250E□□181MJC5S
	220	8×15	0.13	0.26	555	ELXY250E□□221MH15D
	330	8×20	0.095	0.19	740	ELXY250E□□331MH20D
	330	10×16	0.084	0.17	825	ELXY250E□□331MJ16S
	470	10×20	0.062	0.13	1,040	ELXY250E□□471MJ20S
	560	10×25	0.052	0.11	1,260	ELXY250E□□561MJ25S
	820	10×30	0.044	0.088	1,440	ELXY250E□□821MJ30S
	820	12.5×20	0.046	0.092	1,340	ELXY250E□□821MK20S
	1,000	12.5×25	0.034	0.068	1,690	ELXY250E□□102MK25S
	1,500	12.5×30	0.030	0.060	1,950	ELXY250E□□152MK30S
	1,500	16×20	0.038	0.076	1,630	ELXY250E□□152ML20S
	1,800	12.5×35	0.024	0.048	2,220	ELXY250E□□182MK35S
	1,800	16×25	0.028	0.056	2,070	ELXY250E□□182ML25S
	2,200	12.5×40	0.022	0.044	2,390	ELXY250E□□222MK40S
	2,700	16×30	0.025	0.050	2,350	ELXY250E□□272ML30S
	3,300	16×35	0.022	0.044	2,550	ELXY250E□□332ML35S
	3,900	16×40	0.018	0.036	2,900	ELXY250E□□392ML40S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
35	27	5×11.5	0.75	1.5	163	ELXY350E□□270MEB5D
	56	6.3×11.5	0.35	0.70	273	ELXY350E□□560MFB5D
	82	6.3×15	0.25	0.50	390	ELXY350E□□820MF15D
	120	8×12	0.17	0.34	445	ELXY350E□□121MH12D
	120	10×12.5	0.12	0.24	625	ELXY350E□□121MJC5S
	180	8×15	0.13	0.26	555	ELXY350E□□181MH15D
	220	8×20	0.095	0.19	740	ELXY350E□□221MH20D
	220	10×16	0.084	0.17	825	ELXY350E□□221MJ16S
	330	10×20	0.062	0.13	1,040	ELXY350E□□331MJ20S
	390	10×25	0.052	0.11	1,260	ELXY350E□□391MJ25S
	560	10×30	0.044	0.088	1,440	ELXY350E□□561MJ30S
	560	12.5×20	0.046	0.092	1,340	ELXY350E□□561MK20S
	680	12.5×25	0.034	0.068	1,690	ELXY350E□□681MK25S
	1,000	12.5×30	0.030	0.060	1,950	ELXY350E□□102MK30S
	1,000	16×20	0.038	0.076	1,630	ELXY350E□□102ML20S
	1,200	12.5×35	0.024	0.048	2,220	ELXY350E□□122MK35S
	1,200	16×25	0.028	0.056	2,070	ELXY350E□□122ML25S
	1,500	12.5×40	0.022	0.044	2,390	ELXY350E□□152MK40S
	1,800	16×30	0.025	0.050	2,350	ELXY350E□□182ML30S
	2,200	16×35	0.022	0.044	2,550	ELXY350E□□222ML35S
	2,700	16×40	0.018	0.036	2,900	ELXY350E□□272ML40S
50	18	5×11.5	1.2	2.4	129	ELXY500E□□180MEB5D
	39	6.3×11.5	0.54	1.1	219	ELXY500E□□390MFB5D
	56	6.3×15	0.34	0.68	310	ELXY500E□□560MF15D
	68	8×12	0.30	0.60	340	ELXY500E□□680MH12D
	82	8×15	0.20	0.40	470	ELXY500E□□820MH15D
	82	10×12.5	0.20	0.40	480	ELXY500E□□820MJC5S
	120	8×20	0.14	0.28	610	ELXY500E□□121MH20D
	120	10×16	0.13	0.26	755	ELXY500E□□121MJ16S
	180	10×20	0.088	0.18	945	ELXY500E□□181MJ20S
	220	10×25	0.073	0.15	1,150	ELXY500E□□221MJ25S
	330	10×30	0.054	0.11	1,260	ELXY500E□□331MJ30S
	330	12.5×20	0.059	0.12	1,190	ELXY500E□□331MK20S
	470	12.5×25	0.044	0.088	1,490	ELXY500E□□471MK25S
	560	12.5×30	0.039	0.078	1,720	ELXY500E□□561MK30S
	680	12.5×35	0.033	0.066	1,890	ELXY500E□□681MK35S
	680	16×20	0.050	0.10	1,420	ELXY500E□□681ML20S
	820	12.5×40	0.029	0.058	2,030	ELXY500E□□821MK40S
	820	16×25	0.034	0.068	1,880	ELXY500E□□821ML25S
	1,000	16×30	0.030	0.060	2,150	ELXY500E□□102ML30S
	1,200	16×35	0.027	0.054	2,320	ELXY500E□□122ML35S
	1,500	16×40	0.024	0.048	2,540	ELXY500E□□152ML40S
63	10	5×11.5	1.9	4.8	103	ELXY630E□□100MEB5D
	18	6.3×11.5	1.0	2.5	161	ELXY630E□□180MFB5D
	33	6.3×15	0.61	1.6	233	ELXY630E□□330MF15D
	47	8×12	0.47	1.2	274	ELXY630E□□470MH12D
	56	10×12.5	0.27	0.68	418	ELXY630E□□560MJC5S
	68	8×15	0.34	0.85	360	ELXY630E□□680MH15D
	68	10×16	0.21	0.53	525	ELXY630E□□680MJ16S
	82	8×20	0.21	0.53	500	ELXY630E□□820MH20D
	120	10×20	0.16	0.40	650	ELXY630E□□121MJ20S
	150	10×25	0.13	0.33	783	ELXY630E□□151MJ25S
	180	10×30	0.10	0.25	960	ELXY630E□□181MJ30S
	220	12.5×20	0.11	0.28	870	ELXY630E□□221MK20S
	270	12.5×25	0.074	0.19	1,150	ELXY630E□□271MK25S
	330	16×20	0.085	0.22	1,100	ELXY630E□□331ML20S
	390	12.5×30	0.068	0.17	1,280	ELXY630E□□391MK30S
	470	12.5×35	0.063	0.16	1,390	ELXY630E□□471MK35S
	470	16×25	0.055	0.14	1,480	ELXY630E□□471ML25S
	560	12.5×40	0.051	0.13	1,530	ELXY630E□□561MK40S
	680	16×30	0.046	0.12	1,720	ELXY630E□□681ML30S
	820	16×35	0.040	0.10	1,910	ELXY630E□□821ML35S
	1,000	16×40	0.036	0.09	2,070	ELXY630E□□102ML40S

□□ : Enter the appropriate lead forming or taping code.

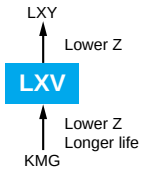
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

LXV Series

- Low impedance
- Endurance with ripple current : 2,000 to 5,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

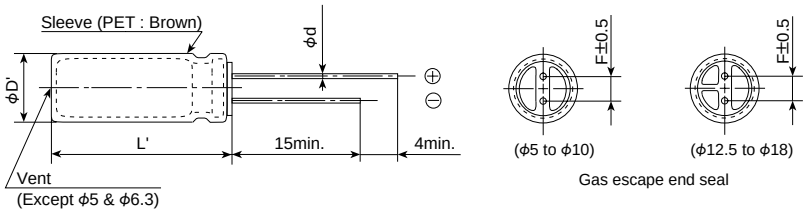


◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	−55 to +105℃									
Rated Voltage Range	6.3 to 100Vdc									
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)									
Leakage Current	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 2 minutes)									
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V
	tanδ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.10	0.09	0.08
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)									
Low Temperature Characteristics	Capacitance change ΔC (−55℃ /+20℃)	0.7min.								
	Max. impedance ratio (−55℃ /+20℃)	3max.(6.3Vdc : 4max.) (at 120Hz)								
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for the specified period of time at 105℃.									
	Time	φ5 to 6.3 : 2,000hours φ8 & 10 : 3,000hours φ12.5 to φ18 : 5,000hours								
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

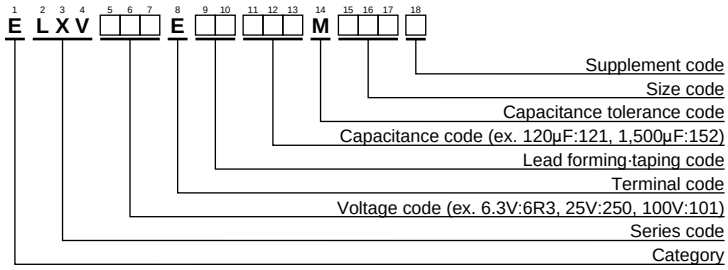
◆DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

LXV Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	120	5×11.5	0.72	1.8	165	ELXV6R3E□□121MEB5D
	220	6.3×11.5	0.38	0.95	255	ELXV6R3E□□221MFB5D
	330	6.3×15	0.27	0.68	330	ELXV6R3E□□331MF15D
	390	8×12	0.20	0.50	415	ELXV6R3E□□391MH12D
	470	10×12.5	0.12	0.30	635	ELXV6R3E□□471MJC5S
	560	8×15	0.16	0.40	495	ELXV6R3E□□561MH15D
	680	10×16	0.084	0.21	825	ELXV6R3E□□681MJ16S
	820	8×20	0.11	0.28	640	ELXV6R3E□□821MH20D
	1,200	10×20	0.062	0.16	1,060	ELXV6R3E□□122MJ20S
	1,500	10×25	0.052	0.13	1,260	ELXV6R3E□□152MJ25S
	2,200	10×30	0.044	0.11	1,450	ELXV6R3E□□222MJ30S
	2,200	12.5×20	0.046	0.12	1,360	ELXV6R3E□□222MK20S
	2,700	12.5×25	0.034	0.085	1,700	ELXV6R3E□□272MK25S
	3,900	12.5×30	0.030	0.075	1,980	ELXV6R3E□□392MK30S
	3,900	16×20	0.038	0.095	1,770	ELXV6R3E□□392ML20S
	4,700	12.5×35	0.027	0.068	2,230	ELXV6R3E□□472MK35S
	5,600	12.5×40	0.024	0.060	2,460	ELXV6R3E□□562MK40S
	5,600	16×25	0.028	0.070	2,190	ELXV6R3E□□562ML25S
	5,600	18×20	0.036	0.090	1,940	ELXV6R3E□□562MM20S
	6,800	16×30	0.025	0.063	2,510	ELXV6R3E□□682ML30S
	6,800	18×25	0.027	0.068	2,350	ELXV6R3E□□682MM25S
	8,200	16×35	0.022	0.055	2,770	ELXV6R3E□□822ML35S
	10,000	16×40	0.018	0.045	3,110	ELXV6R3E□□103ML40S
	10,000	18×30	0.024	0.060	2,720	ELXV6R3E□□103MM30S
	12,000	18×35	0.021	0.053	3,050	ELXV6R3E□□123MM35S
	15,000	18×40	0.017	0.043	3,300	ELXV6R3E□□153MM40S
10	82	5×11.5	0.72	1.8	165	ELXV100E□□820MEB5D
	180	6.3×11.5	0.38	0.95	255	ELXV100E□□181MFB5D
	270	6.3×15	0.27	0.68	330	ELXV100E□□271MF15D
	330	8×12	0.20	0.50	415	ELXV100E□□331MH12D
	390	10×12.5	0.12	0.30	635	ELXV100E□□391MJC5S
	470	8×15	0.16	0.40	495	ELXV100E□□471MH15D
	680	8×20	0.11	0.28	640	ELXV100E□□681MH20D
	680	10×16	0.084	0.21	825	ELXV100E□□681MJ16S
	1,000	10×20	0.062	0.16	1,060	ELXV100E□□102MJ20S
	1,200	10×25	0.052	0.13	1,260	ELXV100E□□122MJ25S
	1,500	10×30	0.044	0.11	1,450	ELXV100E□□152MJ30S
	1,800	12.5×20	0.046	0.12	1,360	ELXV100E□□182MK20S
	2,200	12.5×25	0.034	0.085	1,700	ELXV100E□□222MK25S
	2,700	12.5×30	0.030	0.075	1,980	ELXV100E□□272MK30S
	3,300	12.5×35	0.027	0.068	2,230	ELXV100E□□332MK35S
	3,300	16×20	0.038	0.095	1,770	ELXV100E□□332ML20S
	3,900	12.5×40	0.024	0.060	2,460	ELXV100E□□392MK40S
	3,900	16×25	0.028	0.070	2,190	ELXV100E□□392ML25S
	3,900	18×20	0.036	0.090	1,940	ELXV100E□□392MM20S
	4,700	18×25	0.027	0.068	2,350	ELXV100E□□472MM25S
	5,600	16×30	0.025	0.063	2,510	ELXV100E□□562ML30S
	6,800	16×35	0.022	0.055	2,770	ELXV100E□□682ML35S
	6,800	18×30	0.024	0.060	2,720	ELXV100E□□682MM30S
	8,200	16×40	0.018	0.045	3,110	ELXV100E□□822ML40S
	8,200	18×35	0.021	0.053	3,050	ELXV100E□□822MM35S
	10,000	18×40	0.017	0.043	3,300	ELXV100E□□103MM40S
16	56	5×11.5	0.72	1.8	165	ELXV160E□□560MEB5D
	120	6.3×11.5	0.38	0.95	255	ELXV160E□□121MFB5D
	180	6.3×15	0.27	0.68	330	ELXV160E□□181MF15D
	270	8×12	0.20	0.50	415	ELXV160E□□271MH12D
	270	10×12.5	0.12	0.30	635	ELXV160E□□271MJC5S
	330	8×15	0.16	0.40	495	ELXV160E□□331MH15D
	470	8×20	0.11	0.28	640	ELXV160E□□471MH20D
	470	10×16	0.084	0.21	825	ELXV160E□□471MJ16S
	680	10×20	0.062	0.16	1,060	ELXV160E□□681MJ20S
	820	10×25	0.052	0.13	1,260	ELXV160E□□821MJ25S
	1,200	10×30	0.044	0.11	1,450	ELXV160E□□122MJ30S
	1,200	12.5×20	0.046	0.12	1,360	ELXV160E□□122MK20S
	1,500	12.5×25	0.034	0.085	1,700	ELXV160E□□152MK25S
	2,200	12.5×30	0.030	0.075	1,980	ELXV160E□□222MK30S
	2,200	16×20	0.038	0.095	1,770	ELXV160E□□222ML20S
16	2,700	12.5×35	0.027	0.068	2,230	ELXV160E□□272MK35S
	2,700	16×25	0.028	0.070	2,190	ELXV160E□□272ML25S
	3,300	12.5×40	0.024	0.060	2,460	ELXV160E□□332MK40S
	3,300	18×20	0.036	0.090	1,940	ELXV160E□□332MM20S
	3,900	16×30	0.025	0.063	2,510	ELXV160E□□392ML30S
	3,900	18×25	0.027	0.068	2,350	ELXV160E□□392MM25S
	4,700	16×35	0.022	0.055	2,770	ELXV160E□□472ML35S
	4,700	18×30	0.024	0.060	2,720	ELXV160E□□472MM30S
	5,600	16×40	0.018	0.045	3,110	ELXV160E□□562ML40S
	6,800	18×35	0.021	0.053	3,050	ELXV160E□□682MM35S
	8,200	18×40	0.017	0.043	3,300	ELXV160E□□822MM40S
25	39	5×11.5	0.72	1.8	165	ELXV250E□□390MEB5D
	82	6.3×11.5	0.38	0.95	255	ELXV250E□□820MFB5D
	120	6.3×15	0.27	0.68	330	ELXV250E□□121MF15D
	150	8×12	0.20	0.50	415	ELXV250E□□151MH12D
	180	10×12.5	0.12	0.30	635	ELXV250E□□181MJC5S
	220	8×15	0.16	0.40	495	ELXV250E□□221MH15D
	330	8×20	0.11	0.28	640	ELXV250E□□331MH20D
	330	10×16	0.084	0.21	825	ELXV250E□□331MJ16S
	470	10×20	0.062	0.16	1,060	ELXV250E□□471MJ20S
	560	10×25	0.052	0.13	1,260	ELXV250E□□561MJ25S
	820	10×30	0.044	0.11	1,450	ELXV250E□□821MJ30S
	820	12.5×20	0.046	0.12	1,360	ELXV250E□□821MK20S
	1,000	12.5×25	0.034	0.085	1,700	ELXV250E□□102MK25S
	1,500	12.5×30	0.030	0.075	1,980	ELXV250E□□152MK30S
	1,500	16×20	0.038	0.095	1,770	ELXV250E□□152ML20S
	1,800	12.5×35	0.027	0.068	2,230	ELXV250E□□182MK35S
	1,800	16×25	0.028	0.070	2,190	ELXV250E□□182ML25S
	2,200	12.5×40	0.024	0.060	2,460	ELXV250E□□222MK40S
	2,200	18×20	0.036	0.090	1,940	ELXV250E□□222MM20S
	2,700	16×30	0.025	0.063	2,510	ELXV250E□□272ML30S
	2,700	18×25	0.027	0.068	2,350	ELXV250E□□272MM25S
	3,300	16×35	0.022	0.055	2,770	ELXV250E□□332ML35S
	3,300	18×30	0.024	0.060	2,720	ELXV250E□□332MM30S
	3,900	16×40	0.018	0.045	3,110	ELXV250E□□392ML40S
	3,900	18×35	0.021	0.053	3,050	ELXV250E□□392MM35S
	4,700	18×40	0.017	0.043	3,300	ELXV250E□□472MM40S
35	27	5×11.5	0.72	1.8	165	ELXV350E□□270MEB5D
	56	6.3×11.5	0.38	0.95	255	ELXV350E□□560MFB5D
	82	6.3×15	0.27	0.68	330	ELXV350E□□820MF15D
	120	8×12	0.20	0.50	415	ELXV350E□□121MH12D
	120	10×12.5	0.12	0.30	635	ELXV350E□□121MJC5S
	180	8×15	0.16	0.40	495	ELXV350E□□181MH15D
	220	8×20	0.11	0.28	640	ELXV350E□□221MH20D
	220	10×16	0.084	0.21	825	ELXV350E□□221MJ16S
	330	10×20	0.062	0.16	1,060	ELXV350E□□331MJ20S
	390	10×25	0.052	0.13	1,260	ELXV350E□□391MJ25S
	560	10×30	0.044	0.11	1,450	ELXV350E□□561MJ30S
	560	12.5×20	0.046	0.12	1,360	ELXV350E□□561MK20S
	680	12.5×25	0.034	0.085	1,700	ELXV350E□□681MK25S
	1,000	12.5×30	0.030	0.075	1,980	ELXV350E□□102MK30S
	1,000	16×20	0.038	0.095	1,770	ELXV350E□□102ML20S
	1,200	12.5×35	0.027	0.068	2,230	ELXV350E□□122MK35S
	1,200	16×25	0.028	0.070	2,190	ELXV350E□□122ML25S
	1,500	12.5×40	0.024	0.060	2,460	ELXV350E□□152MK40S
	1,500	18×20	0.036	0.090	1,940	ELXV350E□□152MM20S
	1,800	16×30	0.025	0.063	2,510	ELXV350E□□182ML30S
	1,800	18×25	0.027	0.068	2,350	ELXV350E□□182MM25S
	2,200	16×35	0.022	0.055	2,770	ELXV350E□□222ML35S
	2,200	18×30	0.024	0.060	2,720	ELXV350E□□222MM30S
	2,700	16×40	0.018	0.045	3,110	ELXV350E□□272ML40S
	2,700	18×35	0.021	0.053	3,050	ELXV350E□□272MM35S
	3,300	18×40	0.017	0.043	3,300	ELXV350E□□332MM40S
50	18	5×11.5	1.1	3.3	165	ELXV500E□□180MEB5D
	39	6.3×11.5	0.56	1.6	255	ELXV500E□□390MFB5D
	56	6.3×15	0.41	1.2	310	ELXV500E□□560MF15D
	68	8×12	0.29	0.84	415	ELXV500E□□680MH12D

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low impedance, 105℃

LXV Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
50	82	8×15	0.24	0.72	505	ELXV500E□□820MH15D
	82	10×12.5	0.16	0.40	530	ELXV500E□□820MJC5S
	120	8×20	0.18	0.52	610	ELXV500E□□121MH20D
	120	10×16	0.12	0.30	755	ELXV500E□□121MJ16S
	180	10×20	0.088	0.22	945	ELXV500E□□181MJ20S
	220	10×25	0.068	0.17	1,150	ELXV500E□□221MJ25S
	330	10×30	0.059	0.15	1,260	ELXV500E□□331MJ30S
	330	12.5×20	0.059	0.15	1,190	ELXV500E□□331MK20S
	470	12.5×25	0.045	0.11	1,500	ELXV500E□□471MK25S
	560	12.5×30	0.039	0.098	1,720	ELXV500E□□561MK30S
	680	12.5×35	0.033	0.083	1,900	ELXV500E□□681MK35S
	680	16×20	0.043	0.11	1,500	ELXV500E□□681ML20S
	820	12.5×40	0.029	0.073	2,120	ELXV500E□□821MK40S
	820	16×25	0.033	0.083	1,880	ELXV500E□□821ML25S
	820	18×20	0.039	0.098	1,660	ELXV500E□□821MM20S
	1,000	16×30	0.029	0.073	2,150	ELXV500E□□102ML30S
	1,000	18×25	0.030	0.075	2,020	ELXV500E□□102MM25S
	1,200	16×35	0.025	0.063	2,320	ELXV500E□□122ML35S
	1,500	16×40	0.021	0.053	2,650	ELXV500E□□152ML40S
	1,500	18×30	0.026	0.065	2,340	ELXV500E□□152MM30S
	1,800	18×35	0.023	0.058	2,620	ELXV500E□□182MM35S
	2,200	18×40	0.020	0.050	2,790	ELXV500E□□222MM40S
63	12	5×11.5	1.9	4.8	100	ELXV630E□□120MEB5D
	27	6.3×11.5	1.1	2.8	160	ELXV630E□□270MFB5D
	39	6.3×15	0.62	1.6	230	ELXV630E□□390MF15D
	47	8×12	0.49	1.3	275	ELXV630E□□470MH12D
	56	10×12.5	0.27	0.68	420	ELXV630E□□560MJC5S
	68	8×15	0.34	0.85	360	ELXV630E□□680MH15D
	68	10×16	0.21	0.53	523	ELXV630E□□680MJ16S
	82	8×20	0.21	0.53	500	ELXV630E□□820MH20D
	120	10×20	0.16	0.40	650	ELXV630E□□121MJ20S
	150	10×25	0.13	0.33	780	ELXV630E□□151MJ25S
	180	10×30	0.10	0.25	960	ELXV630E□□181MJ30S
	220	12.5×20	0.11	0.28	870	ELXV630E□□221MK20S
	270	12.5×25	0.074	0.19	1,150	ELXV630E□□271MK25S
	390	12.5×30	0.068	0.17	1,280	ELXV630E□□391MK30S
	390	16×20	0.085	0.22	1,100	ELXV630E□□391ML20S
	470	12.5×35	0.063	0.16	1,390	ELXV630E□□471MK35S
	470	16×25	0.055	0.14	1,480	ELXV630E□□471ML25S
	560	12.5×40	0.051	0.13	1,530	ELXV630E□□561MK40S
	560	18×20	0.085	0.22	1,170	ELXV630E□□561MM20S
	680	16×30	0.046	0.12	1,720	ELXV630E□□681ML30S
	680	18×25	0.055	0.14	1,520	ELXV630E□□681MM25S
	820	16×35	0.040	0.10	1,910	ELXV630E□□821ML35S
	820	18×30	0.046	0.12	1,770	ELXV630E□□821MM30S
	1,000	16×40	0.036	0.09	2,070	ELXV630E□□102ML40S
	1,000	18×35	0.040	0.10	1,970	ELXV630E□□102MM35S
	1,200	18×40	0.036	0.09	2,130	ELXV630E□□122MM40S
80	8.2	5×11.5	1.9	5.1	100	ELXV800E□□8R2MEB5D
	18	6.3×11.5	1.1	3.0	150	ELXV800E□□180MFB5D

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz) 20℃	Impedance (Ωmax/100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
80	27	6.3×15	0.62	1.7	220	ELXV800E□□270MF15D
	33	8×12	0.53	1.5	275	ELXV800E□□330MH12D
	39	10×12.5	0.47	1.3	380	ELXV800E□□390MJC5S
	47	8×15	0.35	0.97	360	ELXV800E□□470MH15D
	56	8×20	0.27	0.74	490	ELXV800E□□560MH20D
	56	10×16	0.33	0.90	500	ELXV800E□□560MJ16S
	82	10×20	0.26	0.70	620	ELXV800E□□820MJ20S
	100	10×25	0.19	0.52	795	ELXV800E□□101MJ25S
	150	10×30	0.15	0.41	955	ELXV800E□□151MJ30S
	150	12.5×20	0.15	0.41	890	ELXV800E□□151MK20S
	180	12.5×25	0.11	0.30	1,040	ELXV800E□□181MK25S
	270	12.5×30	0.094	0.26	1,270	ELXV800E□□271MK30S
	270	16×20	0.11	0.30	1,240	ELXV800E□□271ML20S
	330	12.5×35	0.087	0.24	1,450	ELXV800E□□331MK35S
	330	16×25	0.081	0.22	1,440	ELXV800E□□331ML25S
	390	12.5×40	0.060	0.17	1,610	ELXV800E□□391MK40S
	390	18×20	0.085	0.23	1,450	ELXV800E□□391MM20S
	470	16×30	0.058	0.16	1,790	ELXV800E□□471ML30S
	470	18×25	0.070	0.19	1,650	ELXV800E□□471MM25S
	560	16×35	0.052	0.14	2,000	ELXV800E□□561ML35S
	680	16×40	0.041	0.11	2,200	ELXV800E□□681ML40S
	680	18×30	0.058	0.16	1,850	ELXV800E□□681MM30S
	820	18×35	0.052	0.14	1,990	ELXV800E□□821MM35S
	1,000	18×40	0.041	0.11	2,370	ELXV800E□□102MM40S
100	5.6	5×11.5	1.9	5.1	100	ELXV101E□□5R6MEB5D
	12	6.3×11.5	1.1	3.0	150	ELXV101E□□120MFB5D
	18	6.3×15	0.62	1.7	220	ELXV101E□□180MF15D
	22	8×12	0.53	1.5	275	ELXV101E□□220MH12D
	27	10×12.5	0.47	1.3	380	ELXV101E□□270MJC5S
	33	8×15	0.35	0.97	360	ELXV101E□□330MH15D
	33	10×16	0.33	0.90	500	ELXV101E□□330MJ16S
	39	8×20	0.27	0.74	490	ELXV101E□□390MH20D
	56	10×20	0.26	0.70	620	ELXV101E□□560MJ20S
	68	10×25	0.19	0.52	795	ELXV101E□□680MJ25S
	100	10×30	0.15	0.41	955	ELXV101E□□101MJ30S
	100	12.5×20	0.15	0.41	890	ELXV101E□□101MK20S
	120	12.5×25	0.11	0.30	1,040	ELXV101E□□121MK25S
	180	12.5×30	0.094	0.26	1,270	ELXV101E□□181MK30S
	180	16×20	0.11	0.30	1,240	ELXV101E□□181ML20S
	220	12.5×35	0.087	0.24	1,450	ELXV101E□□221MK35S
	220	16×25	0.081	0.22	1,440	ELXV101E□□221ML25S
	270	12.5×40	0.060	0.17	1,610	ELXV101E□□271MK40S
	270	18×20	0.085	0.23	1,450	ELXV101E□□271MM20S
	330	16×30	0.058	0.16	1,790	ELXV101E□□331ML30S
	330	18×25	0.070	0.19	1,650	ELXV101E□□331MM25S
	390	16×35	0.052	0.14	2,000	ELXV101E□□391ML35S
	390	18×30	0.058	0.16	1,850	ELXV101E□□391MM30S
	470	16×40	0.041	0.11	2,200	ELXV101E□□471ML40S
	560	18×35	0.052	0.14	1,990	ELXV101E□□561MM35S
	680	18×40	0.041	0.11	2,370	ELXV101E□□681MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Rated voltage (Vdc)	Case size φD (mm)	Frequency (Hz) 120	1k	10k	100k	Rated voltage (Vdc)	Case size φD (mm)	Frequency (Hz) 120	1k	10k	100k
6.3 & 10	5 to 8	0.65	0.83	0.95	1.00	35 & 50	5 to 8	0.40	0.66	0.85	1.00
	10 & 12.5	0.70	0.85	0.96	1.00		10 & 12.5	0.50	0.73	0.89	1.00
	16 & 18	0.85	0.92	0.97	1.00		16 & 18	0.60	0.81	0.94	1.00
16 & 25	5 to 8	0.55	0.76	0.91	1.00	63 to 100	5 to 8	0.20	0.55	0.80	1.00
	10 & 12.5	0.65	0.83	0.93	1.00		10 & 12.5	0.35	0.65	0.85	1.00
	16 & 18	0.70	0.87	0.96	1.00		16 & 18	0.50	0.75	0.90	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

KXJ Series

- Downsized and Longer life from current KXG series
- Endurance with ripple current : 10,000 to 12,000 hours at 105℃
- Rated voltage range : 160 to 450V, Capacitance range : 6.8 to 680μF
- For electronic ballast circuits and other long life applications
- Non solvent resistant type
- **RoHS Compliant**

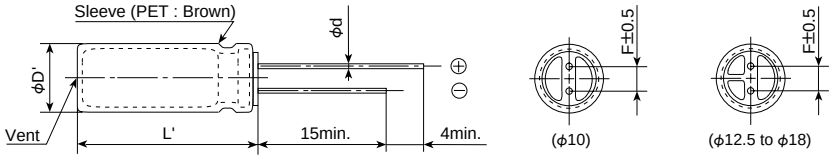
KXJ ↑ Downsized
KXG

◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	−40 to +105℃ (160 to 400Vdc) -25 to +105℃ (420, 450Vdc)				
Rated Voltage Range	160 to 450Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current		After 1 minute	After 5 minutes		
	CV≦1000	I=0.1CV+40	I=0.03CV+15		
	CV＞1000	I=0.04CV+100	I=0.02CV+25		
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 250V	350 to 450V		
	tanδ (Max.)	0.20	0.24		(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	350, 400V	420, 450V	
	Z(−25℃)/Z(+20℃)	3	5	6	
	Z(−40℃)/Z(+20℃)	6	6	—	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 12,000 hours (10,000 hours for 20L max.) at 105℃.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦500% of the initial specified value			

◆DIMENSIONS [mm]

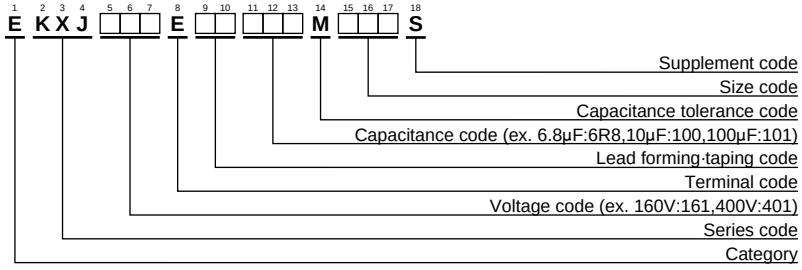
- Terminal Code : E



Gas escaped end seal

φD	10	12.5	14.5	16	18
φd	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0	7.5	7.5	7.5
φD'	φD+0.5max.				
L'	L+1.5max.				

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Frequency (Hz)	120	1k	10k	100k
Less than 100μF	1.00	1.75	2.25	2.50
100μF or more	1.00	1.67	2.05	2.25

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

KXJ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
160	39	10×16	0.20	245	EKXJ161E□□390MJ16S
	56	10×20	0.20	315	EKXJ161E□□560MJ20S
	82	10×25	0.20	415	EKXJ161E□□820MJ25S
	82	10×30	0.20	445	EKXJ161E□□820MJ30S
	100	12.5×20	0.20	575	EKXJ161E□□101MK20S
	120	10×35	0.20	570	EKXJ161E□□121MJ35S
	120	14.5×20	0.20	675	EKXJ161E□□121MU20S
	150	10×40	0.20	665	EKXJ161E□□151MJ40S
	150	10×45	0.20	695	EKXJ161E□□151MJ45S
	150	12.5×25	0.20	765	EKXJ161E□□151MK25S
	180	10×50	0.20	785	EKXJ161E□□181MJ50S
	180	12.5×30	0.20	885	EKXJ161E□□181MK30S
	180	14.5×25	0.20	890	EKXJ161E□□181MU25S
	180	16×20	0.20	855	EKXJ161E□□181ML20S
	220	12.5×35	0.20	1,040	EKXJ161E□□221MK35S
	220	16×25	0.20	1,020	EKXJ161E□□221ML25S
	220	18×20	0.20	990	EKXJ161E□□221MM20S
	270	12.5×40	0.20	1,190	EKXJ161E□□271MK40S
	270	12.5×45	0.20	1,230	EKXJ161E□□271MK45S
	270	14.5×31.5	0.20	1,170	EKXJ161E□□271MUN3S
	270	14.5×35.5	0.20	1,210	EKXJ161E□□271MUP1S
	330	12.5×50	0.20	1,400	EKXJ161E□□331MK50S
	330	14.5×40	0.20	1,385	EKXJ161E□□331MU40S
	330	16×31.5	0.20	1,350	EKXJ161E□□331MLN3S
	330	18×25	0.20	1,290	EKXJ161E□□331MM25S
	390	14.5×45	0.20	1,545	EKXJ161E□□391MU45S
	390	16×35.5	0.20	1,500	EKXJ161E□□391MLP1S
	470	14.5×50	0.20	1,735	EKXJ161E□□471MU50S
	470	16×40	0.20	1,700	EKXJ161E□□471ML40S
	470	16×45	0.20	1,730	EKXJ161E□□471ML45S
	470	18×31.5	0.20	1,660	EKXJ161E□□471MMN3S
	470	18×35.5	0.20	1,715	EKXJ161E□□471MMP1S
	560	16×50	0.20	1,920	EKXJ161E□□561ML50S
	560	18×40	0.20	1,905	EKXJ161E□□561MM40S
	680	18×45	0.20	2,130	EKXJ161E□□681MM45S
	680	18×50	0.20	2,145	EKXJ161E□□681MM50S
200	27	10×16	0.20	200	EKXJ201E□□270MJ16S
	47	10×20	0.20	290	EKXJ201E□□470MJ20S
	56	10×25	0.20	345	EKXJ201E□□560MJ25S
	68	10×30	0.20	405	EKXJ201E□□680MJ30S
	82	12.5×20	0.20	520	EKXJ201E□□820MK20S
	100	10×35	0.20	520	EKXJ201E□□101MJ35S
	100	12.5×25	0.20	625	EKXJ201E□□101MK25S
	100	14.5×20	0.20	615	EKXJ201E□□101MU20S
	120	10×40	0.20	595	EKXJ201E□□121MJ40S
	120	10×45	0.20	620	EKXJ201E□□121MJ45S
	120	12.5×30	0.20	725	EKXJ201E□□121MK30S
	120	16×20	0.20	695	EKXJ201E□□121ML20S
	150	10×50	0.20	720	EKXJ201E□□151MJ50S
	150	12.5×35	0.20	860	EKXJ201E□□151MK35S
	150	14.5×25	0.20	810	EKXJ201E□□151MU25S
	180	14.5×31.5	0.20	955	EKXJ201E□□181MUN3S
	180	16×25	0.20	925	EKXJ201E□□181ML25S
	180	18×20	0.20	895	EKXJ201E□□181MM20S
	220	12.5×40	0.20	1,075	EKXJ201E□□221MK40S
	220	12.5×45	0.20	1,110	EKXJ201E□□221MK45S
	220	14.5×35.5	0.20	1,095	EKXJ201E□□221MUP1S
	220	18×25	0.20	1,050	EKXJ201E□□221MM25S
	270	12.5×50	0.20	1,265	EKXJ201E□□271MK50S
	270	14.5×40	0.20	1,250	EKXJ201E□□271MU40S
	270	14.5×45	0.20	1,290	EKXJ201E□□271MU45S
	270	16×31.5	0.20	1,220	EKXJ201E□□271MLN3S
	270	16×35.5	0.20	1,250	EKXJ201E□□271MLP1S
	330	14.5×50	0.20	1,450	EKXJ201E□□331MU50S
	330	16×40	0.20	1,425	EKXJ201E□□331ML40S
	330	18×31.5	0.20	1,395	EKXJ201E□□331MMN3S
	390	16×45	0.20	1,575	EKXJ201E□□391ML45S
	390	18×35.5	0.20	1,565	EKXJ201E□□391MMP1S
	470	16×50	0.20	1,755	EKXJ201E□□471ML50S
	470	18×40	0.20	1,745	EKXJ201E□□471MM40S
	470	18×45	0.20	1,770	EKXJ201E□□471MM45S
	560	18×50	0.20	1,945	EKXJ201E□□561MM50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
220	27	10×16	0.20	200	EKXJ221E□□270MJ16S
	39	10×20	0.20	265	EKXJ221E□□390MJ20S
	56	10×25	0.20	345	EKXJ221E□□560MJ25S
	56	10×30	0.20	370	EKXJ221E□□560MJ30S
	68	12.5×20	0.20	475	EKXJ221E□□680MK20S
	82	10×35	0.20	470	EKXJ221E□□820MJ35S
	82	14.5×20	0.20	555	EKXJ221E□□820MU20S
	100	10×40	0.20	545	EKXJ221E□□101MJ40S
	100	10×45	0.20	565	EKXJ221E□□101MJ45S
	100	12.5×25	0.20	625	EKXJ221E□□101MK25S
	120	10×50	0.20	645	EKXJ221E□□121MJ50S
	120	12.5×30	0.20	725	EKXJ221E□□121MK30S
	120	14.5×25	0.20	725	EKXJ221E□□121MU25S
	120	16×20	0.20	695	EKXJ221E□□121ML20S
	150	12.5×35	0.20	860	EKXJ221E□□151MK35S
	150	16×25	0.20	845	EKXJ221E□□151ML25S
	150	18×20	0.20	815	EKXJ221E□□151MM20S
	180	12.5×40	0.20	975	EKXJ221E□□181MK40S
	180	12.5×45	0.20	1,005	EKXJ221E□□181MK45S
	180	14.5×31.5	0.20	955	EKXJ221E□□181MUN3S
	220	12.5×50	0.20	1,145	EKXJ221E□□221MK50S
	220	14.5×35.5	0.20	1,095	EKXJ221E□□221MUP1S
	220	14.5×40	0.20	1,130	EKXJ221E□□221MU40S
	220	16×31.5	0.20	1,100	EKXJ221E□□221MLN3S
	220	18×25	0.20	1,050	EKXJ221E□□221MM25S
	270	14.5×45	0.20	1,285	EKXJ221E□□271MU45S
	270	14.5×50	0.20	1,315	EKXJ221E□□271MU50S
	270	16×35.5	0.20	1,245	EKXJ221E□□271MLP1S
	270	18×31.5	0.20	1,260	EKXJ221E□□271MMN3S
	330	16×40	0.20	1,425	EKXJ221E□□331ML40S
	330	16×45	0.20	1,450	EKXJ221E□□331ML45S
	330	18×35.5	0.20	1,440	EKXJ221E□□331MMP1S
	390	16×50	0.20	1,600	EKXJ221E□□391ML50S
	390	18×40	0.20	1,590	EKXJ221E□□391MM40S
	390	18×45	0.20	1,620	EKXJ221E□□391MM45S
	470	18×50	0.20	1,785	EKXJ221E□□471MM50S
250	22	10×16	0.20	185	EKXJ251E□□220MJ16S
	33	10×20	0.20	240	EKXJ251E□□330MJ20S
	47	10×25	0.20	315	EKXJ251E□□470MJ25S
	47	10×30	0.20	340	EKXJ251E□□470MJ30S
	56	12.5×20	0.20	430	EKXJ251E□□560MK20S
	68	10×35	0.20	430	EKXJ251E□□680MJ35S
	68	14.5×20	0.20	505	EKXJ251E□□680MU20S
	82	10×40	0.20	495	EKXJ251E□□820MJ40S
	82	10×45	0.20	515	EKXJ251E□□820MJ45S
	82	12.5×25	0.20	565	EKXJ251E□□820MK25S
	100	10×50	0.20	585	EKXJ251E□□101MJ50S
	100	12.5×30	0.20	660	EKXJ251E□□101MK30S
	100	14.5×25	0.20	665	EKXJ251E□□101MU25S
	100	16×20	0.20	635	EKXJ251E□□101ML20S
	120	12.5×35	0.20	770	EKXJ251E□□121MK35S
	120	16×25	0.20	755	EKXJ251E□□121ML25S
	120	18×20	0.20	730	EKXJ251E□□121MM20S
	150	12.5×40	0.20	890	EKXJ251E□□151MK40S
	150	12.5×45	0.20	920	EKXJ251E□□151MK45S
	150	14.5×31.5	0.20	870	EKXJ251E□□151MUN3S
	180	12.5×50	0.20	1,035	EKXJ251E□□181MK50S
	180	14.5×35.5	0.20	990	EKXJ251E□□181MUP1S
	180	14.5×40	0.20	1,020	EKXJ251E□□181MU40S
	180	16×31.5	0.20	995	EKXJ251E□□181MLN3S
	180	18×25	0.20	950	EKXJ251E□□181MM25S
	220	14.5×45	0.20	1,160	EKXJ251E□□221MU45S
	220	14.5×50	0.20	1,185	EKXJ251E□□221MU50S
	220	16×35.5	0.20	1,125	EKXJ251E□□221MLP1S
	220	18×31.5	0.20	1,135	EKXJ251E□□221MMN3S
	270	16×40	0.20	1,285	EKXJ251E□□271ML40S
	270	16×45	0.20	1,310	EKXJ251E□□271ML45S
	270	18×35.5	0.20	1,300	EKXJ251E□□271MMP1S
	330	16×50	0.20	1,475	EKXJ251E□□331ML50S
	330	18×40	0.20	1,460	EKXJ251E□□331MM40S
	330	18×45	0.20	1,485	EKXJ251E□□331MM45S
	390	18×50	0.20	1,625	EKXJ251E□□391MM50S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

KXJ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
350	12	10×16	0.24	135	EKXJ351E□□120MJ16S
	22	10×20	0.24	200	EKXJ351E□□220MJ20S
	27	10×25	0.24	240	EKXJ351E□□270MJ25S
	27	10×30	0.24	255	EKXJ351E□□270MJ30S
	33	12.5×20	0.24	330	EKXJ351E□□330MK20S
	39	10×35	0.24	325	EKXJ351E□□390MJ35S
	47	10×40	0.24	375	EKXJ351E□□470MJ40S
	47	12.5×25	0.24	425	EKXJ351E□□470MK25S
	47	14.5×20	0.24	420	EKXJ351E□□470MU20S
	56	10×45	0.24	425	EKXJ351E□□560MJ45S
	56	12.5×30	0.24	495	EKXJ351E□□560MK30S
	56	16×20	0.24	475	EKXJ351E□□560ML20S
	68	10×50	0.24	485	EKXJ351E□□680MJ50S
	68	12.5×35	0.24	580	EKXJ351E□□680MK35S
	68	14.5×25	0.24	545	EKXJ351E□□680MU25S
	68	18×20	0.24	550	EKXJ351E□□680MM20S
	82	12.5×40	0.24	655	EKXJ351E□□820MK40S
	82	14.5×31.5	0.24	645	EKXJ351E□□820MUN3S
	82	16×25	0.24	625	EKXJ351E□□820ML25S
	100	12.5×45	0.24	750	EKXJ351E□□101MK45S
	100	12.5×50	0.24	770	EKXJ351E□□101MK50S
	100	14.5×35.5	0.24	740	EKXJ351E□□101MUP1S
	100	16×31.5	0.24	740	EKXJ351E□□101MLN3S
	100	18×25	0.24	710	EKXJ351E□□101MM25S
	120	14.5×40	0.24	835	EKXJ351E□□121MU40S
	120	14.5×45	0.24	860	EKXJ351E□□121MU45S
	120	16×35.5	0.24	830	EKXJ351E□□121MLP1S
	150	14.5×50	0.24	980	EKXJ351E□□151MU50S
	150	16×40	0.24	960	EKXJ351E□□151ML40S
	150	16×45	0.24	975	EKXJ351E□□151ML45S
	150	18×31.5	0.24	940	EKXJ351E□□151MMN3S
	180	16×50	0.24	1,090	EKXJ351E□□181ML50S
	180	18×35.5	0.24	1,065	EKXJ351E□□181MMP1S
	180	18×40	0.24	1,080	EKXJ351E□□181MM40S
	220	18×45	0.24	1,210	EKXJ351E□□221MM45S
	220	18×50	0.24	1,220	EKXJ351E□□221MM50S
400	10	10×16	0.24	125	EKXJ401E□□100MJ16S
	18	10×20	0.24	180	EKXJ401E□□180MJ20S
	22	10×25	0.24	215	EKXJ401E□□220MJ25S
	27	10×30	0.24	255	EKXJ401E□□270MJ30S
	27	12.5×20	0.24	300	EKXJ401E□□270MK20S
	33	10×35	0.24	300	EKXJ401E□□330MJ35S
	39	10×40	0.24	340	EKXJ401E□□390MJ40S
	39	10×45	0.24	355	EKXJ401E□□390MJ45S
	39	12.5×25	0.24	390	EKXJ401E□□390MK25S
	39	14.5×20	0.24	385	EKXJ401E□□390MU20S
	47	12.5×30	0.24	455	EKXJ401E□□470MK30S
	47	16×20	0.24	435	EKXJ401E□□470ML20S
	56	10×50	0.24	440	EKXJ401E□□560MJ50S
	56	12.5×35	0.24	525	EKXJ401E□□560MK35S
	56	14.5×25	0.24	495	EKXJ401E□□560MU25S
	56	18×20	0.24	500	EKXJ401E□□560MM20S
	68	12.5×40	0.24	600	EKXJ401E□□680MK40S
	68	14.5×31.5	0.24	585	EKXJ401E□□680MUN3S
	68	16×25	0.24	570	EKXJ401E□□680ML25S
	82	12.5×45	0.24	680	EKXJ401E□□820MK45S
	82	12.5×50	0.24	700	EKXJ401E□□820MK50S
	82	14.5×35.5	0.24	670	EKXJ401E□□820MUP1S
	82	16×31.5	0.24	670	EKXJ401E□□820MLN3S
	82	18×25	0.24	640	EKXJ401E□□820MM25S
	100	14.5×40	0.24	760	EKXJ401E□□101MU40S
	100	14.5×45	0.24	785	EKXJ401E□□101MU45S
	100	16×35.5	0.24	760	EKXJ401E□□101MLP1S
	120	14.5×50	0.24	875	EKXJ401E□□121MU50S
	120	16×40	0.24	860	EKXJ401E□□121ML40S
	120	16×45	0.24	875	EKXJ401E□□121ML45S
	120	18×31.5	0.24	840	EKXJ401E□□121MMN3S
	120	18×35.5	0.24	870	EKXJ401E□□121MMP1S
	150	16×50	0.24	995	EKXJ401E□□151ML50S
	150	18×40	0.24	985	EKXJ401E□□151MM40S
	180	18×45	0.24	1,095	EKXJ401E□□181MM45S
	220	18×50	0.24	1,220	EKXJ401E□□221MM50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
420	6.8	10×16	0.24	105	EKXJ421E□□6R8MJ16S
	12	10×20	0.24	150	EKXJ421E□□120MJ20S
	15	10×25	0.24	185	EKXJ421E□□150MJ25S
	18	10×30	0.24	215	EKXJ421E□□180MJ30S
	22	12.5×20	0.24	285	EKXJ421E□□220MK20S
	27	10×35	0.24	275	EKXJ421E□□270MJ35S
	27	10×40	0.24	290	EKXJ421E□□270MJ40S
	27	12.5×25	0.24	340	EKXJ421E□□270MK25S
	27	14.5×20	0.24	335	EKXJ421E□□270MU20S
	33	10×45	0.24	335	EKXJ421E□□330MJ45S
	33	12.5×30	0.24	400	EKXJ421E□□330MK30S
	33	16×20	0.24	385	EKXJ421E□□330ML20S
	39	10×50	0.24	375	EKXJ421E□□390MJ50S
	39	14.5×25	0.24	435	EKXJ421E□□390MU25S
	47	12.5×35	0.24	505	EKXJ421E□□470MK35S
	47	16×25	0.24	500	EKXJ421E□□470ML25S
	47	18×20	0.24	480	EKXJ421E□□470MM20S
	56	12.5×40	0.24	570	EKXJ421E□□560MK40S
	56	12.5×45	0.24	590	EKXJ421E□□560MK45S
	56	14.5×31.5	0.24	560	EKXJ421E□□560MUN3S
	68	12.5×50	0.24	670	EKXJ421E□□680MK50S
	68	14.5×35.5	0.24	640	EKXJ421E□□680MUP1S
	68	14.5×40	0.24	660	EKXJ421E□□680MU40S
	68	16×31.5	0.24	645	EKXJ421E□□680MLN3S
	68	18×25	0.24	615	EKXJ421E□□680MM25S
	82	14.5×45	0.24	750	EKXJ421E□□820MU45S
	82	16×35.5	0.24	725	EKXJ421E□□820MLP1S
	82	18×31.5	0.24	730	EKXJ421E□□820MMN3S
	100	14.5×50	0.24	845	EKXJ421E□□101MU50S
	100	16×40	0.24	825	EKXJ421E□□101ML40S
	100	16×45	0.24	840	EKXJ421E□□101ML45S
	100	18×35.5	0.24	835	EKXJ421E□□101MMP1S
	120	16×50	0.24	935	EKXJ421E□□121ML50S
	120	18×40	0.24	930	EKXJ421E□□121MM40S
	120	18×45	0.24	945	EKXJ421E□□121MM45S
	150	18×50	0.24	1,060	EKXJ421E□□151MM50S
450	6.8	10×16	0.24	105	EKXJ451E□□6R8MJ16S
	12	10×20	0.24	150	EKXJ451E□□120MJ20S
	15	10×25	0.24	185	EKXJ451E□□150MJ25S
	18	10×30	0.24	215	EKXJ451E□□180MJ30S
	18	12.5×20	0.24	255	EKXJ451E□□180MK20S
	22	10×35	0.24	250	EKXJ451E□□220MJ35S
	27	10×40	0.24	290	EKXJ451E□□270MJ40S
	27	10×45	0.24	305	EKXJ451E□□270MJ45S
	27	12.5×25	0.24	340	EKXJ451E□□270MK25S
	27	14.5×20	0.24	335	EKXJ451E□□270MU20S
	33	12.5×30	0.24	400	EKXJ451E□□330MK30S
	33	14.5×25	0.24	400	EKXJ451E□□330MU25S
	33	16×20	0.24	385	EKXJ451E□□330ML20S
	39	10×50	0.24	375	EKXJ451E□□390MJ50S
	39	12.5×35	0.24	460	EKXJ451E□□390MK35S
	39	18×20	0.24	440	EKXJ451E□□390MM20S
	47	12.5×40	0.24	525	EKXJ451E□□470MK40S
	47	14.5×31.5	0.24	515	EKXJ451E□□470MUN3S
	47	16×25	0.24	500	EKXJ451E□□470ML25S
	56	12.5×45	0.24	590	EKXJ451E□□560MK45S
	56	14.5×35.5	0.24	580	EKXJ451E□□560MUP1S
	56	16×31.5	0.24	585	EKXJ451E□□560MLN3S
	56	18×25	0.24	560	EKXJ451E□□560MM25S
	68	12.5×50	0.24	670	EKXJ451E□□680MK50S
	68	14.5×40	0.24	660	EKXJ451E□□680MU40S
	68	14.5×45	0.24	680	EKXJ451E□□680MU45S
	68	16×35.5	0.24	660	EKXJ451E□□680MLP1S
	82	14.5×50	0.24	765	EKXJ451E□□820MU50S
	82	16×40	0.24	750	EKXJ451E□□820ML40S
	82	16×45	0.24	760	EKXJ451E□□820ML45S
	82	18×31.5	0.24	730	EKXJ451E□□820MMN3S
	100	16×50	0.24	855	EKXJ451E□□101ML50S
	100	18×35.5	0.24	835	EKXJ451E□□101MMP1S
	120	18×40	0.24	930	EKXJ451E□□121MM40S
	120	18×45	0.24	945	EKXJ451E□□121MM45S
	150	18×50	0.24	1,060	EKXJ451E□□151MM50S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

KXG Series

- For electronic ballast circuits and other long life applications
- Endurance with ripple current : 8,000 to 10,000hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

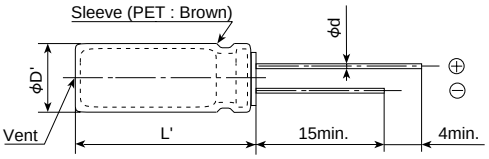
KXJ → Downsized → KXG

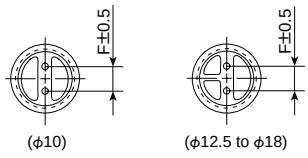
◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	−40 to +105℃ (160 to 400Vdc) −25 to+105℃ (450Vdc)				
Rated Voltage Range	160 to 450Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current		After 1 minute	After 5 minutes		
	CV≦1,000	I=0.1CV+40	I=0.03CV+15		
	CV>1,000	I=0.04CV+100	I=0.02CV+25		
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 250V	350 to 450V		
	tanδ (Max.)	0.20	0.24		(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	350 & 400V	450V	
	Z(−25℃)/Z(+20℃)	3	5	6	
	Z(−40℃)/Z(+20℃)	6	6	—	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 10,000 hours (8,000 hours for φ10) at 105℃.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦500% of the initial specified value			

◆DIMENSIONS [mm]

- Terminal Code : E

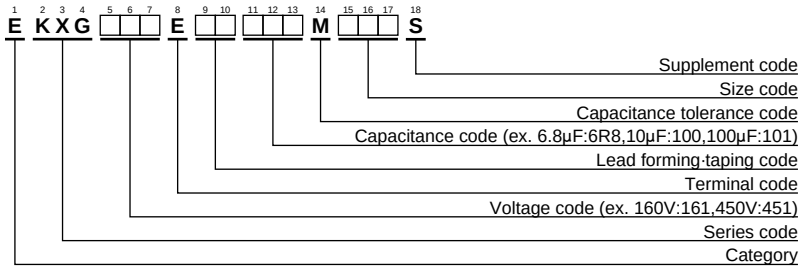




Gas escape end seal

φD	10	12.5	16	18
φd	0.6	0.6	0.8	0.8
F	5.0	5.0	7.5	7.5
φD'	φD+0.5max.			
L'	L+1.5max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
6.8 to 82	1.00	1.75	2.25	2.50
100 to 330	1.00	1.67	2.05	2.25

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

160 to 450Vdc long life, 105℃

KXG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	Rated ripple current(mArms/105℃)		Part No.
				120Hz	100kHz	
160	10	10×16	0.20	125	315	EKXG161E□□100MJ16S
	22	10×20	0.20	200	500	EKXG161E□□220MJ20S
	33	10×20	0.20	250	625	EKXG161E□□330MJ20S
	47	10×20	0.20	300	750	EKXG161E□□470MJ20S
	68	12.5×20	0.20	470	1,175	EKXG161E□□680MK20S
	82	12.5×20	0.20	510	1,275	EKXG161E□□820MK20S
	100	12.5×25	0.20	620	1,395	EKXG161E□□101MK25S
	100	16×20	0.20	630	1,420	EKXG161E□□101ML20S
	150	16×20	0.20	770	1,735	EKXG161E□□151ML20S
	220	16×25	0.20	1,020	2,295	EKXG161E□□221ML25S
	330	18×31.5	0.20	1,390	3,130	EKXG161E□□331MMN3S
200	10	10×16	0.20	125	315	EKXG201E□□100MJ16S
	22	10×20	0.20	200	500	EKXG201E□□220MJ20S
	33	10×20	0.20	260	650	EKXG201E□□330MJ20S
	47	12.5×20	0.20	390	975	EKXG201E□□470MK20S
	68	12.5×20	0.20	470	1,175	EKXG201E□□680MK20S
	82	16×20	0.20	550	1,375	EKXG201E□□820ML20S
	100	16×20	0.20	630	1,420	EKXG201E□□101ML20S
	150	16×25	0.20	840	1,890	EKXG201E□□151ML25S
	220	18×25	0.20	1,050	2,365	EKXG201E□□221MM25S
	330	18×35.5	0.20	1,430	3,220	EKXG201E□□331MMP1S
250	10	10×20	0.20	140	350	EKXG251E□□100MJ20S
	22	10×20	0.20	200	500	EKXG251E□□220MJ20S
	33	12.5×20	0.20	320	800	EKXG251E□□330MK20S
	47	12.5×20	0.20	390	975	EKXG251E□□470MK20S
	68	16×20	0.20	520	1,300	EKXG251E□□680ML20S
	82	16×20	0.20	550	1,375	EKXG251E□□820ML20S
	100	16×25	0.20	680	1,530	EKXG251E□□101ML25S
	150	18×25	0.20	860	1,935	EKXG251E□□151MM25S
	220	18×31.5	0.20	1,130	2,545	EKXG251E□□221MMN3S
350	6.8	10×16	0.24	110	275	EKXG351E□□6R8MJ16S
	10	10×20	0.24	140	350	EKXG351E□□100MJ20S
	22	12.5×20	0.24	260	650	EKXG351E□□220MK20S
	33	16×20	0.24	360	900	EKXG351E□□330ML20S
	47	16×20	0.24	430	1,075	EKXG351E□□470ML20S
	68	16×25	0.24	560	1,400	EKXG351E□□680ML25S
	68	18×20	0.24	550	1,375	EKXG351E□□680MM20S
	82	18×25	0.24	610	1,525	EKXG351E□□820MM25S
	100	18×25	0.24	700	1,575	EKXG351E□□101MM25S
	120	18×31.5	0.24	830	1,865	EKXG351E□□121MMN3S
	150	18×35.5	0.24	960	2,160	EKXG351E□□151MMP1S
400	6.8	10×16	0.24	110	275	EKXG401E□□6R8MJ16S
	10	10×20	0.24	140	350	EKXG401E□□100MJ20S
	15	12.5×20	0.24	220	550	EKXG401E□□150MK20S
	22	12.5×20	0.24	260	650	EKXG401E□□220MK20S
	33	16×20	0.24	360	900	EKXG401E□□330ML20S
	47	16×25	0.24	470	1,175	EKXG401E□□470ML25S
	47	18×20	0.24	450	1,125	EKXG401E□□470MM20S
	68	18×25	0.24	585	1,465	EKXG401E□□680MM25S
	82	18×25	0.24	610	1,525	EKXG401E□□820MM25S
	100	18×31.5	0.24	765	1,720	EKXG401E□□101MMN3S
	120	18×35.5	0.24	865	1,945	EKXG401E□□121MMP1S
	150	18×40	0.24	985	2,215	EKXG401E□□151MM40S
450	6.8	10×20	0.24	110	275	EKXG451E□□6R8MJ20S
	10	12.5×20	0.24	180	450	EKXG451E□□100MK20S
	15	12.5×25	0.24	240	600	EKXG451E□□150MK25S
	22	16×20	0.24	290	725	EKXG451E□□220ML20S
	33	16×25	0.24	390	975	EKXG451E□□330ML25S
	33	18×20	0.24	380	950	EKXG451E□□330MM20S
	47	18×25	0.24	480	1,200	EKXG451E□□470MM25S
	68	18×31.5	0.24	630	1,575	EKXG451E□□680MMN3S
	82	18×35.5	0.24	715	1,785	EKXG451E□□820MMP1S
	100	18×40	0.24	800	1,800	EKXG451E□□101MM40S

□□ : Enter the appropriate lead forming or taping code.

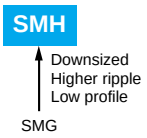
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

ϕ20 & 22 radial lead, 85℃

SMH Series

- Downsized from current standard SMG series
- Endurance with ripple current : 2,000 hours at 85℃
- For power supply input filtering
- Non solvent resistant type
- **RoHS Compliant**

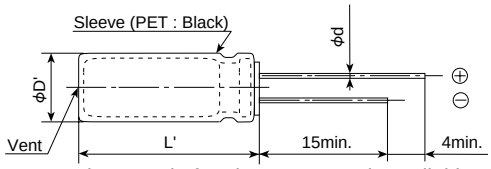


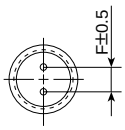
◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−25 to +85℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I=0.03CV or 3 mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.15max.			(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	400 & 450V	
	Z(−25℃)/Z(+20℃)	4	6	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 85℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦500% of the initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : E

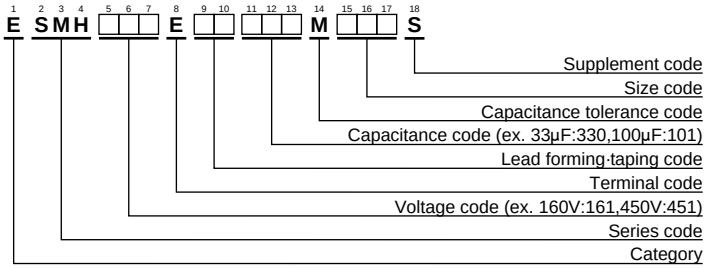




ϕD	20	22
ϕd	1.0	
F	10.0	
ϕD'	ϕD+0.5max.	
L'	L+2.0max.	

*Note : The snap-in forming type "RC" is available upon request, the RC type fits two ϕ2mm holes with 10.5mm spacing.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

φ20 & 22 radial lead, 85℃

SMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
160	180	20×20	0.15	900	ESMH161E□□181MN20S
	180	22×20	0.15	950	ESMH161E□□181MP20S
	220	20×25	0.15	1,070	ESMH161E□□221MN25S
	220	22×25	0.15	1,160	ESMH161E□□221MP25S
	270	20×30	0.15	1,290	ESMH161E□□271MN30S
	270	22×25	0.15	1,290	ESMH161E□□271MP25S
	330	20×30	0.15	1,430	ESMH161E□□331MN30S
	330	22×30	0.15	1,530	ESMH161E□□331MP30S
	390	20×30	0.15	1,550	ESMH161E□□391MN30S
	390	22×30	0.15	1,670	ESMH161E□□391MP30S
	470	20×35	0.15	1,780	ESMH161E□□471MN35S
	470	22×30	0.15	1,830	ESMH161E□□471MP30S
200	150	20×20	0.15	820	ESMH201E□□151MN20S
	150	22×20	0.15	870	ESMH201E□□151MP20S
	180	20×25	0.15	970	ESMH201E□□181MN25S
	180	22×25	0.15	1,050	ESMH201E□□181MP25S
	220	20×25	0.15	1,070	ESMH201E□□221MN25S
	220	22×25	0.15	1,160	ESMH201E□□221MP25S
	270	20×30	0.15	1,290	ESMH201E□□271MN30S
	270	22×30	0.15	1,390	ESMH201E□□271MP30S
	330	20×35	0.15	1,490	ESMH201E□□331MN35S
	330	22×30	0.15	1,530	ESMH201E□□331MP30S
	390	20×35	0.15	1,620	ESMH201E□□391MN35S
	390	22×30	0.15	1,670	ESMH201E□□391MP30S
	470	20×40	0.15	1,900	ESMH201E□□471MN40S
	470	22×35	0.15	1,920	ESMH201E□□471MP35S
250	100	20×20	0.15	670	ESMH251E□□101MN20S
	120	20×25	0.15	850	ESMH251E□□121MN25S
	120	22×20	0.15	830	ESMH251E□□121MP20S
	150	20×25	0.15	940	ESMH251E□□151MN25S
	150	22×25	0.15	1,030	ESMH251E□□151MP25S
	180	20×30	0.15	1,120	ESMH251E□□181MN30S
	180	22×25	0.15	1,120	ESMH251E□□181MP25S
	220	20×30	0.15	1,240	ESMH251E□□221MN30S
	220	22×30	0.15	1,330	ESMH251E□□221MP30S
	270	20×35	0.15	1,440	ESMH251E□□271MN35S
	270	22×30	0.15	1,470	ESMH251E□□271MP30S
	330	20×40	0.15	1,700	ESMH251E□□331MN40S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
250	330	22×35	0.15	1,710	ESMH251E□□331MP35S
	390	20×45	0.15	1,930	ESMH251E□□391MN45S
	390	22×40	0.15	2,000	ESMH251E□□391MP40S
	470	20×50	0.15	2,190	ESMH251E□□471MN50S
	470	22×45	0.15	2,290	ESMH251E□□471MP45S
400	47	20×20	0.15	480	ESMH401E□□470MN20S
	56	20×25	0.15	570	ESMH401E□□560MN25S
	56	22×25	0.15	620	ESMH401E□□560MP25S
	68	20×25	0.15	640	ESMH401E□□680MN25S
	68	22×25	0.15	690	ESMH401E□□680MP25S
	82	20×30	0.15	750	ESMH401E□□820MN30S
	82	22×25	0.15	780	ESMH401E□□820MP25S
	100	20×35	0.15	870	ESMH401E□□101MN35S
	100	22×30	0.15	900	ESMH401E□□101MP30S
	120	20×40	0.15	1,020	ESMH401E□□121MN40S
	120	22×35	0.15	1,030	ESMH401E□□121MP35S
	150	20×45	0.15	1,200	ESMH401E□□151MN45S
	150	22×40	0.15	1,240	ESMH401E□□151MP40S
	180	20×50	0.15	1,360	ESMH401E□□181MN50S
	180	22×45	0.15	1,410	ESMH401E□□181MP45S
	220	22×50	0.15	1,590	ESMH401E□□221MP50S
450	33	20×20	0.15	400	ESMH451E□□330MN20S
	47	20×25	0.15	520	ESMH451E□□470MN25S
	47	22×25	0.15	570	ESMH451E□□470MP25S
	56	20×30	0.15	620	ESMH451E□□560MN30S
	56	22×25	0.15	650	ESMH451E□□560MP25S
	68	20×35	0.15	720	ESMH451E□□680MN35S
	68	22×30	0.15	690	ESMH451E□□680MP30S
	82	20×35	0.15	790	ESMH451E□□820MN35S
	82	22×30	0.15	800	ESMH451E□□820MP30S
	100	20×40	0.15	920	ESMH451E□□101MN40S
	100	22×35	0.15	940	ESMH451E□□101MP35S
	120	20×45	0.15	1,070	ESMH451E□□121MN45S
	120	22×40	0.15	1,110	ESMH451E□□121MP40S
	150	20×50	0.15	1,240	ESMH451E□□151MN50S
	150	22×45	0.15	1,290	ESMH451E□□151MP45S
	180	22×50	0.15	1,440	ESMH451E□□181MP50S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
400 & 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

ϕ20 & 22 radial lead, 105℃

KMH Series

- ●Radial lead type ranging from ϕ20×20 to ϕ22×50mm
- ●For power supply input filtering
- ●Endurance with ripple current : 2,000 hours at 105℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

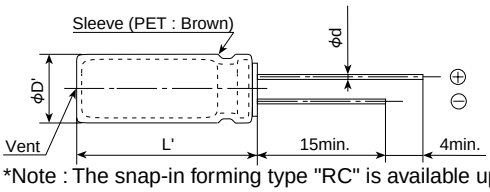
KMH
↑ Downsized, Higher ripple
KMG

◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I=0.03CV or 3 mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.15max.			(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	400 & 450V	
	Z(−25℃)/Z(+20℃)	4	6	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦500% of the initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : E



ϕD	20	22
ϕd	1.0	
F	10.0	
ϕD'	ϕD+0.5max.	
L'	L+2.0max.	

*Note : The snap-in forming type "RC" is available upon request, the RC type fits two ϕ2mm holes with 10.5mm spacing.

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	M	H				E						M				S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 33μF:330,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 160V:161,250V:251,450V:451)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

φ20 & 22 radial lead, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
160	150	20×20	0.15	580	EKMH161E□□151MN20S
	180	20×25	0.15	690	EKMH161E□□181MN25S
	180	22×20	0.15	680	EKMH161E□□181MP20S
	220	20×25	0.15	760	EKMH161E□□221MN25S
	220	22×25	0.15	820	EKMH161E□□221MP25S
	270	20×30	0.15	910	EKMH161E□□271MN30S
	270	22×25	0.15	910	EKMH161E□□271MP25S
	330	20×30	0.15	1,010	EKMH161E□□331MN30S
	330	22×30	0.15	1,160	EKMH161E□□331MP30S
	390	20×35	0.15	1,150	EKMH161E□□391MN35S
	390	22×30	0.15	1,270	EKMH161E□□391MP30S
	470	20×40	0.15	1,340	EKMH161E□□471MN40S
	470	22×35	0.15	1,400	EKMH161E□□471MP35S
200	120	20×20	0.15	520	EKMH201E□□121MN20S
	150	20×25	0.15	630	EKMH201E□□151MN25S
	150	22×20	0.15	620	EKMH201E□□151MP20S
	180	20×25	0.15	690	EKMH201E□□181MN25S
	180	22×25	0.15	750	EKMH201E□□181MP25S
	220	20×30	0.15	820	EKMH201E□□221MN30S
	220	22×25	0.15	820	EKMH201E□□221MP25S
	270	20×30	0.15	910	EKMH201E□□271MN30S
	270	22×30	0.15	980	EKMH201E□□271MP30S
	330	20×35	0.15	1,050	EKMH201E□□331MN35S
	330	22×35	0.15	1,200	EKMH201E□□331MP35S
	390	20×40	0.15	1,220	EKMH201E□□391MN40S
	390	22×35	0.15	1,310	EKMH201E□□391MP35S
	470	20×45	0.15	1,340	EKMH201E□□471MN45S
	470	22×40	0.15	1,450	EKMH201E□□471MP40S
250	82	20×20	0.15	460	EKMH251E□□820MN20S
	120	20×25	0.15	600	EKMH251E□□121MN25S
	120	22×20	0.15	590	EKMH251E□□121MP20S
	180	20×30	0.15	790	EKMH251E□□181MN30S
	180	22×25	0.15	790	EKMH251E□□181MP25S
	220	20×35	0.15	920	EKMH251E□□221MN35S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
250	220	22×30	0.15	950	EKMH251E□□221MP30S
	270	20×40	0.15	1,090	EKMH251E□□271MN40S
	270	22×35	0.15	1,140	EKMH251E□□271MP35S
	330	20×45	0.15	1,260	EKMH251E□□331MN45S
	330	22×40	0.15	1,300	EKMH251E□□331MP40S
	390	20×50	0.15	1,410	EKMH251E□□391MN50S
	390	22×45	0.15	1,490	EKMH251E□□391MP45S
	470	22×50	0.15	1,650	EKMH251E□□471MP50S
400	33	20×20	0.15	290	EKMH401E□□330MN20S
	47	22×20	0.15	370	EKMH401E□□470MP20S
	56	20×25	0.15	410	EKMH401E□□560MN25S
	68	20×30	0.15	490	EKMH401E□□680MN30S
	68	22×25	0.15	510	EKMH401E□□680MP25S
	100	20×35	0.15	620	EKMH401E□□101MN35S
	100	22×30	0.15	640	EKMH401E□□101MP30S
	120	20×40	0.15	720	EKMH401E□□121MN40S
	120	22×35	0.15	730	EKMH401E□□121MP35S
	150	20×45	0.15	850	EKMH401E□□151MN45S
	150	22×40	0.15	880	EKMH401E□□151MP40S
	180	20×50	0.15	960	EKMH401E□□181MN50S
	180	22×45	0.15	990	EKMH401E□□181MP45S
	220	22×50	0.15	1,130	EKMH401E□□221MP50S
450	33	20×25	0.15	310	EKMH451E□□330MN25S
	47	22×25	0.15	420	EKMH451E□□470MP25S
	56	20×30	0.15	440	EKMH451E□□560MN30S
	68	20×35	0.15	510	EKMH451E□□680MN35S
	68	22×30	0.15	520	EKMH451E□□680MP30S
	82	20×40	0.15	600	EKMH451E□□820MN40S
	82	22×35	0.15	600	EKMH451E□□820MP35S
	100	20×45	0.15	690	EKMH451E□□101MN45S
	100	22×40	0.15	710	EKMH451E□□101MP40S
	120	20×50	0.15	780	EKMH451E□□121MN50S
	120	22×45	0.15	810	EKMH451E□□121MP45S
	150	22×50	0.15	930	EKMH451E□□151MP50S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
400 & 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

200 to 450Vdc, Downsized, 105℃

PAG Series

- ●Downsize, high ripple design (ϕ10 to 18)
- ●Rated voltage range : 200 to 450Vdc., Capacitance range : 18 to 560μF
- ●Endurance with ripple current : 2,000 hours at 105℃
- ●Ideal for low profile power supply applications
- ●Non solvent resistant type
- ●**RoHS Compliant**

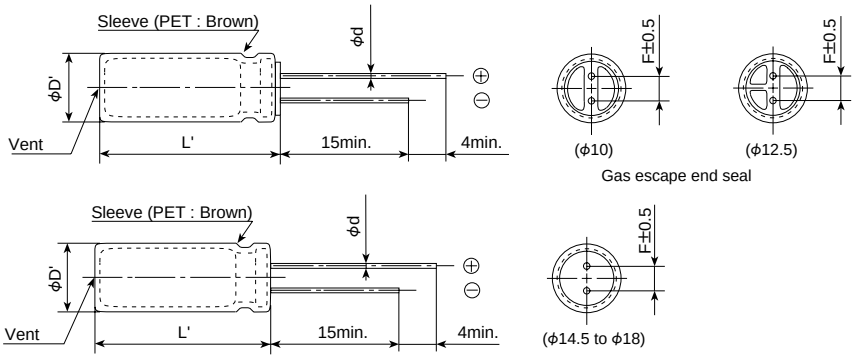
PAG
↑ Downsized
Higher ripple
KMG

◆SPECIFICATIONS

Items	Characteristics					
Category Temperature Range	−40 to +105℃ (200, 400Vdc) −25 to+105℃ (420, 450Vdc)					
Rated Voltage Range	200 to 450Vdc					
Capacitance Tolerance	±20% (M)					(at 20℃, 120Hz)
Leakage Current		After 1 minute	After 5 minutes			
	CV≦1,000	I=0.1CV+40	I=0.03CV+15			
	CV>1,000	I=0.04CV+100	I=0.02CV+25			
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)					(at 20℃)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	200V	400V	420V	450V	
	tanδ (Max.)	0.12	0.15	0.20	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	200V	400V	420V	450V	
	Z(−25℃)/Z(+20℃)	3	5	6	6	
	Z(−40℃)/Z(+20℃)	6	6	—	—	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃.					
	Capacitance change	≦±20% of the initial value				
	D.F. (tanδ)	≦200% of the initial specified value				
	Leakage current	≦The initial specified value				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.					
	Capacitance change	≦±20% of the initial value				
	D.F. (tanδ)	≦200% of the initial specified value				
	Leakage current	≦500% of the initial specified value				

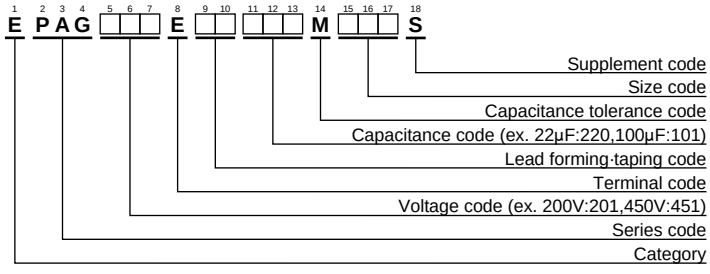
◆DIMENSIONS [mm]

●Terminal Code : E



ϕD	10	12.5	14.5	16	18
ϕd	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0	7.5	7.5	7.5
ϕD'	ϕD+0.5 max.				
L'	L+2.0 max.				

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

200 to 450Vdc, Downsized, 105℃

PAG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
200	82	10×30	0.12	440	EPAG201E□□820MJ30S
	100	10×35	0.12	510	EPAG201E□□101MJ35S
	120	10×40	0.12	590	EPAG201E□□121MJ40S
	150	12.5×30	0.12	650	EPAG201E□□151MK30S
	180	12.5×35	0.12	750	EPAG201E□□181MK35S
	220	12.5×40	0.12	830	EPAG201E□□221MK40S
	220	14.5×30	0.12	830	EPAG201E□□221MU30S
	270	14.5×35	0.12	960	EPAG201E□□271MU35S
	270	16×30	0.12	960	EPAG201E□□271ML30S
	330	16×35	0.12	1,100	EPAG201E□□331ML35S
	330	18×30	0.12	1,100	EPAG201E□□331MM30S
	390	16×40	0.12	1,240	EPAG201E□□391ML40S
	390	18×35	0.12	1,240	EPAG201E□□391MM35S
	470	18×40	0.12	1,390	EPAG201E□□471MM40S
	560	18×45	0.12	1,560	EPAG201E□□561MM45S
400	27	10×30	0.15	260	EPAG401E□□270MJ30S
	33	10×35	0.15	300	EPAG401E□□330MJ35S
	39	10×40	0.15	340	EPAG401E□□390MJ40S
	47	12.5×30	0.15	370	EPAG401E□□470MK30S
	56	12.5×35	0.15	420	EPAG401E□□560MK35S
	68	12.5×40	0.15	480	EPAG401E□□680MK40S
	68	14.5×30	0.15	480	EPAG401E□□680MU30S
	82	14.5×35	0.15	530	EPAG401E□□820MU35S
	100	14.5×40	0.15	580	EPAG401E□□101MU40S
	100	16×30	0.15	580	EPAG401E□□101ML30S
	120	16×35	0.15	670	EPAG401E□□121ML35S
	120	18×30	0.15	670	EPAG401E□□121MM30S
	150	16×40	0.15	770	EPAG401E□□151ML40S
	150	18×35	0.15	770	EPAG401E□□151MM35S
	180	18×40	0.15	880	EPAG401E□□181MM40S
	220	18×45	0.15	1,000	EPAG401E□□221MM45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
420	22	10×30	0.20	230	EPAG421E□□220MJ30S
	27	10×35	0.20	270	EPAG421E□□270MJ35S
	33	10×40	0.20	310	EPAG421E□□330MJ40S
	39	12.5×30	0.20	330	EPAG421E□□390MK30S
	47	12.5×35	0.20	390	EPAG421E□□470MK35S
	56	12.5×40	0.20	430	EPAG421E□□560MK40S
	56	14.5×30	0.20	430	EPAG421E□□560MU30S
	68	14.5×35	0.20	510	EPAG421E□□680MU35S
	68	16×30	0.20	510	EPAG421E□□680ML30S
	82	14.5×40	0.20	570	EPAG421E□□820MU40S
	82	16×35	0.20	570	EPAG421E□□820ML35S
	100	16×40	0.20	610	EPAG421E□□101ML40S
	100	18×30	0.20	610	EPAG421E□□101MM30S
	120	18×35	0.20	690	EPAG421E□□121MM35S
	150	18×40	0.20	790	EPAG421E□□151MM40S
450	18	10×30	0.20	210	EPAG451E□□180MJ30S
	22	10×35	0.20	240	EPAG451E□□220MJ35S
	27	10×40	0.20	280	EPAG451E□□270MJ40S
	33	12.5×30	0.20	310	EPAG451E□□330MK30S
	39	12.5×35	0.20	350	EPAG451E□□390MK35S
	47	12.5×40	0.20	390	EPAG451E□□470MK40S
	47	14.5×30	0.20	390	EPAG451E□□470MU30S
	56	14.5×35	0.20	440	EPAG451E□□560MU35S
	56	16×30	0.20	440	EPAG451E□□560ML30S
	68	14.5×40	0.20	500	EPAG451E□□680MU40S
	68	16×35	0.20	500	EPAG451E□□680ML35S
	82	16×40	0.20	550	EPAG451E□□820ML40S
	82	18×30	0.20	550	EPAG451E□□820MM30S
	100	18×35	0.20	650	EPAG451E□□101MM35S
	120	18×40	0.20	740	EPAG451E□□121MM40S
	150	18×45	0.20	810	EPAG451E□□151MM45S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
18 to 82	1.00	1.50	1.75	1.80
100 to 560	1.00	1.30	1.40	1.50

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

KLJ Series

- Doesn't spark with DC over voltage
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- ESR value prescribed
- **RoHS Compliant**

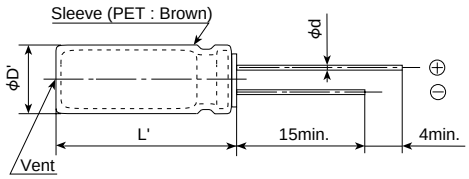
KLJ
↑ Downsized
KLG

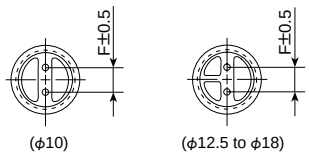
◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	200 & 400Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I=0.04CV+100 Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	200V	400V	
	tanδ (Max.)	0.20	0.24	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	200V	400V	
	Z(−25℃)/Z(+20℃)	4	6	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦500% of the initial specified value		

◆DIMENSIONS [mm]

- Terminal Code : E

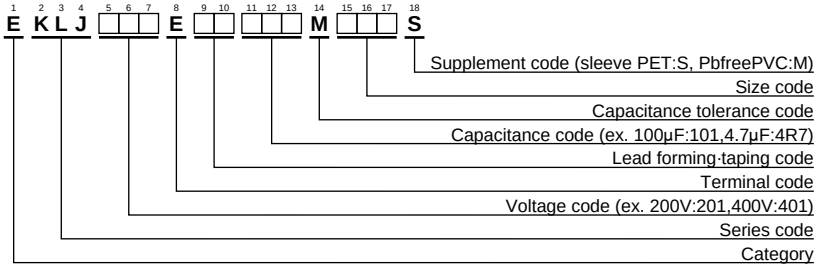




Gas escape end seal

φD	10	12.5	16	18
φd	0.6	0.6	0.8	0.8
F	5.0	5.0	7.5	7.5
φD'	φD+0.5max.			
L'	L+1.5max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

KLJ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φDXL(mm)	tanδ	ESR (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 120Hz)	Part No.
200	33	10×20	0.20	1.8	165	EKLJ201E□□330MJ20S
	39	10×25	0.20	1.4	200	EKLJ201E□□390MJ25S
	56	12.5×20	0.20	1.0	265	EKLJ201E□□560MK20S
	82	12.5×25	0.20	0.72	350	EKLJ201E□□820MK25S
	100	16×20	0.20	0.63	390	EKLJ201E□□101ML20S
	120	16×25	0.20	0.44	465	EKLJ201E□□121ML25S
	150	18×20	0.20	0.31	505	EKLJ201E□□151MM20S
	180	16×31.5	0.20	0.36	615	EKLJ201E□□181MLN3S
	180	18×25	0.20	0.30	585	EKLJ201E□□181MM25S
	220	16×35.5	0.20	0.30	695	EKLJ201E□□221MLP1S
	220	18×31.5	0.20	0.28	700	EKLJ201E□□221MMN3S
	270	18×35.5	0.20	0.24	805	EKLJ201E□□271MMP1S
	330	18×40	0.20	0.21	900	EKLJ201E□□331MM40S
400	4.7	10×12.5	0.24	8.4	36	EKLJ401E□□4R7MJC5S
	10	10×16	0.24	5.7	64	EKLJ401E□□100MJ16S
	15	10×20	0.24	4.0	105	EKLJ401E□□150MJ20S
	18	10×25	0.24	3.2	110	EKLJ401E□□180MJ25S
	22	12.5×20	0.24	2.7	165	EKLJ401E□□220MK20S
	27	12.5×25	0.24	1.9	200	EKLJ401E□□270MK25S
	33	16×20	0.24	1.5	225	EKLJ401E□□330ML20S
	39	18×20	0.24	1.2	255	EKLJ401E□□390MM20S
	39	18×25	0.24	0.72	270	EKLJ401E□□390MM25S
	47	16×25	0.24	1.1	290	EKLJ401E□□470ML25S
	47	18×20	0.24	1.2	280	EKLJ401E□□470MM20S
	56	16×31.5	0.24	0.84	340	EKLJ401E□□560MLN3S
	68	16×35.5	0.24	0.72	385	EKLJ401E□□680MLP1S
	68	18×25	0.24	0.88	360	EKLJ401E□□680MM25S
	82	16×40	0.24	0.65	435	EKLJ401E□□820ML40S
	82	18×31.5	0.24	0.64	425	EKLJ401E□□820MMN3S
	100	18×35.5	0.24	0.54	490	EKLJ401E□□101MMP1S
	120	18×40	0.24	0.49	540	EKLJ401E□□121MM40S

□□ : Enter the appropriate lead forming or taping code.
Sleeve PET : suffix is S, PbfreePVC : suffix is M

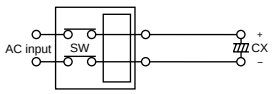
◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following excess DC voltage is applied.

●Test DC voltage

Rated voltage	Current limit	Test DC voltage
200Vdc	4A	300/375Vdc
400Vdc	2A	500/600Vdc

●Test circuit



Constant DC voltage/current power supply

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k	100k
4.7 to 10μF	0.65	1.00	1.35	1.75	2.30	2.50	2.70
15 to 47μF	0.75	1.00	1.25	1.50	1.75	1.80	1.85
56 to 330μF	0.80	1.00	1.15	1.30	1.40	1.50	1.60

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

KLG Series

KLJ → Downsized → KLG

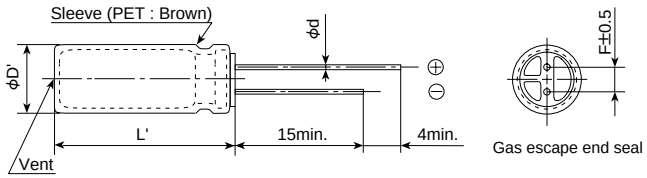
- Doesn't spark with DC over voltage
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +105℃
Rated Voltage Range	200 & 400Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.04CV+100 Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc) 200V 400V tanδ (Max.) 0.20 0.24 (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc) 200V 400V Z(−25℃)/Z(+20℃) 4 6 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃. Capacitance change ≦±20% of the initial value D.F. (tanδ) ≦200% of the initial specified value Leakage current ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change ≦±20% of the initial value D.F. (tanδ) ≦200% of the initial specified value Leakage current ≦500% of the initial specified value

◆DIMENSIONS [mm]

- Terminal Code : E



ϕD	16	18
ϕd	0.8	
F	7.5	
ϕD'	ϕD+0.5max.	
L'	L+1.5max.	

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	L	G				E						M				S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 47μF:470,100μF:101)
- Lead forming·taping code
- Terminal code
- Voltage code (ex. 200V:201,400V:401)
- Series code
- Category

Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Overvoltage resistant design, 105℃

KLG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
200	82	16×20	0.20	230	EKLG201E□□820ML20S
	100	16×25	0.20	425	EKLG201E□□101ML25S
	100	18×20	0.20	250	EKLG201E□□101MM20S
	120	16×31.5	0.20	500	EKLG201E□□121MLN3S
	120	18×25	0.20	475	EKLG201E□□121MM25S
	130	18×20	0.20	285	EKLG201E□□131MM20S
	150	16×31.5	0.20	560	EKLG201E□□151MLN3S
	150	18×20	0.20	315	EKLG201E□□151MM20S
	150	18×25	0.20	530	EKLG201E□□151MM25S
	180	16×40	0.20	645	EKLG201E□□181ML40S
	180	18×31.5	0.20	630	EKLG201E□□181MMN3S
	220	18×35.5	0.20	725	EKLG201E□□221MMP1S
	220	18×40	0.20	735	EKLG201E□□221MM40S
	270	18×45	0.20	830	EKLG201E□□271MM45S
	330	18×45	0.20	920	EKLG201E□□331MM45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/105℃,120Hz)	Part No.
400	22	16×20	0.24	145	EKLG401E□□220ML20S
	22	16×25	0.24	200	EKLG401E□□220ML25S
	33	16×25	0.24	220	EKLG401E□□330ML25S
	33	18×20	0.24	225	EKLG401E□□330MM20S
	39	16×31.5	0.24	245	EKLG401E□□390MLN3S
	39	18×25	0.24	250	EKLG401E□□390MM25S
	47	16×31.5	0.24	275	EKLG401E□□470MLN3S
	47	18×25	0.24	280	EKLG401E□□470MM25S
	56	16×40	0.24	350	EKLG401E□□560ML40S
	56	18×31.5	0.24	315	EKLG401E□□560MMN3S
	68	18×35.5	0.24	350	EKLG401E□□680MMP1S
	82	18×40	0.24	395	EKLG401E□□820MM40S
	100	18×40	0.24	450	EKLG401E□□101MM40S

□□ : Enter the appropriate lead forming or taping code.

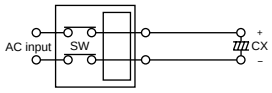
◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following excess DC voltage is applied.

●Test DC voltage

Rated voltage	Current limit	Test DC voltage
200Vdc	4A	300/375Vdc
400Vdc	2A	500/600Vdc

●Test circuit



Constant DC voltage/current power supply

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k	100k
22 to 47μF	0.75	1.00	1.25	1.50	1.75	1.80	1.85
56 to 330μF	0.80	1.00	1.15	1.30	1.40	1.50	1.60

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life for ϕ4 to ϕ8 product, 105℃

FL Series

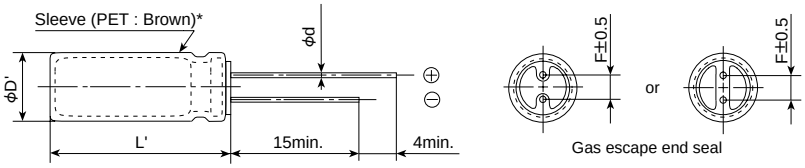
- ●Long life and high reliability for ϕ4X5L to ϕ8X7L mm range
- ●Endurance with ripple current : 3,000 hours at 105℃
- ●Suitable for long life and high reliability products
- ●Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- ●**RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics							
Category Temperature Range	−40 to +105℃							
Rated Voltage Range	6.3 to 50Vdc							
Capacitance Tolerance	±20% (M)							(at 20℃, 120Hz)
Leakage Current	I=0.03CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.50	0.40	0.35	0.30	0.25	0.25	(at 20℃, 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 3,000 hours at 105℃.							
	Capacitance change	≦±30% of the initial value						
	D.F. (tanδ)	≦300% of the initial specified value						
	Leakage current	≦The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≦±20% of the initial value						
	D.F. (tanδ)	≦200% of the initial specified value						
	Leakage current	≦The initial specified value						

◆DIMENSIONS [mm]

●Terminal Code : E



* ϕ8X5L : Coating case

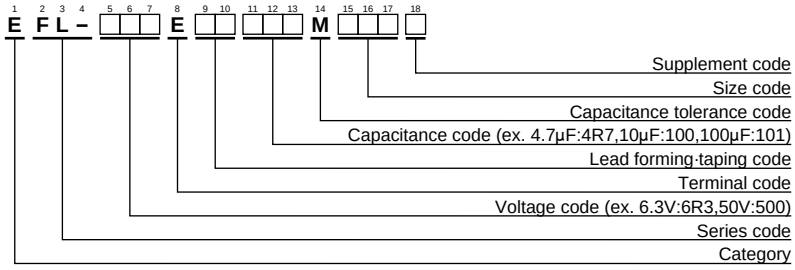
5mm Height

ϕD	4	5	6.3	8
ϕd	0.45	0.45	0.45	0.45
F	1.5	2.0	2.5	2.5
ϕD'	ϕD+0.5max.			
L'	L+1.0max.			

7mm Height

ϕD	4	5	6.3	8
ϕd	0.45	0.45	0.45	0.45
F	1.5	2.0	2.5	3.5
ϕD'	ϕD+0.5max.			
L'	L+1.0max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long life for φ4 to φ8 product, 105℃

FL Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃,100kHz)	Part No.
6.3	33	4×5	0.50	5.4	37	EFL-6R3E□□330MD05D
	47	4×7	0.50	4.5	44	EFL-6R3E□□470MD07D
	56	5×5	0.50	3.1	57	EFL-6R3E□□560ME05D
	82	5×7	0.50	2.5	70	EFL-6R3E□□820ME07D
	100	6.3×5	0.50	1.7	82	EFL-6R3E□□101MF05D
	150	6.3×7	0.50	1.3	116	EFL-6R3E□□151MF07D
	220	8×5	0.50	1.5	110	EFL-6R3E□□221MH05G
	270	8×7	0.50	0.90	162	EFL-6R3E□□271MH07D
10	22	4×5	0.40	5.4	37	EFL-100E□□220MD05D
	33	4×7	0.40	4.5	44	EFL-100E□□330MD07D
	33	5×5	0.40	3.1	57	EFL-100E□□330ME05D
	47	5×7	0.40	2.5	70	EFL-100E□□470ME07D
	68	6.3×5	0.40	1.7	82	EFL-100E□□680MF05D
	100	6.3×7	0.40	1.3	116	EFL-100E□□101MF07D
	150	8×5	0.40	1.5	110	EFL-100E□□151MH05G
	220	8×7	0.40	0.90	162	EFL-100E□□221MH07D
16	15	4×5	0.35	5.4	37	EFL-160E□□150MD05D
	22	4×7	0.35	4.5	44	EFL-160E□□220MD07D
	22	5×5	0.35	3.1	57	EFL-160E□□220ME05D
	33	5×7	0.35	2.5	70	EFL-160E□□330ME07D
	47	6.3×5	0.35	1.7	82	EFL-160E□□470MF05D
	68	6.3×7	0.35	1.3	116	EFL-160E□□680MF07D
	100	8×5	0.35	1.5	110	EFL-160E□□101MH05G
	150	8×7	0.35	0.90	162	EFL-160E□□151MH07D
25	10	4×5	0.30	5.4	37	EFL-250E□□100MD05D
	15	4×7	0.30	4.5	44	EFL-250E□□150MD07D
	15	5×5	0.30	3.1	57	EFL-250E□□150ME05D
	22	5×7	0.30	2.5	70	EFL-250E□□220ME07D
	33	6.3×5	0.30	1.7	82	EFL-250E□□330MF05D
	56	6.3×7	0.30	1.3	116	EFL-250E□□560MF07D
	68	8×5	0.30	1.5	110	EFL-250E□□680MH05G
	100	8×7	0.30	0.90	162	EFL-250E□□101MH07D
35	4.7	4×5	0.25	5.4	37	EFL-350E□□4R7MD05D
	6.8	4×7	0.25	4.5	44	EFL-350E□□6R8MD07D
	10	5×5	0.25	3.1	57	EFL-350E□□100ME05D
	10	5×7	0.25	2.5	70	EFL-350E□□100ME07D
	22	6.3×5	0.25	1.7	82	EFL-350E□□220MF05D
	22	6.3×7	0.25	1.3	116	EFL-350E□□220MF07D
	33	8×5	0.25	1.5	110	EFL-350E□□330MH05G
	47	8×7	0.25	0.90	162	EFL-350E□□470MH07D
50	0.47	4×5	0.25	34	14	EFL-500E□□R47MD05D
	1	4×5	0.25	19	18	EFL-500E□□1R0MD05D
	2.2	4×5	0.25	14	22	EFL-500E□□2R2MD05D
	3.3	4×5	0.25	11	26	EFL-500E□□3R3MD05D
	4.7	4×7	0.25	9.0	30	EFL-500E□□4R7MD07D
	4.7	5×5	0.25	6.0	40	EFL-500E□□4R7ME05D
	6.8	5×7	0.25	4.8	50	EFL-500E□□6R8ME07D
	10	6.3×5	0.25	2.9	63	EFL-500E□□100MF05D
	15	6.3×7	0.25	2.2	90	EFL-500E□□150MF07D
	22	8×5	0.25	2.6	84	EFL-500E□□220MH05G
	22	8×7	0.25	1.6	120	EFL-500E□□220MH07D

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance(μF) \ Frequency(Hz)	120	1k	10k	100k
to 3.3	0.20	0.66	0.90	1.00
4.7 to 6.8	0.35	0.70	0.90	1.00
10 to 150	0.40	0.75	0.90	1.00
220 to 270	0.50	0.85	0.94	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

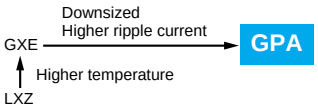
NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Longer life, Downsized, 125℃

GPA Series

- ●Downsized, low impedance and high-ripple current version of GXE series
- ●For automobile modules and other high temperature applications
- ●Endurance with ripple current : 3,000 to 5,000 hours at 125℃
- ●Solvent resistant type
- ●**RoHS Compliant**

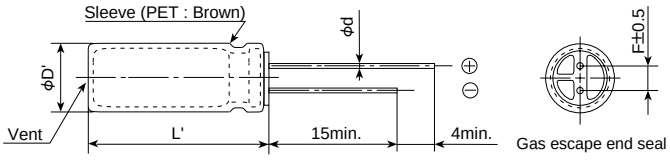


◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	−40 to +125℃				
Rated Voltage Range	25 to 50Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃, 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	25	35	50	
	tanδ (Max.)	0.14	0.12	0.10	
	When nominal capacitance exceeds 1,000μF, add 0.02 to the above value for each 1,000μF increase.				(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	25	35	50	
	Z(−25℃)/Z(+20℃)	2	2	2	
	Z(−40℃)/Z(+20℃)	4	4	4	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours (3,000 hours for 25L and less) at 125℃.				
	Capacitance change	≦±30% of the initial value			
	D.F. (tanδ)	≦300% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±30% of the initial value			
	D.F. (tanδ)	≦300% of the initial specified value			
	Leakage current	≦The initial specified value			

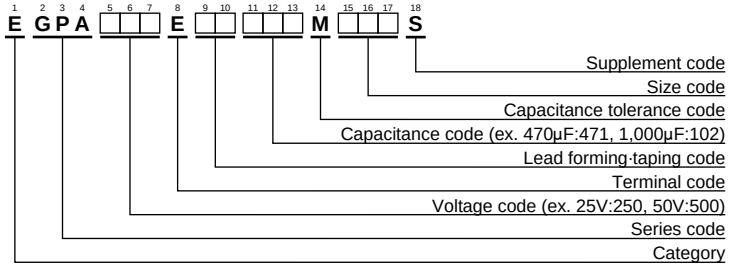
◆DIMENSIONS [mm]

●Terminal Code : E



ϕD	12.5	14.5	16	18
ϕd	0.6	0.8	0.8	0.8
F	5.0	7.5	7.5	7.5
ϕD'	ϕD+0.5max.			
L'	L+1.5max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Longer life, Downsized, 125℃

GPA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	ESR (Ωmax/100kHz) 20℃	ESR (Ωmax/100kHz) -40℃	Rated ripple current (mArms/125℃, 100kHz)	Part No.
25	1,200	12.5×20	0.044	0.22	1,820	EGPA250E□□122MK20S
	1,500	14.5×20	0.037	0.19	2,100	EGPA250E□□152MU20S
	1,800	12.5×25	0.033	0.17	2,280	EGPA250E□□182MK25S
	1,800	16×20	0.034	0.17	2,280	EGPA250E□□182ML20S
	2,200	12.5×30	0.029	0.13	2,560	EGPA250E□□222MK30S
	2,200	14.5×25	0.028	0.14	2,620	EGPA250E□□222MU25S
	2,700	12.5×35	0.024	0.11	2,970	EGPA250E□□272MK35S
	2,700	14.5×30	0.023	0.10	3,060	EGPA250E□□272MU30S
	2,700	16×25	0.026	0.13	2,860	EGPA250E□□272ML25S
	2,700	18×20	0.032	0.16	2,490	EGPA250E□□272MM20S
	3,300	12.5×40	0.021	0.095	3,340	EGPA250E□□332MK40S
	3,300	14.5×35	0.021	0.095	3,380	EGPA250E□□332MU35S
	3,300	16×30	0.023	0.10	3,160	EGPA250E□□332ML30S
	3,900	16×35	0.020	0.090	3,590	EGPA250E□□392ML35S
	3,900	18×25	0.024	0.12	3,010	EGPA250E□□392MM25S
	4,700	14.5×40	0.018	0.081	3,730	EGPA250E□□472MU40S
	4,700	18×30	0.022	0.099	3,390	EGPA250E□□472MM30S
	5,600	16×40	0.017	0.077	3,970	EGPA250E□□562ML40S
	5,600	18×35	0.019	0.086	3,840	EGPA250E□□562MM35S
	6,800	18×40	0.016	0.072	4,230	EGPA250E□□682MM40S
35	680	12.5×20	0.044	0.22	1,820	EGPA350E□□681MK20S
	1,000	12.5×25	0.033	0.17	2,280	EGPA350E□□102MK25S
	1,000	14.5×20	0.037	0.19	2,100	EGPA350E□□102MU20S
	1,200	12.5×30	0.029	0.13	2,560	EGPA350E□□122MK30S
	1,200	16×20	0.034	0.17	2,280	EGPA350E□□122ML20S
	1,200	14.5×25	0.028	0.14	2,620	EGPA350E□□122MU25S
	1,500	12.5×35	0.024	0.11	2,970	EGPA350E□□152MK35S
	1,500	14.5×30	0.023	0.10	3,060	EGPA350E□□152MU30S
	1,500	18×20	0.032	0.16	2,490	EGPA350E□□152MM20S
	1,800	12.5×40	0.021	0.095	3,340	EGPA350E□□182MK40S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	ESR (Ωmax/100kHz) 20℃	ESR (Ωmax/100kHz) -40℃	Rated ripple current (mArms/125℃, 100kHz)	Part No.
35	1,800	16×25	0.026	0.13	2,860	EGPA350E□□182ML25S
	2,200	14.5×35	0.021	0.095	3,380	EGPA350E□□222MU35S
	2,200	16×30	0.023	0.10	3,160	EGPA350E□□222ML30S
	2,200	18×25	0.024	0.12	3,010	EGPA350E□□222MM25S
	2,700	14.5×40	0.018	0.081	3,730	EGPA350E□□272MU40S
	2,700	16×35	0.020	0.090	3,590	EGPA350E□□272ML35S
	2,700	18×30	0.022	0.099	3,390	EGPA350E□□272MM30S
	3,300	16×40	0.017	0.077	3,970	EGPA350E□□332ML40S
	3,300	18×35	0.019	0.086	3,840	EGPA350E□□332MM35S
	4,700	18×40	0.016	0.072	4,230	EGPA350E□□472MM40S
50	470	12.5×20	0.065	0.33	1,500	EGPA500E□□471MK20S
	560	14.5×20	0.055	0.28	1,740	EGPA500E□□561MU20S
	680	12.5×25	0.048	0.24	1,900	EGPA500E□□681MK25S
	680	16×20	0.043	0.22	2,040	EGPA500E□□681ML20S
	820	12.5×30	0.041	0.18	2,150	EGPA500E□□821MK30S
	820	14.5×25	0.040	0.20	2,190	EGPA500E□□821MU25S
	1,000	12.5×35	0.034	0.15	2,510	EGPA500E□□102MK35S
	1,000	14.5×30	0.036	0.16	2,470	EGPA500E□□102MU30S
	1,000	16×25	0.031	0.16	2,620	EGPA500E□□102ML25S
	1,000	18×20	0.039	0.20	2,240	EGPA500E□□102MM20S
	1,200	12.5×40	0.028	0.13	2,870	EGPA500E□□122MK40S
	1,200	14.5×35	0.029	0.13	2,840	EGPA500E□□122MU35S
	1,200	16×30	0.027	0.13	2,940	EGPA500E□□122ML30S
	1,200	18×25	0.029	0.15	2,750	EGPA500E□□122MM25S
	1,500	16×35	0.023	0.10	3,300	EGPA500E□□152ML35S
	1,800	14.5×40	0.024	0.11	3,230	EGPA500E□□182MU40S
	1,800	18×30	0.026	0.12	3,140	EGPA500E□□182MM30S
	2,200	16×40	0.020	0.090	3,720	EGPA500E□□222ML40S
	2,200	18×35	0.022	0.10	3,510	EGPA500E□□222MM35S
	2,700	18×40	0.018	0.080	3,940	EGPA500E□□272MM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance(μF) \ Frequency(Hz)	120	1k	10k	100k
470 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to 6,800	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, Downsized, 125℃

GXE Series

- For automobile modules and other high temperature applications
- Downsize, long life, low impedance and better low temperature characteristics
- Endurance with ripple current : 2,000 to 5,000 hours at 125℃
- Solvent resistant type except 63 to 450V (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

GXE → Downsized, Higher ripple current → GPA

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +125℃ (10 to 250Vdc) −25 to +125℃ (350 to 450Vdc)
Rated Voltage Range	10 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	10 to 100Vdc: I=0.03CV or 4μA, whichever is greater. 160 to 450Vdc: CV≦1,000 I=0.1CV+40; CV>1,000 I=0.04CV+100 Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃, 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc): 10V 16V 25V 35V 50V 63V 80V 100V 160 to 250V 350 to 450V tanδ (Max.): 0.20 0.16 0.14 0.12 0.10 0.10 0.08 0.08 0.20 0.24 When nominal capacitance exceeds 1,000μF, add 0.02 to the above value for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc): 10V 16V 25V 35V 50V 63V 80V 100V 160 to 250V 350 to 450V Z(−25℃)/Z(+20℃): 3 2 2 2 2 2 2 2 3 6 Z(−40℃)/Z(+20℃): 6 4 4 4 4 4 4 4 6 — (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for the specified time at 125℃.

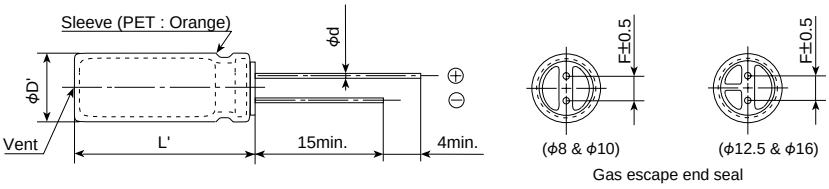
	10 to 100Vdc	160 to 450Vdc
Time	φ8 : 2,000hours φ10 : 3,000hours φ12.5 & φ16 : 5,000hours	2,000hours
Capacitance change	≦±30% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦300% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦The initial specified value

Shelf Life: The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours (500 hours for 350 to 450WV) at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.

	10 to 100Vdc	160 to 450Vdc
Capacitance change	≦±30% of the initial value	≦±20% of the initial value
D.F. (tanδ)	≦300% of the initial specified value	≦200% of the initial specified value
Leakage current	≦The initial specified value	≦500% of the initial specified value

◆DIMENSIONS [mm]

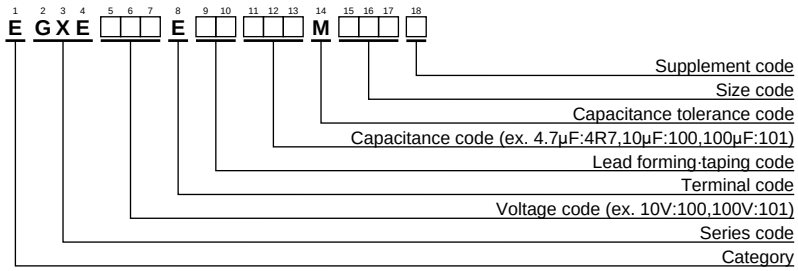
- Terminal Code : E



Gas escape end seal

φD	8	10	12.5	16
φd	0.6	0.6	0.6	0.8
F	3.5	5.0	5.0	7.5
φD'	φD+0.5max.			
L'	L+2.0max.			

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Long Life, Downsized, 125℃

GXE Series

◆STANDARD RATINGS

is not solvent resistant.

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/ 20℃, 100kHz)	Rated ripple current (mArms/ 125℃, Note1)	Part No.
10	220	8× 12	0.32	340	EGXE100E□□221MH12D
	330	10× 12.5	0.15	620	EGXE100E□□331MJC5S
	470	10× 12.5	0.15	620	EGXE100E□□471MJC5S
	1,000	10× 20	0.075	950	EGXE100E□□102MJ20S
	2,200	12.5× 25	0.040	1,350	EGXE100E□□222MK25S
	3,300	16× 25	0.031	1,620	EGXE100E□□332ML25S
	4,700	16× 31.5	0.025	1,860	EGXE100E□□472MLN3S
16	100	8× 12	0.32	340	EGXE160E□□101MH12D
	220	10× 12.5	0.15	620	EGXE160E□□221MJC5S
	330	10× 12.5	0.15	620	EGXE160E□□331MJC5S
	470	10× 16	0.094	790	EGXE160E□□471MJ16S
	1,000	12.5× 20	0.058	1,080	EGXE160E□□102MK20S
	2,200	16× 25	0.031	1,620	EGXE160E□□222ML25S
	3,300	16× 31.5	0.025	1,860	EGXE160E□□332MLN3S
25	100	8× 12	0.32	340	EGXE250E□□101MH12D
	220	10× 12.5	0.15	620	EGXE250E□□221MJC5S
	330	10× 16	0.094	790	EGXE250E□□331MJ16S
	470	10× 20	0.075	950	EGXE250E□□471MJ20S
	1,000	12.5× 25	0.040	1,350	EGXE250E□□102MK25S
	2,200	16× 31.5	0.025	1,860	EGXE250E□□222MLN3S
35	100	8× 12	0.32	340	EGXE350E□□101MH12D
	100	10× 12.5	0.15	620	EGXE350E□□101MJC5S
	220	10× 16	0.094	790	EGXE350E□□221MJ16S
	330	10× 20	0.075	950	EGXE350E□□331MJ20S
	470	12.5× 20	0.058	1,080	EGXE350E□□471MK20S
	1,000	16× 25	0.031	1,620	EGXE350E□□102ML25S
50	10	8× 12	0.75	180	EGXE500E□□100MH12D
	22	8× 12	0.50	250	EGXE500E□□220MH12D
	33	8× 12	0.50	280	EGXE500E□□330MH12D
	47	8× 12	0.50	280	EGXE500E□□470MH12D
	100	10× 12.5	0.20	520	EGXE500E□□101MJC5S
	220	10× 20	0.098	880	EGXE500E□□221MJ20S
	330	12.5× 20	0.081	990	EGXE500E□□331MK20S
	470	12.5× 25	0.059	1,150	EGXE500E□□471MK25S
	1,000	16× 31.5	0.032	1,590	EGXE500E□□102MLN3S
63	33	8× 12	1.5	150	EGXE630E□□330MH12D
	47	10× 12.5	0.59	530	EGXE630E□□470MJC5S
	100	10× 16	0.41	690	EGXE630E□□101MJ16S
	220	12.5× 20	0.16	1,050	EGXE630E□□221MK20S
	330	12.5× 25	0.12	1,290	EGXE630E□□331MK25S
	470	12.5× 30	0.097	1,460	EGXE630E□□471MK30S
	1,000	16× 31.5	0.059	1,850	EGXE630E□□102MLN3S
80	22	8× 12	1.5	150	EGXE800E□□220MH12D
	33	10× 12.5	0.8	480	EGXE800E□□330MJC5S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/ 20℃, 100kHz)	Rated ripple current (mArms/ 125℃, Note1)	Part No.
80	47	10×12.5	0.80	480	EGXE800E□□470MJC5S
	100	10×20	0.39	790	EGXE800E□□101MJ20S
	220	12.5×25	0.18	1,240	EGXE800E□□221MK25S
	330	12.5×30	0.16	1,390	EGXE800E□□331MK30S
	470	16×25	0.11	1,500	EGXE800E□□471ML25S
100	4.7	8×12	2.0	130	EGXE101E□□4R7MH12D
	10	8×12	1.5	150	EGXE101E□□100MH12D
	22	10×12.5	0.80	480	EGXE101E□□220MJC5S
	33	10×12.5	0.80	480	EGXE101E□□330MJC5S
	47	10×16	0.55	630	EGXE101E□□470MJ16S
	100	12.5×20	0.25	990	EGXE101E□□101MK20S
	220	16×25	0.11	1,500	EGXE101E□□221ML25S
	330	16×31.5	0.079	1,790	EGXE101E□□331MLN3S
160	22	10×20	—	115	EGXE161E□□220MJ20S
	33	10×25	—	154	EGXE161E□□330MJ25S
	47	12.5×20	—	187	EGXE161E□□470MK20S
	68	12.5×25	—	245	EGXE161E□□680MK25S
	100	16×25	—	329	EGXE161E□□101ML25S
	150	16×31.5	—	434	EGXE161E□□151MLN3S
200	10	10×20	—	78	EGXE201E□□100MJ20S
	22	10×25	—	126	EGXE201E□□220MJ25S
	33	12.5×20	—	157	EGXE201E□□330MK20S
	47	12.5×25	—	204	EGXE201E□□470MK25S
	68	16×20	—	250	EGXE201E□□680ML20S
	100	16×25	—	329	EGXE201E□□101ML25S
250	10	10×20	—	78	EGXE251E□□100MJ20S
	22	12.5×20	—	128	EGXE251E□□220MK20S
	33	12.5×25	—	171	EGXE251E□□330MK25S
	47	16×25	—	225	EGXE251E□□470ML25S
	68	16×31.5	—	292	EGXE251E□□680MLN3S
350	4.7	10×20	—	53	EGXE351E□□4R7MJ20S
	10	10×25	—	85	EGXE351E□□100MJ25S
	22	12.5×25	—	139	EGXE351E□□220MK25S
	33	16×25	—	189	EGXE351E□□330ML25S
	47	16×31.5	—	243	EGXE351E□□470MLN3S
400	4.7	10×20	—	53	EGXE401E□□4R7MJ20S
	10	10×25	—	86	EGXE401E□□100MJ25S
	22	12.5×30	—	142	EGXE401E□□220MK30S
	33	16×25	—	189	EGXE401E□□330ML25S
	47	16×31.5	—	243	EGXE401E□□470MLN3S
450	4.7	10×25	—	58	EGXE451E□□4R7MJ25S
	10	12.5×20	—	86	EGXE451E□□100MK20S
	22	16×25	—	154	EGXE451E□□220ML25S
	33	16×31.5	—	203	EGXE451E□□330MLN3S

□□ : Enter the appropriate lead forming or taping code.

(Note1) Ripple current frequency

10 to 100V = 100kHz

160 to 450V = 120Hz

◆RATED RIPPLE CURRENT MULTIPLIERS

●(10 to 100Vdc) Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
4.7 to 100	0.40	0.75	0.90	1.00
220 to 470	0.50	0.85	0.94	1.00
1,000	0.60	0.87	0.95	1.00
2,200 to 3,300	0.75	0.90	0.95	1.00
4,700	0.85	0.95	0.98	1.00

●(160 to 450Vdc) Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	50	120	300	1k	10k	100k
4.7 to 33	0.75	1.00	1.25	1.50	1.75	1.80
47 to 150	0.80	1.00	1.15	1.30	1.40	1.50

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Longer life, 125℃

GXL Series

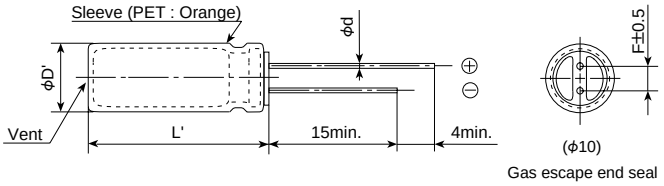
- Long-Life version of GXE series
- For automobile modules and other high temperature applications
- Endurance with ripple current : 5,000 hours at 125℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics						
Category Temperature Range	−40 to +125℃						
Rated Voltage Range	10 to 50Vdc						
Capacitance Tolerance	±20% (M)						(at 20℃, 120Hz)
Leakage Current	I=0.03CV or 4μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)						(at 20℃, 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	10V	16V	25V	35V	50V	
	tanδ (Max.)	0.20	0.16	0.14	0.12	0.10	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	10V	16V	25V	35V	50V	
	Z(−25℃)/Z(+20℃)	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	6	4	4	4	4	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 125℃.						
	Capacitance change	≦±30% of the initial value					
	D.F. (tanδ)	≦300% of the initial specified value					
	Leakage current	≦The initial specified value					
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.						
	Capacitance change	≦±30% of the initial value					
	D.F. (tanδ)	≦300% of the initial specified value					
	Leakage current	≦The initial specified value					

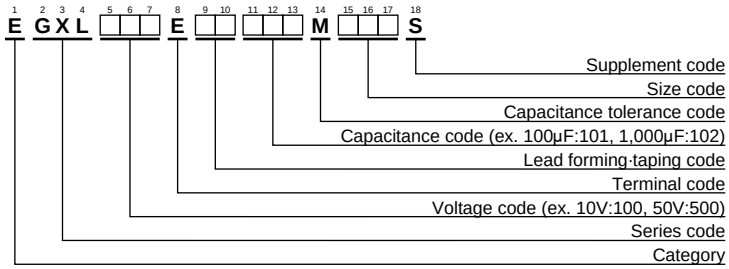
◆DIMENSIONS [mm]

- Terminal Code : E



ϕD	10
ϕd	0.6
F	5.0
ϕD'	ϕD+0.5max.
L'	L+1.5max.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Longer life, 125℃

GXL Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/125℃, 100kHz)	Part No.
10	330	10×12.5	0.17	800	EGXL100E□□331MJC5S
	470	10×12.5	0.17	800	EGXL100E□□471MJC5S
	1,000	10×20	0.094	1,300	EGXL100E□□102MJ20S
16	220	10×12.5	0.17	800	EGXL160E□□221MJC5S
	330	10×12.5	0.17	800	EGXL160E□□331MJC5S
	470	10×16	0.12	1,050	EGXL160E□□471MJ16S
25	220	10×12.5	0.17	800	EGXL250E□□221MJC5S
	330	10×16	0.12	1,050	EGXL250E□□331MJ16S
	470	10×20	0.094	1,300	EGXL250E□□471MJ20S
35	100	10×12.5	0.17	800	EGXL350E□□101MJC5S
	220	10×16	0.12	1,050	EGXL350E□□221MJ16S
	330	10×20	0.094	1,300	EGXL350E□□331MJ20S
50	100	10×12.5	0.30	590	EGXL500E□□101MJC5S
	220	10×20	0.19	970	EGXL500E□□221MJ20S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz) / Capacitance(μF)	120	1k	10k	100k
100	0.40	0.75	0.90	1.00
220 to 470	0.50	0.85	0.94	1.00
1,000	0.60	0.87	0.95	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For airbag module, 105℃

LBG Series

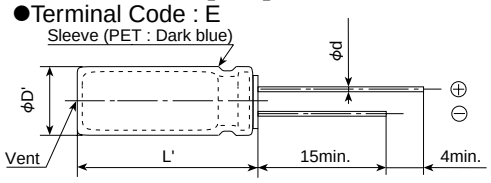
- For airbag application
- High capacitance, low impedance, and good low temperature behavior
- Endurance with ripple current : 5,000 hours at 105℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- **RoHS Compliant**

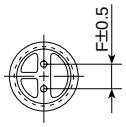
◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	−55 to +105℃			
Rated Voltage Range	25 & 35Vdc			
Capacitance Range	1,000 to 11,000μF			(at 20℃, 120Hz)
Capacitance Tolerance	0 to +30% (A)			(at 20℃, 120Hz)
Leakage Current	I=0.01CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	25V	35V	
	tanδ (Max.)	0.20	0.16	
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase.			(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	25V	35V	
	Z(−55℃)/Z(+20℃)	3	3	
	Impedance at -40℃ and 20℃ 100kHz in the STANDARD RATINGS			(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : E





Gas escape end seal

φD	12.5	14.5	16	18
φd	0.6	0.8	0.8	0.8
F	5.0	7.5	7.5	7.5
φD'	φD+0.5max.			
L'	L+1.5max.			

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	L	B	G				E						A				S

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 820μF:821, 2,200μF:222)
Lead forming·taping code
Terminal code
Voltage code (ex. 16V:160, 35V:350)
Series code
Category

Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For airbag module, 105℃

LBG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz)		Rated ripple current (mArms/105℃,100kHz)	Part No.
			20℃	-40℃		
25	1,700	12.5×20	0.057	0.29	1,700	ELBG250E□□172AK20S
	2,400	12.5×25	0.045	0.23	2,000	ELBG250E□□242AK25S
	2,400	14.5×20	0.051	0.26	2,000	ELBG250E□□242AU20S
	2,800	12.5×30	0.039	0.20	2,300	ELBG250E□□282AK30S
	3,000	16×20	0.044	0.22	2,250	ELBG250E□□302AL20S
	3,400	14.5×25	0.041	0.21	2,400	ELBG250E□□342AU25S
	3,500	12.5×35	0.033	0.17	2,700	ELBG250E□□352AK35S
	4,200	16×25	0.033	0.17	2,600	ELBG250E□□422AL25S
	4,200	18×20	0.042	0.21	2,500	ELBG250E□□422AM20S
	4,500	12.5×40	0.027	0.14	3,100	ELBG250E□□452AK40S
	4,600	14.5×31.5	0.032	0.16	2,700	ELBG250E□□462AUN3S
	5,400	14.5×35.5	0.028	0.14	3,100	ELBG250E□□542AUP1S
	5,600	16×31.5	0.026	0.13	3,200	ELBG250E□□562ALN3S
	6,000	18×25	0.030	0.15	2,800	ELBG250E□□602AM25S
	6,400	14.5×40	0.025	0.13	3,400	ELBG250E□□642AU40S
	6,600	16×35.5	0.023	0.12	3,500	ELBG250E□□662ALP1S
	7,800	16×40	0.021	0.11	3,800	ELBG250E□□782AL40S
	7,900	18×31.5	0.024	0.12	3,500	ELBG250E□□792AMN3S
	9,200	18×35.5	0.022	0.11	3,700	ELBG250E□□922AMP1S
	11,000	18×40	0.020	0.10	4,000	ELBG250E□□113AM40S
35	1,000	12.5×20	0.057	0.29	1,700	ELBG350E□□102AK20S
	1,400	12.5×25	0.045	0.23	2,000	ELBG350E□□142AK25S
	1,400	14.5×20	0.051	0.26	2,000	ELBG350E□□142AU20S
	1,600	12.5×30	0.039	0.20	2,300	ELBG350E□□162AK30S
	1,800	16×20	0.044	0.22	2,250	ELBG350E□□182AL20S
	2,000	14.5×25	0.041	0.21	2,400	ELBG350E□□202AU25S
	2,100	12.5×35	0.033	0.17	2,700	ELBG350E□□212AK35S
	2,500	16×25	0.033	0.17	2,600	ELBG350E□□252AL25S
	2,500	18×20	0.042	0.21	2,500	ELBG350E□□252AM20S
	2,700	12.5×40	0.027	0.14	3,100	ELBG350E□□272AK40S
	2,800	14.5×31.5	0.032	0.16	2,700	ELBG350E□□282AUN3S
	3,200	14.5×35.5	0.028	0.14	3,100	ELBG350E□□322AUP1S
	3,400	16×31.5	0.026	0.13	3,200	ELBG350E□□342ALN3S
	3,600	18×25	0.030	0.15	2,800	ELBG350E□□362AM25S
	3,800	14.5×40	0.025	0.13	3,400	ELBG350E□□382AU40S
	4,000	16×35.5	0.023	0.12	3,500	ELBG350E□□402ALP1S
	4,700	16×40	0.021	0.11	3,800	ELBG350E□□472AL40S
	4,800	18×31.5	0.024	0.12	3,500	ELBG350E□□482AMN3S
	5,600	18×35.5	0.022	0.11	3,700	ELBG350E□□562AMP1S
	6,700	18×40	0.020	0.10	4,000	ELBG350E□□672AM40S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (μF) \ Frequency (Hz)	120	1k	10k	100k
1,000 to 2,000	0.60	0.87	0.95	1.00
2,100 to 3,800	0.75	0.90	0.95	1.00
4,000 to 11,000	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For computer motherboard

KZG Series

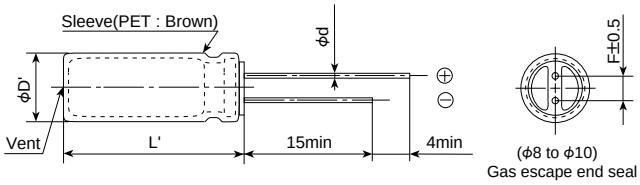
- Super low ESR/impedance capacitors due to very low resistivity electrolyte
- Rated voltage range : 6.3 to 16V, Nominal capacitance range : 470 to 3,300µF
- Endurance with ripple current : 2,000 hours at 105℃
- The KZG series capacitors are designed for computer motherboards
- Non solvent resistant type
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	−40 to +105℃				
Rated Voltage Range	6.3 to 16Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current	I=0.01CV or 3µA, whichever is greater. Where, I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (Vdc)				(at 20℃ after 2 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	
	tanδ (Max.)	0.22	0.19	0.16	
	When nominal capacitance exceeds 1,000µF, add 0.02 to the value above for each 1,000µF increase.				(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	
	Z (-25℃) / Z (+20℃)	2	2	2	
	Z (-40℃) / Z (+20℃)	3	3	3	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current for 2,000 hours at 105℃.				
	Capacitance change	≦±25% of the initial measured value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±25% of the initial measured value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			

◆DIMENSIONS [mm]

- Terminal Code : E



φD	8	10
φd	0.6	0.6
F	3.5	5.0
φD'	φD+0.5max.	
L'	L+1.5max.	

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	Z	G				E						M				

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 470µF:471, 2,200µF:222)
Lead forming·taping code
Terminal code
Voltage code (ex. 6.3V:6R3,10V:100,16V:160)
Series code
Category

Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For computer motherboard

KZG Series

◆STANDARD RATINGS

WV(Vdc)	Cap(μF)	Case size φD×L(mm)	Impedance (Ωmax/20℃, 100kHz)	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	820	8×11.5	0.036	1,140	EKZG6R3E□□821MHB5D
	1,200	8×15	0.028	1,490	EKZG6R3E□□122MH15D
	1,500	10×12.5	0.026	1,540	EKZG6R3E□□152MJC5S
	1,800	8×20	0.021	1,870	EKZG6R3E□□182MH20D
	1,800	10×16	0.019	2,000	EKZG6R3E□□182MJ16S
	2,200	10×20	0.013	2,550	EKZG6R3E□□222MJ20S
	3,300	10×25	0.012	2,800	EKZG6R3E□□332MJ25S
10	680	8×11.5	0.036	1,140	EKZG100E□□681MHB5D
	1,000	8×15	0.028	1,490	EKZG100E□□102MH15D
	1,000	10×12.5	0.026	1,540	EKZG100E□□102MJC5S
	1,500	8×20	0.021	1,870	EKZG100E□□152MH20D
	1,500	10×16	0.019	2,000	EKZG100E□□152MJ16S
	1,800	10×20	0.013	2,550	EKZG100E□□182MJ20S
	2,200	10×25	0.012	2,800	EKZG100E□□222MJ25S
16	470	8×11.5	0.036	1,140	EKZG160E□□471MHB5D
	680	8×15	0.028	1,490	EKZG160E□□681MH15D
	680	10×12.5	0.026	1,540	EKZG160E□□681MJC5S
	1,000	8×20	0.021	1,870	EKZG160E□□102MH20D
	1,000	10×16	0.019	2,000	EKZG160E□□102MJ16S
	1,500	10×20	0.013	2,550	EKZG160E□□152MJ20S
	1,800	10×25	0.012	2,800	EKZG160E□□182MJ25S

□□ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance(μF) \ Frequency (Hz)	120	1k	10k	100k
470	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,300	0.75	0.90	0.95	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low leakage current, 85℃

LLA Series

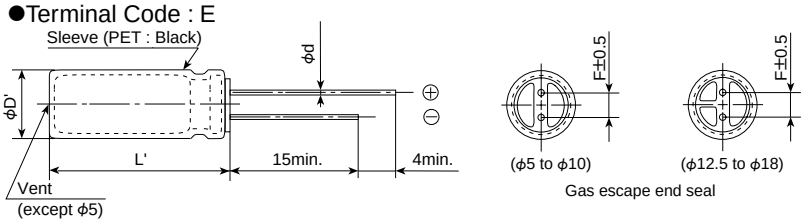
- Endurance : 1,000 hours at 85℃
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- Low leakage current type
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃
Rated Voltage Range	6.3 to 50Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.002CV or 0.2μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 1 minute)
Dissipation Factor (tanδ)	Rated voltage (Vdc) 6.3V 10V 16V 25V 35V 50V tanδ (Max.) 0.24 0.20 0.16 0.14 0.12 0.10 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)
Low Temperature Characteristics	○Leakage current Leakage current at 85℃ : ≦10 times of the 20℃ specified value ○Max. Impedance Ratio (at 120Hz) Z(−25℃)/Z(+20℃)≦4, Z(−40℃)/Z(+20℃)≦8
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The same specifications as "Endurance" shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.
Shelf Test	The following specifications shall be satisfied when the capacitors are restored to 20℃ after leaving them for 6 months at a nominal temperature (-10 to +40℃) without voltage applied. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

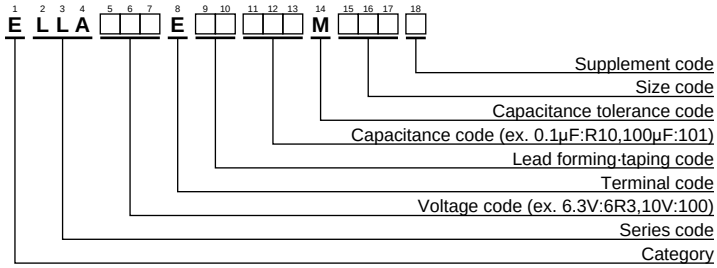
◆DIMENSIONS [mm]

●Terminal Code : E



ϕD	5	6.3	8	10	12.5	16	18
ϕd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ϕD'	ϕD+0.5max.						
L'	L+1.5max.						

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

CAT. No. E1001H

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

Low leakage current, 85℃

LLA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
6.3	33	5×11	0.24	55	ELLA6R3E□□330ME11D
	47	5×11	0.24	79	ELLA6R3E□□470ME11D
	100	5×11	0.24	130	ELLA6R3E□□101ME11D
	220	6.3×11	0.24	230	ELLA6R3E□□221MF11D
	330	6.3×11	0.24	280	ELLA6R3E□□331MF11D
	470	8×11.5	0.24	380	ELLA6R3E□□471MHB5D
	1,000	10×12.5	0.24	650	ELLA6R3E□□102MJC5S
	2,200	12.5×20	0.26	1,150	ELLA6R3E□□222MK20S
	3,300	12.5×20	0.28	1,380	ELLA6R3E□□332MK20S
	4,700	16×25	0.30	1,880	ELLA6R3E□□472ML25S
	6,800	16×25	0.34	2,120	ELLA6R3E□□682ML25S
	10,000	16×31.5	0.42	2,500	ELLA6R3E□□103MLN3S
	15,000	18×35.5	0.52	2,990	ELLA6R3E□□153MMP1S
10	22	5×11	0.20	59	ELLA100E□□220ME11D
	33	5×11	0.20	84	ELLA100E□□330ME11D
	47	5×11	0.20	100	ELLA100E□□470ME11D
	100	5×11	0.20	145	ELLA100E□□101ME11D
	220	6.3×11	0.20	250	ELLA100E□□221MF11D
	330	8×11.5	0.20	350	ELLA100E□□331MHB5D
	470	8×11.5	0.20	415	ELLA100E□□471MHB5D
	1,000	10×16	0.20	790	ELLA100E□□102MJ16S
	2,200	12.5×20	0.22	1,240	ELLA100E□□222MK20S
	3,300	12.5×25	0.24	1,590	ELLA100E□□332MK25S
	4,700	16×25	0.26	1,980	ELLA100E□□472ML25S
	6,800	16×31.5	0.30	2,390	ELLA100E□□682MLN3S
	10,000	18×35.5	0.38	2,840	ELLA100E□□103MMP1S
16	10	5×11	0.16	44	ELLA160E□□100ME11D
	22	5×11	0.16	75	ELLA160E□□220ME11D
	33	5×11	0.16	90	ELLA160E□□330ME11D
	47	5×11	0.16	110	ELLA160E□□470ME11D
	100	6.3×11	0.16	180	ELLA160E□□101MF11D
	220	8×11.5	0.16	300	ELLA160E□□221MHB5D
	330	8×11.5	0.16	370	ELLA160E□□331MHB5D
	470	10×12.5	0.16	520	ELLA160E□□471MJC5S
	1,000	10×20	0.16	910	ELLA160E□□102MJ20S
	2,200	12.5×25	0.18	1,420	ELLA160E□□222MK25S
	3,300	16×25	0.20	1,840	ELLA160E□□332ML25S
	4,700	16×31.5	0.22	2,260	ELLA160E□□472MLN3S
	6,800	18×35.5	0.26	2,690	ELLA160E□□682MMP1S
	10,000	18×40	0.34	2,920	ELLA160E□□103MM40S
25	4.7	5×11	0.14	31	ELLA250E□□4R7ME11D
	10	5×11	0.14	54	ELLA250E□□100ME11D
	22	5×11	0.14	80	ELLA250E□□220ME11D

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (mArms/ 85℃,120Hz)	Part No.
25	33	5×11	0.14	97	ELLA250E□□330ME11D
	47	5×11	0.14	115	ELLA250E□□470ME11D
	100	6.3×11	0.14	190	ELLA250E□□101MF11D
	220	8×11.5	0.14	320	ELLA250E□□221MHB5D
	330	10×12.5	0.14	470	ELLA250E□□331MJC5S
	470	10×16	0.14	620	ELLA250E□□471MJ16S
	1,000	12.5×20	0.14	1,090	ELLA250E□□102MK20S
	2,200	16×25	0.16	1,660	ELLA250E□□222ML25S
	3,300	16×31.5	0.18	2,070	ELLA250E□□332MLN3S
	4,700	18×35.5	0.20	2,520	ELLA250E□□472MMP1S
	6,800	18×40	0.24	2,830	ELLA250E□□682MM40S
35	4.7	5×11	0.12	40	ELLA350E□□4R7ME11D
	10	5×11	0.12	58	ELLA350E□□100ME11D
	22	5×11	0.12	87	ELLA350E□□220ME11D
	33	5×11	0.12	105	ELLA350E□□330ME11D
	47	6.3×11	0.12	145	ELLA350E□□470MF11D
	100	8×11.5	0.12	240	ELLA350E□□101MHB5D
	220	10×12.5	0.12	420	ELLA350E□□221MJC5S
	330	10×16	0.12	570	ELLA350E□□331MJ16S
	470	10×20	0.12	740	ELLA350E□□471MJ20S
	1,000	12.5×25	0.12	1,300	ELLA350E□□102MK25S
	2,200	16×31.5	0.14	1,890	ELLA350E□□222MLN3S
	3,300	18×35.5	0.16	2,340	ELLA350E□□332MMP1S
	4,700	18×40	0.18	2,690	ELLA350E□□472MM40S
50	0.10	5×11	0.10	1.3	ELLA500E□□R10ME11D
	0.22	5×11	0.10	2.9	ELLA500E□□R22ME11D
	0.33	5×11	0.10	4.4	ELLA500E□□R33ME11D
	0.47	5×11	0.10	11	ELLA500E□□R47ME11D
	1.0	5×11	0.10	17	ELLA500E□□1R0ME11D
	2.2	5×11	0.10	25	ELLA500E□□2R2ME11D
	3.3	5×11	0.10	35	ELLA500E□□3R3ME11D
	4.7	5×11	0.10	42	ELLA500E□□4R7ME11D
	10	5×11	0.10	65	ELLA500E□□100ME11D
	22	5×11	0.10	95	ELLA500E□□220ME11D
	33	6.3×11	0.10	125	ELLA500E□□330MF11D
	47	6.3×11	0.10	150	ELLA500E□□470MF11D
	100	8×11.5	0.10	255	ELLA500E□□101MHB5D
	220	10×16	0.10	490	ELLA500E□□221MJ16S
	330	10×20	0.10	650	ELLA500E□□331MJ20S
	470	12.5×20	0.10	860	ELLA500E□□471MK20S
	1,000	16×25	0.10	1,530	ELLA500E□□102ML25S
	2,200	18×35.5	0.12	2,160	ELLA500E□□222MMP1S

□□ : Enter the appropriate lead forming or taping code.

NIPPON CHEMI-CON

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

For strobe flash

PH Series

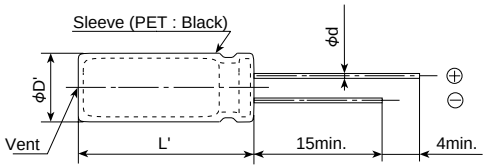
●RoHS Compliant

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−20 to +55℃
Rated Voltage Range	300 & 330Vdc
Capacitance Tolerance	−10 to +20% (V) (at 20℃, 120Hz)
Leakage Current	I=1×C Where, I : Max. leakage current (μA), C : Nominal capacitance (μF) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.06max. (at 20℃, 120Hz)
Charge and Discharge Characteristics	The following specifications shall be satisfied when the capacitors are restored to 20℃ after charge and discharge are repeated 5,000 times at room temperature (5 to 35℃). Discharge resistance or Xenon tube : 0.7 to 1.0Ω. Capacitance change: ≦±10% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦150% of the initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 55℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±10% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦150% of the initial specified value

◆DIMENSIONS [mm]

●Terminal Code : E



ϕD	6.0 to 7.5	8.0 to 8.5	9.0 to 9.5	10.0 to 14.0	14.5 to 18.0
ϕd	0.5	0.6	0.6	0.6	0.8
F	2.5	3.5	4	5	7.5
ϕD'	ϕD+0.5max.				
L'	L+1.0max.				

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	P	H	−				E										S

Supplement code
Size code (L code)
Size code (ϕD code)
Nominal capacitance code (ex. 50μF:500,100μF:101)
Lead forming·taping code
Terminal code
Rated voltage code (ex. 300V:301,330V:331)
Series code
Category

Please refer to "Product code guide (radial lead type)"

●Size Code

ϕD code (14th, 15th)

ϕD(mm)	ϕD code	
	14th	15th
6.0	6	0
6.5	6	5
7.0	7	0
7.5	7	5
8.0	8	0
8.5	8	5
9.0	9	0
9.5	9	5
10.0	A	0
10.5	A	5
11.0	B	0
11.5	B	5
12.0	C	0
12.5	C	5
13.0	D	0
13.5	D	5
14.0	E	0
14.5	E	5
15.0	F	0
15.5	F	5
16.0	G	0
16.5	G	5
17.0	H	0
17.5	H	5
18.0	J	0

L code (16th, 17th)

L(mm)	L code	
	16th	17th
15.0	1	5
16.0	1	6
17.0	1	7
18.0	1	8
19.0	1	9
20.0	2	0
21.0	2	1
22.0	2	2
23.0	2	3
24.0	2	4
25.0	2	5
26.0	2	6
27.0	2	7
28.0	2	8
29.0	2	9
30.0	3	0
31.0	3	1
32.0	3	2
33.0	3	3
34.0	3	4
35.0	3	5
36.0	3	6
37.0	3	7
38.0	3	8
39.0	3	9
40.0	4	0
41.0	4	1
42.0	4	2
43.0	4	3
44.0	4	4
45.0	4	5

CAT. No. E1001H

Snap-in Aluminum Electrolytic Capacitors (Large Capacitors)

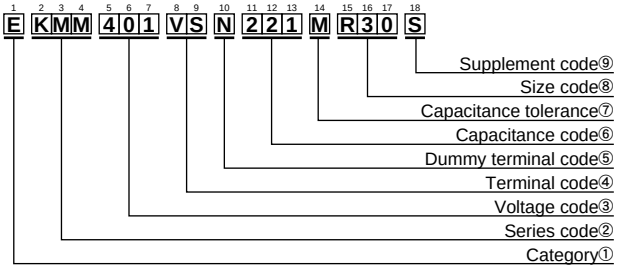
NIPPON CHEMI-CON

PART NUMBERING SYSTEM

Product code guide (Snap-in type)

(Example : KMM series, 400V-220μF, ϕ30×30L)

Please refer to the following table



①Category

Type	Code
	1st
Polar	E

②Series code

Series name	Code		
	2nd	3rd	4th
KMM	K	M	M
No series name	C	S	T

③Voltage code

Voltage (V)	Code		
	5th	6th	7th
6.3	6	R	3
10	1	0	0
16	1	6	0
25	2	5	0
35	3	5	0
50	5	0	0
63	6	3	0
80	8	0	0
100	1	0	1
160	1	6	1
180	1	8	1
200	2	0	1
220	2	2	1
250	2	5	1
315	3	B	1
350	3	5	1
400	4	0	1
420	4	2	1
450	4	5	1
500	5	0	1

④Terminal code

Type	Code	
	8th	9th
VS	V	S
LI	L	I
LR	L	R
LC	L	C
VR	V	R

⑤Dummy terminal code

Terminal #	Code
	10th
0	N
1	S
2	D
3	T

⑥Capacitance code

Cap. (μF)	Code		
	11th	12th	13th
10	1	0	0
22	2	2	0
33	3	3	0
47	4	7	0
68	6	8	0
100	1	0	1
220	2	2	1
330	3	3	1
470	4	7	1
680	6	8	1
1,000	1	0	2
2,200	2	2	2
3,300	3	3	2
4,700	4	7	2
6,800	6	8	2
10,000	1	0	3
22,000	2	2	3
33,000	3	3	3
47,000	4	7	3
68,000	6	8	3
100,000	1	0	4
220,000	2	2	4
330,000	3	3	4
470,000	4	7	4
680,000	6	8	4

⑦Capacitance tolerance

Tol. (%)	Code
	14th
±20	M

⑧Size code

ϕD	Code
	15th
20	N
22	P
25.4	Q
30	R
35	A
Others	S

L	Code	
	16th	17th
15	1	5
20	2	0
25	2	5
30	3	0
35	3	5
40	4	0
45	4	5
50	5	0
55	5	5
60	6	0

⑨Supplement code

Sleeve material	Terminal plating material	Code
		18th
PET	Sn100%	S
	Sn-Pb	C
PVC	Sn100%	B
	Sn-Pb	N

* Refer to the appendix (Part number) for codes not listed here.

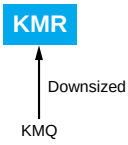
CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMR Series



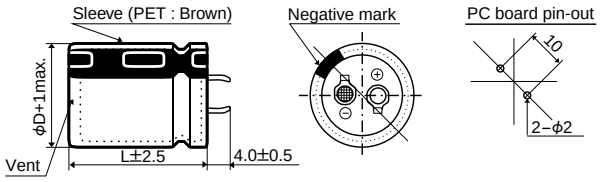
- Downsized 5mm in height from current snap-ins KMQ series
- Max. 50% up ripple current than same case size of KMQ series
- Endurance with ripple current : 2,000 hours at 105℃
- Rated voltage range : 160 to 450wv, Capacitance range : 100 to 3,900μF
- For inverter control, switching power supplies
- Non solvent resistant type
- **RoHS Compliant**

◆SPECIFICATIONS

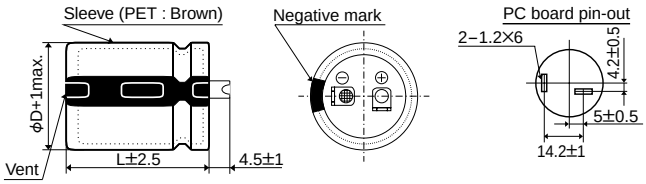
Items	Characteristics				
Category Temperature Range	−25 to +105℃				
Rated Voltage Range	160 to 450Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 250V	315 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	315 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±15% of the initial value			
	D.F. (tanδ)	≦150% of the initial specified value			
	Leakage current	≦The initial specified value			

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard



●Terminal Code : LI (φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	M	R				V	S	N				M				S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 100μF:101, 3,900μF:392)
- Dummy terminal code
- Terminal code (VS, LI)
- Voltage code (ex. 160V:161, 315V:3B1, 450V:451)
- Series code
- Category

Please refer to "Product code guide (snap-in type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMR Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/105℃,120Hz)	Part No.
160	560	22×25	1.58	EKMR161VSN561MP25S
	680	22×30	1.83	EKMR161VSN681MP30S
	820	22×35	2.06	EKMR161VSN821MP35S
	820	25.4×25	1.89	EKMR161VSN821MQ25S
	1,000	22×40	2.33	EKMR161VSN102MP40S
	1,000	25.4×30	2.15	EKMR161VSN102MQ30S
	1,000	30×25	1.90	EKMR161VSN102MR25S
	1,200	22×45	2.61	EKMR161VSN122MP45S
	1,200	22×50	2.69	EKMR161VSN122MP50S
	1,200	25.4×35	2.45	EKMR161VSN122MQ35S
	1,500	25.4×40	2.82	EKMR161VSN152MQ40S
	1,500	25.4×45	2.88	EKMR161VSN152MQ45S
	1,500	30×30	2.39	EKMR161VSN152MR30S
	1,500	35×25	2.17	EKMR161VSN152MA25S
	1,800	25.4×50	3.22	EKMR161VSN182MQ50S
	1,800	30×35	2.73	EKMR161VSN182MR35S
	1,800	30×40	2.82	EKMR161VSN182MR40S
	1,800	35×30	2.47	EKMR161VSN182MA30S
	2,200	30×45	3.23	EKMR161VSN222MR45S
	2,200	35×35	2.79	EKMR161VSN222MA35S
	2,700	30×50	3.66	EKMR161VSN272MR50S
	2,700	35×40	3.23	EKMR161VSN272MA40S
	3,300	35×45	3.68	EKMR161VSN332MA45S
	3,900	35×50	4.12	EKMR161VSN392MA50S
180	470	22×25	1.45	EKMR181VSN471MP25S
	560	22×30	1.66	EKMR181VSN561MP30S
	680	22×35	1.87	EKMR181VSN681MP35S
	680	25.4×25	1.72	EKMR181VSN681MQ25S
	820	22×40	2.11	EKMR181VSN821MP40S
	820	25.4×30	1.94	EKMR181VSN821MQ30S
	1,000	22×45	2.38	EKMR181VSN102MP45S
	1,000	25.4×35	2.24	EKMR181VSN102MQ35S
	1,000	30×25	1.90	EKMR181VSN102MR25S
	1,200	22×50	2.69	EKMR181VSN122MP50S
	1,200	25.4×40	2.52	EKMR181VSN122MQ40S
	1,200	30×30	2.14	EKMR181VSN122MR30S
	1,200	35×25	1.94	EKMR181VSN122MA25S
	1,500	25.4×45	2.88	EKMR181VSN152MQ45S
	1,500	25.4×50	2.94	EKMR181VSN152MQ50S
	1,500	30×35	2.49	EKMR181VSN152MR35S
	1,800	30×40	2.82	EKMR181VSN182MR40S
	1,800	35×30	2.47	EKMR181VSN182MA30S
	2,200	30×45	3.23	EKMR181VSN222MR45S
	2,200	30×50	3.31	EKMR181VSN222MR50S
	2,200	35×35	2.79	EKMR181VSN222MA35S
	2,200	35×40	2.92	EKMR181VSN222MA40S
	2,700	35×45	3.33	EKMR181VSN272MA45S
	3,300	35×50	3.79	EKMR181VSN332MA50S
200	560	22×30	1.66	EKMR201VSN561MP30S
	560	25.4×25	1.56	EKMR201VSN561MQ25S
	680	22×35	1.87	EKMR201VSN681MP35S
	680	25.4×30	1.77	EKMR201VSN681MQ30S
	820	22×40	2.11	EKMR201VSN821MP40S
	820	25.4×35	2.03	EKMR201VSN821MQ35S
	820	30×25	1.72	EKMR201VSN821MR25S
	1,000	22×50	2.45	EKMR201VSN102MP50S
	1,000	25.4×40	2.30	EKMR201VSN102MQ40S
	1,000	30×30	1.95	EKMR201VSN102MR30S
	1,200	25.4×45	2.58	EKMR201VSN122MQ45S
	1,200	30×35	2.23	EKMR201VSN122MR35S
	1,200	35×25	1.94	EKMR201VSN122MA25S
	1,500	25.4×50	2.94	EKMR201VSN152MQ50S
	1,500	30×40	2.58	EKMR201VSN152MR40S
	1,500	35×30	2.25	EKMR201VSN152MA30S
	1,800	30×45	2.92	EKMR201VSN182MR45S
	1,800	35×35	2.53	EKMR201VSN182MA35S
	2,200	30×50	3.31	EKMR201VSN222MR50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/105℃,120Hz)	Part No.
200	2,200	35×40	2.92	EKMR201VSN222MA40S
	2,700	35×45	3.33	EKMR201VSN272MA45S
	2,700	35×50	3.43	EKMR201VSN272MA50S
250	330	22×25	1.21	EKMR251VSN331MP25S
	390	22×30	1.38	EKMR251VSN391MP30S
	470	22×35	1.56	EKMR251VSN471MP35S
	560	22×40	1.74	EKMR251VSN561MP40S
	560	25.4×30	1.61	EKMR251VSN561MQ30S
	560	30×25	1.42	EKMR251VSN561MR25S
	680	22×45	1.97	EKMR251VSN681MP45S
	680	25.4×35	1.85	EKMR251VSN681MQ35S
	820	25.4×40	2.08	EKMR251VSN821MQ40S
	820	25.4×45	2.13	EKMR251VSN821MQ45S
	820	30×30	1.77	EKMR251VSN821MR30S
	820	35×25	1.60	EKMR251VSN821MA25S
	1,000	25.4×50	2.40	EKMR251VSN102MQ50S
	1,000	30×35	2.03	EKMR251VSN102MR35S
	1,200	30×40	2.31	EKMR251VSN122MR40S
	1,200	30×45	2.38	EKMR251VSN122MR45S
	1,200	35×35	2.06	EKMR251VSN122MA35S
	1,500	30×50	2.73	EKMR251VSN152MR50S
	1,500	35×40	2.41	EKMR251VSN152MA40S
	1,800	35×45	2.72	EKMR251VSN182MA45S
	2,200	35×50	3.10	EKMR251VSN222MA50S
315	180	22×25	0.91	EKMR3B1VSN181MP25S
	220	22×30	1.06	EKMR3B1VSN221MP30S
	270	22×35	1.20	EKMR3B1VSN271MP35S
	270	25.4×25	1.15	EKMR3B1VSN271MQ25S
	330	22×40	1.37	EKMR3B1VSN331MP40S
	330	25.4×30	1.30	EKMR3B1VSN331MQ30S
	390	22×45	1.52	EKMR3B1VSN391MP45S
	390	25.4×35	1.48	EKMR3B1VSN391MQ35S
	390	30×25	1.39	EKMR3B1VSN391MR25S
	470	22×50	1.72	EKMR3B1VSN471MP50S
	470	25.4×40	1.67	EKMR3B1VSN471MQ40S
	470	30×30	1.57	EKMR3B1VSN471MR30S
	470	35×25	1.52	EKMR3B1VSN471MA25S
	560	25.4×45	1.86	EKMR3B1VSN561MQ45S
	560	30×35	1.78	EKMR3B1VSN561MR35S
	680	25.4×50	2.10	EKMR3B1VSN681MQ50S
	680	30×40	2.03	EKMR3B1VSN681MR40S
	680	35×30	1.90	EKMR3B1VSN681MA30S
	820	30×45	2.31	EKMR3B1VSN821MR45S
	820	35×35	2.13	EKMR3B1VSN821MA35S
	1,000	30×50	2.61	EKMR3B1VSN102MR50S
	1,000	35×40	2.46	EKMR3B1VSN102MA40S
	1,200	35×45	2.78	EKMR3B1VSN122MA45S
	1,200	35×50	2.86	EKMR3B1VSN122MA50S
350	150	22×25	0.84	EKMR351VSN151MP25S
	220	22×30	1.06	EKMR351VSN221MP30S
	220	25.4×25	1.04	EKMR351VSN221MQ25S
	270	22×35	1.20	EKMR351VSN271MP35S
	270	25.4×30	1.18	EKMR351VSN271MQ30S
	330	22×40	1.37	EKMR351VSN331MP40S
	330	22×45	1.40	EKMR351VSN331MP45S
	330	25.4×35	1.36	EKMR351VSN331MQ35S
	330	30×25	1.28	EKMR351VSN331MR25S
	390	22×50	1.56	EKMR351VSN391MP50S
	390	25.4×40	1.52	EKMR351VSN391MQ40S
	390	30×30	1.43	EKMR351VSN391MR30S
	390	35×25	1.38	EKMR351VSN391MA25S
	470	25.4×45	1.71	EKMR351VSN471MQ45S
	560	25.4×50	1.90	EKMR351VSN561MQ50S
	560	30×35	1.78	EKMR351VSN561MR35S
	560	30×40	1.84	EKMR351VSN561MR40S
	560	35×30	1.72	EKMR351VSN561MA30S
	680	30×45	2.10	EKMR351VSN681MR45S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMR Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/105℃,120Hz)	Part No.
350	680	35×35	1.94	EKMR351VSN681MA35S
	820	30×50	2.36	EKMR351VSN821MR50S
	820	35×40	2.23	EKMR351VSN821MA40S
	1,000	35×45	2.54	EKMR351VSN102MA45S
	1,200	35×50	2.86	EKMR351VSN122MA50S
400	120	22×25	0.75	EKMR401VSN121MP25S
	180	22×30	0.96	EKMR401VSN181MP30S
	180	25.4×25	0.94	EKMR401VSN181MQ25S
	220	22×35	1.09	EKMR401VSN221MP35S
	220	25.4×30	1.07	EKMR401VSN221MQ30S
	270	22×40	1.24	EKMR401VSN271MP40S
	270	22×45	1.26	EKMR401VSN271MP45S
	270	25.4×35	1.23	EKMR401VSN271MQ35S
	270	30×25	1.16	EKMR401VSN271MR25S
	330	22×50	1.44	EKMR401VSN331MP50S
	330	25.4×40	1.40	EKMR401VSN331MQ40S
	330	30×30	1.31	EKMR401VSN331MR30S
	330	35×25	1.27	EKMR401VSN331MA25S
	390	25.4×45	1.55	EKMR401VSN391MQ45S
	390	30×35	1.49	EKMR401VSN391MR35S
	470	25.4×50	1.74	EKMR401VSN471MQ50S
	470	30×40	1.69	EKMR401VSN471MR40S
	470	35×30	1.58	EKMR401VSN471MA30S
	560	30×45	1.91	EKMR401VSN561MR45S
	560	35×35	1.76	EKMR401VSN561MA35S
	680	30×50	2.15	EKMR401VSN681MR50S
	680	35×40	2.03	EKMR401VSN681MA40S
	820	35×45	2.30	EKMR401VSN821MA45S
	820	35×50	2.37	EKMR401VSN821MA50S
420	120	22×25	0.78	EKMR421VSN121MP25S
	150	22×30	0.91	EKMR421VSN151MP30S
	150	25.4×25	0.89	EKMR421VSN151MQ25S
	180	22×35	1.03	EKMR421VSN181MP35S
	180	25.4×30	1.00	EKMR421VSN181MQ30S
	220	22×40	1.16	EKMR421VSN221MP40S
	220	22×45	1.19	EKMR421VSN221MP45S
	220	25.4×35	1.16	EKMR421VSN221MQ35S
	220	30×25	1.11	EKMR421VSN221MR25S
	270	22×50	1.36	EKMR421VSN271MP50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Rated ripple current (Arms/105℃,120Hz)	Part No.
420	270	25.4×40	1.32	EKMR421VSN271MQ40S
	270	30×30	1.26	EKMR421VSN271MR30S
	270	35×25	1.26	EKMR421VSN271MA25S
	330	25.4×45	1.49	EKMR421VSN331MQ45S
	330	30×35	1.45	EKMR421VSN331MR35S
	390	25.4×50	1.66	EKMR421VSN391MQ50S
	390	30×40	1.63	EKMR421VSN391MR40S
	390	35×30	1.58	EKMR421VSN391MA30S
	470	30×45	1.85	EKMR421VSN471MR45S
	470	35×35	1.77	EKMR421VSN471MA35S
	560	30×50	2.07	EKMR421VSN561MR50S
	560	35×40	2.02	EKMR421VSN561MA40S
	680	35×45	2.29	EKMR421VSN681MA45S
	820	35×50	2.59	EKMR421VSN821MA50S
450	100	22×25	0.71	EKMR451VSN101MP25S
	120	22×30	0.82	EKMR451VSN121MP30S
	150	22×35	0.94	EKMR451VSN151MP35S
	150	25.4×25	0.89	EKMR451VSN151MQ25S
	180	22×40	1.05	EKMR451VSN181MP40S
	180	25.4×30	1.00	EKMR451VSN181MQ30S
	220	22×45	1.19	EKMR451VSN221MP45S
	220	25.4×35	1.16	EKMR451VSN221MQ35S
	220	30×25	1.11	EKMR451VSN221MR25S
	270	22×50	1.36	EKMR451VSN271MP50S
	270	25.4×40	1.32	EKMR451VSN271MQ40S
	270	25.4×45	1.35	EKMR451VSN271MQ45S
	270	30×30	1.26	EKMR451VSN271MR30S
	270	35×25	1.26	EKMR451VSN271MA25S
	330	25.4×50	1.52	EKMR451VSN331MQ50S
	330	30×35	1.45	EKMR451VSN331MR35S
	330	35×30	1.45	EKMR451VSN331MA30S
	390	30×40	1.63	EKMR451VSN391MR40S
	470	30×45	1.85	EKMR451VSN471MR45S
	470	30×50	1.90	EKMR451VSN471MR50S
	470	35×35	1.77	EKMR451VSN471MA35S
	560	35×40	2.02	EKMR451VSN561MA40S
	560	35×45	2.08	EKMR451VSN561MA45S
	680	35×50	2.36	EKMR451VSN681MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

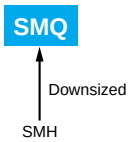
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

SMQ Series

- Downsized from current downsized snap-ins SMH series
- Endurance with ripple current : 2,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

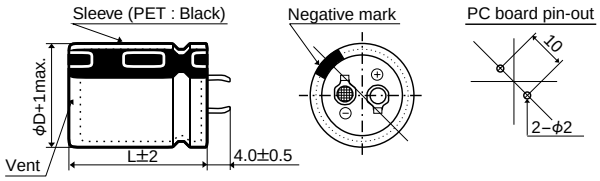


◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	−25 to +85℃				
Rated Voltage Range	160 to 450Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 250V	315 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 250V	315 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 85℃.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦200% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±15% of the initial value			
	D.F. (tanδ)	≦150% of the initial specified value			
	Leakage current	≦The initial specified value			

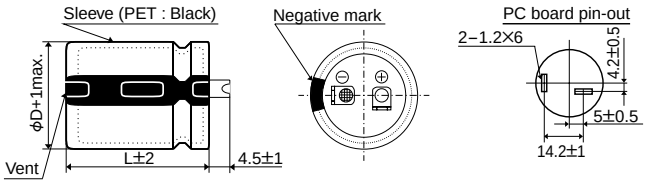
◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

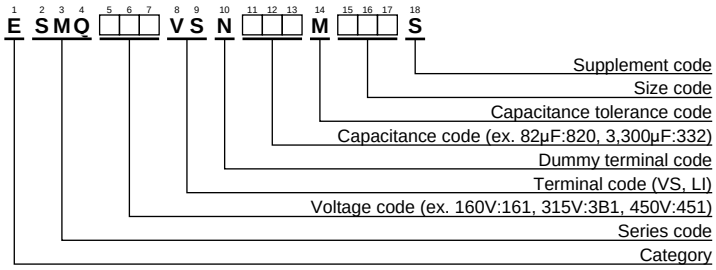


The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

SMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
160	560	22×25	0.15	2.25	ESMQ161VSN561MP25S
	680	22×30	0.15	2.50	ESMQ161VSN681MP30S
	820	22×35	0.15	2.75	ESMQ161VSN821MP35S
	1,000	22×40	0.15	3.00	ESMQ161VSN102MP40S
	1,000	25.4×30	0.15	3.00	ESMQ161VSN102MQ30S
	1,200	22×45	0.15	3.25	ESMQ161VSN122MP45S
	1,200	25.4×35	0.15	3.25	ESMQ161VSN122MQ35S
	1,200	30×25	0.15	3.25	ESMQ161VSN122MR25S
	1,500	22×50	0.15	3.73	ESMQ161VSN152MP50S
	1,500	25.4×40	0.15	3.73	ESMQ161VSN152MQ40S
	1,500	30×30	0.15	3.73	ESMQ161VSN152MR30S
	1,500	35×25	0.15	3.73	ESMQ161VSN152MA25S
	1,800	25.4×45	0.15	4.20	ESMQ161VSN182MQ45S
	1,800	30×35	0.15	4.20	ESMQ161VSN182MR35S
	1,800	35×30	0.15	4.20	ESMQ161VSN182MA30S
	2,200	30×40	0.15	4.78	ESMQ161VSN222MR40S
	2,200	35×35	0.15	4.78	ESMQ161VSN222MA35S
	2,700	35×40	0.15	5.45	ESMQ161VSN272MA40S
	3,300	35×45	0.15	5.75	ESMQ161VSN332MA45S
	3,900	35×50	0.15	6.00	ESMQ161VSN392MA50S
180	470	22×25	0.15	2.08	ESMQ181VSN471MP25S
	560	22×30	0.15	2.25	ESMQ181VSN561MP30S
	680	22×30	0.15	2.50	ESMQ181VSN681MP30S
	680	25.4×25	0.15	2.50	ESMQ181VSN681MQ25S
	820	22×35	0.15	2.75	ESMQ181VSN821MP35S
	820	25.4×30	0.15	2.75	ESMQ181VSN821MQ30S
	1,000	22×45	0.15	3.00	ESMQ181VSN102MP45S
	1,000	25.4×35	0.15	3.00	ESMQ181VSN102MQ35S
	1,000	30×25	0.15	3.00	ESMQ181VSN102MR25S
	1,200	22×50	0.15	3.31	ESMQ181VSN122MP50S
	1,200	25.4×40	0.15	3.31	ESMQ181VSN122MQ40S
	1,200	30×30	0.15	3.31	ESMQ181VSN122MR30S
	1,200	35×25	0.15	3.31	ESMQ181VSN122MA25S
	1,500	25.4×45	0.15	3.83	ESMQ181VSN152MQ45S
	1,500	30×35	0.15	3.83	ESMQ181VSN152MR35S
	1,500	35×30	0.15	3.83	ESMQ181VSN152MA30S
	1,800	25.4×50	0.15	4.32	ESMQ181VSN182MQ50S
	1,800	30×40	0.15	4.32	ESMQ181VSN182MR40S
	1,800	35×30	0.15	4.32	ESMQ181VSN182MA30S
	2,200	30×45	0.15	4.92	ESMQ181VSN222MR45S
	2,200	35×40	0.15	4.92	ESMQ181VSN222MA40S
	2,700	35×45	0.15	5.52	ESMQ181VSN272MA45S
	3,300	35×50	0.15	5.75	ESMQ181VSN332MA50S
200	390	22×25	0.15	1.68	ESMQ201VSN391MP25S
	470	22×30	0.15	1.85	ESMQ201VSN471MP30S
	560	22×30	0.15	2.43	ESMQ201VSN561MP30S
	560	25.4×25	0.15	2.43	ESMQ201VSN561MQ25S
	680	22×35	0.15	2.68	ESMQ201VSN681MP35S
	680	25.4×30	0.15	2.68	ESMQ201VSN681MQ30S
	820	22×40	0.15	2.93	ESMQ201VSN821MP40S
	820	25.4×30	0.15	2.93	ESMQ201VSN821MQ30S
	820	30×25	0.15	2.93	ESMQ201VSN821MR25S
	1,000	22×45	0.15	3.25	ESMQ201VSN102MP45S
	1,000	25.4×35	0.15	3.25	ESMQ201VSN102MQ35S
	1,000	30×30	0.15	3.25	ESMQ201VSN102MR30S
	1,000	35×25	0.15	3.25	ESMQ201VSN102MA25S
	1,200	25.4×40	0.15	3.50	ESMQ201VSN122MQ40S
	1,200	30×30	0.15	3.50	ESMQ201VSN122MR30S
	1,200	35×30	0.15	3.50	ESMQ201VSN122MA30S
	1,500	25.4×50	0.15	3.87	ESMQ201VSN152MQ50S
	1,500	30×35	0.15	3.87	ESMQ201VSN152MR35S
	1,500	35×30	0.15	3.87	ESMQ201VSN152MA30S
	1,800	30×45	0.15	4.32	ESMQ201VSN182MR45S
	1,800	35×35	0.15	4.32	ESMQ201VSN182MA35S
	2,200	30×50	0.15	4.92	ESMQ201VSN222MR50S
	2,200	35×40	0.15	4.92	ESMQ201VSN222MA40S
	2,700	35×50	0.15	5.45	ESMQ201VSN272MA50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
250	270	22×25	0.15	1.31	ESMQ251VSN271MP25S
	330	22×30	0.15	1.75	ESMQ251VSN331MP30S
	390	22×30	0.15	1.91	ESMQ251VSN391MP30S
	390	25.4×25	0.15	1.91	ESMQ251VSN391MQ25S
	470	22×35	0.15	2.11	ESMQ251VSN471MP35S
	470	25.4×30	0.15	2.11	ESMQ251VSN471MQ30S
	560	22×40	0.15	2.25	ESMQ251VSN561MP40S
	560	25.4×30	0.15	2.25	ESMQ251VSN561MQ30S
	560	30×25	0.15	2.25	ESMQ251VSN561MR25S
	680	22×45	0.15	2.50	ESMQ251VSN681MP45S
	680	25.4×35	0.15	2.50	ESMQ251VSN681MQ35S
	680	30×30	0.15	2.50	ESMQ251VSN681MR30S
	820	22×50	0.15	2.77	ESMQ251VSN821MP50S
	820	25.4×40	0.15	2.77	ESMQ251VSN821MQ40S
	820	30×30	0.15	2.77	ESMQ251VSN821MR30S
	820	35×25	0.15	2.77	ESMQ251VSN821MA25S
	1,000	25.4×45	0.15	3.32	ESMQ251VSN102MQ45S
	1,000	30×35	0.15	3.32	ESMQ251VSN102MR35S
	1,000	35×30	0.15	3.32	ESMQ251VSN102MA30S
	1,200	30×40	0.15	3.53	ESMQ251VSN122MR40S
	1,200	35×35	0.15	3.53	ESMQ251VSN122MA35S
	1,500	30×50	0.15	4.04	ESMQ251VSN152MR50S
	1,500	35×40	0.15	4.04	ESMQ251VSN152MA40S
	1,800	35×45	0.15	4.55	ESMQ251VSN182MA45S
315	180	22×25	0.15	1.21	ESMQ3B1VSN181MP25S
	220	22×30	0.15	1.41	ESMQ3B1VSN221MP30S
	270	22×30	0.15	1.60	ESMQ3B1VSN271MP30S
	330	22×40	0.15	1.82	ESMQ3B1VSN331MP40S
	330	25.4×30	0.15	1.82	ESMQ3B1VSN331MQ30S
	330	30×25	0.15	1.82	ESMQ3B1VSN331MR25S
	390	22×45	0.15	2.01	ESMQ3B1VSN391MP45S
	390	25.4×35	0.15	2.01	ESMQ3B1VSN391MQ35S
	390	30×30	0.15	2.01	ESMQ3B1VSN391MR30S
	470	22×50	0.15	2.27	ESMQ3B1VSN471MP50S
	470	25.4×40	0.15	2.27	ESMQ3B1VSN471MQ40S
	470	30×30	0.15	2.27	ESMQ3B1VSN471MR30S
	470	35×25	0.15	2.27	ESMQ3B1VSN471MA25S
	560	25.4×45	0.15	2.56	ESMQ3B1VSN561MQ45S
	560	30×35	0.15	2.56	ESMQ3B1VSN561MR35S
	560	35×30	0.15	2.56	ESMQ3B1VSN561MA30S
	680	30×40	0.15	2.87	ESMQ3B1VSN681MR40S
	680	35×35	0.15	2.87	ESMQ3B1VSN681MA35S
	820	30×45	0.15	3.25	ESMQ3B1VSN821MR45S
	820	35×40	0.15	3.25	ESMQ3B1VSN821MA40S
	1,000	30×50	0.15	3.63	ESMQ3B1VSN102MR50S
	1,000	35×45	0.15	3.63	ESMQ3B1VSN102MA45S
350	150	22×25	0.15	1.12	ESMQ351VSN151MP25S
	180	22×30	0.15	1.22	ESMQ351VSN181MP30S
	220	22×35	0.15	1.44	ESMQ351VSN221MP35S
	270	22×40	0.15	1.66	ESMQ351VSN271MP40S
	270	25.4×30	0.15	1.66	ESMQ351VSN271MQ30S
	330	22×45	0.15	1.88	ESMQ351VSN331MP45S
	330	25.4×35	0.15	1.88	ESMQ351VSN331MQ35S
	390	22×50	0.15	2.06	ESMQ351VSN391MP50S
	390	25.4×40	0.15	2.06	ESMQ351VSN391MQ40S
	390	30×30	0.15	2.06	ESMQ351VSN391MR30S
	390	35×25	0.15	2.06	ESMQ351VSN391MA25S
	470	25.4×45	0.15	2.40	ESMQ351VSN471MQ45S
	470	30×35	0.15	2.40	ESMQ351VSN471MR35S
	470	35×30	0.15	2.40	ESMQ351VSN471MA30S
	560	25.4×50	0.15	2.60	ESMQ351VSN561MQ50S
	560	30×40	0.15	2.60	ESMQ351VSN561MR40S
	560	35×30	0.15	2.60	ESMQ351VSN561MA30S
	680	30×45	0.15	2.96	ESMQ351VSN681MR45S
	680	35×35	0.15	2.96	ESMQ351VSN681MA35S
	820	30×50	0.15	3.25	ESMQ351VSN821MR50S
	820	35×45	0.15	3.25	ESMQ351VSN821MA45S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

SMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	1,000	35×50	0.15	3.54	ESMQ351VSN102MA50S
400	120	22×25	0.15	1.02	ESMQ401VSN121MP25S
	150	22×30	0.15	1.16	ESMQ401VSN151MP30S
	180	22×35	0.15	1.44	ESMQ401VSN181MP35S
	220	22×40	0.15	1.49	ESMQ401VSN221MP40S
	220	25.4×30	0.15	1.49	ESMQ401VSN221MQ30S
	270	22×45	0.15	1.67	ESMQ401VSN271MP45S
	270	25.4×35	0.15	1.67	ESMQ401VSN271MQ35S
	270	30×25	0.15	1.67	ESMQ401VSN271MR25S
	330	22×50	0.15	1.90	ESMQ401VSN331MP50S
	330	25.4×40	0.15	1.90	ESMQ401VSN331MQ40S
	330	30×30	0.15	1.90	ESMQ401VSN331MR30S
	330	35×25	0.15	1.90	ESMQ401VSN331MA25S
	390	25.4×45	0.15	2.13	ESMQ401VSN391MQ45S
	390	30×35	0.15	2.13	ESMQ401VSN391MR35S
	390	35×30	0.15	2.13	ESMQ401VSN391MA30S
	470	25.4×50	0.15	2.39	ESMQ401VSN471MQ50S
	470	30×40	0.15	2.39	ESMQ401VSN471MR40S
	470	35×30	0.15	2.39	ESMQ401VSN471MA30S
	560	30×45	0.15	2.69	ESMQ401VSN561MR45S
	560	35×35	0.15	2.69	ESMQ401VSN561MA35S
	680	30×50	0.15	2.96	ESMQ401VSN681MR50S
	680	35×40	0.15	2.96	ESMQ401VSN681MA40S
	820	35×45	0.15	3.25	ESMQ401VSN821MA45S
420	100	22×25	0.20	0.97	ESMQ421VSN101MP25S
	120	22×25	0.20	1.08	ESMQ421VSN121MP25S
	150	22×30	0.20	1.30	ESMQ421VSN151MP30S
	150	25.4×25	0.20	1.30	ESMQ421VSN151MQ25S
	180	22×35	0.20	1.48	ESMQ421VSN181MP35S
	180	25.4×30	0.20	1.48	ESMQ421VSN181MQ30S
	220	22×40	0.20	1.65	ESMQ421VSN221MP40S
	220	25.4×35	0.20	1.65	ESMQ421VSN221MQ35S
	220	30×25	0.20	1.65	ESMQ421VSN221MR25S
	270	22×50	0.20	1.94	ESMQ421VSN271MP50S
	270	25.4×35	0.20	1.94	ESMQ421VSN271MQ35S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
420	270	30×30	0.20	1.94	ESMQ421VSN271MR30S
	330	25.4×45	0.20	2.17	ESMQ421VSN331MQ45S
	330	30×35	0.20	2.17	ESMQ421VSN331MR35S
	330	35×30	0.20	2.17	ESMQ421VSN331MA30S
	390	25.4×50	0.20	2.27	ESMQ421VSN391MQ50S
	390	30×35	0.20	2.27	ESMQ421VSN391MR35S
	390	35×30	0.20	2.27	ESMQ421VSN391MA30S
	470	30×40	0.20	2.61	ESMQ421VSN471MR40S
	470	35×35	0.20	2.61	ESMQ421VSN471MA35S
	560	30×50	0.20	2.82	ESMQ421VSN561MR50S
	560	35×40	0.20	2.82	ESMQ421VSN561MA40S
	680	35×45	0.20	3.11	ESMQ421VSN681MA45S
450	82	22×25	0.20	0.83	ESMQ451VSN820MP25S
	100	22×25	0.20	0.93	ESMQ451VSN101MP25S
	120	22×30	0.20	1.04	ESMQ451VSN121MP30S
	150	22×35	0.20	1.19	ESMQ451VSN151MP35S
	150	25.4×25	0.20	1.19	ESMQ451VSN151MQ25S
	180	22×40	0.20	1.35	ESMQ451VSN181MP40S
	180	25.4×30	0.20	1.35	ESMQ451VSN181MQ30S
	220	22×45	0.20	1.55	ESMQ451VSN221MP45S
	220	25.4×40	0.20	1.55	ESMQ451VSN221MQ40S
	220	30×30	0.20	1.55	ESMQ451VSN221MR30S
	220	35×25	0.20	1.55	ESMQ451VSN221MA25S
	270	22×50	0.20	1.78	ESMQ451VSN271MP50S
	270	25.4×40	0.20	1.78	ESMQ451VSN271MQ40S
	270	30×30	0.20	1.78	ESMQ451VSN271MR30S
	330	25.4×50	0.20	2.01	ESMQ451VSN331MQ50S
	330	30×40	0.20	2.01	ESMQ451VSN331MR40S
	330	35×30	0.20	2.01	ESMQ451VSN331MA30S
	390	30×40	0.20	2.24	ESMQ451VSN391MR40S
	390	35×35	0.20	2.24	ESMQ451VSN391MA35S
	470	30×45	0.20	2.53	ESMQ451VSN471MR45S
	470	35×40	0.20	2.53	ESMQ451VSN471MA40S
	560	30×50	0.20	2.82	ESMQ451VSN561MR50S
	560	35×45	0.20	2.82	ESMQ451VSN561MA45S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

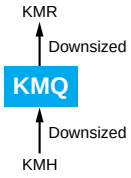
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMQ Series

- Downsized from current downsized snap-ins KMH series
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

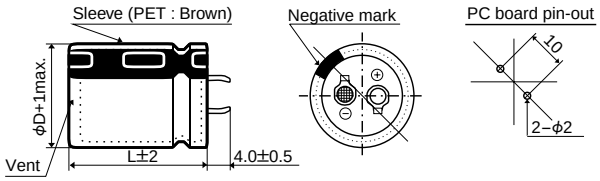


◆SPECIFICATIONS

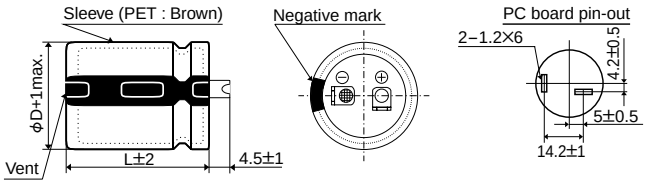
Items	Characteristics								
Category Temperature Range	−40 to +105℃ (35&50Vdc), −25 to +105℃ (160 to 450Vdc)								
Rated Voltage Range	35&50Vdc, 160 to 450Vdc								
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)								
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)								
Dissipation Factor (tanδ)	Rated voltage (Vdc)	35V		50V		160 to 250V	315 to 400V	420 & 450V	
	Nominal capacitance (μF)	10,000>C	C≧10,000	10,000>C	C≧10,000	–	–	–	
	tanδ (Max.)	0.30	0.35	0.25	0.30	0.15	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	35&50V	160 to 250V	315 to 400V	420 & 450V				
	Z(−40℃)/Z(+20℃)	4	–	–	–				
	Z(−25℃)/Z(+20℃)	10	4	8	8				(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃.								
	Capacitance change	≦±20% of the initial value							
	D.F. (tanδ)	≦200% of the initial specified value							
	Leakage current	≦The initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.								
	Capacitance change	≦±15% of the initial value							
	D.F. (tanδ)	≦150% of the initial specified value							
	Leakage current	≦The initial specified value							

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

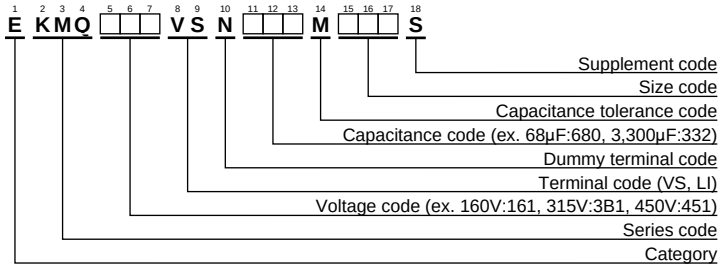


●Terminal Code : LI (φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
35	4,700	22×25	0.30	1.87	EKMQ350VSN472MP25S
	5,600	22×25	0.30	2.04	EKMQ350VSN562MP25S
	5,600	25.4×25	0.30	2.00	EKMQ350VSN562MQ25S
	6,800	22×30	0.30	2.36	EKMQ350VSN682MP30S
	6,800	25.4×25	0.30	2.21	EKMQ350VSN682MQ25S
	8,200	22×35	0.30	2.65	EKMQ350VSN822MP35S
	8,200	25.4×30	0.30	2.49	EKMQ350VSN822MQ30S
	8,200	30×25	0.30	2.62	EKMQ350VSN822MR25S
	10,000	22×40	0.35	3.00	EKMQ350VSN103MP40S
	10,000	25.4×35	0.35	2.88	EKMQ350VSN103MQ35S
	10,000	30×25	0.35	2.90	EKMQ350VSN103MR25S
	12,000	22×50	0.35	3.47	EKMQ350VSN123MP50S
	12,000	25.4×35	0.35	3.15	EKMQ350VSN123MQ35S
	12,000	30×30	0.35	3.25	EKMQ350VSN123MR30S
	12,000	35×25	0.35	3.20	EKMQ350VSN123MA25S
	15,000	25.4×40	0.35	3.61	EKMQ350VSN153MQ40S
	15,000	30×35	0.35	3.78	EKMQ350VSN153MR35S
	15,000	35×25	0.35	3.60	EKMQ350VSN153MA25S
	18,000	25.4×50	0.35	4.14	EKMQ350VSN183MQ50S
	18,000	30×40	0.35	4.30	EKMQ350VSN183MR40S
	18,000	35×30	0.35	4.10	EKMQ350VSN183MA30S
	22,000	30×50	0.35	5.00	EKMQ350VSN223MR50S
	22,000	35×35	0.35	4.64	EKMQ350VSN223MA35S
	27,000	35×40	0.35	5.37	EKMQ350VSN273MA40S
	33,000	35×50	0.35	6.00	EKMQ350VSN333MA50S
50	2,700	22×25	0.25	1.65	EKMQ500VSN272MP25S
	3,300	22×30	0.25	1.92	EKMQ500VSN332MP30S
	3,300	25.4×25	0.25	1.76	EKMQ500VSN332MQ25S
	3,900	22×30	0.25	2.08	EKMQ500VSN392MP30S
	3,900	25.4×25	0.25	2.04	EKMQ500VSN392MQ25S
	4,700	22×35	0.25	2.43	EKMQ500VSN472MP35S
	4,700	25.4×30	0.25	2.50	EKMQ500VSN472MQ30S
	4,700	30×25	0.25	2.29	EKMQ500VSN472MR25S
	5,600	22×40	0.25	2.63	EKMQ500VSN562MP40S
	5,600	25.4×35	0.25	2.61	EKMQ500VSN562MQ35S
	5,600	30×25	0.25	2.80	EKMQ500VSN562MR25S
	6,800	22×50	0.25	3.05	EKMQ500VSN682MP50S
	6,800	25.4×40	0.25	2.94	EKMQ500VSN682MQ40S
	6,800	30×30	0.25	3.30	EKMQ500VSN682MR30S
	6,800	35×25	0.25	2.77	EKMQ500VSN682MA25S
	8,200	25.4×45	0.25	3.60	EKMQ500VSN822MQ45S
	8,200	30×35	0.25	3.60	EKMQ500VSN822MR35S
	8,200	35×30	0.25	3.60	EKMQ500VSN822MA30S
	10,000	25.4×50	0.30	4.00	EKMQ500VSN103MQ50S
	10,000	30×40	0.30	4.00	EKMQ500VSN103MR40S
	10,000	35×30	0.30	4.00	EKMQ500VSN103MA30S
	12,000	30×50	0.30	4.29	EKMQ500VSN123MR50S
	12,000	35×35	0.30	4.37	EKMQ500VSN123MA35S
	15,000	35×40	0.30	4.50	EKMQ500VSN153MA40S
	18,000	35×50	0.30	5.30	EKMQ500VSN183MA50S
160	470	22×25	0.15	1.40	EKMQ161VSN471MP25S
	560	22×30	0.15	1.50	EKMQ161VSN561MP30S
	680	22×30	0.15	1.70	EKMQ161VSN681MP30S
	680	25.4×25	0.15	1.70	EKMQ161VSN681MQ25S
	820	22×35	0.15	2.00	EKMQ161VSN821MP35S
	820	25.4×30	0.15	2.00	EKMQ161VSN821MQ30S
	820	30×25	0.15	2.00	EKMQ161VSN821MR25S
	1,000	22×40	0.15	2.20	EKMQ161VSN102MP40S
	1,000	25.4×35	0.15	2.20	EKMQ161VSN102MQ35S
	1,000	30×25	0.15	2.20	EKMQ161VSN102MR25S
	1,200	25.4×40	0.15	2.30	EKMQ161VSN122MQ40S
	1,200	30×30	0.15	2.30	EKMQ161VSN122MR30S
	1,200	35×25	0.15	2.30	EKMQ161VSN122MA25S
	1,500	25.4×45	0.15	2.50	EKMQ161VSN152MQ45S
	1,500	30×35	0.15	2.50	EKMQ161VSN152MR35S
	1,500	35×30	0.15	2.50	EKMQ161VSN152MA30S
	1,800	25.4×50	0.15	2.70	EKMQ161VSN182MQ50S
160	1,800	30×40	0.15	2.70	EKMQ161VSN182MR40S
	1,800	35×30	0.15	2.70	EKMQ161VSN182MA30S
	2,200	30×45	0.15	2.90	EKMQ161VSN222MR45S
	2,200	35×35	0.15	2.90	EKMQ161VSN222MA35S
	2,700	30×50	0.15	3.10	EKMQ161VSN272MR50S
	2,700	35×40	0.15	3.10	EKMQ161VSN272MA40S
	3,300	35×50	0.15	3.30	EKMQ161VSN332MA50S
180	390	22×25	0.15	1.30	EKMQ181VSN391MP25S
	470	22×30	0.15	1.40	EKMQ181VSN471MP30S
	560	22×30	0.15	1.50	EKMQ181VSN561MP30S
	560	25.4×25	0.15	1.50	EKMQ181VSN561MQ25S
	680	22×35	0.15	1.70	EKMQ181VSN681MP35S
	680	25.4×30	0.15	1.70	EKMQ181VSN681MQ30S
	820	22×40	0.15	2.00	EKMQ181VSN821MP40S
	820	25.4×30	0.15	2.00	EKMQ181VSN821MQ30S
	820	30×25	0.15	2.00	EKMQ181VSN821MR25S
	1,000	22×45	0.15	2.20	EKMQ181VSN102MP45S
	1,000	25.4×40	0.15	2.20	EKMQ181VSN102MQ40S
	1,000	30×30	0.15	2.20	EKMQ181VSN102MR30S
	1,000	35×25	0.15	2.20	EKMQ181VSN102MA25S
	1,200	25.4×45	0.15	2.30	EKMQ181VSN122MQ45S
	1,200	30×35	0.15	2.30	EKMQ181VSN122MR35S
	1,200	35×30	0.15	2.30	EKMQ181VSN122MA30S
	1,500	25.4×50	0.15	2.50	EKMQ181VSN152MQ50S
	1,500	30×40	0.15	2.50	EKMQ181VSN152MR40S
	1,500	35×30	0.15	2.50	EKMQ181VSN152MA30S
	1,800	30×45	0.15	2.70	EKMQ181VSN182MR45S
	1,800	35×35	0.15	2.70	EKMQ181VSN182MA35S
	2,200	30×50	0.15	2.90	EKMQ181VSN222MR50S
	2,200	35×40	0.15	2.90	EKMQ181VSN222MA40S
	2,700	35×50	0.15	3.10	EKMQ181VSN272MA50S
200	390	22×25	0.15	1.31	EKMQ201VSN391MP25S
	470	22×30	0.15	1.45	EKMQ201VSN471MP30S
	560	22×30	0.15	1.67	EKMQ201VSN561MP30S
	560	25.4×25	0.15	1.67	EKMQ201VSN561MQ25S
	680	22×40	0.15	1.75	EKMQ201VSN681MP40S
	680	25.4×30	0.15	1.75	EKMQ201VSN681MQ30S
	820	22×45	0.15	2.04	EKMQ201VSN821MP45S
	820	25.4×35	0.15	2.04	EKMQ201VSN821MQ35S
	820	30×25	0.15	2.04	EKMQ201VSN821MR25S
	1,000	22×50	0.15	2.30	EKMQ201VSN102MP50S
	1,000	25.4×45	0.15	2.30	EKMQ201VSN102MQ45S
	1,000	30×30	0.15	2.30	EKMQ201VSN102MR30S
	1,000	35×25	0.15	2.30	EKMQ201VSN102MA25S
	1,200	25.4×50	0.15	2.65	EKMQ201VSN122MQ50S
	1,200	30×35	0.15	2.65	EKMQ201VSN122MR35S
	1,200	35×30	0.15	2.65	EKMQ201VSN122MA30S
	1,500	30×40	0.15	2.80	EKMQ201VSN152MR40S
	1,500	35×30	0.15	2.80	EKMQ201VSN152MA30S
	1,800	30×45	0.15	3.08	EKMQ201VSN182MR45S
	1,800	35×40	0.15	3.08	EKMQ201VSN182MA40S
	2,200	35×45	0.15	3.48	EKMQ201VSN222MA45S
250	220	22×25	0.15	1.00	EKMQ251VSN221MP25S
	270	22×25	0.15	1.10	EKMQ251VSN271MP25S
	330	22×30	0.15	1.20	EKMQ251VSN331MP30S
	330	25.4×25	0.15	1.20	EKMQ251VSN331MQ25S
	390	22×35	0.15	1.30	EKMQ251VSN391MP35S
	390	25.4×25	0.15	1.30	EKMQ251VSN391MQ25S
	470	22×40	0.15	1.40	EKMQ251VSN471MP40S
	470	25.4×30	0.15	1.40	EKMQ251VSN471MQ30S
	470	30×25	0.15	1.40	EKMQ251VSN471MR25S
	560	22×45	0.15	1.50	EKMQ251VSN561MP45S
	560	25.4×35	0.15	1.50	EKMQ251VSN561MQ35S
	560	30×25	0.15	1.50	EKMQ251VSN561MR25S
	680	22×50	0.15	1.70	EKMQ251VSN681MP50S
	680	25.4×40	0.15	1.70	EKMQ251VSN681MQ40S
	680	30×30	0.15	1.70	EKMQ251VSN681MR30S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
250	680	35×25	0.15	1.70	EKMQ251VSN681MA25S
	820	25.4×45	0.15	2.00	EKMQ251VSN821MQ45S
	820	30×35	0.15	2.00	EKMQ251VSN821MR35S
	820	35×30	0.15	2.00	EKMQ251VSN821MA30S
	1,000	30×40	0.15	2.20	EKMQ251VSN102MR40S
	1,000	35×30	0.15	2.20	EKMQ251VSN102MA30S
	1,200	30×45	0.15	2.30	EKMQ251VSN122MR45S
	1,200	35×35	0.15	2.30	EKMQ251VSN122MA35S
	1,500	35×45	0.15	2.50	EKMQ251VSN152MA45S
	1,800	35×50	0.15	2.70	EKMQ251VSN182MA50S
315	150	22×25	0.15	0.82	EKMQ3B1VSN151MP25S
	180	22×30	0.15	0.90	EKMQ3B1VSN181MP30S
	220	22×30	0.15	1.00	EKMQ3B1VSN221MP30S
	220	25.4×25	0.15	1.00	EKMQ3B1VSN221MQ25S
	270	22×35	0.15	1.10	EKMQ3B1VSN271MP35S
	270	25.4×30	0.15	1.10	EKMQ3B1VSN271MQ30S
	330	22×45	0.15	1.20	EKMQ3B1VSN331MP45S
	330	25.4×35	0.15	1.20	EKMQ3B1VSN331MQ35S
	330	30×25	0.15	1.20	EKMQ3B1VSN331MR25S
	390	22×45	0.15	1.30	EKMQ3B1VSN391MP45S
	390	25.4×40	0.15	1.30	EKMQ3B1VSN391MQ40S
	390	30×30	0.15	1.30	EKMQ3B1VSN391MR30S
	390	35×25	0.15	1.30	EKMQ3B1VSN391MA25S
	470	25.4×45	0.15	1.40	EKMQ3B1VSN471MQ45S
	470	30×35	0.15	1.40	EKMQ3B1VSN471MR35S
	470	35×25	0.15	1.40	EKMQ3B1VSN471MA25S
	560	25.4×50	0.15	1.50	EKMQ3B1VSN561MQ50S
	560	30×40	0.15	1.50	EKMQ3B1VSN561MR40S
	560	35×30	0.15	1.50	EKMQ3B1VSN561MA30S
	680	30×45	0.15	1.70	EKMQ3B1VSN681MR45S
	680	35×35	0.15	1.70	EKMQ3B1VSN681MA35S
	820	30×50	0.15	2.00	EKMQ3B1VSN821MR50S
	820	35×40	0.15	2.00	EKMQ3B1VSN821MA40S
	1,000	35×45	0.15	2.30	EKMQ3B1VSN102MA45S
350	120	22×25	0.15	0.75	EKMQ351VSN121MP25S
	150	22×30	0.15	0.82	EKMQ351VSN151MP30S
	180	22×30	0.15	0.90	EKMQ351VSN181MP30S
	180	25.4×25	0.15	0.90	EKMQ351VSN181MQ25S
	220	22×35	0.15	1.00	EKMQ351VSN221MP35S
	220	25.4×30	0.15	1.00	EKMQ351VSN221MQ30S
	270	22×40	0.15	1.10	EKMQ351VSN271MP40S
	270	25.4×30	0.15	1.10	EKMQ351VSN271MQ30S
	270	30×25	0.15	1.10	EKMQ351VSN271MR25S
	330	22×45	0.15	1.20	EKMQ351VSN331MP45S
	330	25.4×40	0.15	1.20	EKMQ351VSN331MQ40S
	330	30×30	0.15	1.20	EKMQ351VSN331MR30S
	390	25.4×45	0.15	1.30	EKMQ351VSN391MQ45S
	390	30×35	0.15	1.30	EKMQ351VSN391MR35S
	470	25.4×50	0.15	1.40	EKMQ351VSN471MQ50S
	470	30×35	0.15	1.40	EKMQ351VSN471MR35S
	470	35×30	0.15	1.40	EKMQ351VSN471MA30S
	560	30×45	0.15	1.50	EKMQ351VSN561MR45S
	560	35×35	0.15	1.50	EKMQ351VSN561MA35S
	680	30×50	0.15	1.70	EKMQ351VSN681MR50S
	680	35×40	0.15	1.70	EKMQ351VSN681MA40S
	820	35×45	0.15	1.90	EKMQ351VSN821MA45S
400	100	22×25	0.15	0.70	EKMQ401VSN101MP25S
	120	22×30	0.15	0.75	EKMQ401VSN121MP30S
	150	22×30	0.15	0.88	EKMQ401VSN151MP30S
	150	25.4×25	0.15	0.88	EKMQ401VSN151MQ25S
	180	22×35	0.15	0.95	EKMQ401VSN181MP35S
	180	25.4×30	0.15	0.95	EKMQ401VSN181MQ30S
	220	22×45	0.15	1.10	EKMQ401VSN221MP45S
	220	25.4×35	0.15	1.10	EKMQ401VSN221MQ35S
	220	30×25	0.15	1.10	EKMQ401VSN221MR25S
	270	22×50	0.15	1.22	EKMQ401VSN271MP50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	270	25.4×40	0.15	1.22	EKMQ401VSN271MQ40S
	270	30×30	0.15	1.22	EKMQ401VSN271MR30S
	270	35×25	0.15	1.22	EKMQ401VSN271MA25S
	330	25.4×45	0.15	1.44	EKMQ401VSN331MQ45S
	330	30×35	0.15	1.44	EKMQ401VSN331MR35S
	330	35×30	0.15	1.44	EKMQ401VSN331MA30S
	390	25.4×50	0.15	1.55	EKMQ401VSN391MQ50S
	390	30×40	0.15	1.55	EKMQ401VSN391MR40S
	390	35×30	0.15	1.55	EKMQ401VSN391MA30S
	470	30×45	0.15	1.68	EKMQ401VSN471MR45S
	470	35×35	0.15	1.68	EKMQ401VSN471MA35S
	560	30×50	0.15	1.90	EKMQ401VSN561MR50S
	560	35×40	0.15	1.90	EKMQ401VSN561MA40S
	680	35×45	0.15	2.12	EKMQ401VSN681MA45S
420	82	22×25	0.20	0.64	EKMQ421VSN820MP25S
	100	22×25	0.20	0.66	EKMQ421VSN101MP25S
	100	25.4×25	0.20	0.66	EKMQ421VSN101MQ25S
	120	22×30	0.20	0.81	EKMQ421VSN121MP30S
	120	25.4×25	0.20	0.81	EKMQ421VSN121MQ25S
	150	22×35	0.20	0.84	EKMQ421VSN151MP35S
	150	25.4×30	0.20	0.84	EKMQ421VSN151MQ30S
	150	30×25	0.20	0.84	EKMQ421VSN151MR25S
	180	22×40	0.20	0.91	EKMQ421VSN181MP40S
	180	25.4×30	0.20	0.91	EKMQ421VSN181MQ30S
	180	30×25	0.20	0.91	EKMQ421VSN181MR25S
	220	22×45	0.20	1.05	EKMQ421VSN221MP45S
	220	25.4×35	0.20	1.05	EKMQ421VSN221MQ35S
	220	30×30	0.20	1.05	EKMQ421VSN221MR30S
	220	35×25	0.20	1.05	EKMQ421VSN221MA25S
	270	25.4×40	0.20	1.25	EKMQ421VSN271MQ40S
	270	30×30	0.20	1.25	EKMQ421VSN271MR30S
	270	35×25	0.20	1.25	EKMQ421VSN271MA25S
	330	25.4×50	0.20	1.42	EKMQ421VSN331MQ50S
	330	30×35	0.20	1.42	EKMQ421VSN331MR35S
	330	35×30	0.20	1.42	EKMQ421VSN331MA30S
	390	30×40	0.20	1.61	EKMQ421VSN391MR40S
	390	35×35	0.20	1.61	EKMQ421VSN391MA35S
	470	30×45	0.20	1.86	EKMQ421VSN471MR45S
	470	35×40	0.20	1.86	EKMQ421VSN471MA40S
	560	35×45	0.20	2.10	EKMQ421VSN561MA45S
	680	35×50	0.20	2.20	EKMQ421VSN681MA50S
450	68	22×25	0.20	0.50	EKMQ451VSN680MP25S
	82	22×30	0.20	0.56	EKMQ451VSN820MP30S
	100	22×30	0.20	0.64	EKMQ451VSN101MP30S
	100	25.4×25	0.20	0.64	EKMQ451VSN101MQ25S
	120	22×35	0.20	0.72	EKMQ451VSN121MP35S
	120	25.4×30	0.20	0.72	EKMQ451VSN121MQ30S
	150	22×40	0.20	0.79	EKMQ451VSN151MP40S
	150	25.4×30	0.20	0.79	EKMQ451VSN151MQ30S
	150	30×25	0.20	0.79	EKMQ451VSN151MR25S
	180	22×45	0.20	0.87	EKMQ451VSN181MP45S
	180	25.4×40	0.20	0.87	EKMQ451VSN181MQ40S
	180	30×30	0.20	0.87	EKMQ451VSN181MR30S
	220	25.4×45	0.20	1.00	EKMQ451VSN221MQ45S
	220	30×30	0.20	1.00	EKMQ451VSN221MR30S
	220	35×25	0.20	1.00	EKMQ451VSN221MA25S
	270	25.4×50	0.20	1.19	EKMQ451VSN271MQ50S
	270	30×40	0.20	1.19	EKMQ451VSN271MR40S
	270	35×30	0.20	1.19	EKMQ451VSN271MA30S
	330	30×45	0.20	1.38	EKMQ451VSN331MR45S
	330	35×35	0.20	1.38	EKMQ451VSN331MA35S
	390	30×50	0.20	1.55	EKMQ451VSN391MR50S
	390	35×40	0.20	1.55	EKMQ451VSN391MA40S
	470	35×45	0.20	1.74	EKMQ451VSN471MA45S
	560	35×50	0.20	1.90	EKMQ451VSN561MA50S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMQ Series

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
35, 50Vdc	0.95	1.00	1.03	1.05	1.08	1.08
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

SMM Series

- Downsize, longer life, and high ripple version of SMH series
- Endurance with ripple current : 3,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

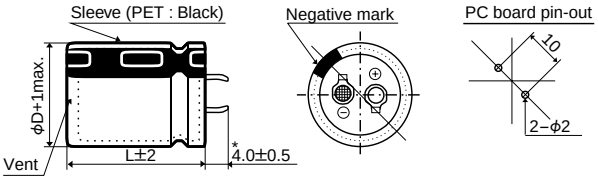
SMM
↑ Downsized, Longer life, Higher ripple
SMH

◆SPECIFICATIONS

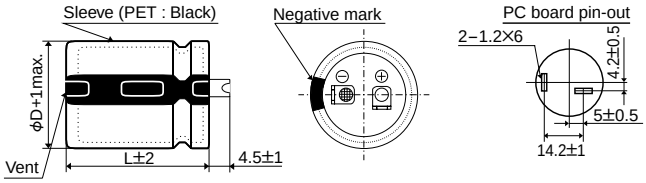
Items	Characteristics			
Category Temperature Range	−25 to +85℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 3,000 hours at 85℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : VS (φ20 to φ35) : Standard



●Terminal Code : LI (φ35)



*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	S	M	M				V	S	N				M				S

- 18 : Supplement code
- 15–17 : Size code
- 14 : Capacitance tolerance code
- 11–13 : Capacitance code (ex. 330μF:331, 3,300μF:332)
- 10 : Dummy terminal code
- 8–9 : Terminal code (VS, LI)
- 5–7 : Voltage code (ex. 160V:161, 315V:3B1, 450V:451)
- 2–4 : Series code
- 1 : Category

Please refer to "Product code guide (snap-in type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

SMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
160	270	20×25	0.15	1.28	ESMM161VSN271MN25S
	270	22×20	0.15	1.30	ESMM161VSN271MP20S
	330	20×25	0.15	1.55	ESMM161VSN331MN25S
	390	20×30	0.15	1.63	ESMM161VSN391MN30S
	390	22×25	0.15	1.63	ESMM161VSN391MP25S
	390	25.4×20	0.15	1.62	ESMM161VSN391MQ20S
	470	20×30	0.15	1.90	ESMM161VSN471MN30S
	470	22×30	0.15	1.86	ESMM161VSN471MP30S
	470	25.4×25	0.15	1.86	ESMM161VSN471MQ25S
	560	20×35	0.15	2.14	ESMM161VSN561MN35S
	560	22×30	0.15	2.15	ESMM161VSN561MP30S
	560	25.4×25	0.15	2.15	ESMM161VSN561MQ25S
	560	30×20	0.15	2.05	ESMM161VSN561MR20S
	680	20×40	0.15	2.35	ESMM161VSN681MN40S
	680	22×35	0.15	2.35	ESMM161VSN681MP35S
	680	25.4×30	0.15	2.33	ESMM161VSN681MQ30S
	680	30×25	0.15	2.33	ESMM161VSN681MR25S
	680	35×20	0.15	2.26	ESMM161VSN681MA20S
	820	20×45	0.15	2.64	ESMM161VSN821MN45S
	820	22×40	0.15	2.68	ESMM161VSN821MP40S
	820	25.4×30	0.15	2.65	ESMM161VSN821MQ30S
	820	30×25	0.15	2.64	ESMM161VSN821MR25S
	820	35×20	0.15	2.49	ESMM161VSN821MA20S
	1,000	22×45	0.15	3.02	ESMM161VSN102MP45S
	1,000	25.4×35	0.15	3.00	ESMM161VSN102MQ35S
	1,000	30×30	0.15	2.96	ESMM161VSN102MR30S
	1,000	35×25	0.15	3.13	ESMM161VSN102MA25S
	1,200	22×50	0.15	3.47	ESMM161VSN122MP50S
	1,200	25.4×40	0.15	3.43	ESMM161VSN122MQ40S
	1,200	30×30	0.15	3.41	ESMM161VSN122MR30S
	1,200	35×25	0.15	3.40	ESMM161VSN122MA25S
	1,500	25.4×50	0.15	3.96	ESMM161VSN152MQ50S
	1,500	30×35	0.15	3.96	ESMM161VSN152MR35S
	1,500	35×30	0.15	3.94	ESMM161VSN152MA30S
	1,800	30×40	0.15	4.31	ESMM161VSN182MR40S
	1,800	35×35	0.15	4.28	ESMM161VSN182MA35S
	2,200	30×50	0.15	4.96	ESMM161VSN222MR50S
	2,200	35×40	0.15	4.96	ESMM161VSN222MA40S
	2,700	35×45	0.15	5.57	ESMM161VSN272MA45S
	3,300	35×50	0.15	6.21	ESMM161VSN332MA50S
180	220	22×20	0.15	1.18	ESMM181VSN221MP20S
	270	20×25	0.15	1.29	ESMM181VSN271MN25S
	330	20×30	0.15	1.77	ESMM181VSN331MN30S
	330	22×25	0.15	1.77	ESMM181VSN331MP25S
	330	25.4×20	0.15	1.49	ESMM181VSN331MQ20S
	390	20×30	0.15	1.84	ESMM181VSN391MN30S
	390	22×25	0.15	1.84	ESMM181VSN391MP25S
	470	20×35	0.15	1.91	ESMM181VSN471MN35S
	470	22×30	0.15	1.91	ESMM181VSN471MP30S
	470	25.4×25	0.15	2.08	ESMM181VSN471MQ25S
	470	30×20	0.15	1.88	ESMM181VSN471MR20S
	560	20×40	0.15	2.15	ESMM181VSN561MN40S
	560	22×35	0.15	2.25	ESMM181VSN561MP35S
	560	25.4×25	0.15	2.25	ESMM181VSN561MQ25S
	680	20×45	0.15	2.41	ESMM181VSN681MN45S
	680	22×35	0.15	2.48	ESMM181VSN681MP35S
	680	25.4×30	0.15	2.50	ESMM181VSN681MQ30S
	680	30×25	0.15	2.46	ESMM181VSN681MR25S
	680	35×20	0.15	2.26	ESMM181VSN681MA20S
	820	20×50	0.15	2.72	ESMM181VSN821MN50S
	820	22×40	0.15	2.86	ESMM181VSN821MP40S
	820	25.4×35	0.15	2.75	ESMM181VSN821MQ35S
	820	30×25	0.15	2.69	ESMM181VSN821MR25S
	1,000	22×50	0.15	3.10	ESMM181VSN102MP50S
	1,000	25.4×40	0.15	3.06	ESMM181VSN102MQ40S
	1,000	30×30	0.15	3.10	ESMM181VSN102MR30S
	1,000	35×25	0.15	2.98	ESMM181VSN102MA25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
180	1,200	25.4×45	0.15	3.63	ESMM181VSN122MQ45S
	1,200	30×35	0.15	3.55	ESMM181VSN122MR35S
	1,200	35×30	0.15	3.49	ESMM181VSN122MA30S
	1,500	30×40	0.15	4.10	ESMM181VSN152MR40S
	1,500	35×35	0.15	4.02	ESMM181VSN152MA35S
	1,800	30×45	0.15	4.55	ESMM181VSN182MR45S
	1,800	35×35	0.15	4.54	ESMM181VSN182MA35S
	2,200	35×40	0.15	4.83	ESMM181VSN222MA40S
	2,700	35×50	0.15	5.30	ESMM181VSN272MA50S
200	220	20×25	0.15	1.19	ESMM201VSN221MN25S
	220	22×20	0.15	1.18	ESMM201VSN221MP20S
	270	20×25	0.15	1.39	ESMM201VSN271MN25S
	270	22×25	0.15	1.37	ESMM201VSN271MP25S
	270	25.4×20	0.15	1.35	ESMM201VSN271MQ20S
	330	20×30	0.15	1.56	ESMM201VSN331MN30S
	330	22×25	0.15	1.51	ESMM201VSN331MP25S
	330	25.4×20	0.15	1.49	ESMM201VSN331MQ20S
	390	20×35	0.15	1.74	ESMM201VSN391MN35S
	390	22×30	0.15	1.73	ESMM201VSN391MP30S
	390	25.4×25	0.15	1.71	ESMM201VSN391MQ25S
	390	30×20	0.15	1.71	ESMM201VSN391MR20S
	470	20×35	0.15	2.03	ESMM201VSN471MN35S
	470	22×30	0.15	1.97	ESMM201VSN471MP30S
	470	25.4×25	0.15	1.95	ESMM201VSN471MQ25S
	470	30×20	0.15	1.88	ESMM201VSN471MR20S
	560	20×40	0.15	2.18	ESMM201VSN561MN40S
	560	22×35	0.15	2.18	ESMM201VSN561MP35S
	560	25.4×30	0.15	2.15	ESMM201VSN561MQ30S
	560	30×25	0.15	2.15	ESMM201VSN561MR25S
	560	35×20	0.15	2.05	ESMM201VSN561MA20S
	680	20×50	0.15	2.48	ESMM201VSN681MN50S
	680	22×40	0.15	2.48	ESMM201VSN681MP40S
	680	25.4×30	0.15	2.48	ESMM201VSN681MQ30S
	680	30×25	0.15	2.48	ESMM201VSN681MR25S
	680	35×20	0.15	2.36	ESMM201VSN681MA20S
	820	22×45	0.15	2.81	ESMM201VSN821MP45S
	820	25.4×35	0.15	2.79	ESMM201VSN821MQ35S
	820	30×30	0.15	2.80	ESMM201VSN821MR30S
	820	35×25	0.15	2.83	ESMM201VSN821MA25S
	1,000	22×50	0.15	3.28	ESMM201VSN102MP50S
	1,000	25.4×40	0.15	3.28	ESMM201VSN102MQ40S
	1,000	30×35	0.15	3.15	ESMM201VSN102MR35S
	1,000	35×30	0.15	3.26	ESMM201VSN102MA30S
	1,200	25.4×45	0.15	3.61	ESMM201VSN122MQ45S
	1,200	30×35	0.15	3.61	ESMM201VSN122MR35S
	1,200	35×30	0.15	3.57	ESMM201VSN122MA30S
	1,500	30×45	0.15	4.13	ESMM201VSN152MR45S
	1,500	35×35	0.15	4.06	ESMM201VSN152MA35S
	1,800	30×50	0.15	4.60	ESMM201VSN182MR50S
	1,800	35×40	0.15	4.59	ESMM201VSN182MA40S
	2,200	35×45	0.15	5.25	ESMM201VSN222MA45S
220	180	22×20	0.15	1.06	ESMM221VSN181MP20S
	220	20×25	0.15	1.25	ESMM221VSN221MN25S
	270	20×30	0.15	1.46	ESMM221VSN271MN30S
	270	22×25	0.15	1.47	ESMM221VSN271MP25S
	270	25.4×20	0.15	1.35	ESMM221VSN271MQ20S
	330	20×35	0.15	1.64	ESMM221VSN331MN35S
	330	22×30	0.15	1.70	ESMM221VSN331MP30S
	330	25.4×25	0.15	1.69	ESMM221VSN331MQ25S
	330	30×20	0.15	1.58	ESMM221VSN331MR20S
	390	20×35	0.15	1.84	ESMM221VSN391MN35S
	390	22×30	0.15	1.89	ESMM221VSN391MP30S
	390	25.4×25	0.15	1.84	ESMM221VSN391MQ25S
	390	30×20	0.15	1.71	ESMM221VSN391MR20S
	470	20×40	0.15	2.12	ESMM221VSN471MN40S
	470	22×35	0.15	2.08	ESMM221VSN471MP35S
	470	25.4×30	0.15	2.08	ESMM221VSN471MQ30S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

SMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
220	470	30×25	0.15	2.12	ESMM221VSN471MR25S
	470	35×20	0.15	1.88	ESMM221VSN471MA20S
	560	20×50	0.15	2.33	ESMM221VSN561MN50S
	560	22×40	0.15	2.33	ESMM221VSN561MP40S
	560	25.4×35	0.15	2.38	ESMM221VSN561MQ35S
	560	30×25	0.15	2.31	ESMM221VSN561MR25S
	560	35×20	0.15	2.14	ESMM221VSN561MA20S
	680	22×45	0.15	2.63	ESMM221VSN681MP45S
	680	25.4×35	0.15	2.68	ESMM221VSN681MQ35S
	680	30×30	0.15	2.62	ESMM221VSN681MR30S
	680	35×25	0.15	2.58	ESMM221VSN681MA25S
	820	25.4×45	0.15	3.01	ESMM221VSN821MQ45S
	820	30×35	0.15	2.99	ESMM221VSN821MR35S
	820	35×30	0.15	2.79	ESMM221VSN821MA30S
	1,000	25.4×50	0.15	3.40	ESMM221VSN102MQ50S
	1,000	30×35	0.15	3.42	ESMM221VSN102MR35S
	1,000	35×30	0.15	3.29	ESMM221VSN102MA30S
	1,200	30×40	0.15	3.88	ESMM221VSN122MR40S
	1,200	35×35	0.15	3.68	ESMM221VSN122MA35S
	1,500	30×50	0.15	4.44	ESMM221VSN152MR50S
	1,500	35×40	0.15	4.10	ESMM221VSN152MA40S
	1,800	35×45	0.15	4.52	ESMM221VSN182MA45S
250	150	22×20	0.15	0.97	ESMM251VSN151MP20S
	180	20×25	0.15	1.20	ESMM251VSN181MN25S
	180	22×20	0.15	1.06	ESMM251VSN181MP20S
	220	20×25	0.15	1.26	ESMM251VSN221MN25S
	220	22×25	0.15	1.24	ESMM251VSN221MP25S
	220	25.4×20	0.15	1.22	ESMM251VSN221MQ20S
	270	20×30	0.15	1.42	ESMM251VSN271MN30S
	270	22×25	0.15	1.50	ESMM251VSN271MP25S
	330	20×35	0.15	1.68	ESMM251VSN331MN35S
	330	22×30	0.15	1.66	ESMM251VSN331MP30S
	330	25.4×25	0.15	1.61	ESMM251VSN331MQ25S
	330	30×20	0.15	1.58	ESMM251VSN331MR20S
	390	20×40	0.15	1.92	ESMM251VSN391MN40S
	390	22×35	0.15	1.88	ESMM251VSN391MP35S
	390	25.4×30	0.15	1.88	ESMM251VSN391MQ30S
	390	30×25	0.15	1.86	ESMM251VSN391MR25S
	390	35×20	0.15	1.71	ESMM251VSN391MA20S
	470	20×50	0.15	2.06	ESMM251VSN471MN50S
	470	22×35	0.15	2.15	ESMM251VSN471MP35S
	470	25.4×35	0.15	2.15	ESMM251VSN471MQ35S
	470	30×25	0.15	2.05	ESMM251VSN471MR25S
	470	35×20	0.15	1.88	ESMM251VSN471MA20S
	560	22×40	0.15	2.48	ESMM251VSN561MP40S
	560	25.4×35	0.15	2.35	ESMM251VSN561MQ35S
	560	30×25	0.15	2.35	ESMM251VSN561MR25S
	680	22×50	0.15	2.61	ESMM251VSN681MP50S
	680	25.4×40	0.15	2.67	ESMM251VSN681MQ40S
	680	30×30	0.15	2.71	ESMM251VSN681MR30S
	680	35×25	0.15	2.58	ESMM251VSN681MA25S
	820	25.4×45	0.15	3.01	ESMM251VSN821MQ45S
	820	30×35	0.15	2.98	ESMM251VSN821MR35S
	820	35×30	0.15	2.96	ESMM251VSN821MA30S
	1,000	30×40	0.15	3.56	ESMM251VSN102MR40S
	1,000	35×35	0.15	3.48	ESMM251VSN102MA35S
	1,200	30×45	0.15	3.99	ESMM251VSN122MR45S
	1,200	35×35	0.15	3.84	ESMM251VSN122MA35S
	1,500	35×40	0.15	4.33	ESMM251VSN152MA40S
	1,800	35×50	0.15	4.54	ESMM251VSN182MA50S
315	100	22×20	0.15	0.79	ESMM3B1VSN101MP20S
	120	20×25	0.15	0.89	ESMM3B1VSN121MN25S
	120	25.4×20	0.15	0.90	ESMM3B1VSN121MQ20S
	150	20×30	0.15	1.05	ESMM3B1VSN151MN30S
	150	22×25	0.15	1.06	ESMM3B1VSN151MP25S
	150	25.4×20	0.15	1.00	ESMM3B1VSN151MQ20S
	180	20×35	0.15	1.18	ESMM3B1VSN181MN35S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
315	180	22×30	0.15	1.29	ESMM3B1VSN181MP30S
	180	25.4×25	0.15	1.38	ESMM3B1VSN181MQ25S
	180	30×20	0.15	1.16	ESMM3B1VSN181MR20S
	220	20×35	0.15	1.30	ESMM3B1VSN221MN35S
	220	22×30	0.15	1.41	ESMM3B1VSN221MP30S
	220	25.4×25	0.15	1.47	ESMM3B1VSN221MQ25S
	220	30×20	0.15	1.28	ESMM3B1VSN221MR20S
	270	20×45	0.15	1.52	ESMM3B1VSN271MN45S
	270	22×35	0.15	1.68	ESMM3B1VSN271MP35S
	270	25.4×30	0.15	1.70	ESMM3B1VSN271MQ30S
	270	30×25	0.15	1.55	ESMM3B1VSN271MR25S
	270	35×20	0.15	1.43	ESMM3B1VSN271MA20S
	330	20×50	0.15	1.73	ESMM3B1VSN331MN50S
	330	22×40	0.15	1.91	ESMM3B1VSN331MP40S
	330	25.4×35	0.15	1.94	ESMM3B1VSN331MQ35S
	330	30×25	0.15	1.98	ESMM3B1VSN331MR25S
	390	22×45	0.15	2.07	ESMM3B1VSN391MP45S
	390	25.4×40	0.15	2.11	ESMM3B1VSN391MQ40S
	390	30×30	0.15	2.15	ESMM3B1VSN391MR30S
	390	35×25	0.15	1.95	ESMM3B1VSN391MA25S
	470	25.4×45	0.15	2.31	ESMM3B1VSN471MQ45S
	470	30×35	0.15	2.38	ESMM3B1VSN471MR35S
	470	35×30	0.15	2.46	ESMM3B1VSN471MA30S
	560	25.4×50	0.15	2.46	ESMM3B1VSN561MQ50S
	560	30×35	0.15	2.63	ESMM3B1VSN561MR35S
	560	35×30	0.15	2.69	ESMM3B1VSN561MA30S
	680	30×45	0.15	2.82	ESMM3B1VSN681MR45S
	680	35×35	0.15	3.05	ESMM3B1VSN681MA35S
	820	30×50	0.15	3.28	ESMM3B1VSN821MR50S
	820	35×40	0.15	3.45	ESMM3B1VSN821MA40S
	1,000	35×45	0.15	3.59	ESMM3B1VSN102MA45S
350	82	22×20	0.15	0.72	ESMM351VSN820MP20S
	100	20×25	0.15	0.81	ESMM351VSN101MN25S
	120	20×30	0.15	0.96	ESMM351VSN121MN30S
	120	22×25	0.15	1.04	ESMM351VSN121MP25S
	120	25.4×20	0.15	0.90	ESMM351VSN121MQ20S
	150	20×30	0.15	1.10	ESMM351VSN151MN30S
	150	22×30	0.15	1.20	ESMM351VSN151MP30S
	150	25.4×25	0.15	1.22	ESMM351VSN151MQ25S
	150	30×20	0.15	1.06	ESMM351VSN151MR20S
	180	20×35	0.15	1.24	ESMM351VSN181MN35S
	180	22×30	0.15	1.34	ESMM351VSN181MP30S
	180	25.4×25	0.15	1.37	ESMM351VSN181MQ25S
	180	30×20	0.15	1.16	ESMM351VSN181MR20S
	220	20×45	0.15	1.37	ESMM351VSN221MN45S
	220	22×35	0.15	1.47	ESMM351VSN221MP35S
	220	25.4×30	0.15	1.53	ESMM351VSN221MQ30S
	220	30×25	0.15	1.54	ESMM351VSN221MR25S
	220	35×20	0.15	1.29	ESMM351VSN221MA20S
	270	20×50	0.15	1.56	ESMM351VSN271MN50S
	270	22×40	0.15	1.70	ESMM351VSN271MP40S
	270	25.4×35	0.15	1.73	ESMM351VSN271MQ35S
	270	30×25	0.15	1.80	ESMM351VSN271MR25S
	270	35×20	0.15	1.49	ESMM351VSN271MA20S
	330	22×45	0.15	1.87	ESMM351VSN331MP45S
	330	25.4×35	0.15	1.97	ESMM351VSN331MQ35S
	330	30×30	0.15	2.03	ESMM351VSN331MR30S
	330	35×25	0.15	1.80	ESMM351VSN331MA25S
	390	25.4×40	0.15	2.14	ESMM351VSN391MQ40S
	390	30×35	0.15	2.23	ESMM351VSN391MR35S
	390	35×30	0.15	2.30	ESMM351VSN391MA30S
	470	25.4×50	0.15	2.55	ESMM351VSN471MQ50S
	470	30×35	0.15	2.53	ESMM351VSN471MR35S
	470	35×30	0.15	2.55	ESMM351VSN471MA30S
	560	30×40	0.15	2.73	ESMM351VSN561MR40S
	560	35×35	0.15	2.75	ESMM351VSN561MA35S
	680	30×50	0.15	3.15	ESMM351VSN681MR50S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 85℃

SMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	680	35×40	0.15	3.15	ESMM351VSN681MA40S
	820	35×45	0.15	3.47	ESMM351VSN821MA45S
	1,000	35×50	0.15	3.60	ESMM351VSN102MA50S
400	68	20×25	0.15	0.75	ESMM401VSN680MN25S
	68	22×20	0.15	0.65	ESMM401VSN680MP20S
	82	20×25	0.15	0.82	ESMM401VSN820MN25S
	82	22×25	0.15	0.84	ESMM401VSN820MP25S
	82	25.4×20	0.15	0.74	ESMM401VSN820MQ20S
	100	20×30	0.15	0.95	ESMM401VSN101MN30S
	100	22×25	0.15	0.99	ESMM401VSN101MP25S
	100	25.4×20	0.15	0.82	ESMM401VSN101MQ20S
	120	20×35	0.15	1.07	ESMM401VSN121MN35S
	120	22×30	0.15	1.09	ESMM401VSN121MP30S
	120	25.4×25	0.15	1.13	ESMM401VSN121MQ25S
	120	30×20	0.15	0.95	ESMM401VSN121MR20S
	150	20×40	0.15	1.22	ESMM401VSN151MN40S
	150	22×35	0.15	1.24	ESMM401VSN151MP35S
	150	25.4×30	0.15	1.27	ESMM401VSN151MQ30S
	150	30×25	0.15	1.20	ESMM401VSN151MR25S
	180	20×45	0.15	1.28	ESMM401VSN181MN45S
	180	22×40	0.15	1.41	ESMM401VSN181MP40S
	180	25.4×30	0.15	1.44	ESMM401VSN181MQ30S
	180	30×25	0.15	1.52	ESMM401VSN181MR25S
	180	35×20	0.15	1.16	ESMM401VSN181MA20S
	220	20×50	0.15	1.41	ESMM401VSN221MN50S
	220	22×45	0.15	1.58	ESMM401VSN221MP45S
	220	25.4×35	0.15	1.64	ESMM401VSN221MQ35S
	220	30×30	0.15	1.66	ESMM401VSN221MR30S
	220	35×25	0.15	1.47	ESMM401VSN221MA25S
	270	22×50	0.15	1.65	ESMM401VSN271MP50S
	270	25.4×40	0.15	1.79	ESMM401VSN271MQ40S
	270	30×30	0.15	1.82	ESMM401VSN271MR30S
	270	35×25	0.15	1.63	ESMM401VSN271MA25S
	330	25.4×45	0.15	2.00	ESMM401VSN331MQ45S
	330	30×35	0.15	2.05	ESMM401VSN331MR35S
	330	35×30	0.15	2.05	ESMM401VSN331MA30S
	390	25.4×50	0.15	2.12	ESMM401VSN391MQ50S
	390	30×40	0.15	2.26	ESMM401VSN391MR40S
	390	35×35	0.15	2.28	ESMM401VSN391MA35S
	470	30×45	0.15	2.51	ESMM401VSN471MR45S
	470	35×35	0.15	2.54	ESMM401VSN471MA35S
	560	30×50	0.15	2.85	ESMM401VSN561MR50S
	560	35×40	0.15	2.85	ESMM401VSN561MA40S
	680	35×50	0.15	3.10	ESMM401VSN681MA50S
420	47	22×20	0.20	0.54	ESMM421VSN470MP20S
	56	20×25	0.20	0.58	ESMM421VSN560MN25S
	56	22×20	0.20	0.59	ESMM421VSN560MP20S
	68	20×25	0.20	0.70	ESMM421VSN680MN25S
	68	25.4×20	0.20	0.68	ESMM421VSN680MQ20S
	82	20×30	0.20	0.80	ESMM421VSN820MN30S
	82	22×25	0.20	0.85	ESMM421VSN820MP25S
	82	25.4×20	0.20	0.74	ESMM421VSN820MQ20S
	100	20×35	0.20	0.90	ESMM421VSN101MN35S
	100	22×30	0.20	0.97	ESMM421VSN101MP30S
	100	25.4×25	0.20	0.98	ESMM421VSN101MQ25S
	100	30×20	0.20	0.87	ESMM421VSN101MR20S
	120	20×35	0.20	1.04	ESMM421VSN121MN35S
	120	22×30	0.20	1.07	ESMM421VSN121MP30S
	120	25.4×25	0.20	1.08	ESMM421VSN121MQ25S
	120	30×20	0.20	0.95	ESMM421VSN121MR20S
	150	20×40	0.20	1.17	ESMM421VSN151MN40S
	150	22×35	0.20	1.21	ESMM421VSN151MP35S
	150	25.4×30	0.20	1.26	ESMM421VSN151MQ30S
	150	30×25	0.20	1.30	ESMM421VSN151MR25S
	150	35×20	0.20	1.11	ESMM421VSN151MA20S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
420	180	20×50	0.20	1.27	ESMM421VSN181MN50S
	180	22×40	0.20	1.33	ESMM421VSN181MP40S
	180	25.4×35	0.20	1.42	ESMM421VSN181MQ35S
	180	30×25	0.20	1.48	ESMM421VSN181MR25S
	180	35×20	0.20	1.16	ESMM421VSN181MA20S
	220	22×45	0.20	1.55	ESMM421VSN221MP45S
	220	25.4×35	0.20	1.58	ESMM421VSN221MQ35S
	220	30×30	0.20	1.65	ESMM421VSN221MR30S
	220	35×25	0.20	1.47	ESMM421VSN221MA25S
	270	25.4×40	0.20	1.74	ESMM421VSN271MQ40S
	270	30×35	0.20	1.90	ESMM421VSN271MR35S
	270	35×30	0.20	1.94	ESMM421VSN271MA30S
	330	25.4×50	0.20	2.20	ESMM421VSN331MQ50S
	330	30×35	0.20	1.98	ESMM421VSN331MR35S
	330	35×35	0.20	2.17	ESMM421VSN331MA35S
	390	30×40	0.20	2.22	ESMM421VSN391MR40S
	390	35×35	0.20	2.27	ESMM421VSN391MA35S
	470	30×45	0.20	2.50	ESMM421VSN471MR45S
	470	35×40	0.20	2.61	ESMM421VSN471MA40S
	560	35×45	0.20	2.95	ESMM421VSN561MA45S
	680	35×50	0.20	3.15	ESMM421VSN681MA50S
450	47	22×20	0.20	0.54	ESMM451VSN470MP20S
	56	20×25	0.20	0.61	ESMM451VSN560MN25S
	56	22×20	0.20	0.59	ESMM451VSN560MP20S
	68	20×30	0.20	0.71	ESMM451VSN680MN30S
	68	22×25	0.20	0.71	ESMM451VSN680MP25S
	68	25.4×20	0.20	0.68	ESMM451VSN680MQ20S
	82	20×35	0.20	0.80	ESMM451VSN820MN35S
	82	22×25	0.20	0.86	ESMM451VSN820MP25S
	82	25.4×20	0.20	0.74	ESMM451VSN820MQ20S
	82	30×20	0.20	0.79	ESMM451VSN820MR20S
	100	20×35	0.20	0.88	ESMM451VSN101MN35S
	100	22×30	0.20	0.95	ESMM451VSN101MP30S
	100	25.4×25	0.20	0.97	ESMM451VSN101MQ25S
	100	30×20	0.20	0.87	ESMM451VSN101MR20S
	120	20×40	0.20	0.99	ESMM451VSN121MN40S
	120	22×35	0.20	1.07	ESMM451VSN121MP35S
	120	25.4×30	0.20	1.09	ESMM451VSN121MQ30S
	120	30×25	0.20	1.12	ESMM451VSN121MR25S
	120	35×20	0.20	0.99	ESMM451VSN121MA20S
	150	20×45	0.20	1.13	ESMM451VSN151MN45S
	150	22×40	0.20	1.18	ESMM451VSN151MP40S
	150	25.4×30	0.20	1.25	ESMM451VSN151MQ30S
	150	30×25	0.20	1.29	ESMM451VSN151MR25S
	150	35×20	0.20	1.06	ESMM451VSN151MA20S
	180	22×45	0.20	1.32	ESMM451VSN181MP45S
	180	25.4×35	0.20	1.40	ESMM451VSN181MQ35S
	180	30×30	0.20	1.45	ESMM451VSN181MR30S
	180	35×25	0.20	1.33	ESMM451VSN181MA25S
	220	22×50	0.20	1.48	ESMM451VSN221MP50S
	220	25.4×40	0.20	1.59	ESMM451VSN221MQ40S
	220	30×30	0.20	1.64	ESMM451VSN221MR30S
	220	35×25	0.20	1.66	ESMM451VSN221MA25S
	270	25.4×45	0.20	1.73	ESMM451VSN271MQ45S
	270	30×35	0.20	1.89	ESMM451VSN271MR35S
	270	35×30	0.20	1.90	ESMM451VSN271MA30S
	330	25.4×50	0.20	2.12	ESMM451VSN331MQ50S
	330	30×40	0.20	2.12	ESMM451VSN331MR40S
	330	35×35	0.20	2.15	ESMM451VSN331MA35S
	390	30×45	0.20	2.35	ESMM451VSN391MR45S
	390	35×40	0.20	2.38	ESMM451VSN391MA40S
	470	30×50	0.20	2.65	ESMM451VSN471MR50S
	470	35×45	0.20	2.68	ESMM451VSN471MA45S
	560	35×50	0.20	2.88	ESMM451VSN561MA50S

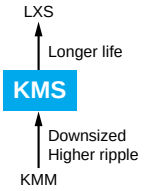
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMS Series

- Longer life than current snap-ins KMQ series
- Downsized from current downsized snap-ins KMM series
- Endurance with ripple current : 105℃ 3,000 hours
- Rated voltage range : 160 to 450V
- Capacitance range : 82 to 3,300μF
- Non solvent resistant type
- **RoHS Compliant**

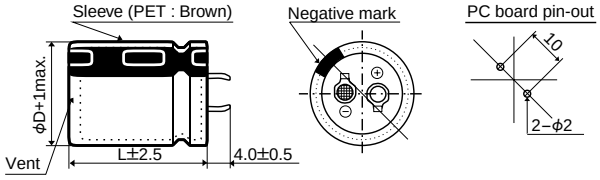


◆SPECIFICATIONS

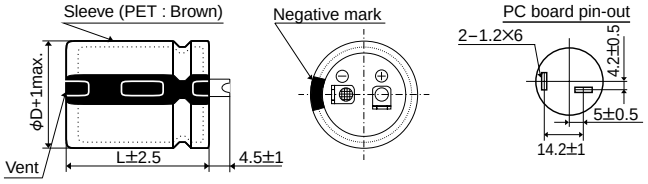
Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 3,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

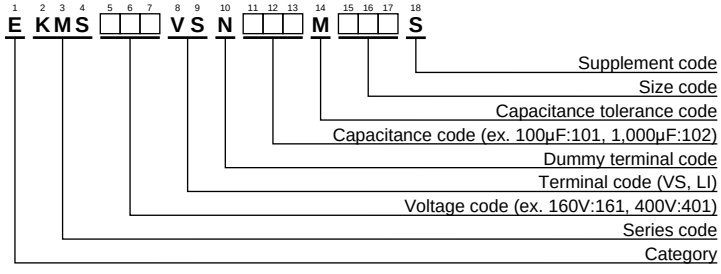


●Terminal Code : LI (φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMS Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	470	22 × 25	0.15	1.47	EKMS161VSN471MP25S
	680	22 × 30	0.15	1.86	EKMS161VSN681MP30S
	680	25.4 × 25	0.15	1.84	EKMS161VSN681MQ25S
	820	22 × 35	0.15	2.09	EKMS161VSN821MP35S
	820	25.4 × 30	0.15	2.08	EKMS161VSN821MQ30S
	1,000	22 × 40	0.15	2.35	EKMS161VSN102MP40S
	1,000	22 × 45	0.15	2.40	EKMS161VSN102MP45S
	1,000	25.4 × 35	0.15	2.40	EKMS161VSN102MQ35S
	1,000	30 × 25	0.15	2.50	EKMS161VSN102MR25S
	1,200	22 × 50	0.15	2.69	EKMS161VSN122MP50S
	1,200	25.4 × 40	0.15	2.68	EKMS161VSN122MQ40S
	1,200	30 × 30	0.15	2.77	EKMS161VSN122MR30S
	1,200	35 × 25	0.15	2.91	EKMS161VSN122MA25S
	1,500	25.4 × 45	0.15	3.05	EKMS161VSN152MQ45S
	1,500	30 × 35	0.15	3.17	EKMS161VSN152MR35S
	1,800	25.4 × 50	0.15	3.40	EKMS161VSN182MQ50S
	1,800	30 × 40	0.15	3.57	EKMS161VSN182MR40S
	1,800	35 × 30	0.15	3.62	EKMS161VSN182MA30S
	2,200	30 × 45	0.15	4.05	EKMS161VSN222MR45S
	2,200	35 × 35	0.15	4.07	EKMS161VSN222MA35S
	2,700	30 × 50	0.15	4.56	EKMS161VSN272MR50S
	2,700	35 × 40	0.15	4.67	EKMS161VSN272MA40S
	2,700	35 × 45	0.15	4.78	EKMS161VSN272MA45S
	3,300	35 × 50	0.15	5.40	EKMS161VSN332MA50S
180	390	22 × 25	0.15	1.34	EKMS181VSN391MP25S
	560	22 × 30	0.15	1.68	EKMS181VSN561MP30S
	560	25.4 × 25	0.15	1.67	EKMS181VSN561MQ25S
	680	22 × 35	0.15	1.90	EKMS181VSN681MP35S
	820	22 × 40	0.15	2.13	EKMS181VSN821MP40S
	820	25.4 × 30	0.15	2.08	EKMS181VSN821MQ30S
	820	30 × 25	0.15	2.26	EKMS181VSN821MR25S
	1,000	22 × 45	0.15	2.40	EKMS181VSN102MP45S
	1,000	22 × 50	0.15	2.45	EKMS181VSN102MP50S
	1,000	25.4 × 35	0.15	2.40	EKMS181VSN102MQ35S
	1,000	25.4 × 40	0.15	2.45	EKMS181VSN102MQ40S
	1,000	30 × 30	0.15	2.52	EKMS181VSN102MR30S
	1,200	25.4 × 45	0.15	2.73	EKMS181VSN122MQ45S
	1,200	30 × 35	0.15	2.83	EKMS181VSN122MR35S
	1,200	35 × 25	0.15	2.91	EKMS181VSN122MA25S
	1,500	25.4 × 50	0.15	3.10	EKMS181VSN152MQ50S
	1,500	30 × 40	0.15	3.26	EKMS181VSN152MR40S
	1,500	35 × 30	0.15	3.31	EKMS181VSN152MA30S
	1,800	30 × 45	0.15	3.66	EKMS181VSN182MR45S
	1,800	35 × 35	0.15	3.68	EKMS181VSN182MA35S
	2,200	30 × 50	0.15	4.11	EKMS181VSN222MR50S
	2,200	35 × 40	0.15	4.22	EKMS181VSN222MA40S
	2,700	35 × 45	0.15	4.78	EKMS181VSN272MA45S
	2,700	35 × 50	0.15	4.88	EKMS181VSN272MA50S
200	390	22 × 25	0.15	1.34	EKMS201VSN391MP25S
	470	22 × 30	0.15	1.54	EKMS201VSN471MP30S
	560	22 × 35	0.15	1.72	EKMS201VSN561MP35S
	560	25.4 × 25	0.15	1.67	EKMS201VSN561MQ25S
	680	22 × 40	0.15	1.94	EKMS201VSN681MP40S
	680	25.4 × 30	0.15	1.89	EKMS201VSN681MQ30S
	820	22 × 45	0.15	2.17	EKMS201VSN821MP45S
	820	25.4 × 35	0.15	2.17	EKMS201VSN821MQ35S
	820	30 × 25	0.15	2.26	EKMS201VSN821MR25S
	1,000	22 × 50	0.15	2.45	EKMS201VSN102MP50S
	1,000	25.4 × 40	0.15	2.45	EKMS201VSN102MQ40S
	1,000	30 × 30	0.15	2.52	EKMS201VSN102MR30S
	1,000	35 × 25	0.15	2.66	EKMS201VSN102MA25S
	1,200	25.4 × 45	0.15	2.73	EKMS201VSN122MQ45S
	1,200	25.4 × 50	0.15	2.78	EKMS201VSN122MQ50S
	1,200	30 × 35	0.15	2.83	EKMS201VSN122MR35S
	1,200	35 × 30	0.15	2.96	EKMS201VSN122MA30S
	1,500	30 × 40	0.15	3.26	EKMS201VSN152MR40S
	1,500	35 × 35	0.15	3.36	EKMS201VSN152MA35S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
200	1,800	30 × 45	0.15	3.66	EKMS201VSN182MR45S
	1,800	30 × 50	0.15	3.72	EKMS201VSN182MR50S
	1,800	35 × 40	0.15	3.81	EKMS201VSN182MA40S
	2,200	35 × 45	0.15	4.32	EKMS201VSN222MA45S
	2,700	35 × 50	0.15	4.88	EKMS201VSN272MA50S
250	270	22 × 25	0.15	1.11	EKMS251VSN271MP25S
	330	22 × 30	0.15	1.29	EKMS251VSN331MP30S
	390	22 × 35	0.15	1.44	EKMS251VSN391MP35S
	390	25.4 × 25	0.15	1.40	EKMS251VSN391MQ25S
	470	22 × 40	0.15	1.61	EKMS251VSN471MP40S
	470	25.4 × 30	0.15	1.57	EKMS251VSN471MQ30S
	560	22 × 45	0.15	1.79	EKMS251VSN561MP45S
	560	25.4 × 35	0.15	1.79	EKMS251VSN561MQ35S
	560	30 × 25	0.15	1.87	EKMS251VSN561MR25S
	680	22 × 50	0.15	2.02	EKMS251VSN681MP50S
	680	25.4 × 40	0.15	2.02	EKMS251VSN681MQ40S
	680	30 × 30	0.15	2.08	EKMS251VSN681MR30S
	680	35 × 25	0.15	2.19	EKMS251VSN681MA25S
	820	25.4 × 45	0.15	2.26	EKMS251VSN821MQ45S
	820	30 × 35	0.15	2.34	EKMS251VSN821MR35S
	1,000	25.4 × 50	0.15	2.53	EKMS251VSN102MQ50S
	1,000	30 × 40	0.15	2.66	EKMS251VSN102MR40S
	1,000	35 × 30	0.15	2.70	EKMS251VSN102MA30S
	1,200	30 × 45	0.15	2.99	EKMS251VSN122MR45S
	1,200	30 × 50	0.15	3.04	EKMS251VSN122MR50S
	1,200	35 × 35	0.15	3.00	EKMS251VSN122MA35S
	1,500	35 × 40	0.15	3.48	EKMS251VSN152MA40S
	1,500	35 × 45	0.15	3.56	EKMS251VSN152MA45S
	1,800	35 × 50	0.15	3.98	EKMS251VSN182MA50S
315	180	22 × 25	0.15	0.95	EKMS3B1VSN181MP25S
	220	22 × 30	0.15	1.10	EKMS3B1VSN221MP30S
	220	25.4 × 25	0.15	1.10	EKMS3B1VSN221MQ25S
	270	22 × 35	0.15	1.24	EKMS3B1VSN271MP35S
	330	22 × 40	0.15	1.40	EKMS3B1VSN331MP40S
	330	25.4 × 30	0.15	1.38	EKMS3B1VSN331MQ30S
	330	30 × 25	0.15	1.43	EKMS3B1VSN331MR25S
	390	22 × 45	0.15	1.56	EKMS3B1VSN391MP45S
	390	22 × 50	0.15	1.59	EKMS3B1VSN391MP50S
	390	25.4 × 35	0.15	1.57	EKMS3B1VSN391MQ35S
	470	25.4 × 40	0.15	1.76	EKMS3B1VSN471MQ40S
	470	30 × 30	0.15	1.73	EKMS3B1VSN471MR30S
	470	35 × 25	0.15	1.82	EKMS3B1VSN471MA25S
	560	25.4 × 45	0.15	1.96	EKMS3B1VSN561MQ45S
	560	25.4 × 50	0.15	1.99	EKMS3B1VSN561MQ50S
	560	30 × 35	0.15	1.93	EKMS3B1VSN561MR35S
	560	35 × 30	0.15	2.02	EKMS3B1VSN561MA30S
	680	30 × 40	0.15	2.19	EKMS3B1VSN681MR40S
	680	35 × 35	0.15	2.26	EKMS3B1VSN681MA35S
	820	30 × 45	0.15	2.47	EKMS3B1VSN821MR45S
	820	30 × 50	0.15	2.51	EKMS3B1VSN821MR50S
	820	35 × 40	0.15	2.57	EKMS3B1VSN821MA40S
	1,000	35 × 45	0.15	2.91	EKMS3B1VSN102MA45S
	1,200	35 × 50	0.15	3.25	EKMS3B1VSN122MA50S
400	120	22 × 25	0.15	0.77	EKMS401VSN121MP25S
	150	22 × 30	0.15	0.90	EKMS401VSN151MP30S
	180	22 × 35	0.15	1.02	EKMS401VSN181MP35S
	180	25.4 × 25	0.15	0.99	EKMS401VSN181MQ25S
	220	22 × 40	0.15	1.15	EKMS401VSN221MP40S
	220	25.4 × 30	0.15	1.13	EKMS401VSN221MQ30S
	270	22 × 45	0.15	1.29	EKMS401VSN271MP45S
	270	25.4 × 35	0.15	1.30	EKMS401VSN271MQ35S
	270	30 × 25	0.15	1.29	EKMS401VSN271MR25S
	330	22 × 50	0.15	1.47	EKMS401VSN331MP50S
	330	25.4 × 40	0.15	1.47	EKMS401VSN331MQ40S
	330	30 × 30	0.15	1.45	EKMS401VSN331MR30S
	330	35 × 25	0.15	1.52	EKMS401VSN331MA25S
	390	25.4 × 45	0.15	1.63	EKMS401VSN391MQ45S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMS Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	390	25.4 × 50	0.15	1.66	EKMS401VSN391MQ50S
	390	30 × 35	0.15	1.61	EKMS401VSN391MR35S
	470	30 × 40	0.15	1.82	EKMS401VSN471MR40S
	470	35 × 30	0.15	1.85	EKMS401VSN471MA30S
	560	30 × 45	0.15	2.04	EKMS401VSN561MR45S
	560	30 × 50	0.15	2.07	EKMS401VSN561MR50S
	560	35 × 35	0.15	2.05	EKMS401VSN561MA35S
	680	35 × 40	0.15	2.34	EKMS401VSN681MA40S
	680	35 × 45	0.15	2.40	EKMS401VSN681MA45S
	820	35 × 50	0.15	2.69	EKMS401VSN821MA50S
420	100	22 × 25	0.20	0.70	EKMS421VSN101MP25S
	120	22 × 30	0.20	0.81	EKMS421VSN121MP30S
	120	25.4 × 25	0.20	0.81	EKMS421VSN121MQ25S
	150	22 × 35	0.20	0.93	EKMS421VSN151MP35S
	180	22 × 40	0.20	1.04	EKMS421VSN181MP40S
	180	25.4 × 30	0.20	1.02	EKMS421VSN181MQ30S
	180	30 × 25	0.20	1.06	EKMS421VSN181MR25S
	220	22 × 45	0.20	1.17	EKMS421VSN221MP45S
	220	22 × 50	0.20	1.20	EKMS421VSN221MP50S
	220	25.4 × 35	0.20	1.18	EKMS421VSN221MQ35S
	220	30 × 30	0.20	1.18	EKMS421VSN221MR30S
	270	25.4 × 40	0.20	1.33	EKMS421VSN271MQ40S
	270	25.4 × 45	0.20	1.36	EKMS421VSN271MQ45S
	270	35 × 25	0.20	1.38	EKMS421VSN271MA25S
	330	25.4 × 50	0.20	1.52	EKMS421VSN331MQ50S
	330	30 × 35	0.20	1.48	EKMS421VSN331MR35S
	330	30 × 40	0.20	1.52	EKMS421VSN331MR40S
	330	35 × 30	0.20	1.55	EKMS421VSN331MA30S
	390	30 × 45	0.20	1.70	EKMS421VSN391MR45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
420	390	35 × 35	0.20	1.71	EKMS421VSN391MA35S
	470	30 × 50	0.20	1.90	EKMS421VSN471MR50S
	470	35 × 40	0.20	1.95	EKMS421VSN471MA40S
	560	35 × 45	0.20	2.17	EKMS421VSN561MA45S
	680	35 × 50	0.20	2.45	EKMS421VSN681MA50S
450	82	22 × 25	0.20	0.64	EKMS451VSN820MP25S
	120	22 × 30	0.20	0.81	EKMS451VSN121MP30S
	120	22 × 35	0.20	0.83	EKMS451VSN121MP35S
	120	25.4 × 25	0.20	0.81	EKMS451VSN121MQ25S
	150	22 × 40	0.20	0.94	EKMS451VSN151MP40S
	150	25.4 × 30	0.20	0.93	EKMS451VSN151MQ30S
	180	22 × 45	0.20	1.06	EKMS451VSN181MP45S
	180	25.4 × 35	0.20	1.06	EKMS451VSN181MQ35S
	180	30 × 25	0.20	1.06	EKMS451VSN181MR25S
	220	22 × 50	0.20	1.20	EKMS451VSN221MP50S
	220	25.4 × 40	0.20	1.20	EKMS451VSN221MQ40S
	220	30 × 30	0.20	1.18	EKMS451VSN221MR30S
	220	35 × 25	0.20	1.24	EKMS451VSN221MA25S
	270	25.4 × 45	0.20	1.36	EKMS451VSN271MQ45S
	270	25.4 × 50	0.20	1.38	EKMS451VSN271MQ50S
	270	30 × 35	0.20	1.34	EKMS451VSN271MR35S
	270	35 × 30	0.20	1.40	EKMS451VSN271MA30S
	330	30 × 40	0.20	1.52	EKMS451VSN331MR40S
	390	30 × 45	0.20	1.70	EKMS451VSN391MR45S
	390	30 × 50	0.20	1.73	EKMS451VSN391MR50S
	390	35 × 35	0.20	1.71	EKMS451VSN391MA35S
	470	35 × 40	0.20	1.95	EKMS451VSN471MA40S
	470	35 × 45	0.20	1.99	EKMS451VSN471MA45S
	560	35 × 50	0.20	2.22	EKMS451VSN561MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

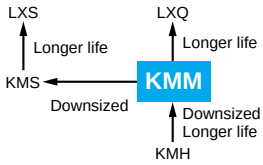
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMM Series

- ●Downsized, longer life, and high ripple version of KMH series
- ●Endurance with ripple current : 2,000 to 3,000 hours at 105℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

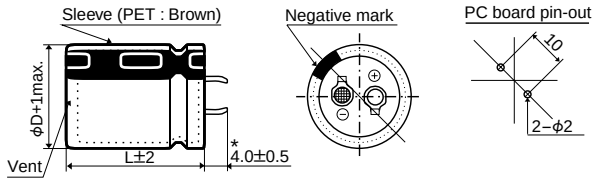


◆SPECIFICATIONS

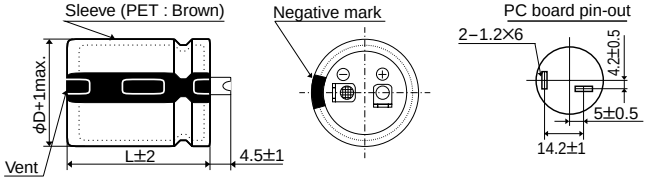
Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 3,000 hours (2,000 hours for φ20×20L products) at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : VS (φ20 to φ35) : Standard



●Terminal Code : LI (φ35)



*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	M	M				V	S	N				M				S

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 120μF:121, 1,000μF:102)
- Dummy terminal code
- Terminal code (VS, LI)
- Voltage code (ex. 160V:161, 250V:251, 315V:3B1)
- Series code
- Category

Please refer to "Product code guide (snap-in type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/105℃,120Hz)	Part No.
160	180	20×20	0.15	0.68	EKMM161VSN181MN20S
	220	20×25	0.15	0.85	EKMM161VSN221MN25S
	220	22×20	0.15	0.81	EKMM161VSN221MP20S
	270	20×25	0.15	1.10	EKMM161VSN271MN25S
	270	25.4×20	0.15	0.98	EKMM161VSN271MQ20S
	330	20×30	0.15	1.20	EKMM161VSN331MN30S
	330	22×25	0.15	1.20	EKMM161VSN331MP25S
	330	25.4×20	0.15	1.02	EKMM161VSN331MQ20S
	390	20×30	0.15	1.30	EKMM161VSN391MN30S
	390	22×25	0.15	1.30	EKMM161VSN391MP25S
	390	25.4×25	0.15	1.26	EKMM161VSN391MQ25S
	390	30×20	0.15	1.25	EKMM161VSN391MR20S
	470	20×35	0.15	1.34	EKMM161VSN471MN35S
	470	22×30	0.15	1.55	EKMM161VSN471MP30S
	470	25.4×25	0.15	1.55	EKMM161VSN471MQ25S
	470	30×20	0.15	1.30	EKMM161VSN471MR20S
	560	20×40	0.15	1.50	EKMM161VSN561MN40S
	560	22×35	0.15	1.67	EKMM161VSN561MP35S
	560	25.4×30	0.15	1.67	EKMM161VSN561MQ30S
	560	30×25	0.15	1.67	EKMM161VSN561MR25S
	560	35×20	0.15	1.46	EKMM161VSN561MA20S
	680	20×45	0.15	1.70	EKMM161VSN681MN45S
	680	22×40	0.15	1.82	EKMM161VSN681MP40S
	680	25.4×30	0.15	1.82	EKMM161VSN681MQ30S
	680	30×25	0.15	1.82	EKMM161VSN681MR25S
	680	35×20	0.15	1.51	EKMM161VSN681MA20S
	820	22×45	0.15	2.04	EKMM161VSN821MP45S
	820	25.4×35	0.15	2.04	EKMM161VSN821MQ35S
	820	30×30	0.15	2.04	EKMM161VSN821MR30S
	820	35×25	0.15	2.04	EKMM161VSN821MA25S
	1,000	22×50	0.15	2.25	EKMM161VSN102MP50S
	1,000	25.4×40	0.15	2.25	EKMM161VSN102MQ40S
	1,000	30×30	0.15	2.25	EKMM161VSN102MR30S
	1,000	35×25	0.15	2.25	EKMM161VSN102MA25S
	1,200	25.4×45	0.15	2.49	EKMM161VSN122MQ45S
	1,200	30×35	0.15	2.49	EKMM161VSN122MR35S
	1,200	35×30	0.15	2.49	EKMM161VSN122MA30S
	1,500	25.4×60	0.15	2.97	EKMM161VSN152MQ60S
	1,500	30×40	0.15	2.84	EKMM161VSN152MR40S
	1,500	35×30	0.15	2.84	EKMM161VSN152MA30S
	1,800	30×45	0.15	3.32	EKMM161VSN182MR45S
	1,800	35×35	0.15	3.00	EKMM161VSN182MA35S
	2,200	30×60	0.15	3.86	EKMM161VSN222MR60S
	2,200	35×45	0.15	3.50	EKMM161VSN222MA45S
	2,700	35×50	0.15	4.00	EKMM161VSN272MA50S
	3,300	35×60	0.15	4.63	EKMM161VSN332MA60S
180	150	20×20	0.15	0.62	EKMM181VSN151MN20S
	180	20×25	0.15	0.77	EKMM181VSN181MN25S
	180	22×20	0.15	0.80	EKMM181VSN181MP20S
	220	20×25	0.15	1.00	EKMM181VSN221MN25S
	220	25.4×20	0.15	0.90	EKMM181VSN221MQ20S
	270	20×30	0.15	1.10	EKMM181VSN271MN30S
	270	22×25	0.15	1.00	EKMM181VSN271MP25S
	270	25.4×20	0.15	0.95	EKMM181VSN271MQ20S
	330	20×30	0.15	1.20	EKMM181VSN331MN30S
	330	22×25	0.15	1.20	EKMM181VSN331MP25S
	330	25.4×25	0.15	1.16	EKMM181VSN331MQ25S
	330	30×20	0.15	1.15	EKMM181VSN331MR20S
	390	20×35	0.15	1.30	EKMM181VSN391MN35S
	390	22×30	0.15	1.35	EKMM181VSN391MP30S
	390	25.4×25	0.15	1.35	EKMM181VSN391MQ25S
	390	30×20	0.15	1.20	EKMM181VSN391MR20S
	470	20×40	0.15	1.40	EKMM181VSN471MN40S
	470	22×35	0.15	1.50	EKMM181VSN471MP35S
	470	25.4×30	0.15	1.50	EKMM181VSN471MQ30S
	470	30×25	0.15	1.50	EKMM181VSN471MR25S
	470	35×20	0.15	1.36	EKMM181VSN471MA20S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/105℃,120Hz)	Part No.
180	560	20×45	0.15	1.55	EKMM181VSN561MN45S
	560	22×40	0.15	1.67	EKMM181VSN561MP40S
	560	25.4×30	0.15	1.67	EKMM181VSN561MQ30S
	560	30×25	0.15	1.67	EKMM181VSN561MR25S
	560	35×20	0.15	1.43	EKMM181VSN561MA20S
	680	20×50	0.15	1.75	EKMM181VSN681MN50S
	680	22×45	0.15	1.78	EKMM181VSN681MP45S
	680	25.4×35	0.15	1.78	EKMM181VSN681MQ35S
	680	30×30	0.15	1.78	EKMM181VSN681MR30S
	680	35×25	0.15	1.83	EKMM181VSN681MA25S
	820	22×50	0.15	2.04	EKMM181VSN821MP50S
	820	25.4×40	0.15	2.04	EKMM181VSN821MQ40S
	820	30×30	0.15	2.04	EKMM181VSN821MR30S
	820	35×25	0.15	2.04	EKMM181VSN821MA25S
	1,000	25.4×45	0.15	2.30	EKMM181VSN102MQ45S
	1,000	30×35	0.15	2.30	EKMM181VSN102MR35S
	1,000	35×30	0.15	2.30	EKMM181VSN102MA30S
	1,200	25.4×50	0.15	2.55	EKMM181VSN122MQ50S
	1,200	30×40	0.15	2.55	EKMM181VSN122MR40S
	1,200	35×30	0.15	2.55	EKMM181VSN122MA30S
	1,500	30×45	0.15	2.90	EKMM181VSN152MR45S
	1,500	35×35	0.15	2.90	EKMM181VSN152MA35S
	1,800	30×60	0.15	3.49	EKMM181VSN182MR60S
	1,800	35×40	0.15	3.30	EKMM181VSN182MA40S
	2,200	35×50	0.15	3.65	EKMM181VSN222MA50S
	2,700	35×60	0.15	4.19	EKMM181VSN272MA60S
200	120	20×20	0.15	0.56	EKMM201VSN121MN20S
	150	20×25	0.15	0.71	EKMM201VSN151MN25S
	150	22×20	0.15	0.73	EKMM201VSN151MP20S
	180	20×25	0.15	0.77	EKMM201VSN181MN25S
	180	22×20	0.15	0.80	EKMM201VSN181MP20S
	220	20×25	0.15	1.00	EKMM201VSN221MN25S
	220	25.4×20	0.15	0.85	EKMM201VSN221MQ20S
	270	20×30	0.15	1.10	EKMM201VSN271MN30S
	270	22×25	0.15	1.10	EKMM201VSN271MP25S
	270	30×20	0.15	1.05	EKMM201VSN271MR20S
	330	20×35	0.15	1.20	EKMM201VSN331MN35S
	330	22×30	0.15	1.25	EKMM201VSN331MP30S
	330	25.4×25	0.15	1.25	EKMM201VSN331MQ25S
	330	30×20	0.15	1.10	EKMM201VSN331MR20S
	390	20×40	0.15	1.31	EKMM201VSN391MN40S
	390	22×30	0.15	1.35	EKMM201VSN391MP30S
	390	25.4×25	0.15	1.35	EKMM201VSN391MQ25S
	390	35×20	0.15	1.30	EKMM201VSN391MA20S
	470	20×45	0.15	1.45	EKMM201VSN471MN45S
	470	22×35	0.15	1.50	EKMM201VSN471MP35S
	470	25.4×30	0.15	1.50	EKMM201VSN471MQ30S
	470	30×25	0.15	1.50	EKMM201VSN471MR25S
	470	35×20	0.15	1.41	EKMM201VSN471MA20S
	560	20×50	0.15	1.58	EKMM201VSN561MN50S
	560	22×40	0.15	1.67	EKMM201VSN561MP40S
	560	25.4×30	0.15	1.67	EKMM201VSN561MQ30S
	560	30×25	0.15	1.67	EKMM201VSN561MR25S
	680	22×45	0.15	1.78	EKMM201VSN681MP45S
	680	25.4×35	0.15	1.78	EKMM201VSN681MQ35S
	680	30×30	0.15	1.78	EKMM201VSN681MR30S
	680	35×25	0.15	1.78	EKMM201VSN681MA25S
	820	25.4×45	0.15	2.04	EKMM201VSN821MQ45S
	820	30×30	0.15	2.04	EKMM201VSN821MR30S
	820	35×25	0.15	2.04	EKMM201VSN821MA25S
	1,000	25.4×50	0.15	2.30	EKMM201VSN102MQ50S
	1,000	30×35	0.15	2.30	EKMM201VSN102MR35S
	1,000	35×30	0.15	2.30	EKMM201VSN102MA30S
	1,200	25.4×60	0.15	2.66	EKMM201VSN122MQ60S
	1,200	30×40	0.15	2.65	EKMM201VSN122MR40S
	1,200	35×35	0.15	2.65	EKMM201VSN122MA35S
	1,500	30×50	0.15	3.08	EKMM201VSN152MR50S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
200	1,500	35×40	0.15	3.08	EKMM201VSN152MA40S
	1,800	30×60	0.15	3.49	EKMM201VSN182MR60S
	1,800	35×45	0.15	3.48	EKMM201VSN182MA45S
	2,200	35×50	0.15	3.78	EKMM201VSN222MA50S
220	120	20×20	0.15	0.56	EKMM221VSN121MN20S
	150	20×25	0.15	0.73	EKMM221VSN151MN25S
	150	22×20	0.15	0.67	EKMM221VSN151MP20S
	180	20×25	0.15	0.90	EKMM221VSN181MN25S
	180	25.4×20	0.15	0.76	EKMM221VSN181MQ20S
	220	20×30	0.15	1.00	EKMM221VSN221MN30S
	220	22×25	0.15	1.00	EKMM221VSN221MP25S
	220	25.4×20	0.15	0.84	EKMM221VSN221MQ20S
	270	20×35	0.15	1.15	EKMM221VSN271MN35S
	270	22×30	0.15	1.15	EKMM221VSN271MP30S
	270	25.4×25	0.15	1.08	EKMM221VSN271MQ25S
	270	30×20	0.15	0.98	EKMM221VSN271MR20S
	330	20×40	0.15	1.25	EKMM221VSN331MN40S
	330	22×35	0.15	1.25	EKMM221VSN331MP35S
	330	25.4×25	0.15	1.25	EKMM221VSN331MQ25S
	330	35×20	0.15	1.13	EKMM221VSN331MA20S
	390	20×45	0.15	1.40	EKMM221VSN391MN45S
	390	22×35	0.15	1.40	EKMM221VSN391MP35S
	390	25.4×30	0.15	1.40	EKMM221VSN391MQ30S
	390	30×25	0.15	1.36	EKMM221VSN391MR25S
	390	35×20	0.15	1.23	EKMM221VSN391MA20S
	470	20×50	0.15	1.51	EKMM221VSN471MN50S
	470	22×40	0.15	1.51	EKMM221VSN471MP40S
	470	25.4×35	0.15	1.54	EKMM221VSN471MQ35S
	470	30×25	0.15	1.50	EKMM221VSN471MR25S
	560	22×45	0.15	1.70	EKMM221VSN561MP45S
	560	25.4×40	0.15	1.72	EKMM221VSN561MQ40S
	560	30×30	0.15	1.70	EKMM221VSN561MR30S
	560	35×25	0.15	1.71	EKMM221VSN561MA25S
	680	25.4×45	0.15	1.94	EKMM221VSN681MQ45S
	680	30×35	0.15	1.93	EKMM221VSN681MR35S
	680	35×25	0.15	1.89	EKMM221VSN681MA25S
	820	25.4×50	0.15	2.18	EKMM221VSN821MQ50S
	820	30×40	0.15	2.19	EKMM221VSN821MR40S
	820	35×30	0.15	2.16	EKMM221VSN821MA30S
	1,000	25.4×60	0.15	2.54	EKMM221VSN102MQ60S
	1,000	30×45	0.15	2.50	EKMM221VSN102MR45S
	1,000	35×35	0.15	2.44	EKMM221VSN102MA35S
	1,200	30×50	0.15	2.81	EKMM221VSN122MR50S
	1,200	35×40	0.15	2.79	EKMM221VSN122MA40S
	1,500	30×60	0.15	3.30	EKMM221VSN152MR60S
	1,500	35×45	0.15	3.22	EKMM221VSN152MA45S
	1,800	35×50	0.15	3.63	EKMM221VSN182MA50S
	2,200	35×60	0.15	4.23	EKMM221VSN222MA60S
250	100	20×20	0.15	0.51	EKMM251VSN101MN20S
	120	20×25	0.15	0.58	EKMM251VSN121MN25S
	120	22×20	0.15	0.60	EKMM251VSN121MP20S
	150	20×25	0.15	0.79	EKMM251VSN151MN25S
	150	25.4×20	0.15	0.74	EKMM251VSN151MQ20S
	180	20×30	0.15	0.90	EKMM251VSN181MN30S
	180	22×25	0.15	0.78	EKMM251VSN181MP25S
	180	25.4×20	0.15	0.75	EKMM251VSN181MQ20S
	220	20×30	0.15	1.00	EKMM251VSN221MN30S
	220	22×25	0.15	1.00	EKMM251VSN221MP25S
	220	25.4×25	0.15	0.95	EKMM251VSN221MQ25S
	220	30×20	0.15	0.95	EKMM251VSN221MR20S
	270	20×35	0.15	1.10	EKMM251VSN271MN35S
	270	22×30	0.15	1.18	EKMM251VSN271MP30S
	270	25.4×25	0.15	1.18	EKMM251VSN271MQ25S
	270	30×20	0.15	1.00	EKMM251VSN271MR20S
	330	20×40	0.15	1.20	EKMM251VSN331MN40S
	330	22×35	0.15	1.30	EKMM251VSN331MP35S
	330	25.4×30	0.15	1.30	EKMM251VSN331MQ30S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
250	330	30×25	0.15	1.30	EKMM251VSN331MR25S
	330	35×20	0.15	1.16	EKMM251VSN331MA20S
	390	20×50	0.15	1.45	EKMM251VSN391MN50S
	390	22×40	0.15	1.49	EKMM251VSN391MP40S
	390	25.4×35	0.15	1.49	EKMM251VSN391MQ35S
	390	30×25	0.15	1.49	EKMM251VSN391MR25S
	470	22×45	0.15	1.65	EKMM251VSN471MP45S
	470	25.4×35	0.15	1.65	EKMM251VSN471MQ35S
	470	30×30	0.15	1.65	EKMM251VSN471MR30S
	470	35×25	0.15	1.65	EKMM251VSN471MA25S
	560	22×50	0.15	1.67	EKMM251VSN561MP50S
	560	25.4×40	0.15	1.80	EKMM251VSN561MQ40S
	560	30×30	0.15	1.80	EKMM251VSN561MR30S
	560	35×25	0.15	1.80	EKMM251VSN561MA25S
	680	25.4×50	0.15	2.00	EKMM251VSN681MQ50S
	680	30×35	0.15	2.00	EKMM251VSN681MR35S
	680	35×30	0.15	2.00	EKMM251VSN681MA30S
	820	25.4×60	0.15	2.20	EKMM251VSN821MQ60S
	820	30×40	0.15	2.30	EKMM251VSN821MR40S
	820	35×35	0.15	2.30	EKMM251VSN821MA35S
	1,000	30×50	0.15	2.47	EKMM251VSN102MR50S
	1,000	35×40	0.15	2.47	EKMM251VSN102MA40S
	1,200	30×60	0.15	2.85	EKMM251VSN122MR60S
	1,200	35×45	0.15	2.60	EKMM251VSN122MA45S
	1,500	35×50	0.15	3.00	EKMM251VSN152MA50S
	1,800	35×60	0.15	3.42	EKMM251VSN182MA60S
315	56	20×20	0.15	0.38	EKMM3B1VSN560MN20S
	68	20×25	0.15	0.47	EKMM3B1VSN680MN25S
	68	22×20	0.15	0.45	EKMM3B1VSN680MP20S
	82	20×25	0.15	0.64	EKMM3B1VSN820MN25S
	82	22×20	0.15	0.47	EKMM3B1VSN820MP20S
	100	20×30	0.15	0.69	EKMM3B1VSN101MN30S
	100	22×25	0.15	0.61	EKMM3B1VSN101MP25S
	100	25.4×20	0.15	0.56	EKMM3B1VSN101MQ20S
	120	20×30	0.15	0.75	EKMM3B1VSN121MN30S
	120	22×25	0.15	0.75	EKMM3B1VSN121MP25S
	120	25.4×20	0.15	0.62	EKMM3B1VSN121MQ20S
	120	30×20	0.15	0.65	EKMM3B1VSN121MR20S
	150	20×35	0.15	0.82	EKMM3B1VSN151MN35S
	150	22×30	0.15	0.82	EKMM3B1VSN151MP30S
	150	25.4×25	0.15	0.82	EKMM3B1VSN151MQ25S
	150	30×20	0.15	0.70	EKMM3B1VSN151MR20S
	150	35×20	0.15	0.76	EKMM3B1VSN151MA20S
	180	20×40	0.15	0.90	EKMM3B1VSN181MN40S
	180	22×35	0.15	0.92	EKMM3B1VSN181MP35S
	180	25.4×25	0.15	0.92	EKMM3B1VSN181MQ25S
	180	30×25	0.15	0.90	EKMM3B1VSN181MR25S
	180	35×20	0.15	0.85	EKMM3B1VSN181MA20S
	220	20×50	0.15	1.00	EKMM3B1VSN221MN50S
	220	22×40	0.15	1.04	EKMM3B1VSN221MP40S
	220	25.4×30	0.15	1.04	EKMM3B1VSN221MQ30S
	220	30×25	0.15	1.04	EKMM3B1VSN221MR25S
	220	35×20	0.15	0.90	EKMM3B1VSN221MA20S
	270	22×45	0.15	1.16	EKMM3B1VSN271MP45S
	270	25.4×35	0.15	1.16	EKMM3B1VSN271MQ35S
	270	30×25	0.15	1.16	EKMM3B1VSN271MR25S
	270	35×25	0.15	1.15	EKMM3B1VSN271MA25S
	330	22×50	0.15	1.33	EKMM3B1VSN331MP50S
	330	25.4×40	0.15	1.33	EKMM3B1VSN331MQ40S
	330	30×30	0.15	1.33	EKMM3B1VSN331MR30S
	330	35×25	0.15	1.33	EKMM3B1VSN331MA25S
	390	25.4×45	0.15	1.47	EKMM3B1VSN391MQ45S
	390	30×35	0.15	1.47	EKMM3B1VSN391MR35S
	390	35×30	0.15	1.47	EKMM3B1VSN391MA30S
	470	25.4×50	0.15	1.70	EKMM3B1VSN471MQ50S
	470	30×40	0.15	1.70	EKMM3B1VSN471MR40S
	470	35×30	0.15	1.70	EKMM3B1VSN471MA30S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
315	560	30×45	0.15	2.05	EKMM3B1VSN561MR45S
	560	35×35	0.15	2.05	EKMM3B1VSN561MA35S
	680	30×50	0.15	2.17	EKMM3B1VSN681MR50S
	680	35×40	0.15	2.17	EKMM3B1VSN681MA40S
	820	35×45	0.15	2.20	EKMM3B1VSN821MA45S
	1,000	35×60	0.15	2.55	EKMM3B1VSN102MA60S
350	47	20×20	0.15	0.35	EKMM351VSN470MN20S
	56	20×25	0.15	0.43	EKMM351VSN560MN25S
	56	22×20	0.15	0.41	EKMM351VSN560MP20S
	68	20×25	0.15	0.47	EKMM351VSN680MN25S
	68	25.4×20	0.15	0.46	EKMM351VSN680MQ20S
	82	20×30	0.15	0.54	EKMM351VSN820MN30S
	82	22×25	0.15	0.55	EKMM351VSN820MP25S
	82	25.4×20	0.15	0.51	EKMM351VSN820MQ20S
	100	20×30	0.15	0.60	EKMM351VSN101MN30S
	100	22×25	0.15	0.69	EKMM351VSN101MP25S
	100	30×20	0.15	0.60	EKMM351VSN101MR20S
	120	20×35	0.15	0.68	EKMM351VSN121MN35S
	120	22×30	0.15	0.75	EKMM351VSN121MP30S
	120	25.4×25	0.15	0.75	EKMM351VSN121MQ25S
	120	30×20	0.15	0.65	EKMM351VSN121MR20S
	150	20×40	0.15	0.78	EKMM351VSN151MN40S
	150	22×35	0.15	0.82	EKMM351VSN151MP35S
	150	25.4×30	0.15	0.83	EKMM351VSN151MQ30S
	150	30×25	0.15	0.82	EKMM351VSN151MR25S
	150	35×20	0.15	0.76	EKMM351VSN151MA20S
	180	20×45	0.15	0.87	EKMM351VSN181MN45S
	180	22×40	0.15	0.92	EKMM351VSN181MP40S
	180	25.4×30	0.15	0.92	EKMM351VSN181MQ30S
	180	30×25	0.15	0.90	EKMM351VSN181MR25S
	220	20×50	0.15	1.00	EKMM351VSN221MN50S
	220	22×45	0.15	1.05	EKMM351VSN221MP45S
	220	25.4×35	0.15	1.04	EKMM351VSN221MQ35S
	220	30×30	0.15	1.02	EKMM351VSN221MR30S
	220	35×25	0.15	1.04	EKMM351VSN221MA25S
	270	22×50	0.15	1.16	EKMM351VSN271MP50S
	270	25.4×40	0.15	1.18	EKMM351VSN271MQ40S
	270	30×30	0.15	1.17	EKMM351VSN271MR30S
	270	35×25	0.15	1.20	EKMM351VSN271MA25S
	330	25.4×45	0.15	1.29	EKMM351VSN331MQ45S
	330	30×35	0.15	1.34	EKMM351VSN331MR35S
	330	35×30	0.15	1.22	EKMM351VSN331MA30S
	390	25.4×50	0.15	1.51	EKMM351VSN391MQ50S
	390	30×40	0.15	1.51	EKMM351VSN391MR40S
	390	35×35	0.15	1.47	EKMM351VSN391MA35S
	470	25.4×60	0.15	1.66	EKMM351VSN471MQ60S
	470	30×45	0.15	1.65	EKMM351VSN471MR45S
	470	35×35	0.15	1.69	EKMM351VSN471MA35S
	560	30×50	0.15	1.85	EKMM351VSN561MR50S
	560	35×40	0.15	1.90	EKMM351VSN561MA40S
	680	30×60	0.15	2.15	EKMM351VSN681MR60S
	680	35×50	0.15	1.99	EKMM351VSN681MA50S
	820	35×60	0.15	2.31	EKMM351VSN821MA60S
400	39	20×20	0.15	0.32	EKMM401VSN390MN20S
	47	20×25	0.15	0.39	EKMM401VSN470MN25S
	47	22×20	0.15	0.37	EKMM401VSN470MP20S
	56	20×25	0.15	0.51	EKMM401VSN560MN25S
	56	25.4×20	0.15	0.42	EKMM401VSN560MQ20S
	68	20×30	0.15	0.56	EKMM401VSN680MN30S
	68	22×25	0.15	0.50	EKMM401VSN680MP25S
	68	25.4×20	0.15	0.46	EKMM401VSN680MQ20S
	82	20×30	0.15	0.64	EKMM401VSN820MN30S
	82	22×25	0.15	0.64	EKMM401VSN820MP25S
	82	30×20	0.15	0.55	EKMM401VSN820MR20S
	100	20×35	0.15	0.70	EKMM401VSN101MN35S
	100	22×30	0.15	0.70	EKMM401VSN101MP30S
	100	25.4×25	0.15	0.70	EKMM401VSN101MQ25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	100	30×20	0.15	0.60	EKMM401VSN101MR20S
	120	20×40	0.15	0.75	EKMM401VSN121MN40S
	120	22×35	0.15	0.75	EKMM401VSN121MP35S
	120	25.4×25	0.15	0.75	EKMM401VSN121MQ25S
	120	30×25	0.15	0.73	EKMM401VSN121MR25S
	120	35×20	0.15	0.75	EKMM401VSN121MA20S
	150	20×45	0.15	0.83	EKMM401VSN151MN45S
	150	22×40	0.15	0.88	EKMM401VSN151MP40S
	150	25.4×30	0.15	0.88	EKMM401VSN151MQ30S
	150	30×25	0.15	0.88	EKMM401VSN151MR25S
	150	35×20	0.15	0.80	EKMM401VSN151MA20S
	180	22×45	0.15	0.98	EKMM401VSN181MP45S
	180	25.4×35	0.15	0.98	EKMM401VSN181MQ35S
	180	30×30	0.15	0.98	EKMM401VSN181MR30S
	180	35×25	0.15	0.98	EKMM401VSN181MA25S
	220	22×50	0.15	1.10	EKMM401VSN221MP50S
	220	25.4×40	0.15	1.10	EKMM401VSN221MQ40S
	220	30×30	0.15	1.10	EKMM401VSN221MR30S
	220	35×25	0.15	1.10	EKMM401VSN221MA25S
	270	25.4×45	0.15	1.22	EKMM401VSN271MQ45S
	270	30×35	0.15	1.22	EKMM401VSN271MR35S
	270	35×30	0.15	1.22	EKMM401VSN271MA30S
	330	25.4×50	0.15	1.44	EKMM401VSN331MQ50S
	330	30×40	0.15	1.44	EKMM401VSN331MR40S
	330	35×30	0.15	1.44	EKMM401VSN331MA30S
	390	25.4×60	0.15	1.51	EKMM401VSN391MQ60S
	390	30×45	0.15	1.60	EKMM401VSN391MR45S
	390	35×35	0.15	1.60	EKMM401VSN391MA35S
	470	30×50	0.15	1.90	EKMM401VSN471MR50S
	470	35×40	0.15	1.90	EKMM401VSN471MA40S
	560	30×60	0.15	2.10	EKMM401VSN561MR60S
	560	35×45	0.15	2.12	EKMM401VSN561MA45S
	680	35×60	0.15	2.27	EKMM401VSN681MA60S
420	39	20×20	0.20	0.32	EKMM421VSN390MN20S
	47	20×25	0.20	0.39	EKMM421VSN470MN25S
	47	22×20	0.20	0.37	EKMM421VSN470MP20S
	56	20×25	0.20	0.51	EKMM421VSN560MN25S
	56	25.4×20	0.20	0.42	EKMM421VSN560MQ20S
	68	20×30	0.20	0.56	EKMM421VSN680MN30S
	68	22×25	0.20	0.50	EKMM421VSN680MP25S
	68	25.4×20	0.20	0.46	EKMM421VSN680MQ20S
	82	20×35	0.20	0.64	EKMM421VSN820MN35S
	82	22×25	0.20	0.64	EKMM421VSN820MP25S
	82	25.4×25	0.20	0.58	EKMM421VSN820MQ25S
	82	30×20	0.20	0.53	EKMM421VSN820MR20S
	100	20×35	0.20	0.70	EKMM421VSN101MN35S
	100	22×30	0.20	0.70	EKMM421VSN101MP30S
	100	25.4×25	0.20	0.70	EKMM421VSN101MQ25S
	100	30×20	0.20	0.59	EKMM421VSN101MR20S
	120	20×40	0.20	0.75	EKMM421VSN121MN40S
	120	22×35	0.20	0.75	EKMM421VSN121MP35S
	120	25.4×30	0.20	0.75	EKMM421VSN121MQ30S
	120	30×25	0.20	0.73	EKMM421VSN121MR25S
	120	35×20	0.20	0.67	EKMM421VSN121MA20S
	150	20×50	0.20	0.88	EKMM421VSN151MN50S
	150	22×40	0.20	0.88	EKMM421VSN151MP40S
	150	25.4×35	0.20	0.88	EKMM421VSN151MQ35S
	150	30×25	0.20	0.88	EKMM421VSN151MR25S
	180	22×45	0.20	0.95	EKMM421VSN181MP45S
	180	25.4×35	0.20	0.95	EKMM421VSN181MQ35S
	180	30×30	0.20	0.95	EKMM421VSN181MR30S
	180	35×25	0.20	0.94	EKMM421VSN181MA25S
	220	22×50	0.20	1.10	EKMM421VSN221MP50S
	220	25.4×45	0.20	1.10	EKMM421VSN221MQ45S
	220	30×35	0.20	1.10	EKMM421VSN221MR35S
	220	35×25	0.20	1.10	EKMM421VSN221MA25S
	270	25.4×50	0.20	1.22	EKMM421VSN271MQ50S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Downsized snap-ins, 105℃

KMM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
420	270	30×40	0.20	1.22	EKMM421VSN271MR40S
	270	35×30	0.20	1.22	EKMM421VSN271MA30S
	330	25.4×60	0.20	1.41	EKMM421VSN331MQ60S
	330	30×45	0.20	1.45	EKMM421VSN331MR45S
	330	35×35	0.20	1.45	EKMM421VSN331MA35S
	390	30×50	0.20	1.55	EKMM421VSN391MR50S
	390	35×40	0.20	1.55	EKMM421VSN391MA40S
	470	30×60	0.20	1.79	EKMM421VSN471MR60S
	470	35×45	0.20	1.90	EKMM421VSN471MA45S
	560	35×50	0.20	2.15	EKMM421VSN561MA50S
	680	35×60	0.20	2.27	EKMM421VSN681MA60S
450	39	20×25	0.20	0.34	EKMM451VSN390MN25S
	47	20×25	0.20	0.39	EKMM451VSN470MN25S
	56	20×30	0.20	0.51	EKMM451VSN560MN30S
	56	22×25	0.20	0.40	EKMM451VSN560MP25S
	68	20×35	0.20	0.56	EKMM451VSN680MN35S
	68	22×30	0.20	0.53	EKMM451VSN680MP30S
	68	25.4×25	0.20	0.50	EKMM451VSN680MQ25S
	82	20×35	0.20	0.64	EKMM451VSN820MN35S
	82	22×30	0.20	0.64	EKMM451VSN820MP30S
	82	25.4×25	0.20	0.64	EKMM451VSN820MQ25S
	100	20×45	0.20	0.69	EKMM451VSN101MN45S
	100	22×35	0.20	0.69	EKMM451VSN101MP35S
	100	25.4×30	0.20	0.69	EKMM451VSN101MQ30S
	100	30×25	0.20	0.64	EKMM451VSN101MR25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
450	120	20×50	0.20	0.75	EKMM451VSN121MN50S
	120	22×40	0.20	0.80	EKMM451VSN121MP40S
	120	25.4×30	0.20	0.80	EKMM451VSN121MQ30S
	120	30×25	0.20	0.80	EKMM451VSN121MR25S
	120	35×25	0.20	0.73	EKMM451VSN121MA25S
	150	22×45	0.20	0.88	EKMM451VSN151MP45S
	150	25.4×35	0.20	0.88	EKMM451VSN151MQ35S
	150	30×30	0.20	0.88	EKMM451VSN151MR30S
	150	35×25	0.20	0.75	EKMM451VSN151MA25S
	180	22×50	0.20	1.00	EKMM451VSN181MP50S
	180	25.4×40	0.20	1.00	EKMM451VSN181MQ40S
	180	30×30	0.20	1.00	EKMM451VSN181MR30S
	220	25.4×45	0.20	1.12	EKMM451VSN221MQ45S
	220	30×35	0.20	1.12	EKMM451VSN221MR35S
	220	35×30	0.20	1.12	EKMM451VSN221MA30S
	270	25.4×60	0.20	1.18	EKMM451VSN271MQ60S
	270	30×40	0.20	1.28	EKMM451VSN271MR40S
	270	35×35	0.20	1.28	EKMM451VSN271MA35S
	330	30×50	0.20	1.45	EKMM451VSN331MR50S
	330	35×40	0.20	1.45	EKMM451VSN331MA40S
	390	30×60	0.20	1.51	EKMM451VSN391MR60S
	390	35×40	0.20	1.55	EKMM451VSN391MA40S
	470	35×50	0.20	1.85	EKMM451VSN471MA50S
	560	35×60	0.20	1.91	EKMM451VSN561MA60S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

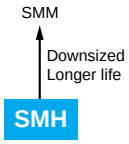
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 85℃

SMH Series

- Endurance with ripple current : 2,000 hours at 85℃
- Non solvent resistant type
- **RoHS Compliant**

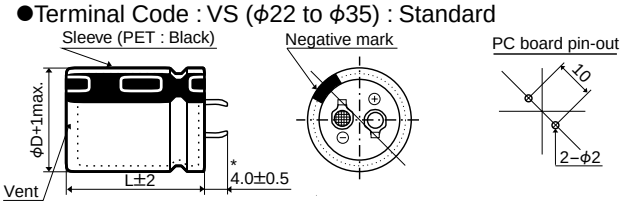


◆SPACIFICATIONS

Items	Characteristics										
Category Temperature Range	−40 to +85℃										
Rated Voltage Range	6.3 to 100Vdc										
Capacitance Tolerance	±20% (M)										(at 20℃, 120Hz)
Leakage Current	I=0.02CV or 3mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)										(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	tanδ (Max.)	0.60	0.50	0.40	0.30	0.25	0.20	0.15	0.15	0.15	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	Z(−25℃)/Z(+20℃)	4	4	4	3	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	15	15	15	10	8	6	6	5	5	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 85℃.										
	Capacitance change	≦±20% of the initial value									
	D.F. (tanδ)	≦200% of the initial specified value									
	Leakage current	≦The initial specified value									
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.										
	Capacitance change	≦±20% of the initial value									
	D.F. (tanδ)	≦150% of the initial specified value									
	Leakage current	≦The initial specified value									

◆DIMENSIONS [mm]

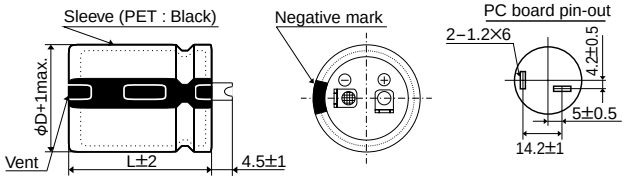
●Terminal Code : VS (φ22 to φ35) : Standard



*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	S	M	H				V	S	N				M				S

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 820μF:821, 3,300μF:332)
Dummy terminal code
Terminal code
Voltage code (ex. 6.3V:6R3, 63V:630, 100V:101)
Series code
Category

Please refer to "Product code guide (snap-in type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 85℃

SMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
6.3	15,000	22×25	0.60	2.44	ESMH6R3VSN153MP25S
	18,000	22×30	0.60	2.67	ESMH6R3VSN183MP30S
	18,000	25.4×25	0.60	2.70	ESMH6R3VSN183MQ25S
	22,000	22×30	0.60	3.06	ESMH6R3VSN223MP30S
	22,000	25.4×25	0.60	3.07	ESMH6R3VSN223MQ25S
	27,000	22×35	0.60	3.49	ESMH6R3VSN273MP35S
	27,000	25.4×30	0.60	3.52	ESMH6R3VSN273MQ30S
	27,000	30×25	0.60	3.57	ESMH6R3VSN273MR25S
	33,000	22×40	0.60	3.97	ESMH6R3VSN333MP40S
	33,000	25.4×35	0.60	4.02	ESMH6R3VSN333MQ35S
	33,000	30×25	0.60	3.95	ESMH6R3VSN333MR25S
	39,000	22×50	0.60	4.55	ESMH6R3VSN393MP50S
	39,000	25.4×40	0.60	4.50	ESMH6R3VSN393MQ40S
	39,000	30×30	0.60	4.45	ESMH6R3VSN393MR30S
	39,000	35×25	0.60	4.51	ESMH6R3VSN393MA25S
	47,000	25.4×45	0.60	5.09	ESMH6R3VSN473MQ45S
	47,000	30×35	0.60	5.06	ESMH6R3VSN473MR35S
	47,000	35×30	0.60	5.01	ESMH6R3VSN473MA30S
	56,000	25.4×50	0.60	5.71	ESMH6R3VSN563MQ50S
	56,000	30×40	0.60	5.70	ESMH6R3VSN563MR40S
	56,000	35×30	0.60	5.77	ESMH6R3VSN563MA30S
	68,000	30×45	0.60	6.48	ESMH6R3VSN683MR45S
	68,000	35×35	0.60	6.42	ESMH6R3VSN683MA35S
	82,000	30×50	0.60	7.32	ESMH6R3VSN823MR50S
	82,000	35×40	0.60	7.29	ESMH6R3VSN823MA40S
	100,000	35×45	0.60	8.31	ESMH6R3VSN104MA45S
10	12,000	22×25	0.50	2.39	ESMH100VSN123MP25S
	15,000	22×30	0.50	2.76	ESMH100VSN153MP30S
	15,000	25.4×25	0.50	2.77	ESMH100VSN153MQ25S
	18,000	22×35	0.50	3.12	ESMH100VSN183MP35S
	18,000	25.4×25	0.50	3.04	ESMH100VSN183MQ25S
	22,000	22×40	0.50	3.55	ESMH100VSN223MP40S
	22,000	25.4×30	0.50	3.48	ESMH100VSN223MQ30S
	22,000	30×25	0.50	3.53	ESMH100VSN223MR25S
	27,000	22×45	0.50	4.04	ESMH100VSN273MP45S
	27,000	25.4×35	0.50	3.98	ESMH100VSN273MQ35S
	27,000	30×30	0.50	3.73	ESMH100VSN273MR30S
	27,000	35×25	0.50	3.73	ESMH100VSN273MA25S
	33,000	22×50	0.50	4.58	ESMH100VSN333MP50S
	33,000	25.4×40	0.50	4.54	ESMH100VSN333MQ40S
	33,000	30×30	0.50	4.13	ESMH100VSN333MR30S
	33,000	35×25	0.50	4.13	ESMH100VSN333MA25S
	39,000	25.4×45	0.50	5.08	ESMH100VSN393MQ45S
	39,000	30×35	0.50	5.05	ESMH100VSN393MR35S
	39,000	35×30	0.50	4.80	ESMH100VSN393MA35S
	47,000	25.4×50	0.50	5.73	ESMH100VSN473MQ50S
	47,000	30×40	0.50	5.72	ESMH100VSN473MR40S
	47,000	35×30	0.50	5.27	ESMH100VSN473MA30S
	56,000	30×45	0.50	6.44	ESMH100VSN563MR45S
	56,000	35×35	0.50	6.38	ESMH100VSN563MA35S
	68,000	30×50	0.50	7.27	ESMH100VSN683MR50S
	68,000	35×40	0.50	7.27	ESMH100VSN683MA40S
	82,000	35×50	0.50	8.49	ESMH100VSN823MA50S
16	8,200	22×25	0.40	2.51	ESMH160VSN822MP25S
	10,000	22×25	0.40	2.77	ESMH160VSN103MP25S
	12,000	22×30	0.40	2.86	ESMH160VSN123MP30S
	12,000	25.4×25	0.40	2.95	ESMH160VSN123MQ25S
	15,000	22×35	0.40	3.29	ESMH160VSN153MP35S
	15,000	25.4×30	0.40	3.46	ESMH160VSN153MQ30S
	15,000	30×25	0.40	3.66	ESMH160VSN153MR25S
	18,000	22×40	0.40	3.72	ESMH160VSN183MP40S
	18,000	25.4×35	0.40	3.98	ESMH160VSN183MQ35S
	18,000	30×25	0.40	4.00	ESMH160VSN183MR25S
	22,000	22×50	0.40	4.37	ESMH160VSN223MP50S
	22,000	25.4×40	0.40	4.26	ESMH160VSN223MQ40S
	22,000	30×30	0.40	4.21	ESMH160VSN223MR30S
	22,000	35×25	0.40	4.15	ESMH160VSN223MA25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
16	27,000	25.4×45	0.40	4.72	ESMH160VSN273MQ45S
	27,000	30×35	0.40	4.82	ESMH160VSN273MR35S
	27,000	35×30	0.40	4.65	ESMH160VSN273MA30S
	33,000	25.4×50	0.40	5.33	ESMH160VSN333MQ50S
	33,000	30×40	0.40	5.36	ESMH160VSN333MR40S
	33,000	35×30	0.40	5.15	ESMH160VSN333MA30S
	39,000	30×45	0.40	6.01	ESMH160VSN393MR45S
	39,000	35×35	0.40	5.95	ESMH160VSN393MA35S
	47,000	30×50	0.40	6.79	ESMH160VSN473MR50S
	47,000	35×40	0.40	6.76	ESMH160VSN473MA40S
	56,000	35×45	0.40	7.62	ESMH160VSN563MA45S
	68,000	35×50	0.40	8.63	ESMH160VSN683MA50S
25	5,600	22×25	0.30	2.21	ESMH250VSN562MP25S
	6,800	22×30	0.30	2.40	ESMH250VSN682MP30S
	6,800	25.4×25	0.30	2.56	ESMH250VSN682MQ25S
	8,200	22×35	0.30	2.72	ESMH250VSN822MP35S
	8,200	25.4×25	0.30	2.80	ESMH250VSN822MQ25S
	10,000	22×40	0.30	3.09	ESMH250VSN103MP40S
	10,000	25.4×30	0.30	3.12	ESMH250VSN103MQ30S
	10,000	30×25	0.30	3.21	ESMH250VSN103MR25S
	12,000	22×45	0.30	3.48	ESMH250VSN123MP45S
	12,000	25.4×35	0.30	3.43	ESMH250VSN123MQ35S
	12,000	30×30	0.30	3.86	ESMH250VSN123MR30S
	12,000	35×25	0.30	3.54	ESMH250VSN123MA25S
	15,000	22×50	0.30	4.00	ESMH250VSN153MP50S
	15,000	25.4×40	0.30	3.95	ESMH250VSN153MQ40S
	15,000	30×30	0.30	4.00	ESMH250VSN153MR30S
	15,000	35×25	0.30	3.95	ESMH250VSN153MA25S
	18,000	25.4×45	0.30	4.45	ESMH250VSN183MQ45S
	18,000	30×35	0.30	4.46	ESMH250VSN183MR35S
	18,000	35×30	0.30	4.63	ESMH250VSN183MA30S
	22,000	25.4×50	0.30	5.02	ESMH250VSN223MQ50S
	22,000	30×45	0.30	5.21	ESMH250VSN223MR45S
	22,000	35×35	0.30	5.16	ESMH250VSN223MA35S
	27,000	30×50	0.30	5.94	ESMH250VSN273MR50S
	27,000	35×40	0.30	5.92	ESMH250VSN273MA40S
	33,000	35×45	0.30	6.75	ESMH250VSN333MA45S
	39,000	35×50	0.30	7.56	ESMH250VSN393MA50S
35	3,900	22×25	0.25	2.22	ESMH350VSN392MP25S
	4,700	22×30	0.25	2.41	ESMH350VSN472MP30S
	4,700	25.4×25	0.25	2.42	ESMH350VSN472MQ25S
	5,600	22×35	0.25	2.75	ESMH350VSN562MP35S
	5,600	25.4×25	0.25	2.64	ESMH350VSN562MQ25S
	6,800	22×40	0.25	2.80	ESMH350VSN682MP40S
	6,800	25.4×30	0.25	2.74	ESMH350VSN682MQ30S
	6,800	30×25	0.25	2.97	ESMH350VSN682MR25S
	8,200	22×45	0.25	3.47	ESMH350VSN822MP45S
	8,200	25.4×35	0.25	3.10	ESMH350VSN822MQ35S
	8,200	30×30	0.25	3.13	ESMH350VSN822MR30S
	8,200	35×25	0.25	2.73	ESMH350VSN822MA25S
	10,000	22×50	0.25	3.57	ESMH350VSN103MP50S
	10,000	25.4×40	0.25	3.53	ESMH350VSN103MQ40S
	10,000	30×30	0.25	3.46	ESMH350VSN103MR30S
	10,000	35×25	0.25	3.02	ESMH350VSN103MA25S
	12,000	25.4×45	0.25	3.98	ESMH350VSN123MQ45S
	12,000	30×35	0.25	4.01	ESMH350VSN123MR35S
	12,000	35×30	0.25	4.42	ESMH350VSN123MA30S
	15,000	25.4×50	0.25	4.54	ESMH350VSN153MQ50S
	15,000	30×40	0.25	4.52	ESMH350VSN153MR40S
	15,000	35×35	0.25	5.01	ESMH350VSN153MA35S
	18,000	30×45	0.25	4.71	ESMH350VSN183MR45S
	18,000	35×40	0.25	5.54	ESMH350VSN183MA40S
	22,000	30×50	0.25	5.33	ESMH350VSN223MR50S
	22,000	35×45	0.25	6.04	ESMH350VSN223MA45S
	27,000	35×50	0.25	6.89	ESMH350VSN273MA50S
50	2,200	22×25	0.20	1.91	ESMH500VSN222MP25S
	3,300	22×30	0.20	2.37	ESMH500VSN332MP30S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 85℃

SMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
50	3,300	25.4×25	0.20	2.38	ESMH500VSN332MQ25S
	3,900	22×35	0.20	2.65	ESMH500VSN392MP35S
	3,900	25.4×30	0.20	2.68	ESMH500VSN392MQ30S
	3,900	30×25	0.20	2.55	ESMH500VSN392MR25S
	4,700	22×40	0.20	2.99	ESMH500VSN472MP40S
	4,700	25.4×35	0.20	3.03	ESMH500VSN472MQ35S
	4,700	30×25	0.20	2.81	ESMH500VSN472MR25S
	5,600	22×45	0.20	3.36	ESMH500VSN562MP45S
	5,600	25.4×35	0.20	3.31	ESMH500VSN562MQ35S
	5,600	30×30	0.20	3.37	ESMH500VSN562MR30S
	5,600	35×25	0.20	3.42	ESMH500VSN562MA25S
	6,800	22×50	0.20	3.81	ESMH500VSN682MP50S
	6,800	25.4×40	0.20	3.81	ESMH500VSN682MQ40S
	6,800	30×35	0.20	3.85	ESMH500VSN682MR35S
	6,800	35×30	0.20	3.85	ESMH500VSN682MA30S
	8,200	25.4×50	0.20	4.37	ESMH500VSN822MQ50S
	8,200	30×40	0.20	4.36	ESMH500VSN822MR40S
	8,200	35×30	0.20	4.41	ESMH500VSN822MA30S
	10,000	30×45	0.20	4.97	ESMH500VSN103MR45S
	10,000	35×35	0.20	4.92	ESMH500VSN103MA35S
	12,000	30×50	0.20	5.60	ESMH500VSN123MR50S
	12,000	35×40	0.20	5.58	ESMH500VSN123MA40S
	15,000	35×45	0.20	6.44	ESMH500VSN153MA45S
	18,000	35×50	0.20	6.71	ESMH500VSN183MA50S
63	1,800	22×25	0.15	1.82	ESMH630VSN182MP25S
	2,200	22×30	0.15	2.31	ESMH630VSN222MP30S
	2,200	25.4×25	0.15	2.30	ESMH630VSN222MQ25S
	2,700	22×35	0.15	2.40	ESMH630VSN272MP35S
	2,700	25.4×25	0.15	2.40	ESMH630VSN272MQ25S
	3,300	22×35	0.15	2.62	ESMH630VSN332MP35S
	3,300	25.4×30	0.15	2.64	ESMH630VSN332MQ30S
	3,300	30×25	0.15	2.78	ESMH630VSN332MR25S
	3,900	22×40	0.15	2.93	ESMH630VSN392MP40S
	3,900	25.4×35	0.15	2.97	ESMH630VSN392MQ35S
	3,900	30×30	0.15	3.00	ESMH630VSN392MR30S
	3,900	35×25	0.15	3.00	ESMH630VSN392MA25S
	4,700	22×50	0.15	3.39	ESMH630VSN472MP50S
	4,700	25.4×40	0.15	3.36	ESMH630VSN472MQ40S
	4,700	30×30	0.15	3.32	ESMH630VSN472MR30S
	4,700	35×25	0.15	3.36	ESMH630VSN472MA25S
	5,600	25.4×45	0.15	3.77	ESMH630VSN562MQ45S
	5,600	30×35	0.15	3.75	ESMH630VSN562MR35S
	5,600	35×30	0.15	3.76	ESMH630VSN562MA30S
	6,800	25.4×50	0.15	4.27	ESMH630VSN682MQ50S
	6,800	30×40	0.15	4.27	ESMH630VSN682MR40S
	6,800	35×30	0.15	4.15	ESMH630VSN682MA30S
	8,200	30×45	0.15	4.83	ESMH630VSN822MR45S
	8,200	35×35	0.15	4.79	ESMH630VSN822MA35S
	10,000	30×50	0.15	5.49	ESMH630VSN103MR50S
	10,000	35×40	0.15	5.47	ESMH630VSN103MA40S
	12,000	35×45	0.15	6.19	ESMH630VSN123MA45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
80	1,200	22×25	0.15	1.69	ESMH800VSN122MP25S
	1,500	22×25	0.15	1.88	ESMH800VSN152MP25S
	1,800	22×30	0.15	2.14	ESMH800VSN182MP30S
	1,800	25.4×25	0.15	2.26	ESMH800VSN182MQ25S
	2,200	22×35	0.15	2.44	ESMH800VSN222MP35S
	2,200	25.4×30	0.15	2.46	ESMH800VSN222MQ30S
	2,200	30×25	0.15	2.49	ESMH800VSN222MR25S
	2,700	22×40	0.15	2.78	ESMH800VSN272MP40S
	2,700	25.4×35	0.15	2.81	ESMH800VSN272MQ35S
	2,700	30×25	0.15	2.75	ESMH800VSN272MR25S
	3,300	22×45	0.15	3.16	ESMH800VSN332MP45S
	3,300	25.4×40	0.15	3.21	ESMH800VSN332MQ40S
	3,300	30×30	0.15	3.17	ESMH800VSN332MR30S
	3,300	35×25	0.15	3.21	ESMH800VSN332MA25S
	3,900	22×50	0.15	3.52	ESMH800VSN392MP50S
	3,900	25.4×45	0.15	3.59	ESMH800VSN392MQ45S
	3,900	30×35	0.15	3.57	ESMH800VSN392MR35S
	3,900	35×25	0.15	3.50	ESMH800VSN392MA25S
	4,700	25.4×50	0.15	4.05	ESMH800VSN472MQ50S
	4,700	30×40	0.15	4.05	ESMH800VSN472MR40S
	4,700	35×30	0.15	4.09	ESMH800VSN472MA30S
	5,600	30×45	0.15	4.55	ESMH800VSN562MR45S
	5,600	35×35	0.15	4.51	ESMH800VSN562MA35S
	6,800	30×50	0.15	5.16	ESMH800VSN682MR50S
	6,800	35×40	0.15	5.14	ESMH800VSN682MA40S
	8,200	35×45	0.15	5.83	ESMH800VSN822MA45S
	10,000	35×50	0.15	6.63	ESMH800VSN103MA50S
100	820	22×25	0.15	1.86	ESMH101VSN821MP25S
	1,200	22×30	0.15	2.09	ESMH101VSN122MP30S
	1,200	25.4×25	0.15	2.10	ESMH101VSN122MQ25S
	1,500	22×35	0.15	2.41	ESMH101VSN152MP35S
	1,500	25.4×30	0.15	2.43	ESMH101VSN152MQ30S
	1,500	30×25	0.15	2.46	ESMH101VSN152MR25S
	1,800	22×40	0.15	2.71	ESMH101VSN182MP40S
	1,800	25.4×35	0.15	2.75	ESMH101VSN182MQ35S
	1,800	30×25	0.15	2.72	ESMH101VSN182MR25S
	2,200	22×45	0.15	3.08	ESMH101VSN222MP45S
	2,200	25.4×40	0.15	3.13	ESMH101VSN222MQ40S
	2,200	30×30	0.15	3.09	ESMH101VSN222MR30S
	2,200	35×25	0.15	3.14	ESMH101VSN222MA25S
	2,700	22×50	0.15	3.53	ESMH101VSN272MP50S
	2,700	25.4×45	0.15	3.57	ESMH101VSN272MQ45S
	2,700	30×35	0.15	3.55	ESMH101VSN272MR35S
	2,700	35×30	0.15	3.71	ESMH101VSN272MA30S
	3,300	25.4×50	0.15	4.06	ESMH101VSN332MQ50S
	3,300	30×40	0.15	4.05	ESMH101VSN332MR40S
	3,300	35×30	0.15	4.05	ESMH101VSN332MA30S
	3,900	30×45	0.15	4.54	ESMH101VSN392MR45S
	3,900	35×35	0.15	4.49	ESMH101VSN392MA35S
	4,700	30×50	0.15	5.13	ESMH101VSN472MR50S
	4,700	35×40	0.15	5.11	ESMH101VSN472MA40S
	5,600	35×45	0.15	5.75	ESMH101VSN562MA45S
	6,800	35×50	0.15	6.50	ESMH101VSN682MA50S

*For the rated voltage≧160Vdc, please use SMQ series

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
6.3 to 50Vdc	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100Vdc	0.92	1.00	1.07	1.13	1.19	1.20

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

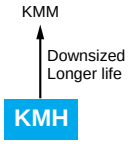
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 105℃

KMH Series

- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

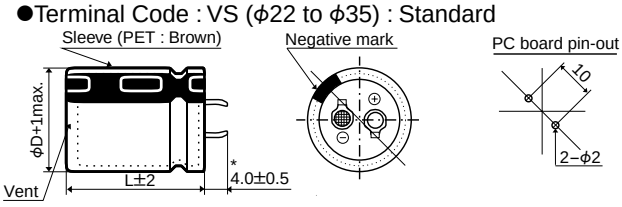


◆SPECIFICATIONS

Items	Characteristics										
Category Temperature Range	−40 to +105℃										
Rated Voltage Range	6.3 to 100Vdc										
Capacitance Tolerance	±20% (M)										(at 20℃, 120Hz)
Leakage Current	I=0.02CV or 3mA, whichever is smaller Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)										(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	tanδ (Max.)	0.60	0.50	0.40	0.30	0.25	0.20	0.15	0.15	0.15	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	Z(−25℃)/Z(+20℃)	4	4	4	3	3	2	2	2	2	
	Z(−40℃)/Z(+20℃)	15	15	15	10	8	6	6	5	5	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃.										
	Capacitance change	≦±20% of the initial value									
	D.F. (tanδ)	≦200% of the initial specified value									
	Leakage current	≦The initial specified value									
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.										
	Capacitance change	≦±20% of the initial value									
	D.F. (tanδ)	≦150% of the initial specified value									
	Leakage current	≦The initial specified value									

◆DIMENSIONS [mm]

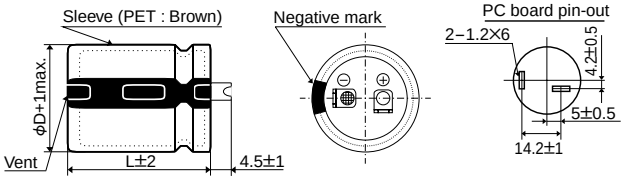
●Terminal Code : VS (ϕ22 to ϕ35) : Standard



*ϕD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (ϕ35)



◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	M	H				V	S	N				M				S

- 18 : Supplement code
- 15–17 : Size code
- 14 : Capacitance tolerance code
- 11–13 : Capacitance code (ex. 820μF:821, 3,300μF:332)
- 10 : Dummy terminal code
- 8–9 : Terminal code (VS, LI)
- 5–7 : Voltage code (ex. 6.3V:6R3, 10V:100, 100V:101)
- 2–4 : Series code
- 1 : Category

Please refer to "Product code guide (snap-in type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
6.3	12,000	22×25	0.60	1.54	EKMH6R3VSN123MP25S
	15,000	22×25	0.60	1.72	EKMH6R3VSN153MP25S
	18,000	22×30	0.60	1.95	EKMH6R3VSN183MP30S
	18,000	25.4×25	0.60	1.96	EKMH6R3VSN183MQ25S
	22,000	22×35	0.60	2.23	EKMH6R3VSN223MP35S
	22,000	25.4×30	0.60	2.25	EKMH6R3VSN223MQ30S
	22,000	30×25	0.60	2.28	EKMH6R3VSN223MR25S
	27,000	22×40	0.60	2.54	EKMH6R3VSN273MP40S
	27,000	25.4×35	0.60	2.57	EKMH6R3VSN273MQ35S
	27,000	30×25	0.60	2.52	EKMH6R3VSN273MR25S
	33,000	22×45	0.60	2.88	EKMH6R3VSN333MP45S
	33,000	25.4×40	0.60	2.93	EKMH6R3VSN333MQ40S
	33,000	30×30	0.60	2.89	EKMH6R3VSN333MR30S
	33,000	35×25	0.60	2.93	EKMH6R3VSN333MA25S
	39,000	25.4×40	0.60	3.18	EKMH6R3VSN393MQ40S
	39,000	30×35	0.60	3.26	EKMH6R3VSN393MR35S
	39,000	35×30	0.60	3.40	EKMH6R3VSN393MA30S
	47,000	25.4×50	0.60	3.69	EKMH6R3VSN473MQ50S
	47,000	30×40	0.60	3.69	EKMH6R3VSN473MR40S
	47,000	35×30	0.60	3.73	EKMH6R3VSN473MA30S
	56,000	30×45	0.60	4.16	EKMH6R3VSN563MR45S
	56,000	35×35	0.60	4.12	EKMH6R3VSN563MA35S
	68,000	30×50	0.60	4.71	EKMH6R3VSN683MR50S
	68,000	35×40	0.60	4.69	EKMH6R3VSN683MA40S
	82,000	35×45	0.60	5.32	EKMH6R3VSN823MA45S
10	10,000	22×25	0.50	1.55	EKMH100VSN103MP25S
	12,000	22×30	0.50	1.77	EKMH100VSN123MP30S
	15,000	22×30	0.50	1.97	EKMH100VSN153MP30S
	15,000	25.4×25	0.50	1.96	EKMH100VSN153MQ25S
	18,000	22×35	0.50	2.21	EKMH100VSN183MP35S
	18,000	25.4×30	0.50	2.23	EKMH100VSN183MQ30S
	22,000	22×40	0.50	2.51	EKMH100VSN223MP40S
	22,000	25.4×35	0.50	2.54	EKMH100VSN223MQ35S
	22,000	30×25	0.50	2.40	EKMH100VSN223MR25S
	27,000	22×50	0.50	2.93	EKMH100VSN273MP50S
	27,000	25.4×40	0.50	2.90	EKMH100VSN273MQ40S
	27,000	30×30	0.50	2.87	EKMH100VSN273MR30S
	27,000	35×25	0.50	2.73	EKMH100VSN273MA25S
	33,000	25.4×45	0.50	3.30	EKMH100VSN333MQ45S
	33,000	30×35	0.50	3.28	EKMH100VSN333MR35S
	33,000	35×30	0.50	3.16	EKMH100VSN333MA30S
	39,000	25.4×50	0.50	3.68	EKMH100VSN393MQ50S
	39,000	30×40	0.50	3.69	EKMH100VSN393MR40S
	39,000	35×30	0.50	3.43	EKMH100VSN393MA30S
	47,000	30×45	0.50	4.17	EKMH100VSN473MR45S
	47,000	35×35	0.50	3.76	EKMH100VSN473MA35S
	56,000	30×50	0.50	4.68	EKMH100VSN563MR50S
	56,000	35×40	0.50	4.67	EKMH100VSN563MA40S
	68,000	35×50	0.50	5.46	EKMH100VSN683MA50S
16	6,800	22×25	0.40	1.57	EKMH160VSN682MP25S
	10,000	22×30	0.40	1.97	EKMH160VSN103MP30S
	1,0000	25.4×25	0.40	1.97	EKMH160VSN103MQ25S
	12,000	22×35	0.40	2.22	EKMH160VSN123MP35S
	12,000	25.4×30	0.40	2.24	EKMH160VSN123MQ30S
	12,000	30×25	0.40	2.45	EKMH160VSN123MR25S
	15,000	22×40	0.40	2.55	EKMH160VSN153MP40S
	15,000	25.4×35	0.40	2.58	EKMH160VSN153MQ35S
	15,000	30×25	0.40	2.52	EKMH160VSN153MR25S
	18,000	22×45	0.40	2.87	EKMH160VSN183MP45S
	18,000	25.4×40	0.40	2.92	EKMH160VSN183MQ40S
	18,000	30×30	0.40	2.88	EKMH160VSN183MR30S
	18,000	35×25	0.40	2.92	EKMH160VSN183MA25S
	22,000	25.4×45	0.40	3.32	EKMH160VSN223MQ45S
	22,000	30×35	0.40	3.29	EKMH160VSN223MR35S
	22,000	35×25	0.40	3.23	EKMH160VSN223MA25S
	27,000	25.4×50	0.40	3.78	EKMH160VSN273MQ50S
	27,000	30×40	0.40	3.77	EKMH160VSN273MR40S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
16	27,000	35×30	0.40	3.45	EKMH160VSN273MA30S
	33,000	30×45	0.40	4.30	EKMH160VSN333MR45S
	33,000	35×35	0.40	4.26	EKMH160VSN333MA35S
	39,000	30×50	0.40	4.81	EKMH160VSN393MR50S
	39,000	35×40	0.40	4.79	EKMH160VSN393MA40S
	47,000	35×45	0.40	5.43	EKMH160VSN473MA45S
25	4,700	22×25	0.30	1.50	EKMH250VSN472MP25S
	5,600	22×25	0.30	1.63	EKMH250VSN562MP25S
	6,800	22×30	0.30	1.86	EKMH250VSN682MP30S
	6,800	25.4×25	0.30	1.87	EKMH250VSN682MQ25S
	8,200	22×35	0.30	2.11	EKMH250VSN822MP35S
	8,200	25.4×30	0.30	2.12	EKMH250VSN822MQ30S
	8,200	30×25	0.30	2.15	EKMH250VSN822MR25S
	10,000	22×40	0.30	2.39	EKMH250VSN103MP40S
	10,000	25.4×35	0.30	2.42	EKMH250VSN103MQ35S
	10,000	30×25	0.30	2.37	EKMH250VSN103MR25S
	12,000	22×45	0.30	2.69	EKMH250VSN123MP45S
	12,000	25.4×40	0.30	2.74	EKMH250VSN123MQ40S
	12,000	30×30	0.30	2.70	EKMH250VSN123MR30S
	12,000	35×25	0.30	2.74	EKMH250VSN123MA25S
	15,000	25.4×45	0.30	3.15	EKMH250VSN153MQ45S
	15,000	30×35	0.30	3.13	EKMH250VSN153MR35S
	15,000	35×30	0.30	3.27	EKMH250VSN153MA30S
	18,000	25.4×50	0.30	3.54	EKMH250VSN183MQ50S
	18,000	30×40	0.30	3.54	EKMH250VSN183MR40S
	18,000	35×30	0.30	3.58	EKMH250VSN183MA30S
	22,000	30×45	0.30	4.04	EKMH250VSN223MR45S
	22,000	35×35	0.30	3.64	EKMH250VSN223MA35S
	27,000	35×45	0.30	4.73	EKMH250VSN273MA45S
	33,000	35×50	0.30	5.39	EKMH250VSN333MA50S
35	3,300	22×25	0.25	1.40	EKMH350VSN332MP25S
	3,900	22×30	0.25	1.57	EKMH350VSN392MP30S
	4,700	22×30	0.25	1.72	EKMH350VSN472MP30S
	4,700	25.4×25	0.25	1.80	EKMH350VSN472MQ25S
	5,600	22×35	0.25	1.95	EKMH350VSN562MP35S
	5,600	25.4×30	0.25	1.96	EKMH350VSN562MQ30S
	5,600	30×25	0.25	1.99	EKMH350VSN562MR25S
	6,800	22×40	0.25	2.20	EKMH350VSN682MP40S
	6,800	25.4×35	0.25	2.23	EKMH350VSN682MQ35S
	6,800	30×25	0.25	2.19	EKMH350VSN682MR25S
	8,200	22×50	0.25	2.55	EKMH350VSN822MP50S
	8,200	25.4×40	0.25	2.53	EKMH350VSN822MQ40S
	8,200	30×30	0.25	2.75	EKMH350VSN822MR30S
	8,200	35×25	0.25	2.75	EKMH350VSN822MA25S
	10,000	25.4×45	0.25	2.87	EKMH350VSN103MQ45S
	10,000	30×35	0.25	2.90	EKMH350VSN103MR35S
	10,000	35×30	0.25	2.91	EKMH350VSN103MA30S
	12,000	25.4×50	0.25	3.24	EKMH350VSN123MQ50S
	12,000	30×40	0.25	3.23	EKMH350VSN123MR40S
	12,000	35×30	0.25	2.99	EKMH350VSN123MA30S
	15,000	30×45	0.25	3.72	EKMH350VSN153MR45S
	15,000	35×35	0.25	3.67	EKMH350VSN153MA35S
	18,000	35×40	0.25	4.37	EKMH350VSN183MA40S
	22,000	35×50	0.25	4.92	EKMH350VSN223MA50S
50	1,800	22×25	0.20	1.33	EKMH500VSN182MP25S
	2,700	22×30	0.20	1.69	EKMH500VSN272MP30S
	2,700	25.4×25	0.20	1.70	EKMH500VSN272MQ25S
	3,300	22×35	0.20	1.93	EKMH500VSN332MP35S
	3,300	25.4×30	0.20	1.85	EKMH500VSN332MQ30S
	3,900	22×40	0.20	2.16	EKMH500VSN392MP40S
	3,900	25.4×35	0.20	2.18	EKMH500VSN392MQ35S
	3,900	30×25	0.20	1.95	EKMH500VSN392MR25S
	4,700	22×45	0.20	2.43	EKMH500VSN472MP45S
	4,700	25.4×35	0.20	2.39	EKMH500VSN472MQ35S
	4,700	30×30	0.20	2.25	EKMH500VSN472MR30S
	4,700	35×25	0.20	2.48	EKMH500VSN472MA25S
	5,600	22×50	0.20	2.75	EKMH500VSN562MP50S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Standard snap-ins, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
50	5,600	25.4×40	0.20	2.70	EKMH500VSN562MQ40S
	5,600	30×35	0.20	2.76	EKMH500VSN562MR35S
	5,600	35×25	0.20	2.70	EKMH500VSN562MA25S
	6,800	25.4×50	0.20	3.30	EKMH500VSN682MQ50S
	6,800	30×40	0.20	3.30	EKMH500VSN682MR40S
	6,800	35×30	0.20	3.25	EKMH500VSN682MA30S
	8,200	30×45	0.20	3.60	EKMH500VSN822MR45S
	8,200	35×35	0.20	3.55	EKMH500VSN822MA35S
	10,000	30×50	0.20	4.04	EKMH500VSN103MR50S
	10,000	35×40	0.20	4.03	EKMH500VSN103MA40S
	12,000	35×45	0.20	4.55	EKMH500VSN123MA45S
63	1,200	22×25	0.15	1.19	EKMH630VSN122MP25S
	1,500	22×25	0.15	1.33	EKMH630VSN152MP25S
	1,800	22×30	0.15	1.51	EKMH630VSN182MP30S
	1,800	25.4×25	0.15	1.52	EKMH630VSN182MQ25S
	2,200	22×35	0.15	1.73	EKMH630VSN222MP35S
	2,200	25.4×30	0.15	1.74	EKMH630VSN222MQ30S
	2,700	22×40	0.15	1.97	EKMH630VSN272MP40S
	2,700	25.4×35	0.15	1.99	EKMH630VSN272MQ35S
	2,700	30×25	0.15	1.76	EKMH630VSN272MR25S
	3,300	22×50	0.15	2.29	EKMH630VSN332MP50S
	3,300	25.4×40	0.15	2.27	EKMH630VSN332MQ40S
	3,300	30×30	0.15	2.24	EKMH630VSN332MR30S
	3,300	35×25	0.15	2.06	EKMH630VSN332MA25S
	3,900	25.4×45	0.15	2.54	EKMH630VSN392MQ45S
	3,900	30×35	0.15	2.55	EKMH630VSN392MR35S
	3,900	35×25	0.15	2.24	EKMH630VSN392MA25S
	4,700	25.4×50	0.15	2.86	EKMH630VSN472MQ50S
	4,700	30×40	0.15	2.86	EKMH630VSN472MR40S
	4,700	35×30	0.15	2.79	EKMH630VSN472MA30S
	5,600	30×45	0.15	3.22	EKMH630VSN562MR45S
	5,600	35×35	0.15	3.19	EKMH630VSN562MA35S
	6,800	30×50	0.15	3.65	EKMH630VSN682MR50S
	6,800	35×40	0.15	3.64	EKMH630VSN682MA40S
	8,200	35×45	0.15	3.90	EKMH630VSN822MA45S
	10,000	35×50	0.15	4.40	EKMH630VSN103MA50S
80	820	22×25	0.15	1.11	EKMH800VSN821MP25S
	1,000	22×25	0.15	1.22	EKMH800VSN102MP25S
	1,200	22×30	0.15	1.38	EKMH800VSN122MP30S
	1,200	25.4×25	0.15	1.39	EKMH800VSN122MQ25S
	1,500	22×35	0.15	1.59	EKMH800VSN152MP35S
	1,500	25.4×30	0.15	1.61	EKMH800VSN152MQ30S
	1,800	22×40	0.15	1.80	EKMH800VSN182MP40S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
80	1,800	25.4×30	0.15	1.76	EKMH800VSN182MQ30S
	1,800	30×25	0.15	1.65	EKMH800VSN182MR25S
	2,200	22×45	0.15	2.04	EKMH800VSN222MP45S
	2,200	25.4×35	0.15	2.01	EKMH800VSN222MQ35S
	2,200	30×30	0.15	2.05	EKMH800VSN222MR30S
	2,200	35×25	0.15	2.07	EKMH800VSN222MA25S
	2,700	25.4×45	0.15	2.36	EKMH800VSN272MQ45S
	2,700	30×35	0.15	2.35	EKMH800VSN272MR35S
	2,700	35×25	0.15	2.29	EKMH800VSN272MA25S
	3,300	25.4×50	0.15	2.68	EKMH800VSN332MQ50S
	3,300	30×40	0.15	2.68	EKMH800VSN332MR40S
	3,300	35×30	0.15	2.45	EKMH800VSN332MA30S
	3,900	30×45	0.15	3.00	EKMH800VSN392MR45S
	3,900	35×35	0.15	2.98	EKMH800VSN392MA35S
	4,700	30×50	0.15	3.39	EKMH800VSN472MR50S
	4,700	35×40	0.15	3.38	EKMH800VSN472MA40S
	5,600	35×45	0.15	3.80	EKMH800VSN562MA45S
	6,800	35×50	0.15	3.90	EKMH800VSN682MA50S
100	560	22×25	0.15	1.05	EKMH101VSN561MP25S
	820	22×30	0.15	1.32	EKMH101VSN821MP30S
	820	25.4×25	0.15	1.33	EKMH101VSN821MQ25S
	1,000	22×35	0.15	1.50	EKMH101VSN102MP35S
	1,000	25.4×30	0.15	1.51	EKMH101VSN102MQ30S
	1,200	22×40	0.15	1.69	EKMH101VSN122MP40S
	1,200	25.4×35	0.15	1.71	EKMH101VSN122MQ35S
	1,200	30×25	0.15	1.68	EKMH101VSN122MR25S
	1,500	22×45	0.15	1.94	EKMH101VSN152MP45S
	1,500	25.4×40	0.15	1.98	EKMH101VSN152MQ40S
	1,500	30×30	0.15	1.95	EKMH101VSN152MR30S
	1,500	35×25	0.15	1.98	EKMH101VSN152MA25S
	1,800	25.4×45	0.15	2.23	EKMH101VSN182MQ45S
	1,800	30×35	0.15	2.50	EKMH101VSN182MR35S
	1,800	35×25	0.15	2.17	EKMH101VSN182MA25S
	2,200	25.4×50	0.15	2.53	EKMH101VSN222MQ50S
	2,200	30×40	0.15	2.70	EKMH101VSN222MR40S
	2,200	35×30	0.15	2.50	EKMH101VSN222MA30S
	2,700	30×45	0.15	2.88	EKMH101VSN272MR45S
	2,700	35×35	0.15	2.86	EKMH101VSN272MA35S
	3,300	30×50	0.15	3.28	EKMH101VSN332MR50S
	3,300	35×40	0.15	3.27	EKMH101VSN332MA40S
	3,900	35×45	0.15	3.67	EKMH101VSN392MA45S
	4,700	35×50	0.15	3.80	EKMH101VSN472MA50S

*For the rated voltage≧160Vdc, please use KMR and KMQ series

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
6.3 to 50Vdc	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100Vdc	0.92	1.00	1.07	1.13	1.19	1.20

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS 15mm height snap-ins, 85℃

SLM Series

- ●15mm height snap-ins
- ●Endurance with ripple current : 2,000 hours at 85℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

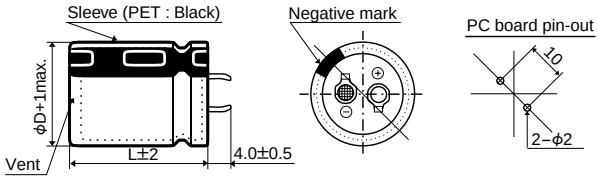
SLM
Low profile
SMH

◆SPECIFICATIONS

Items	Characteristics		
Category Temperature Range	−25 to +85℃		
Rated Voltage Range	160 to 400Vdc		
Capacitance Tolerance	±20% (M)		(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)		(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	
	tanδ (Max.)	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	
	Z (−25℃) /Z (+20℃)	4	(at 120Hz)
Endurace	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 85℃.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.		
	Capacitance change	≦±15% of the initial value	
	D.F. (tanδ)	≦150% of the initial specified value	
	Leakage current	≦The initial specified value	

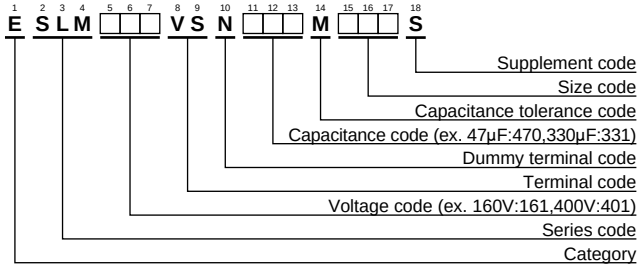
◆DIMENSIONS [mm]

●Terminal Code : VS



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
400Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size ϕD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
160	180	22×15	0.20	0.99	ESLM161VSN181MP15S
	270	25.4×15	0.20	1.29	ESLM161VSN271MQ15S
	390	30×15	0.20	1.47	ESLM161VSN391MR15S
	560	35×15	0.20	1.74	ESLM161VSN561MA15S
180	150	22×15	0.20	0.90	ESLM181VSN151MP15S
	220	25.4×15	0.20	1.16	ESLM181VSN221MQ15S
	330	30×15	0.20	1.35	ESLM181VSN331MR15S
	470	35×15	0.20	1.60	ESLM181VSN471MA15S
200	150	22×15	0.20	0.90	ESLM201VSN151MP15S
	220	25.4×15	0.20	1.16	ESLM201VSN221MQ15S
200	270	30×15	0.20	1.22	ESLM201VSN271MR15S
	390	35×15	0.20	1.46	ESLM201VSN391MA15S
250	100	22×15	0.20	0.73	ESLM251VSN101MP15S
	150	25.4×15	0.20	0.96	ESLM251VSN151MQ15S
	220	30×15	0.20	1.10	ESLM251VSN221MR15S
	330	35×15	0.20	1.34	ESLM251VSN331MA15S
400	47	22×15	0.20	0.50	ESLM401VSN470MP15S
	68	25.4×15	0.20	0.65	ESLM401VSN680MQ15S
	100	30×15	0.20	0.74	ESLM401VSN101MR15S
	120	35×15	0.20	0.81	ESLM401VSN121MA15S

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS 15mm height snap-ins, 105℃

KLM Series

- 15mm height snap-ins
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

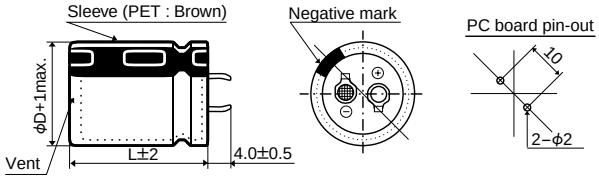
KLM
↑ Low profile
KMH

◆SPECIFICATIONS

Items	Characteristics		
Category Temperature Range	−25 to +105℃		
Rated Voltage Range	160 to 400Vdc		
Capacitance Tolerance	±20% (M)		(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)		(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	
	tanδ (Max.)	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	
	Z (−25℃) /Z (+20℃)	4	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.		
	Capacitance change	≦±15% of the initial value	
	D.F. (tanδ)	≦150% of the initial specified value	
	Leakage current	≦The initial specified value	

◆DIMENSIONS [mm]

●Terminal Code : VS



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	L	M				V	S	N				M				S

- 18 Supplement code
- 15 16 17 Size code
- 14 Capacitance tolerance code
- 11 12 13 Capacitance code (ex. 47μF:470,100μF:101)
- 10 Dummy terminal code
- 9 Terminal code
- 8 Voltage code (ex. 160V:161,400V:401)
- 5 6 7 Series code
- 4 Category

Please refer to "Product code guide (snap-in type)"

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size ϕD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	150	22×15	0.20	0.68	EKLM161VSN151MP15S
	180	25.4×15	0.20	0.79	EKLM161VSN181MQ15S
	220	25.4×15	0.20	0.88	EKLM161VSN221MQ15S
	270	30×15	0.20	0.96	EKLM161VSN271MR15S
	330	30×15	0.20	1.06	EKLM161VSN331MR15S
	390	35×15	0.20	1.20	EKLM161VSN391MA15S
180	120	22×15	0.20	0.61	EKLM181VSN121MP15S
	150	25.4×15	0.20	0.73	EKLM181VSN151MQ15S
	180	25.4×15	0.20	0.79	EKLM181VSN181MQ15S
	220	30×15	0.20	0.86	EKLM181VSN221MR15S
	270	30×15	0.20	0.96	EKLM181VSN271MR15S
	330	35×15	0.20	1.10	EKLM181VSN331MA15S
	390	35×15	0.20	1.17	EKLM181VSN391MA15S
200	120	22×15	0.20	0.61	EKLM201VSN121MP15S
	150	25.4×15	0.20	0.73	EKLM201VSN151MQ15S
	180	30×15	0.20	0.79	EKLM201VSN181MR15S
200	220	30×15	0.20	0.90	EKLM201VSN221MR15S
	270	35×15	0.20	1.00	EKLM201VSN271MA15S
	330	35×15	0.20	1.07	EKLM201VSN331MA15S
250	82	22×15	0.20	0.50	EKLM251VSN820MP15S
	100	25.4×15	0.20	0.59	EKLM251VSN101MQ15S
	120	25.4×15	0.20	0.65	EKLM251VSN121MQ15S
	150	30×15	0.20	0.71	EKLM251VSN151MR15S
	180	30×15	0.20	0.79	EKLM251VSN181MR15S
	220	35×15	0.20	0.90	EKLM251VSN221MA15S
400	39	22×15	0.20	0.35	EKLM401VSN390MP15S
	47	25.4×15	0.20	0.40	EKLM401VSN470MQ15S
	56	25.4×15	0.20	0.44	EKLM401VSN560MQ15S
	68	30×15	0.20	0.46	EKLM401VSN680MR15S
	82	30×15	0.20	0.51	EKLM401VSN820MR15S
	100	35×15	0.20	0.56	EKLM401VSN101MA15S
	120	35×15	0.20	0.62	EKLM401VSN121MA15S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
400Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

CAT. No. E1001H

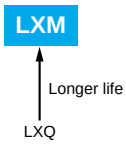
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXM Series

- Endurance with ripple current : 7,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

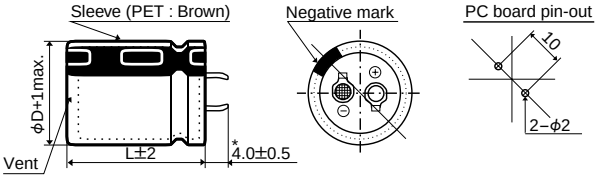


◆SPECIFICATIONS

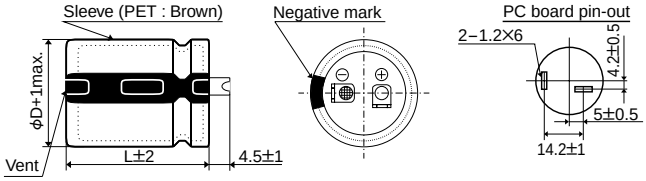
Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 7,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦250% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard



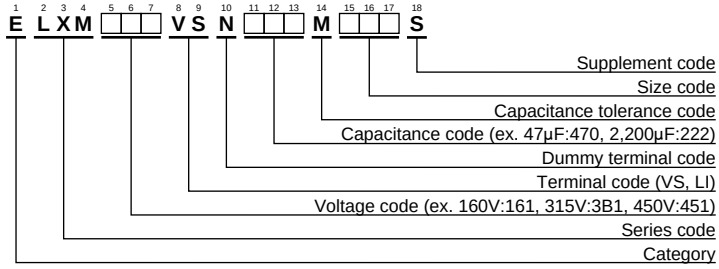
●Terminal Code : LI (φ35)



*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	330	22× 25	0.15	1.11	ELXM161VSN331MP25S
	390	22× 30	0.15	1.26	ELXM161VSN391MP30S
	470	22× 30	0.15	1.39	ELXM161VSN471MP30S
	470	25.4× 25	0.15	1.38	ELXM161VSN471MQ25S
	560	22× 35	0.15	1.55	ELXM161VSN561MP35S
	560	25.4× 30	0.15	1.55	ELXM161VSN561MQ30S
	680	22× 40	0.15	1.75	ELXM161VSN681MP40S
	680	25.4× 35	0.15	1.78	ELXM161VSN681MQ35S
	680	30× 25	0.15	1.74	ELXM161VSN681MR25S
	820	22× 50	0.15	1.97	ELXM161VSN821MP50S
	820	25.4× 40	0.15	2.01	ELXM161VSN821MQ40S
	820	30× 30	0.15	1.96	ELXM161VSN821MR30S
	1,000	25.4× 45	0.15	2.27	ELXM161VSN102MQ45S
	1,000	30× 35	0.15	2.26	ELXM161VSN102MR35S
	1,200	25.4× 50	0.15	2.54	ELXM161VSN122MQ50S
	1,200	30× 40	0.15	2.56	ELXM161VSN122MR40S
	1,200	35× 30	0.15	2.52	ELXM161VSN122MA30S
	1,500	30× 45	0.15	2.96	ELXM161VSN152MR45S
	1,500	35× 35	0.15	2.89	ELXM161VSN152MA35S
	1,800	30× 50	0.15	3.32	ELXM161VSN182MR50S
	1,800	35× 40	0.15	3.30	ELXM161VSN182MA40S
	2,200	35× 50	0.15	3.87	ELXM161VSN222MA50S
180	270	22× 25	0.15	1.00	ELXM181VSN271MP25S
	330	22× 30	0.15	1.16	ELXM181VSN331MP30S
	390	22× 30	0.15	1.26	ELXM181VSN391MP30S
	390	25.4× 25	0.15	1.26	ELXM181VSN391MQ25S
	470	22× 35	0.15	1.42	ELXM181VSN471MP35S
	470	25.4× 30	0.15	1.42	ELXM181VSN471MQ30S
	560	22× 40	0.15	1.59	ELXM181VSN561MP40S
	560	25.4× 30	0.15	1.55	ELXM181VSN561MQ30S
	560	30× 25	0.15	1.58	ELXM181VSN561MR25S
	680	22× 45	0.15	1.79	ELXM181VSN681MP45S
	680	25.4× 35	0.15	1.78	ELXM181VSN681MQ35S
	680	30× 30	0.15	1.79	ELXM181VSN681MR30S
	820	25.4× 40	0.15	2.01	ELXM181VSN821MQ40S
	820	30× 35	0.15	2.04	ELXM181VSN821MR35S
	1,000	25.4× 50	0.15	2.32	ELXM181VSN102MQ50S
	1,000	30× 35	0.15	2.26	ELXM181VSN102MR35S
	1,000	35× 30	0.15	2.30	ELXM181VSN102MA30S
	1,200	30× 45	0.15	2.65	ELXM181VSN122MR45S
	1,200	35× 35	0.15	2.58	ELXM181VSN122MA35S
	1,500	30× 50	0.15	3.03	ELXM181VSN152MR50S
	1,500	35× 40	0.15	3.01	ELXM181VSN152MA40S
	1,800	35× 45	0.15	3.41	ELXM181VSN182MA45S
	2,200	35× 50	0.15	3.87	ELXM181VSN222MA50S
200	220	22× 25	0.15	0.90	ELXM201VSN221MP25S
	270	22× 30	0.15	1.05	ELXM201VSN271MP30S
	330	22× 30	0.15	1.16	ELXM201VSN331MP30S
	330	25.4× 25	0.15	1.16	ELXM201VSN331MQ25S
	390	22× 35	0.15	1.29	ELXM201VSN391MP35S
	390	25.4× 30	0.15	1.29	ELXM201VSN391MQ30S
	470	22× 40	0.15	1.46	ELXM201VSN471MP40S
	470	25.4× 30	0.15	1.42	ELXM201VSN471MQ30S
	470	30× 25	0.15	1.45	ELXM201VSN471MR25S
	560	22× 45	0.15	1.63	ELXM201VSN561MP45S
	560	25.4× 35	0.15	1.62	ELXM201VSN561MQ35S
	560	30× 30	0.15	1.62	ELXM201VSN561MR30S
	680	25.4× 40	0.15	1.83	ELXM201VSN681MQ40S
	680	30× 30	0.15	1.79	ELXM201VSN681MR30S
	820	25.4× 45	0.15	2.06	ELXM201VSN821MQ45S
	820	30× 35	0.15	2.04	ELXM201VSN821MR35S
	1,000	30× 45	0.15	2.42	ELXM201VSN102MR45S
	1,000	35× 30	0.15	2.30	ELXM201VSN102MA30S
	1,200	30× 50	0.15	2.71	ELXM201VSN122MR50S
	1,200	35× 40	0.15	2.70	ELXM201VSN122MA40S
	1,500	35× 45	0.15	3.11	ELXM201VSN152MA45S
	1,800	35× 50	0.15	3.50	ELXM201VSN182MA50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
220	220	22×25	0.15	0.90	ELXM221VSN221MP25S
	270	22×30	0.15	1.05	ELXM221VSN271MP30S
	330	22×35	0.15	1.19	ELXM221VSN331MP35S
	330	25.4×25	0.15	1.16	ELXM221VSN331MQ25S
	390	22×40	0.15	1.33	ELXM221VSN391MP40S
	390	25.4×30	0.15	1.29	ELXM221VSN391MQ30S
	470	22×45	0.15	1.49	ELXM221VSN471MP45S
	470	25.4×35	0.15	1.48	ELXM221VSN471MQ35S
	470	30×25	0.15	1.45	ELXM221VSN471MR25S
	560	22×50	0.15	1.63	ELXM221VSN561MP50S
	560	25.4×40	0.15	1.71	ELXM221VSN561MQ40S
	560	30×30	0.15	1.62	ELXM221VSN561MR30S
	680	25.4×45	0.15	1.87	ELXM221VSN681MQ45S
	680	30×35	0.15	1.86	ELXM221VSN681MR35S
	820	25.4×50	0.15	2.10	ELXM221VSN821MQ50S
	820	30×40	0.15	2.12	ELXM221VSN821MR40S
	820	35×30	0.15	2.08	ELXM221VSN821MA30S
	1,000	30×50	0.15	2.48	ELXM221VSN102MR50S
	1,000	35×40	0.15	2.46	ELXM221VSN102MA40S
	1,200	35×45	0.15	2.78	ELXM221VSN122MA45S
	1,500	35×50	0.15	3.20	ELXM221VSN152MA50S
250	180	22×25	0.15	0.82	ELXM251VSN181MP25S
	220	22×30	0.15	0.95	ELXM251VSN221MP30S
	270	22×35	0.15	1.08	ELXM251VSN271MP35S
	270	25.4×25	0.15	1.05	ELXM251VSN271MQ25S
	330	22×40	0.15	1.22	ELXM251VSN331MP40S
	330	25.4×30	0.15	1.19	ELXM251VSN331MQ30S
	390	22×45	0.15	1.36	ELXM251VSN391MP45S
	390	25.4×35	0.15	1.35	ELXM251VSN391MQ35S
	390	30×25	0.15	1.32	ELXM251VSN391MR25S
	470	22×50	0.15	1.49	ELXM251VSN471MP50S
	470	25.4×40	0.15	1.52	ELXM251VSN471MQ40S
	470	30×30	0.15	1.49	ELXM251VSN471MR30S
	560	25.4×45	0.15	1.70	ELXM251VSN561MQ45S
	560	30×35	0.15	1.69	ELXM251VSN561MR35S
	680	25.4×50	0.15	1.91	ELXM251VSN681MQ50S
	680	30×40	0.15	1.93	ELXM251VSN681MR40S
	680	35×30	0.15	1.90	ELXM251VSN681MA30S
	820	30×45	0.15	2.19	ELXM251VSN821MR45S
	820	35×35	0.15	2.13	ELXM251VSN821MA35S
	1,000	35×40	0.15	2.46	ELXM251VSN102MA40S
	1,200	35×50	0.15	2.86	ELXM251VSN122MA50S
315	100	22×25	0.15	0.67	ELXM3B1VSN101MP25S
	120	22×30	0.15	0.77	ELXM3B1VSN121MP30S
	150	22×30	0.15	0.86	ELXM3B1VSN151MP30S
	150	25.4×25	0.15	0.85	ELXM3B1VSN151MQ25S
	180	22×35	0.15	0.96	ELXM3B1VSN181MP35S
	180	25.4×30	0.15	0.96	ELXM3B1VSN181MQ30S
	220	22×40	0.15	1.09	ELXM3B1VSN221MP40S
	220	25.4×30	0.15	1.06	ELXM3B1VSN221MQ30S
	220	30×25	0.15	1.08	ELXM3B1VSN221MR25S
	270	22×45	0.15	1.24	ELXM3B1VSN271MP45S
	270	25.4×35	0.15	1.23	ELXM3B1VSN271MQ35S
	270	30×30	0.15	1.23	ELXM3B1VSN271MR30S
	330	25.4×40	0.15	1.40	ELXM3B1VSN331MQ40S
	330	30×35	0.15	1.42	ELXM3B1VSN331MR35S
	330	35×30	0.15	1.45	ELXM3B1VSN331MA30S
	390	25.4×50	0.15	1.59	ELXM3B1VSN391MQ50S
	390	30×35	0.15	1.54	ELXM3B1VSN391MR35S
	390	35×30	0.15	1.57	ELXM3B1VSN391MA30S
	470	30×45	0.15	1.81	ELXM3B1VSN471MR45S
	470	35×35	0.15	1.77	ELXM3B1VSN471MA35S
	560	30×50	0.15	2.03	ELXM3B1VSN561MR50S
	560	35×40	0.15	2.02	ELXM3B1VSN561MA40S
	680	35×45	0.15	2.29	ELXM3B1VSN681MA45S
	820	35×50	0.15	2.59	ELXM3B1VSN821MA50S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXM Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
350	100	22×25	0.15	0.67	ELXM351VSN101MP25S
	120	22×30	0.15	0.77	ELXM351VSN121MP30S
	120	25.4×25	0.15	0.76	ELXM351VSN121MQ25S
	150	22×35	0.15	0.88	ELXM351VSN151MP35S
	150	25.4×30	0.15	0.88	ELXM351VSN151MQ30S
	180	22×40	0.15	0.99	ELXM351VSN181MP40S
	180	25.4×30	0.15	0.96	ELXM351VSN181MQ30S
	180	30×25	0.15	0.98	ELXM351VSN181MR25S
	220	22×45	0.15	1.12	ELXM351VSN221MP45S
	220	25.4×35	0.15	1.11	ELXM351VSN221MQ35S
	220	30×30	0.15	1.11	ELXM351VSN221MR30S
	270	25.4×40	0.15	1.26	ELXM351VSN271MQ40S
	270	30×35	0.15	1.28	ELXM351VSN271MR35S
	330	25.4×45	0.15	1.40	ELXM351VSN331MQ45S
	330	30×35	0.15	1.42	ELXM351VSN331MR35S
	330	35×30	0.15	1.45	ELXM351VSN331MA30S
	390	30×40	0.15	1.60	ELXM351VSN391MR40S
	390	35×35	0.15	1.61	ELXM351VSN391MA35S
	470	30×50	0.15	1.86	ELXM351VSN471MR50S
	470	35×40	0.15	1.85	ELXM351VSN471MA40S
	560	35×40	0.15	2.02	ELXM351VSN561MA40S
	680	35×50	0.15	2.36	ELXM351VSN681MA50S
400	68	22×25	0.15	0.55	ELXM401VSN680MP25S
	82	22×30	0.15	0.63	ELXM401VSN820MP30S
	100	22×30	0.15	0.70	ELXM401VSN101MP30S
	100	25.4×25	0.15	0.70	ELXM401VSN101MQ25S
	120	22×35	0.15	0.79	ELXM401VSN121MP35S
	120	25.4×30	0.15	0.79	ELXM401VSN121MQ30S
	150	22×40	0.15	0.90	ELXM401VSN151MP40S
	150	25.4×30	0.15	0.88	ELXM401VSN151MQ30S
	150	30×25	0.15	0.90	ELXM401VSN151MR25S
	180	22×45	0.15	0.99	ELXM401VSN181MP45S
	180	25.4×35	0.15	1.01	ELXM401VSN181MQ35S
	180	30×30	0.15	1.01	ELXM401VSN181MR30S
	220	25.4×40	0.15	1.14	ELXM401VSN221MQ40S
	220	30×35	0.15	1.16	ELXM401VSN221MR35S
	270	25.4×50	0.15	1.32	ELXM401VSN271MQ50S
	270	30×40	0.15	1.33	ELXM401VSN271MR40S
	270	35×30	0.15	1.31	ELXM401VSN271MA30S
	330	30×45	0.15	1.52	ELXM401VSN331MR45S
	330	35×35	0.15	1.48	ELXM401VSN331MA35S
	390	30×50	0.15	1.69	ELXM401VSN391MR50S
	390	35×40	0.15	1.68	ELXM401VSN391MA40S
	470	35×45	0.15	1.91	ELXM401VSN471MA45S
	560	35×50	0.15	2.14	ELXM401VSN561MA50S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
420	56	22×25	0.20	0.50	ELXM421VSN560MP25S
	68	22×30	0.20	0.58	ELXM421VSN680MP30S
	82	22×30	0.20	0.63	ELXM421VSN820MP30S
	82	25.4×25	0.20	0.63	ELXM421VSN820MQ25S
	100	22×35	0.20	0.72	ELXM421VSN101MP35S
	100	25.4×30	0.20	0.72	ELXM421VSN101MQ30S
	120	22×40	0.20	0.81	ELXM421VSN121MP40S
	120	25.4×30	0.20	0.79	ELXM421VSN121MQ30S
	120	30×25	0.20	0.80	ELXM421VSN121MR25S
	150	22×45	0.20	0.92	ELXM421VSN151MP45S
	150	25.4×35	0.20	0.92	ELXM421VSN151MQ35S
	150	30×30	0.20	0.92	ELXM421VSN151MR30S
	180	25.4×40	0.20	1.03	ELXM421VSN181MQ40S
	180	30×35	0.20	1.05	ELXM421VSN181MR35S
	220	25.4×50	0.20	1.19	ELXM421VSN221MQ50S
	220	30×35	0.20	1.16	ELXM421VSN221MR35S
	220	35×30	0.20	1.18	ELXM421VSN221MA30S
	270	30×45	0.20	1.38	ELXM421VSN271MR45S
	270	35×35	0.20	1.34	ELXM421VSN271MA35S
	330	30×50	0.20	1.56	ELXM421VSN331MR50S
	330	35×40	0.20	1.55	ELXM421VSN331MA40S
	390	35×45	0.20	1.74	ELXM421VSN391MA45S
	470	35×50	0.20	1.96	ELXM421VSN471MA50S
450	47	22×25	0.20	0.46	ELXM451VSN470MP25S
	56	22×30	0.20	0.52	ELXM451VSN560MP30S
	68	22×30	0.20	0.58	ELXM451VSN680MP30S
	68	25.4×25	0.20	0.58	ELXM451VSN680MQ25S
	82	22×35	0.20	0.65	ELXM451VSN820MP35S
	82	25.4×30	0.20	0.65	ELXM451VSN820MQ30S
	100	22×40	0.20	0.74	ELXM451VSN101MP40S
	100	25.4×30	0.20	0.72	ELXM451VSN101MQ30S
	100	30×25	0.20	0.73	ELXM451VSN101MR25S
	120	22×45	0.20	0.83	ELXM451VSN121MP45S
	120	25.4×35	0.20	0.82	ELXM451VSN121MQ35S
	120	30×30	0.20	0.82	ELXM451VSN121MR30S
	150	25.4×40	0.20	0.94	ELXM451VSN151MQ40S
	150	30×35	0.20	0.96	ELXM451VSN151MR35S
	180	25.4×45	0.20	1.06	ELXM451VSN181MQ45S
	180	30×35	0.20	1.05	ELXM451VSN181MR35S
	180	35×30	0.20	1.07	ELXM451VSN181MA30S
	220	30×40	0.20	1.20	ELXM451VSN221MR40S
	220	35×35	0.20	1.21	ELXM451VSN221MA35S
	270	30×50	0.20	1.41	ELXM451VSN271MR50S
	270	35×40	0.20	1.40	ELXM451VSN271MA40S
	330	35×45	0.20	1.60	ELXM451VSN331MA45S
	390	35×50	0.20	1.79	ELXM451VSN391MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

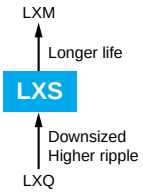
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXS Series

- ●Endurance with ripple current : 5,000 hours at 105℃
- ●Downsized from LXQ series
- ●Non solvent resistant type
- ●**RoHS Compliant**

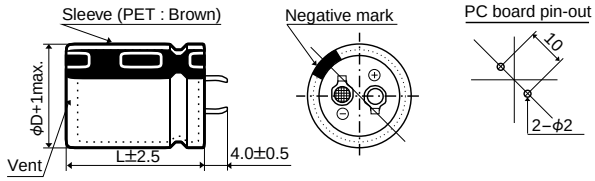


◆SPECIFICATIONS

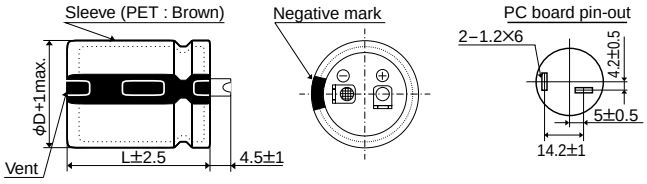
Items	Characteristics			
Category Temperature Range	−25 to +105℃			
Rated Voltage Range	160 to 450Vdc			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	tanδ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 & 450V	
	Z(−25℃)/Z(+20℃)	4	8	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 105℃.			
	Capacitance change	≦±20% of the initial value		
	D.F. (tanδ)	≦200% of the initial specified value		
	Leakage current	≦The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≦±15% of the initial value		
	D.F. (tanδ)	≦150% of the initial specified value		
	Leakage current	≦The initial specified value		

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

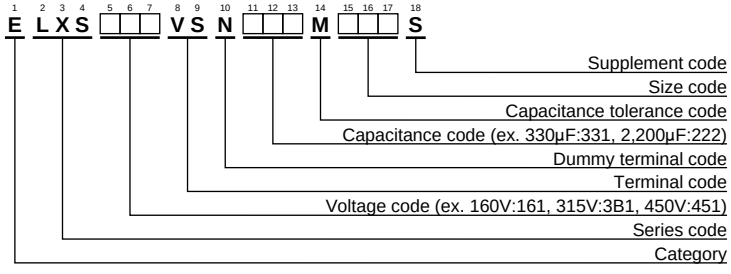


●Terminal Code : LI (φ30, φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXS Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	470	22×25	0.15	1.47	ELXS161VSN471MP25S
	680	22×30	0.15	1.86	ELXS161VSN681MP30S
	680	25.4×25	0.15	1.84	ELXS161VSN681MQ25S
	820	22×35	0.15	2.09	ELXS161VSN821MP35S
	820	25.4×30	0.15	2.08	ELXS161VSN821MQ30S
	1,000	22×40	0.15	2.35	ELXS161VSN102MP40S
	1,000	22×45	0.15	2.40	ELXS161VSN102MP45S
	1,000	25.4×35	0.15	2.40	ELXS161VSN102MQ35S
	1,000	30×25	0.15	2.50	ELXS161VSN102MR25S
	1,200	22×50	0.15	2.69	ELXS161VSN122MP50S
	1,200	25.4×40	0.15	2.68	ELXS161VSN122MQ40S
	1,200	30×30	0.15	2.77	ELXS161VSN122MR30S
	1,200	35×25	0.15	2.91	ELXS161VSN122MA25S
	1,500	25.4×45	0.15	3.05	ELXS161VSN152MQ45S
	1,500	30×35	0.15	3.17	ELXS161VSN152MR35S
	1,800	25.4×50	0.15	3.40	ELXS161VSN182MQ50S
	1,800	30×40	0.15	3.57	ELXS161VSN182MR40S
	1,800	35×30	0.15	3.62	ELXS161VSN182MA30S
	2,200	30×45	0.15	4.05	ELXS161VSN222MR45S
	2,200	30×50	0.15	4.11	ELXS161VSN222MR50S
	2,200	35×35	0.15	4.07	ELXS161VSN222MA35S
	2,700	35×40	0.15	4.67	ELXS161VSN272MA40S
	2,700	35×45	0.15	4.78	ELXS161VSN272MA45S
	3,300	35×50	0.15	5.40	ELXS161VSN332MA50S
180	390	22×25	0.15	1.34	ELXS181VSN391MP25S
	560	22×30	0.15	1.68	ELXS181VSN561MP30S
	560	25.4×25	0.15	1.67	ELXS181VSN561MQ25S
	680	22×35	0.15	1.90	ELXS181VSN681MP35S
	820	22×40	0.15	2.13	ELXS181VSN821MP40S
	820	25.4×30	0.15	2.08	ELXS181VSN821MQ30S
	820	25.4×35	0.15	2.17	ELXS181VSN821MQ35S
	820	30×25	0.15	2.26	ELXS181VSN821MR25S
	1,000	22×45	0.15	2.40	ELXS181VSN102MP45S
	1,000	22×50	0.15	2.45	ELXS181VSN102MP50S
	1,000	25.4×40	0.15	2.45	ELXS181VSN102MQ40S
	1,000	30×30	0.15	2.52	ELXS181VSN102MR30S
	1,000	35×25	0.15	2.66	ELXS181VSN102MA25S
	1,200	25.4×45	0.15	2.73	ELXS181VSN122MQ45S
	1,200	30×35	0.15	2.83	ELXS181VSN122MR35S
	1,500	25.4×50	0.15	3.10	ELXS181VSN152MQ50S
	1,500	30×40	0.15	3.26	ELXS181VSN152MR40S
	1,500	35×30	0.15	3.31	ELXS181VSN152MA30S
	1,800	30×45	0.15	3.66	ELXS181VSN182MR45S
	1,800	35×35	0.15	3.68	ELXS181VSN182MA35S
	2,200	30×50	0.15	4.11	ELXS181VSN222MR50S
	2,200	35×40	0.15	4.22	ELXS181VSN222MA40S
	2,200	35×45	0.15	4.32	ELXS181VSN222MA45S
	2,700	35×50	0.15	4.88	ELXS181VSN272MA50S
200	390	22×25	0.15	1.34	ELXS201VSN391MP25S
	470	22×30	0.15	1.54	ELXS201VSN471MP30S
	560	22×35	0.15	1.72	ELXS201VSN561MP35S
	560	25.4×25	0.15	1.67	ELXS201VSN561MQ25S
	680	22×40	0.15	1.94	ELXS201VSN681MP40S
	680	25.4×30	0.15	1.89	ELXS201VSN681MQ30S
	680	30×25	0.15	2.06	ELXS201VSN681MR25S
	820	22×45	0.15	2.17	ELXS201VSN821MP45S
	820	25.4×35	0.15	2.17	ELXS201VSN821MQ35S
	1,000	22×50	0.15	2.45	ELXS201VSN102MP50S
	1,000	25.4×40	0.15	2.45	ELXS201VSN102MQ40S
	1,000	30×30	0.15	2.52	ELXS201VSN102MR30S
	1,000	35×25	0.15	2.66	ELXS201VSN102MA25S
	1,200	25.4×45	0.15	2.73	ELXS201VSN122MQ45S
	1,200	25.4×50	0.15	2.78	ELXS201VSN122MQ50S
	1,200	30×35	0.15	2.83	ELXS201VSN122MR35S
	1,200	35×30	0.15	2.96	ELXS201VSN122MA30S
	1,500	30×40	0.15	3.26	ELXS201VSN152MR40S
	1,500	30×45	0.15	3.34	ELXS201VSN152MR45S
200	1,500	35×35	0.15	3.36	ELXS201VSN152MA35S
	1,800	30×50	0.15	3.72	ELXS201VSN182MR50S
	1,800	35×40	0.15	3.81	ELXS201VSN182MA40S
	2,200	35×45	0.15	4.32	ELXS201VSN222MA45S
	2,700	35×50	0.15	4.88	ELXS201VSN272MA50S
250	270	22×25	0.15	1.11	ELXS251VSN271MP25S
	330	22×30	0.15	1.29	ELXS251VSN331MP30S
	390	22×35	0.15	1.44	ELXS251VSN391MP35S
	390	25.4×25	0.15	1.40	ELXS251VSN391MQ25S
	470	22×40	0.15	1.61	ELXS251VSN471MP40S
	470	25.4×30	0.15	1.57	ELXS251VSN471MQ30S
	560	22×45	0.15	1.79	ELXS251VSN561MP45S
	560	25.4×35	0.15	1.79	ELXS251VSN561MQ35S
	560	30×25	0.15	1.87	ELXS251VSN561MR25S
	680	22×50	0.15	2.02	ELXS251VSN681MP50S
	680	25.4×40	0.15	2.02	ELXS251VSN681MQ40S
	680	30×30	0.15	2.08	ELXS251VSN681MR30S
	680	35×25	0.15	2.19	ELXS251VSN681MA25S
	820	25.4×45	0.15	2.26	ELXS251VSN821MQ45S
	820	25.4×50	0.15	2.29	ELXS251VSN821MQ50S
	820	30×35	0.15	2.34	ELXS251VSN821MR35S
	820	35×30	0.15	2.45	ELXS251VSN821MA30S
	1,000	30×40	0.15	2.66	ELXS251VSN102MR40S
	1,200	30×45	0.15	2.99	ELXS251VSN122MR45S
	1,200	30×50	0.15	3.04	ELXS251VSN122MR50S
	1,200	35×35	0.15	3.00	ELXS251VSN122MA35S
	1,200	35×40	0.15	3.11	ELXS251VSN122MA40S
	1,500	35×45	0.15	3.56	ELXS251VSN152MA45S
	1,800	35×50	0.15	3.98	ELXS251VSN182MA50S
315	180	22×25	0.15	0.95	ELXS3B1VSN181MP25S
	220	22×30	0.15	1.10	ELXS3B1VSN221MP30S
	220	25.4×25	0.15	1.10	ELXS3B1VSN221MQ25S
	270	22×35	0.15	1.24	ELXS3B1VSN271MP35S
	270	25.4×30	0.15	1.25	ELXS3B1VSN271MQ30S
	330	22×40	0.15	1.40	ELXS3B1VSN331MP40S
	330	30×25	0.15	1.43	ELXS3B1VSN331MR25S
	390	22×45	0.15	1.56	ELXS3B1VSN391MP45S
	390	22×50	0.15	1.59	ELXS3B1VSN391MP50S
	390	25.4×35	0.15	1.57	ELXS3B1VSN391MQ35S
	470	25.4×40	0.15	1.76	ELXS3B1VSN471MQ40S
	470	25.4×45	0.15	1.79	ELXS3B1VSN471MQ45S
	470	30×30	0.15	1.73	ELXS3B1VSN471MR30S
	470	35×25	0.15	1.82	ELXS3B1VSN471MA25S
	560	25.4×50	0.15	1.99	ELXS3B1VSN561MQ50S
	560	30×35	0.15	1.93	ELXS3B1VSN561MR35S
	560	35×30	0.15	2.02	ELXS3B1VSN561MA30S
	680	30×40	0.15	2.19	ELXS3B1VSN681MR40S
	680	30×45	0.15	2.25	ELXS3B1VSN681MR45S
	680	35×35	0.15	2.26	ELXS3B1VSN681MA35S
	820	30×50	0.15	2.51	ELXS3B1VSN821MR50S
	820	35×40	0.15	2.57	ELXS3B1VSN821MA40S
	1,000	35×45	0.15	2.91	ELXS3B1VSN102MA45S
	1,200	35×50	0.15	3.25	ELXS3B1VSN122MA50S
400	120	22×25	0.15	0.77	ELXS401VSN121MP25S
	150	22×30	0.15	0.90	ELXS401VSN151MP30S
	180	22×35	0.15	1.02	ELXS401VSN181MP35S
	180	25.4×25	0.15	0.99	ELXS401VSN181MQ25S
	220	22×40	0.15	1.15	ELXS401VSN221MP40S
	220	25.4×30	0.15	1.13	ELXS401VSN221MQ30S
	220	30×25	0.15	1.17	ELXS401VSN221MR25S
	270	22×45	0.15	1.29	ELXS401VSN271MP45S
	270	22×50	0.15	1.32	ELXS401VSN271MP50S
	270	25.4×35	0.15	1.30	ELXS401VSN271MQ35S
	330	25.4×40	0.15	1.47	ELXS401VSN331MQ40S
	330	30×30	0.15	1.45	ELXS401VSN331MR30S
	330	35×25	0.15	1.52	ELXS401VSN331MA25S
	390	25.4×45	0.15	1.63	ELXS401VSN391MQ45S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXS Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	390	25.4×50	0.15	1.66	ELXS401VSN391MQ50S
	390	30×35	0.15	1.61	ELXS401VSN391MR35S
	390	35×30	0.15	1.68	ELXS401VSN391MA30S
	470	30×40	0.15	1.82	ELXS401VSN471MR40S
	470	35×35	0.15	1.88	ELXS401VSN471MA35S
	560	30×45	0.15	2.04	ELXS401VSN561MR45S
	560	30×50	0.15	2.07	ELXS401VSN561MR50S
	560	35×40	0.15	2.13	ELXS401VSN561MA40S
	680	35×45	0.15	2.40	ELXS401VSN681MA45S
	820	35×50	0.15	2.69	ELXS401VSN821MA50S
420	100	22×25	0.20	0.70	ELXS421VSN101MP25S
	120	22×30	0.20	0.81	ELXS421VSN121MP30S
	120	25.4×25	0.20	0.81	ELXS421VSN121MQ25S
	150	22×35	0.20	0.93	ELXS421VSN151MP35S
	180	22×40	0.20	1.04	ELXS421VSN181MP40S
	180	25.4×30	0.20	1.02	ELXS421VSN181MQ30S
	180	30×25	0.20	1.06	ELXS421VSN181MR25S
	220	22×45	0.20	1.17	ELXS421VSN221MP45S
	220	22×50	0.20	1.20	ELXS421VSN221MP50S
	220	25.4×35	0.20	1.18	ELXS421VSN221MQ35S
	270	25.4×40	0.20	1.33	ELXS421VSN271MQ40S
	270	25.4×45	0.20	1.36	ELXS421VSN271MQ45S
	270	30×30	0.20	1.31	ELXS421VSN271MR30S
	270	35×25	0.20	1.38	ELXS421VSN271MA25S
	330	25.4×50	0.20	1.52	ELXS421VSN331MQ50S
	330	30×35	0.20	1.48	ELXS421VSN331MR35S
	330	35×30	0.20	1.55	ELXS421VSN331MA30S
	390	30×40	0.20	1.66	ELXS421VSN391MR40S
	390	30×45	0.20	1.70	ELXS421VSN391MR45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
420	390	35×35	0.20	1.71	ELXS421VSN391MA35S
	470	30×50	0.20	1.90	ELXS421VSN471MR50S
	470	35×40	0.20	1.95	ELXS421VSN471MA40S
	560	35×45	0.20	2.17	ELXS421VSN561MA45S
	680	35×50	0.20	2.45	ELXS421VSN681MA50S
450	82	22×25	0.20	0.64	ELXS451VSN820MP25S
	120	22×30	0.20	0.81	ELXS451VSN121MP30S
	120	22×35	0.20	0.83	ELXS451VSN121MP35S
	120	25.4×25	0.20	0.81	ELXS451VSN121MQ25S
	150	22×40	0.20	0.94	ELXS451VSN151MP40S
	150	25.4×30	0.20	0.93	ELXS451VSN151MQ30S
	180	22×45	0.20	1.06	ELXS451VSN181MP45S
	180	25.4×35	0.20	1.06	ELXS451VSN181MQ35S
	180	30×25	0.20	1.06	ELXS451VSN181MR25S
	220	22×50	0.20	1.20	ELXS451VSN221MP50S
	220	25.4×40	0.20	1.20	ELXS451VSN221MQ40S
	220	30×30	0.20	1.18	ELXS451VSN221MR30S
	220	35×25	0.20	1.24	ELXS451VSN221MA25S
	270	25.4×45	0.20	1.36	ELXS451VSN271MQ45S
	270	25.4×50	0.20	1.38	ELXS451VSN271MQ50S
	270	30×35	0.20	1.34	ELXS451VSN271MR35S
	270	35×30	0.20	1.40	ELXS451VSN271MA30S
	330	30×40	0.20	1.52	ELXS451VSN331MR40S
	390	30×45	0.20	1.70	ELXS451VSN391MR45S
	390	30×50	0.20	1.73	ELXS451VSN391MR50S
	390	35×35	0.20	1.71	ELXS451VSN391MA35S
	470	35×40	0.20	1.95	ELXS451VSN471MA40S
	470	35×45	0.20	1.99	ELXS451VSN471MA45S
	560	35×50	0.20	2.22	ELXS451VSN561MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

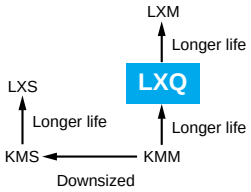
NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXQ Series

- ●Endurance with ripple current : 5,000 hours at 105℃
- ●Downsized and higher ripple version of LXG series
- ●Non solvent resistant type
- ●**RoHS Compliant**

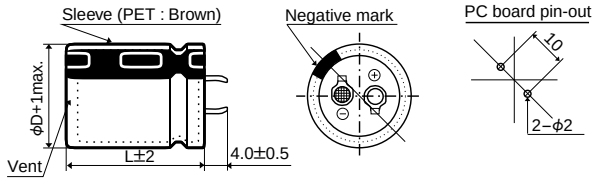


◆SPECIFICATIONS

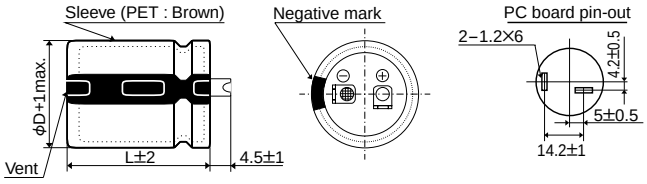
Items	Characteristics		
Category Temperature Range	−25 to +105℃		
Rated Voltage Range	160 to 450Vdc		
Capacitance Tolerance	±20% (M)		(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)		(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	160 to 400V	420 & 450V
	tanδ (Max.)	0.15	0.20
			(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	160 to 400V	420 & 450V
	Z(−25℃)/Z(+20℃)	4	8
			(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 105℃.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.		
	Capacitance change	≦±15% of the initial value	
	D.F. (tanδ)	≦150% of the initial specified value	
	Leakage current	≦The initial specified value	

◆DIMENSIONS [mm]

●Terminal Code : VS (φ22 to φ35) : Standard

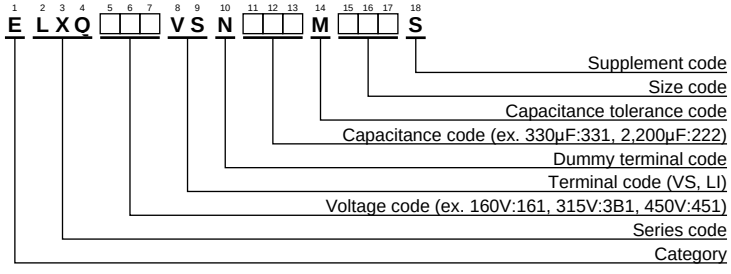


●Terminal Code : LI (φ30, φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	390	22×25	0.15	1.32	ELXQ161VSN391MP25S
	560	22×30	0.15	1.66	ELXQ161VSN561MP30S
	560	25.4×25	0.15	1.68	ELXQ161VSN561MQ25S
	680	22×35	0.15	1.87	ELXQ161VSN681MP35S
	680	25.4×30	0.15	1.88	ELXQ161VSN681MQ30S
	680	30×25	0.15	1.96	ELXQ161VSN681MR25S
	820	22×40	0.15	2.09	ELXQ161VSN821MP40S
	1,000	22×45	0.15	2.36	ELXQ161VSN102MP45S
	1,000	22×50	0.15	2.41	ELXQ161VSN102MP50S
	1,000	25.4×35	0.15	2.38	ELXQ161VSN102MQ35S
	1,000	30×30	0.15	2.40	ELXQ161VSN102MR30S
	1,000	35×25	0.15	2.55	ELXQ161VSN102MA25S
	1,200	25.4×40	0.15	2.66	ELXQ161VSN122MQ40S
	1,200	25.4×45	0.15	2.71	ELXQ161VSN122MQ45S
	1,200	30×35	0.15	2.69	ELXQ161VSN122MR35S
	1,200	30×40	0.15	2.77	ELXQ161VSN122MR40S
	1,200	35×30	0.15	2.86	ELXQ161VSN122MA30S
	1,500	25.4×50	0.15	3.08	ELXQ161VSN152MQ50S
	1,500	30×45	0.15	3.17	ELXQ161VSN152MR45S
	1,500	35×35	0.15	3.22	ELXQ161VSN152MA35S
	1,800	30×50	0.15	3.53	ELXQ161VSN182MR50S
	1,800	35×40	0.15	3.66	ELXQ161VSN182MA40S
	2,200	35×45	0.15	4.14	ELXQ161VSN222MA45S
	2,700	35×50	0.15	4.68	ELXQ161VSN272MA50S
180	330	22×25	0.15	1.21	ELXQ181VSN331MP25S
	470	22×30	0.15	1.52	ELXQ181VSN471MP30S
	470	25.4×25	0.15	1.52	ELXQ181VSN471MQ25S
	560	22×35	0.15	1.70	ELXQ181VSN561MP35S
	560	30×25	0.15	1.78	ELXQ181VSN561MR25S
	680	22×40	0.15	1.91	ELXQ181VSN681MP40S
	680	25.4×30	0.15	1.88	ELXQ181VSN681MQ30S
	820	22×45	0.15	1.99	ELXQ181VSN821MP45S
	820	25.4×35	0.15	2.16	ELXQ181VSN821MQ35S
	820	30×30	0.15	2.17	ELXQ181VSN821MR30S
	820	35×25	0.15	2.31	ELXQ181VSN821MA25S
	1,000	22×50	0.15	2.25	ELXQ181VSN102MP50S
	1,000	25.4×40	0.15	2.43	ELXQ181VSN102MQ40S
	1,000	25.4×45	0.15	2.47	ELXQ181VSN102MQ45S
	1,000	30×35	0.15	2.46	ELXQ181VSN102MR35S
	1,200	25.4×50	0.15	2.75	ELXQ181VSN122MQ50S
	1,200	30×40	0.15	2.77	ELXQ181VSN122MR40S
	1,200	35×30	0.15	2.86	ELXQ181VSN122MA30S
	1,500	30×45	0.15	3.17	ELXQ181VSN152MR45S
	1,500	30×50	0.15	3.22	ELXQ181VSN152MR50S
	1,500	35×35	0.15	3.22	ELXQ181VSN152MA35S
	1,800	35×40	0.15	3.66	ELXQ181VSN182MA40S
	1,800	35×45	0.15	3.74	ELXQ181VSN182MA45S
	2,200	35×50	0.15	4.22	ELXQ181VSN222MA50S
200	270	22×25	0.15	1.10	ELXQ201VSN271MP25S
	390	22×30	0.15	1.38	ELXQ201VSN391MP30S
	390	25.4×25	0.15	1.39	ELXQ201VSN391MQ25S
	470	22×35	0.15	1.55	ELXQ201VSN471MP35S
	560	22×40	0.15	1.73	ELXQ201VSN561MP40S
	560	25.4×30	0.15	1.71	ELXQ201VSN561MQ30S
	560	30×25	0.15	1.78	ELXQ201VSN561MR25S
	680	22×45	0.15	1.81	ELXQ201VSN681MP45S
	680	25.4×35	0.15	1.87	ELXQ201VSN681MQ35S
	680	30×30	0.15	1.98	ELXQ201VSN681MR30S
	680	35×25	0.15	2.10	ELXQ201VSN681MA25S
	820	22×50	0.15	2.18	ELXQ201VSN821MP50S
	820	25.4×40	0.15	2.09	ELXQ201VSN821MQ40S
	820	30×35	0.15	2.22	ELXQ201VSN821MR35S
	1,000	25.4×45	0.15	2.35	ELXQ201VSN102MQ45S
	1,000	25.4×50	0.15	2.39	ELXQ201VSN102MQ50S
	1,000	30×40	0.15	2.53	ELXQ201VSN102MR40S
	1,000	35×30	0.15	2.61	ELXQ201VSN102MA30S
	1,200	30×45	0.15	2.84	ELXQ201VSN122MR45S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
200	1,200	30×50	0.15	2.88	ELXQ201VSN122MR50S
	1,200	35×35	0.15	2.88	ELXQ201VSN122MA35S
	1,500	35×40	0.15	3.34	ELXQ201VSN152MA40S
	1,800	35×45	0.15	3.74	ELXQ201VSN182MA45S
	1,800	35×50	0.15	3.82	ELXQ201VSN182MA50S
220	270	22×25	0.15	1.10	ELXQ221VSN271MP25S
	330	22×30	0.15	1.19	ELXQ221VSN331MP30S
	390	25.4×25	0.15	1.39	ELXQ221VSN391MQ25S
	470	22×35	0.15	1.55	ELXQ221VSN471MP35S
	470	25.4×30	0.15	1.56	ELXQ221VSN471MQ30S
	470	30×25	0.15	1.63	ELXQ221VSN471MR25S
	560	22×40	0.15	1.73	ELXQ221VSN561MP40S
	560	30×30	0.15	1.79	ELXQ221VSN561MR30S
	680	22×45	0.15	1.94	ELXQ221VSN681MP45S
	680	22×50	0.15	1.99	ELXQ221VSN681MP50S
	680	25.4×35	0.15	1.96	ELXQ221VSN681MQ35S
	680	30×35	0.15	2.02	ELXQ221VSN681MR35S
	680	35×25	0.15	2.10	ELXQ221VSN681MA25S
	820	25.4×40	0.15	2.20	ELXQ221VSN821MQ40S
	820	25.4×45	0.15	2.24	ELXQ221VSN821MQ45S
	820	30×40	0.15	2.29	ELXQ221VSN821MR40S
	820	35×30	0.15	2.36	ELXQ221VSN821MA30S
	1,000	25.4×50	0.15	2.51	ELXQ221VSN102MQ50S
	1,000	30×45	0.15	2.59	ELXQ221VSN102MR45S
	1,000	35×35	0.15	2.63	ELXQ221VSN102MA35S
	1,200	30×50	0.15	2.88	ELXQ221VSN122MR50S
	1,200	35×40	0.15	2.98	ELXQ221VSN122MA40S
	1,500	35×45	0.15	3.41	ELXQ221VSN152MA45S
	1,800	35×50	0.15	3.82	ELXQ221VSN182MA50S
250	220	22×25	0.15	1.01	ELXQ251VSN221MP25S
	270	22×30	0.15	1.20	ELXQ251VSN271MP30S
	330	25.4×25	0.15	1.32	ELXQ251VSN331MQ25S
	390	22×35	0.15	1.44	ELXQ251VSN391MP35S
	390	25.4×30	0.15	1.43	ELXQ251VSN391MQ30S
	390	30×25	0.15	1.51	ELXQ251VSN391MR25S
	470	22×40	0.15	1.62	ELXQ251VSN471MP40S
	560	22×45	0.15	1.80	ELXQ251VSN561MP45S
	560	22×50	0.15	1.84	ELXQ251VSN561MP50S
	560	25.4×35	0.15	1.78	ELXQ251VSN561MQ35S
	560	30×30	0.15	1.83	ELXQ251VSN561MR30S
	560	35×25	0.15	1.91	ELXQ251VSN561MA25S
	680	25.4×40	0.15	2.00	ELXQ251VSN681MQ40S
	680	25.4×45	0.15	2.04	ELXQ251VSN681MQ45S
	680	30×35	0.15	2.06	ELXQ251VSN681MR35S
	680	35×30	0.15	2.15	ELXQ251VSN681MA30S
	820	25.4×50	0.15	2.28	ELXQ251VSN821MQ50S
	820	30×40	0.15	2.33	ELXQ251VSN821MR40S
	820	30×45	0.15	2.39	ELXQ251VSN821MR45S
	820	35×35	0.15	2.38	ELXQ251VSN821MA35S
	1,000	30×50	0.15	2.68	ELXQ251VSN102MR50S
	1,000	35×40	0.15	2.72	ELXQ251VSN102MA40S
	1,200	35×45	0.15	3.05	ELXQ251VSN122MA45S
	1,500	35×50	0.15	3.49	ELXQ251VSN152MA50S
315	150	22×25	0.15	0.80	ELXQ3B1VSN151MP25S
	180	22×30	0.15	0.92	ELXQ3B1VSN181MP30S
	180	25.4×25	0.15	0.94	ELXQ3B1VSN181MQ25S
	220	22×35	0.15	1.04	ELXQ3B1VSN221MP35S
	220	30×25	0.15	1.17	ELXQ3B1VSN221MR25S
	270	22×40	0.15	1.18	ELXQ3B1VSN271MP40S
	270	25.4×30	0.15	1.19	ELXQ3B1VSN271MQ30S
	330	22×45	0.15	1.33	ELXQ3B1VSN331MP45S
	330	25.4×35	0.15	1.37	ELXQ3B1VSN331MQ35S
	330	30×30	0.15	1.40	ELXQ3B1VSN331MR30S
	330	35×25	0.15	1.49	ELXQ3B1VSN331MA25S
	390	22×50	0.15	1.48	ELXQ3B1VSN391MP50S
	390	25.4×40	0.15	1.52	ELXQ3B1VSN391MQ40S
	470	25.4×45	0.15	1.70	ELXQ3B1VSN471MQ45S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXQ Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
315	470	30×35	0.15	1.71	ELXQ3B1VSN471MR35S
	470	35×30	0.15	1.82	ELXQ3B1VSN471MA30S
	560	25.4×50	0.15	1.88	ELXQ3B1VSN561MQ50S
	560	30×40	0.15	1.92	ELXQ3B1VSN561MR40S
	560	30×45	0.15	1.97	ELXQ3B1VSN561MR45S
	560	35×35	0.15	2.00	ELXQ3B1VSN561MA35S
	680	30×50	0.15	2.21	ELXQ3B1VSN681MR50S
	680	35×40	0.15	2.29	ELXQ3B1VSN681MA40S
	820	35×45	0.15	2.57	ELXQ3B1VSN821MA45S
	1,000	35×50	0.15	2.89	ELXQ3B1VSN102MA50S
350	120	22×25	0.15	0.72	ELXQ351VSN121MP25S
	150	22×30	0.15	0.84	ELXQ351VSN151MP30S
	180	25.4×25	0.15	0.94	ELXQ351VSN181MQ25S
	220	22×35	0.15	1.04	ELXQ351VSN221MP35S
	220	22×40	0.15	1.06	ELXQ351VSN221MP40S
	220	25.4×30	0.15	1.07	ELXQ351VSN221MQ30S
	220	30×25	0.15	1.13	ELXQ351VSN221MR25S
	270	22×45	0.15	1.20	ELXQ351VSN271MP45S
	270	25.4×35	0.15	1.24	ELXQ351VSN271MQ35S
	270	30×30	0.15	1.27	ELXQ351VSN271MR30S
	270	35×25	0.15	1.35	ELXQ351VSN271MA25S
	330	22×50	0.15	1.36	ELXQ351VSN331MP50S
	330	25.4×40	0.15	1.39	ELXQ351VSN331MQ40S
	330	30×35	0.15	1.43	ELXQ351VSN331MR35S
	390	25.4×45	0.15	1.55	ELXQ351VSN391MQ45S
	390	30×40	0.15	1.60	ELXQ351VSN391MR40S
	390	35×30	0.15	1.66	ELXQ351VSN391MA30S
	470	25.4×50	0.15	1.72	ELXQ351VSN471MQ50S
	470	30×45	0.15	1.81	ELXQ351VSN471MR45S
	470	35×35	0.15	1.83	ELXQ351VSN471MA35S
	560	30×50	0.15	2.00	ELXQ351VSN561MR50S
	560	35×40	0.15	2.07	ELXQ351VSN561MA40S
	680	35×45	0.15	2.34	ELXQ351VSN681MA45S
	820	35×50	0.15	2.62	ELXQ351VSN821MA50S
400	100	22×25	0.15	0.66	ELXQ401VSN101MP25S
	120	22×30	0.15	0.75	ELXQ401VSN121MP30S
	150	22×35	0.15	0.86	ELXQ401VSN151MP35S
	150	25.4×25	0.15	0.86	ELXQ401VSN151MQ25S
	180	22×40	0.15	0.96	ELXQ401VSN181MP40S
	180	25.4×30	0.15	0.97	ELXQ401VSN181MQ30S
	180	30×25	0.15	1.02	ELXQ401VSN181MR25S
	220	22×45	0.15	1.09	ELXQ401VSN221MP45S
	220	25.4×35	0.15	1.12	ELXQ401VSN221MQ35S
	220	35×25	0.15	1.22	ELXQ401VSN221MA25S
	270	22×50	0.15	1.23	ELXQ401VSN271MP50S
	270	25.4×40	0.15	1.26	ELXQ401VSN271MQ40S
	270	25.4×45	0.15	1.29	ELXQ401VSN271MQ45S
	270	30×30	0.15	1.27	ELXQ401VSN271MR30S
	330	25.4×50	0.15	1.44	ELXQ401VSN331MQ50S
	330	30×35	0.15	1.43	ELXQ401VSN331MR35S
	330	35×30	0.15	1.52	ELXQ401VSN331MA30S
	390	30×40	0.15	1.60	ELXQ401VSN391MR40S
	390	35×35	0.15	1.67	ELXQ401VSN391MA35S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	470	30×45	0.15	1.81	ELXQ401VSN471MR45S
	470	30×50	0.15	1.84	ELXQ401VSN471MR50S
	470	35×40	0.15	1.90	ELXQ401VSN471MA40S
	560	35×45	0.15	2.12	ELXQ401VSN561MA45S
	680	35×50	0.15	2.39	ELXQ401VSN681MA50S
420	100	22×25	0.20	0.66	ELXQ421VSN101MP25S
	120	22×30	0.20	0.75	ELXQ421VSN121MP30S
	120	25.4×25	0.20	0.77	ELXQ421VSN121MQ25S
	150	22×35	0.20	0.86	ELXQ421VSN151MP35S
	180	22×40	0.20	0.96	ELXQ421VSN181MP40S
	180	22×45	0.20	0.98	ELXQ421VSN181MP45S
	180	25.4×30	0.20	0.97	ELXQ421VSN181MQ30S
	180	25.4×35	0.20	1.01	ELXQ421VSN181MQ35S
	180	30×25	0.20	1.02	ELXQ421VSN181MR25S
	220	22×50	0.20	1.11	ELXQ421VSN221MP50S
	220	25.4×40	0.20	1.14	ELXQ421VSN221MQ40S
	220	30×30	0.20	1.14	ELXQ421VSN221MR30S
	220	35×25	0.20	1.22	ELXQ421VSN221MA25S
	270	25.4×45	0.20	1.29	ELXQ421VSN271MQ45S
	270	30×35	0.20	1.30	ELXQ421VSN271MR35S
	270	35×30	0.20	1.38	ELXQ421VSN271MA30S
	330	25.4×50	0.20	1.44	ELXQ421VSN331MQ50S
	330	30×40	0.20	1.48	ELXQ421VSN331MR40S
	330	35×35	0.20	1.54	ELXQ421VSN331MA35S
	390	30×45	0.20	1.64	ELXQ421VSN391MR45S
	390	35×40	0.20	1.73	ELXQ421VSN391MA40S
	470	30×50	0.20	1.84	ELXQ421VSN471MR50S
	470	35×45	0.20	1.94	ELXQ421VSN471MA45S
	560	35×50	0.20	2.17	ELXQ421VSN561MA50S
450	82	22×25	0.20	0.59	ELXQ451VSN820MP25S
	100	22×30	0.20	0.69	ELXQ451VSN101MP30S
	100	25.4×25	0.20	0.70	ELXQ451VSN101MQ25S
	120	22×35	0.20	0.77	ELXQ451VSN121MP35S
	150	22×40	0.20	0.88	ELXQ451VSN151MP40S
	150	22×45	0.20	0.90	ELXQ451VSN151MP45S
	150	25.4×30	0.20	0.88	ELXQ451VSN151MQ30S
	150	25.4×35	0.20	0.92	ELXQ451VSN151MQ35S
	150	30×25	0.20	0.93	ELXQ451VSN151MR25S
	180	22×50	0.20	1.01	ELXQ451VSN181MP50S
	180	25.4×40	0.20	1.03	ELXQ451VSN181MQ40S
	180	30×30	0.20	1.03	ELXQ451VSN181MR30S
	180	35×25	0.20	1.10	ELXQ451VSN181MA25S
	220	25.4×45	0.20	1.16	ELXQ451VSN221MQ45S
	220	30×35	0.20	1.17	ELXQ451VSN221MR35S
	220	35×30	0.20	1.24	ELXQ451VSN221MA30S
	270	25.4×50	0.20	1.31	ELXQ451VSN271MQ50S
	270	30×40	0.20	1.33	ELXQ451VSN271MR40S
	270	35×35	0.20	1.39	ELXQ451VSN271MA35S
	330	30×45	0.20	1.51	ELXQ451VSN331MR45S
	390	30×50	0.20	1.67	ELXQ451VSN391MR50S
	390	35×40	0.20	1.73	ELXQ451VSN391MA40S
	390	35×45	0.20	1.77	ELXQ451VSN391MA45S
	470	35×50	0.20	1.98	ELXQ451VSN471MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXG Series

- Endurance with ripple current : 5,000 hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

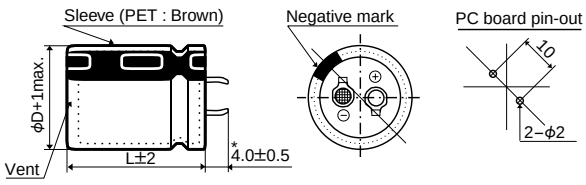
LXG
↑ Longer life
KMH

◆SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	−40 to +105℃								
Rated Voltage Range	10 to 100Vdc								(at 20℃, 120Hz)
Capacitance Tolerance	±20% (M)								
Leakage Current	I=0.02CV or 3mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)								(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Rated voltage (Vdc)	10V	16V	25V	35V	50V	63V	80 & 100V	
	tanδ (Max.)	0.60	0.45	0.30	0.25	0.20	0.15	0.15	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Capacitance change : Capacitance at the lowest operating temperature shall not be less than 70% of the 20℃ value.								
	Rated voltage (Vdc)	10V	16V	25V	35V	50V	63V	80 & 100V	
	Z(−25℃)/Z(+20℃)	4	4	3	3	2	2	2	
	Z(−40℃)/Z(+20℃)	15	15	10	8	6	6	5	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with rated ripple current is applied for 5,000 hours at 105℃.								
	Capacitance change	≦±25% of the initial value							
	D.F. (tanδ)	≦250% of the initial specified value							
	Leakage current	≦The initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.								
	Capacitance change	≦±20% of the initial value							
	D.F. (tanδ)	≦150% of the initial specified value							
	Leakage current	≦The initial specified value							

◆DIMENSIONS [mm]

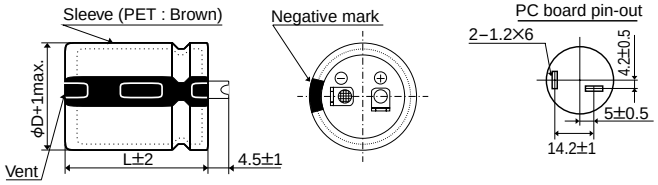
●Terminal Code : VS (φ22 to φ35) : Standard



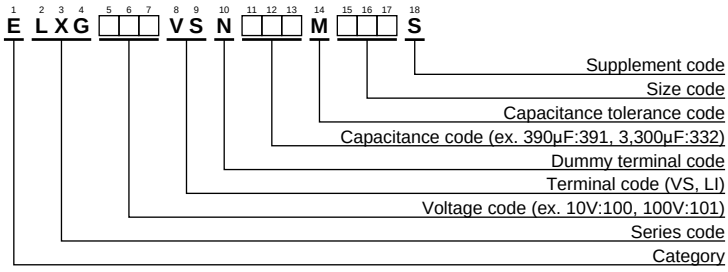
*φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
10 to 50Vdc	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100Vdc	0.92	1.00	1.07	1.13	1.19	1.20

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
10	6,800	22×25	0.60	1.30	ELXG100VSN682MP25S
	10,000	22×30	0.60	1.65	ELXG100VSN103MP30S
	10,000	25.4×25	0.60	1.64	ELXG100VSN103MQ25S
	12,000	22×35	0.60	1.85	ELXG100VSN123MP35S
	12,000	25.4×30	0.60	1.85	ELXG100VSN123MQ30S
	12,000	30×25	0.60	1.89	ELXG100VSN123MR25S
	15,000	22×40	0.60	2.12	ELXG100VSN153MP40S
	15,000	25.4×35	0.60	2.16	ELXG100VSN153MQ35S
	18,000	22×50	0.60	2.45	ELXG100VSN183MP50S
	18,000	25.4×40	0.60	2.43	ELXG100VSN183MQ40S
	18,000	30×30	0.60	2.37	ELXG100VSN183MR30S
	18,000	35×25	0.60	2.42	ELXG100VSN183MA25S
	22,000	30×35	0.60	2.73	ELXG100VSN223MR35S
	22,000	35×30	0.60	2.79	ELXG100VSN223MA30S
	27,000	25.4×50	0.60	3.11	ELXG100VSN273MQ50S
	27,000	30×40	0.60	3.13	ELXG100VSN273MR40S
	33,000	35×35	0.60	3.49	ELXG100VSN333MA35S
	39,000	30×50	0.60	3.99	ELXG100VSN393MR50S
	39,000	35×40	0.60	3.96	ELXG100VSN393MA40S
	47,000	35×50	0.60	4.62	ELXG100VSN473MA50S
16	5,600	22×25	0.45	1.44	ELXG160VSN562MP25S
	6,800	22×30	0.45	1.66	ELXG160VSN682MP30S
	6,800	25.4×25	0.45	1.66	ELXG160VSN682MQ25S
	8,200	22×35	0.45	1.87	ELXG160VSN822MP35S
	10,000	22×40	0.45	2.12	ELXG160VSN103MP40S
	10,000	25.4×30	0.45	2.07	ELXG160VSN103MQ30S
	10,000	30×25	0.45	2.11	ELXG160VSN103MR25S
	12,000	25.4×35	0.45	2.37	ELXG160VSN123MQ35S
	12,000	30×30	0.45	2.37	ELXG160VSN123MR30S
	12,000	35×25	0.45	2.42	ELXG160VSN123MA25S
	15,000	22×50	0.45	2.74	ELXG160VSN153MP50S
	15,000	25.4×40	0.45	2.71	ELXG160VSN153MQ40S
	18,000	25.4×50	0.45	3.11	ELXG160VSN183MQ50S
	18,000	30×35	0.45	3.02	ELXG160VSN183MR35S
	18,000	35×30	0.45	3.09	ELXG160VSN183MA30S
	22,000	30×40	0.45	3.46	ELXG160VSN223MR40S
	22,000	35×35	0.45	3.49	ELXG160VSN223MA35S
	27,000	30×50	0.45	4.07	ELXG160VSN273MR50S
	27,000	35×40	0.45	4.04	ELXG160VSN273MA40S
	39,000	35×50	0.45	5.16	ELXG160VSN393MA50S
25	3,900	22×25	0.30	1.31	ELXG250VSN392MP25S
	4,700	22×30	0.30	1.51	ELXG250VSN472MP30S
	4,700	25.4×25	0.30	1.51	ELXG250VSN472MQ25S
	5,600	22×35	0.30	1.70	ELXG250VSN562MP35S
	6,800	22×40	0.30	1.92	ELXG250VSN682MP40S
	6,800	25.4×30	0.30	1.87	ELXG250VSN682MQ30S
	6,800	30×25	0.30	1.90	ELXG250VSN682MR25S
	8,200	25.4×35	0.30	2.14	ELXG250VSN822MQ35S
	8,200	30×30	0.30	2.15	ELXG250VSN822MR30S
	8,200	35×25	0.30	2.19	ELXG250VSN822MA25S
	10,000	22×50	0.30	2.45	ELXG250VSN103MP50S
	10,000	25.4×40	0.30	2.43	ELXG250VSN103MQ40S
	12,000	25.4×50	0.30	2.78	ELXG250VSN123MQ50S
	12,000	30×35	0.30	2.70	ELXG250VSN123MR35S
	12,000	35×30	0.30	2.76	ELXG250VSN123MA30S
	15,000	30×40	0.30	3.13	ELXG250VSN153MR40S
	15,000	35×35	0.30	3.16	ELXG250VSN153MA35S
	18,000	30×50	0.30	3.64	ELXG250VSN183MR50S
	18,000	35×40	0.30	3.61	ELXG250VSN183MA40S
	27,000	35×50	0.30	4.70	ELXG250VSN273MA50S
35	2,200	22×25	0.25	1.10	ELXG350VSN222MP25S
	3,300	22×30	0.25	1.42	ELXG350VSN332MP30S
	3,300	25.4×25	0.25	1.41	ELXG350VSN332MQ25S
	3,900	22×35	0.25	1.58	ELXG350VSN392MP35S
	3,900	25.4×30	0.25	1.58	ELXG350VSN392MQ30S
	4,700	22×40	0.25	1.78	ELXG350VSN472MP40S
	4,700	30×25	0.25	1.77	ELXG350VSN472MR25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
35	5,600	25.4×35	0.25	1.98	ELXG350VSN562MQ35S
	5,600	30×30	0.25	1.98	ELXG350VSN562MR30S
	5,600	35×25	0.25	2.03	ELXG350VSN562MA25S
	6,800	22×50	0.25	2.26	ELXG350VSN682MP50S
	6,800	25.4×40	0.25	2.24	ELXG350VSN682MQ40S
	8,200	25.4×50	0.25	2.57	ELXG350VSN822MQ50S
	8,200	30×35	0.25	2.50	ELXG350VSN822MR35S
	8,200	35×30	0.25	2.55	ELXG350VSN822MA30S
	10,000	30×40	0.25	2.86	ELXG350VSN103MR40S
	10,000	35×35	0.25	2.88	ELXG350VSN103MA35S
	12,000	30×50	0.25	3.32	ELXG350VSN123MR50S
	12,000	35×40	0.25	3.30	ELXG350VSN123MA40S
	18,000	35×50	0.25	4.29	ELXG350VSN183MA50S
50	1,500	22×25	0.20	1.02	ELXG500VSN152MP25S
	1,800	22×30	0.20	1.17	ELXG500VSN182MP30S
	1,800	25.4×25	0.20	1.17	ELXG500VSN182MQ25S
	2,200	22×35	0.20	1.33	ELXG500VSN222MP35S
	2,700	22×40	0.20	1.51	ELXG500VSN272MP40S
	2,700	25.4×30	0.20	1.47	ELXG500VSN272MQ30S
	2,700	30×25	0.20	1.50	ELXG500VSN272MR25S
	3,300	25.4×35	0.20	1.70	ELXG500VSN332MQ35S
	3,300	30×30	0.20	1.70	ELXG500VSN332MR30S
	3,300	35×25	0.20	1.74	ELXG500VSN332MA25S
	3,900	22×50	0.20	1.91	ELXG500VSN392MP50S
	3,900	25.4×40	0.20	1.89	ELXG500VSN392MQ40S
	4,700	30×35	0.20	2.11	ELXG500VSN472MR35S
	4,700	35×30	0.20	2.16	ELXG500VSN472MA30S
	5,600	25.4×50	0.20	2.38	ELXG500VSN562MQ50S
	5,600	30×40	0.20	2.39	ELXG500VSN562MR40S
	5,600	35×35	0.20	2.41	ELXG500VSN562MA35S
	6,800	30×50	0.20	2.79	ELXG500VSN682MR50S
	6,800	35×40	0.20	2.78	ELXG500VSN682MA40S
	10,000	35×50	0.20	3.57	ELXG500VSN103MA50S
63	1,000	22×25	0.15	1.00	ELXG630VSN102MP25S
	1,200	22×30	0.15	1.15	ELXG630VSN122MP30S
	1,200	25.4×25	0.15	1.15	ELXG630VSN122MQ25S
	1,500	22×35	0.15	1.32	ELXG630VSN152MP35S
	1,800	22×40	0.15	1.49	ELXG630VSN182MP40S
	1,800	25.4×30	0.15	1.45	ELXG630VSN182MQ30S
	1,800	30×25	0.15	1.48	ELXG630VSN182MR25S
	2,200	25.4×35	0.15	1.67	ELXG630VSN222MQ35S
	2,200	30×30	0.15	1.68	ELXG630VSN222MR30S
	2,200	35×25	0.15	1.71	ELXG630VSN222MA25S
	2,700	22×50	0.15	1.92	ELXG630VSN272MP50S
	2,700	25.4×40	0.15	1.90	ELXG630VSN272MQ40S
	2,700	30×35	0.15	1.93	ELXG630VSN272MR35S
	3,300	25.4×50	0.15	2.20	ELXG630VSN332MQ50S
	3,300	35×30	0.15	2.18	ELXG630VSN332MA30S
	3,900	30×40	0.15	2.41	ELXG630VSN392MR40S
	3,900	35×35	0.15	2.43	ELXG630VSN392MA35S
	4,700	30×50	0.15	2.80	ELXG630VSN472MR50S
	4,700	35×40	0.15	2.78	ELXG630VSN472MA40S
	6,800	35×50	0.15	3.55	ELXG630VSN682MA50S
80	680	22×25	0.15	0.97	ELXG800VSN681MP25S
	820	22×30	0.15	1.12	ELXG800VSN821MP30S
	1,000	22×35	0.15	1.27	ELXG800VSN102MP35S
	1,000	25.4×25	0.15	1.23	ELXG800VSN102MQ25S
	1,200	22×40	0.15	1.42	ELXG800VSN122MP40S
	1,200	25.4×30	0.15	1.39	ELXG800VSN122MQ30S
	1,200	30×25	0.15	1.41	ELXG800VSN122MR25S
	1,500	25.4×35	0.15	1.62	ELXG800VSN152MQ35S
	1,800	22×50	0.15	1.84	ELXG800VSN182MP50S
	1,800	25.4×40	0.15	1.82	ELXG800VSN182MQ40S
	1,800	30×30	0.15	1.78	ELXG800VSN182MR30S
	1,800	35×25	0.15	1.82	ELXG800VSN182MA25S
	2,200	25.4×50	0.15	2.11	ELXG800VSN222MQ50S
	2,200	30×35	0.15	2.05	ELXG800VSN222MR35S

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS

Long life snap-ins, 105℃

LXG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
80	2,200	35×30	0.15	2.09	ELXG800VSN222MA30S
	2,700	30×40	0.15	2.35	ELXG800VSN272MR40S
	2,700	35×35	0.15	2.37	ELXG800VSN272MA35S
	3,300	30×50	0.15	2.75	ELXG800VSN332MR50S
	3,300	35×40	0.15	2.73	ELXG800VSN332MA40S
	4,700	35×50	0.15	3.46	ELXG800VSN472MA50S
100	390	22×25	0.15	0.78	ELXG101VSN391MP25S
	560	22×30	0.15	0.99	ELXG101VSN561MP30S
	560	25.4×25	0.15	0.98	ELXG101VSN561MQ25S
	680	22×35	0.15	1.12	ELXG101VSN681MP35S
	820	22×40	0.15	1.26	ELXG101VSN821MP40S
	820	25.4×30	0.15	1.23	ELXG101VSN821MQ30S
	820	30×25	0.15	1.25	ELXG101VSN821MR25S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
100	1,000	25.4×35	0.15	1.41	ELXG101VSN102MQ35S
	1,000	30×30	0.15	1.42	ELXG101VSN102MR30S
	1,000	35×25	0.15	1.45	ELXG101VSN102MA25S
	1,200	22×50	0.15	1.60	ELXG101VSN122MP50S
	1,200	25.4×40	0.15	1.59	ELXG101VSN122MQ40S
	1,200	30×35	0.15	1.61	ELXG101VSN122MR35S
	1,500	25.4×50	0.15	1.86	ELXG101VSN152MQ50S
	1,500	30×40	0.15	1.87	ELXG101VSN152MR40S
	1,500	35×30	0.15	1.85	ELXG101VSN152MA30S
	1,800	35×35	0.15	2.07	ELXG101VSN182MA35S
	2,200	30×50	0.15	2.40	ELXG101VSN222MR50S
	2,200	35×40	0.15	2.39	ELXG101VSN222MA40S
	2,700	35×50	0.15	2.81	ELXG101VSN272MA50S

◆MAXIMUM IMPEDANCE [mΩ/20℃, 30kHz]

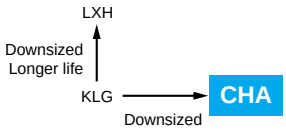
Vdc / Case size φDXL (mm)	10 to 63	80	100
22X25	120	150	
22X30	100	120	
22X35	80	95	
22X40	70	80	
22X50	50	60	
25.4X25	90	110	
25.4X30	70	85	
25.4X35	60	70	
25.4X40	50	60	
25.4X50	40	45	
30X25	70	80	
30X30	50	60	
30X35	40	50	
30X40	35	40	
30X50	25	30	
35X25	65	70	
35X30	45	50	
35X35	38	40	
35X40	30	30	
35X50	23	25	

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Overvoltage resistant design, 105℃

CHA Series

- Doesn't spark with DC over voltage
- Downsized from current KLG series
- Endurance with ripple current : 2,000hours at 105℃
- Non solvent resistant type
- **RoHS Compliant**

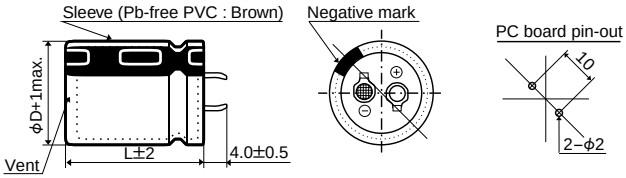


◆SPECIFICATIONS

Items	Characteristics		
Category Temperature Range	−25 to +105℃		
Rated Voltage Range	200 to 450Vdc		
Capacitance Tolerance	±20% (M)		(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (Vdc)		(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	200Vdc : 0.15 max. (0.20 max. for φD=35mm) 400Vdc : 0.15 max.		(at 20℃, 120Hz)
Low Temperature Characteristics (Max.Impedance Ratio)	Rated Voltage (Vdc)	200 to 450V	
	Z(-25℃) / Z(+20℃)	4	(at 120Hz)
ESL	50nH max.		(at 20℃, 1MHz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃.		
	Capacitance change	≦±20% of the initial value	
	D.F. (tanδ)	≦200% of the initial specified value	
	Leakage current	≦The initial specified value	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.		
	Capacitance change	≦±15% of the initial value	
	D.F. (tanδ)	≦150% of the initial specified value	
	Leakage current	≦The initial specified value	

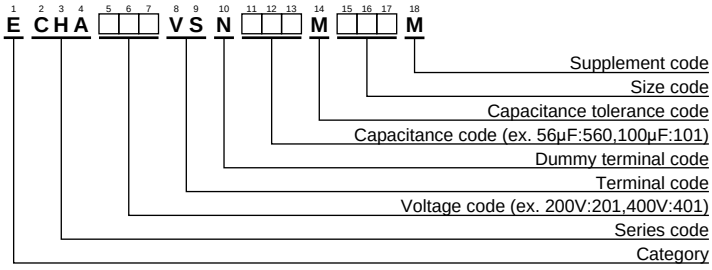
◆DIMENSIONS [mm]

- Terminal Code : VS (φ22 to φ35)



The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
200 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Overvoltage resistant design, 105℃

CHA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
200	180	22×20	0.15	0.82	ECHA201VSN181MP20M
	220	22×20	0.15	0.90	ECHA201VSN221MP20M
	270	22×25	0.15	1.02	ECHA201VSN271MP25M
	330	22×30	0.15	1.20	ECHA201VSN331MP30M
	330	25.4×25	0.15	1.20	ECHA201VSN331MQ25M
	390	22×30	0.15	1.35	ECHA201VSN391MP30M
	390	25.4×25	0.15	1.35	ECHA201VSN391MQ25M
	470	22×35	0.15	1.45	ECHA201VSN471MP35M
	470	25.4×30	0.15	1.45	ECHA201VSN471MQ30M
	470	30×25	0.15	1.47	ECHA201VSN471MR25M
	560	22×40	0.15	1.62	ECHA201VSN561MP40M
	560	25.4×30	0.15	1.60	ECHA201VSN561MQ30M
	560	30×25	0.15	1.60	ECHA201VSN561MR25M
	680	25.4×35	0.15	1.82	ECHA201VSN681MQ35M
	680	30×30	0.15	1.81	ECHA201VSN681MR30M
	680	35×25	0.20	1.86	ECHA201VSN681MA25M
	820	25.4×45	0.15	2.11	ECHA201VSN821MQ45M
	820	30×35	0.15	2.11	ECHA201VSN821MR35M
	820	35×25	0.20	2.11	ECHA201VSN821MA25M
	1,000	30×35	0.15	2.40	ECHA201VSN102MR35M
	1,000	35×30	0.20	2.40	ECHA201VSN102MA30M
	1,200	30×45	0.15	2.69	ECHA201VSN122MR45M
	1,200	35×35	0.20	2.65	ECHA201VSN122MA35M
250	120	22×20	0.15	0.68	ECHA251VSN121MP20M
	180	22×25	0.15	0.87	ECHA251VSN181MP25M
	180	25.4×20	0.15	0.93	ECHA251VSN181MQ20M
	220	22×30	0.15	1.00	ECHA251VSN221MP30M
	270	22×35	0.15	1.14	ECHA251VSN271MP35M
	270	25.4×25	0.15	1.13	ECHA251VSN271MQ25M
	270	30×20	0.15	1.25	ECHA251VSN271MR20M
	330	22×40	0.15	1.28	ECHA251VSN331MP40M
	330	25.4×30	0.15	1.29	ECHA251VSN331MQ30M
	390	22×45	0.15	1.42	ECHA251VSN391MP45M
	390	25.4×35	0.15	1.46	ECHA251VSN391MQ35M
	390	30×25	0.15	1.52	ECHA251VSN391MR25M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
250	390	35×20	0.20	1.62	ECHA251VSN391MA20M
	470	25.4×40	0.15	1.64	ECHA251VSN471MQ40M
	470	30×30	0.15	1.67	ECHA251VSN471MR30M
	560	25.4×45	0.15	1.82	ECHA251VSN561MQ45M
	560	30×35	0.15	1.87	ECHA251VSN561MR35M
	560	35×25	0.20	1.99	ECHA251VSN561MA25M
	680	30×40	0.15	2.12	ECHA251VSN681MR40M
	680	35×30	0.20	2.19	ECHA251VSN681MA30M
	820	30×45	0.15	2.39	ECHA251VSN821MR45M
	820	35×35	0.20	2.42	ECHA251VSN821MA35M
400	56	22×20	0.15	0.45	ECHA401VSN560MP20M
	68	22×20	0.15	0.51	ECHA401VSN680MP20M
	82	22×25	0.15	0.58	ECHA401VSN820MP25M
	100	22×25	0.15	0.66	ECHA401VSN101MP25M
	100	25.4×25	0.15	0.66	ECHA401VSN101MQ25M
	120	22×30	0.15	0.76	ECHA401VSN121MP30M
	120	25.4×25	0.15	0.76	ECHA401VSN121MQ25M
	150	22×35	0.15	0.85	ECHA401VSN151MP35M
	150	25.4×30	0.15	0.85	ECHA401VSN151MQ30M
	150	30×25	0.15	0.85	ECHA401VSN151MR25M
	180	22×40	0.15	0.94	ECHA401VSN181MP40M
	180	25.4×35	0.15	0.95	ECHA401VSN181MQ35M
	180	30×25	0.15	0.95	ECHA401VSN181MR25M
	220	25.4×35	0.15	1.24	ECHA401VSN221MQ35M
	220	30×30	0.15	1.24	ECHA401VSN221MR30M
	220	35×25	0.15	1.24	ECHA401VSN221MA25M
	270	25.4×45	0.15	1.30	ECHA401VSN271MQ45M
	270	30×35	0.15	1.30	ECHA401VSN271MR35M
	270	35×25	0.15	1.30	ECHA401VSN271MA25M
	330	30×40	0.15	1.47	ECHA401VSN331MR40M
	330	35×30	0.15	1.47	ECHA401VSN331MA30M
450	180	30×35	0.20	1.00	ECHA451VSN181MR35M
	220	30×40	0.20	1.20	ECHA451VSN221MR40M
	390	35×40	0.20	1.60	ECHA451VSN391MA40M

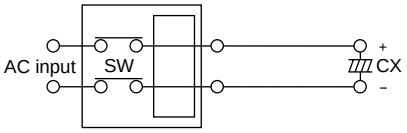
◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following test DC voltage is applied.

●Test DC voltage

Rated Voltage	Nominal Capacitance	Current Limit	Test Voltage
200Vdc	<330	4A	300/375Vdc
	330μF≦C<470μF	5A	
	≧470μF	7A	
250Vdc	<330μF	4A	350/450Vdc
	330μF≦C<470μF	5A	
	≧470μF	7A	
400Vdc	<100μF	2A	500/600Vdc
	100μF≦C<220μF	4A	
	≧220μF	7A	
450Vdc	<100μF	2A	550/675Vdc
	100μF≦C<220μF	4A	
	≧220μF	7A	

●Test Circuit



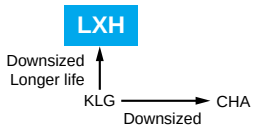
Constant DC voltage/current power supply

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Long life, Overvoltage resistant design, 105℃

LXH Series

- ●Doesn't spark with DC over voltage
- ●Same case sizes of KMH
- ●Endurance with ripple current : 5,000 hours at 105℃
- ●Non solvent resistant type
- ●**RoHS Compliant**

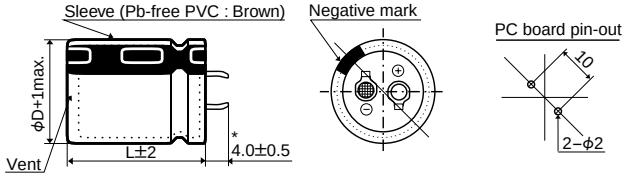


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +105℃
Rated Voltage	200 & 400Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 3mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.15 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Z(−25℃) /Z(+20℃)≦4 (at 120Hz)
ESL	50nH max. (at 20℃, 1MHz)
DC Overvoltage Test	When an excessive DC voltage is applied to the capacitors under the test conditions on next page, the vent shall operate and then the capacitors shall become open-circuit without burning materials.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 3,000 or 5,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±15% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

◆DIMENSIONS [mm]

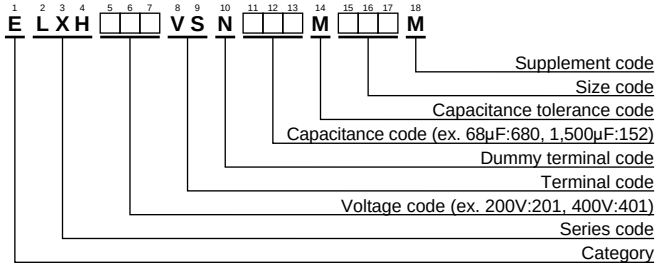
●Terminal Code : VS (ϕ22 to ϕ35)



*ϕD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
200Vdc	0.81	1.00	1.17	1.32	1.45	1.50
400Vdc	0.77	1.00	1.16	1.30	1.41	1.43

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Long life, Overvoltage resistant design, 105℃

LXH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/105℃,120Hz)		Part No.
				5,000 hours	3,000 hours	
200	270	22×25	0.15	0.45	0.87	ELXH201VSN271MP25M
	330	22×30	0.15	0.62	1.20	ELXH201VSN331MP30M
	330	25.4×25	0.15	0.62	1.21	ELXH201VSN331MQ25M
	390	22×35	0.15	0.67	1.31	ELXH201VSN391MP35M
	390	25.4×30	0.15	0.66	1.28	ELXH201VSN391MQ30M
	470	22×40	0.15	0.72	1.40	ELXH201VSN471MP40M
	470	25.4×30	0.15	0.72	1.41	ELXH201VSN471MQ30M
	470	30×25	0.15	0.77	1.50	ELXH201VSN471MR25M
	560	22×45	0.15	0.80	1.56	ELXH201VSN561MP45M
	560	25.4×35	0.15	0.78	1.53	ELXH201VSN561MQ35M
	560	30×30	0.15	0.81	1.57	ELXH201VSN561MR30M
	680	22×50	0.15	0.89	1.74	ELXH201VSN681MP50M
	680	25.4×40	0.15	0.89	1.74	ELXH201VSN681MQ40M
	680	30×30	0.15	0.89	1.74	ELXH201VSN681MR30M
	680	35×25	0.15	0.88	1.72	ELXH201VSN681MA25M
	820	25.4×50	0.15	1.05	2.04	ELXH201VSN821MQ50M
	820	30×35	0.15	1.03	2.00	ELXH201VSN821MR35M
	820	35×30	0.15	1.05	2.04	ELXH201VSN821MA30M
	1,000	30×45	0.15	1.18	2.30	ELXH201VSN102MR45M
	1,000	35×35	0.15	1.18	2.30	ELXH201VSN102MA35M
	1,200	30×50	0.15	1.33	2.60	ELXH201VSN122MR50M
	1,200	35×40	0.15	1.36	2.65	ELXH201VSN122MA40M
	1,500	35×45	0.15	1.57	3.08	ELXH201VSN152MA45M
400	68	22×25	0.15	0.26	0.51	ELXH401VSN680MP25M
	68	25.4×20	0.15	0.24	0.46	ELXH401VSN680MQ20M
	82	22×30	0.15	0.30	0.58	ELXH401VSN820MP30M
	82	25.4×25	0.15	0.30	0.58	ELXH401VSN820MQ25M
	100	22×35	0.15	0.34	0.66	ELXH401VSN101MP35M
	100	25.4×30	0.15	0.34	0.66	ELXH401VSN101MQ30M
	120	22×40	0.15	0.37	0.72	ELXH401VSN121MP40M
	120	25.4×30	0.15	0.37	0.72	ELXH401VSN121MQ30M
	120	30×25	0.15	0.39	0.76	ELXH401VSN121MR25M
	150	22×45	0.15	0.42	0.82	ELXH401VSN151MP45M
	150	25.4×35	0.15	0.43	0.84	ELXH401VSN151MQ35M
	150	30×30	0.15	0.43	0.84	ELXH401VSN151MR30M
	180	22×50	0.15	0.49	0.95	ELXH401VSN181MP50M
	180	25.4×40	0.15	0.48	0.94	ELXH401VSN181MQ40M
	180	30×30	0.15	0.47	0.92	ELXH401VSN181MR30M
	180	35×25	0.15	0.48	0.94	ELXH401VSN181MA25M
	220	25.4×45	0.15	0.55	1.07	ELXH401VSN221MQ45M
	220	30×35	0.15	0.54	1.06	ELXH401VSN221MR35M
	220	35×30	0.15	0.55	1.08	ELXH401VSN221MA30M
	270	25.4×50	0.15	0.62	1.21	ELXH401VSN271MQ50M
	270	30×40	0.15	0.62	1.21	ELXH401VSN271MR40M
	270	35×30	0.15	0.59	1.15	ELXH401VSN271MA30M
	330	30×45	0.15	0.71	1.39	ELXH401VSN331MR45M
	330	35×35	0.15	0.69	1.35	ELXH401VSN331MA35M
	390	30×50	0.15	0.80	1.55	ELXH401VSN391MR50M
	390	35×40	0.15	0.79	1.54	ELXH401VSN391MA40M
	470	35×45	0.15	0.89	1.74	ELXH401VSN471MA45M

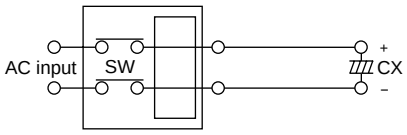
◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following test DC voltage is applied.

●Test DC voltage

Rated Voltage	Capacitance	Current limit	Test DC voltage
200Vdc	<330μF	4A	300/375Vdc
	330≦C<470μF	5A	
	≧470μF	7A	
400Vdc	<100μF	2A	500/600Vdc
	100≦C<220μF	4A	
	≧220μF	7A	

●Test Circuit



Constant DC voltage/current power supply

Screw Terminal Aluminum Electrolytic Capacitors (Large Capacitors)

NIPPON CHEMI-CON

PART NUMBERING SYSTEM

Product code guide (Screw mount terminal type)

(Example : KMH series, 400V-3,300μF, φ63.5×120L, Without mounting clamp)

Please refer to the following table

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	M	H	4	0	1	L	G	N	3	3	2	M	D	C	0	N

- Supplement code⑨
- Size code⑧
- Capacitance tolerance code⑦
- Capacitance code⑥
- Mounting clamp code⑤
- Terminal code④
- Voltage code③
- Series code②
- Category①

①Category

Type	Code
	1th
Polar	E

②Series code

Series name	Code		
	2th	3th	4th
SME	S	M	E
No series name	C	S	T

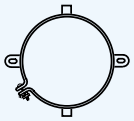
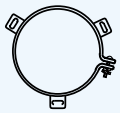
③Voltage code

Voltage (V)	Code		
	5th	6th	7th
10	1	0	0
16	1	6	0
25	2	5	0
35	3	5	0
50	5	0	0
63	6	3	0
80	8	0	0
100	1	0	1
160	1	6	1
200	2	0	1
250	2	5	1
315	3	B	1
350	3	5	1
400	4	0	1
450	4	5	1
500	5	0	1
525	5	C	1
550	5	5	1

④Terminal code

Type	Code	
	8th	9th
Screw terminal	L	G

⑤Mounting clamp code

Type	Code
	10th
	B
	C
Without clamp	N

⑥Capacitance code

Cap. (μF)	Code		
	11th	12th	13th
100	1	0	1
220	2	2	1
330	3	3	1
470	4	7	1
680	6	8	1
1,000	1	0	2
2,200	2	2	2
3,300	3	3	2
4,700	4	7	2
6,800	6	8	2
10,000	1	0	3
22,000	2	2	3
33,000	3	3	3
47,000	4	7	3
68,000	6	8	3
100,000	1	0	4
220,000	2	2	4
330,000	3	3	4
470,000	4	7	4
680,000	6	8	4

⑦Capacitance tolerance

Tol. (%)	Code
	14th
±20	M

⑧Size code

φD	Code
	15th
35	A
50	C
63.5	D
76	E
89	F
100	G

L	Code	
	16th	17th
50	5	0
60	6	0
75	7	5
80	8	0
85	8	5
96	9	6
100	A	0
105	A	5
115	B	5
120	C	0
125	C	5
130	D	0
140	E	0
145	E	5
155	F	5
170	H	0
190	K	0
220	N	0
250	R	0
270	T	0

⑨Supplement code

Sleeve material	Code
	18th
Pb-free PVC	M
Polyolefin	S
PVC	N

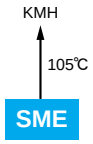
* Refer to the appendix (Part number) for codes not listed here.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 85℃

SME Series

●Endurance with ripple current : 2,000 hours at 85℃
●**RoHS Compliant**

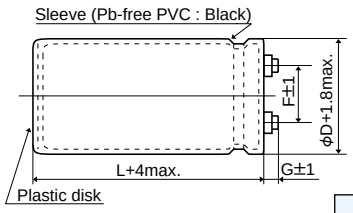


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃ (10 to 100Vdc) −25 to +85℃ (160 to 250Vdc)
Rated Voltage Range	10 to 250Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Shall not exceed the values shown in the STANDARD RATINGS (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value Leakage current: ≦The initial specified value

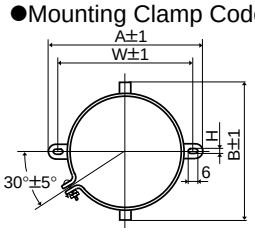
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



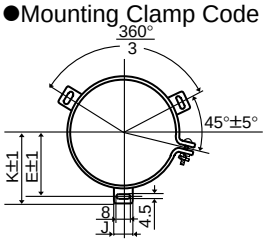
ϕ35 to ϕ63.5 : G=6
ϕ76 & ϕ89 : G=5

●Mounting Clamp Code : B



ϕD	A	B	W	H	F
35	58.0	44.0	48.0	3.5	12.7
50	78.0	64.0	68.0	4.5	22.4
63.5	90.0	76.0	80.0	4.5	28.0
76	104.5	90.0	93.5	4.5	31.5

●Mounting Clamp Code : C



ϕD	E	K	J	F
50	32.5	37.0	14.0	22.4
63.5	38.1	43.5	14.0	28.0
76	44.5	50.0	14.0	31.5
89	50.8	56.5	16.0	31.5

<Screw specifications>
Plus hexagon-headed screw:
M5×0.8×10
Maximum screw tightening torque:
3.23Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	S	M	E				L	G					M				M

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 680μF:681, 6,800μF:682)
Mounting clamp code (N, B, C)
Terminal code
Voltage code (ex. 10V:100, 100V:101)
Series code
Category

Please refer to "Product code guide (screw-mount terminal type)"

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Rated voltage (Vdc)	Case diameter (mm)	Frequency (Hz)					
		50	120	300	1k	10k	50k
10 to 50	ϕ35 to ϕ89	0.95	1.00	1.03	1.05	1.09	1.12
63 & 80	ϕ35	0.90	1.00	1.06	1.10	1.18	1.22
	ϕ50 to ϕ89	0.95	1.00	1.03	1.05	1.09	1.12
100	ϕ35	0.82	1.00	1.12	1.22	1.30	1.33
	ϕ50	0.90	1.00	1.06	1.10	1.18	1.22
	ϕ63.5 to ϕ89	0.95	1.00	1.03	1.05	1.09	1.12
160 to 250	ϕ35	0.80	1.00	1.19	1.34	1.46	1.52
	ϕ50 & ϕ63.5	0.81	1.00	1.14	1.26	1.36	1.41
	ϕ76 & ϕ89	0.82	1.00	1.12	1.22	1.30	1.33

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.
When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 85℃

SME Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
10	39,000	35×50	0.60	4.70	ESME100LGB393MA50M
	82,000	35×80	0.60	7.40	ESME100LGB823MA80M
	100,000	35×100	0.70	8.00	ESME100LGB104MAA0M
	120,000	35×120	0.70	9.40	ESME100LGB124MAC0M
	150,000	50×80	0.90	9.80	ESME100LGC154MC80M
	220,000	50×100	1.00	12.1	ESME100LGC224MCA0M
	270,000	50×120	1.20	13.6	ESME100LGC274MCC0M
	390,000	63.5×100	1.50	15.3	ESME100LGC394MDA0M
	470,000	63.5×120	2.00	16.0	ESME100LGC474MDC0M
	560,000	76×100	2.50	17.3	ESME100LGC564MEA0M
	680,000	76×120	3.00	18.7	ESME100LGC684MEC0M
16	27,000	35×50	0.45	4.20	ESME160LGB273MA50M
	56,000	35×80	0.60	6.50	ESME160LGB563MA80M
	82,000	35×100	0.70	8.00	ESME160LGB823MAA0M
	100,000	35×120	0.70	9.60	ESME160LGB104MAC0M
	120,000	50×80	0.80	9.60	ESME160LGC124MC80M
	150,000	50×100	0.90	11.2	ESME160LGC154MCA0M
	220,000	50×120	1.00	14.2	ESME160LGC224MCC0M
	270,000	63.5×100	1.20	15.3	ESME160LGC274MDA0M
	330,000	63.5×120	1.30	17.1	ESME160LGC334MDC0M
	390,000	76×100	1.60	18.0	ESME160LGC394MEA0M
	470,000	76×120	1.80	19.3	ESME160LGC474MEC0M
	560,000	76×140	2.00	20.7	ESME160LGC564MEE0M
25	18,000	35×50	0.35	4.00	ESME250LGB183MA50M
	39,000	35×80	0.40	6.20	ESME250LGB393MA80M
	47,000	35×100	0.40	7.40	ESME250LGB473MAA0M
	56,000	35×120	0.45	8.30	ESME250LGB563MAC0M
	82,000	50×80	0.50	9.70	ESME250LGC823MC80M
	100,000	50×100	0.60	10.8	ESME250LGC104MCA0M
	120,000	50×120	0.60	12.8	ESME250LGC124MCC0M
	180,000	63.5×100	0.75	14.7	ESME250LGC184MDA0M
	220,000	63.5×120	0.80	16.8	ESME250LGC224MDC0M
	270,000	76×100	0.90	18.3	ESME250LGC274MEA0M
	330,000	76×120	1.00	20.7	ESME250LGC334MEC0M
	390,000	76×140	1.20	22.1	ESME250LGC394MEE0M
	560,000	89×140	1.50	25.8	ESME250LGC564MFE0M
35	15,000	35×50	0.30	3.90	ESME350LGB153MA50M
	33,000	35×80	0.40	6.00	ESME350LGB333MA80M
	39,000	35×100	0.40	7.00	ESME350LGB393MAA0M
	47,000	35×120	0.45	8.00	ESME350LGB473MAC0M
	68,000	50×80	0.50	9.00	ESME350LGC683MC80M
	82,000	50×100	0.55	10.3	ESME350LGC823MCA0M
	120,000	50×120	0.60	12.8	ESME350LGC124MCC0M
	150,000	63.5×100	0.70	14.0	ESME350LGC154MDA0M
	180,000	63.5×120	0.70	16.6	ESME350LGC184MDC0M
	220,000	76×100	0.75	17.3	ESME350LGC224MEA0M
	270,000	76×120	0.80	19.8	ESME350LGC274MEC0M
	330,000	76×140	0.90	22.5	ESME350LGC334MEE0M
	470,000	89×140	1.00	28.3	ESME350LGC474MFE0M
50	10,000	35×50	0.25	4.10	ESME500LGB103MA50M
	18,000	35×80	0.25	5.20	ESME500LGB183MA80M
	22,000	35×100	0.30	5.90	ESME500LGB223MAA0M
	27,000	35×120	0.35	6.60	ESME500LGB273MAC0M
	39,000	50×80	0.40	7.40	ESME500LGC393MC80M
	56,000	50×100	0.40	9.80	ESME500LGC563MCA0M
	68,000	50×120	0.45	11.1	ESME500LGC683MCC0M
	82,000	63.5×100	0.50	12.2	ESME500LGC823MDA0M
	120,000	63.5×120	0.50	16.0	ESME500LGC124MDC0M
	150,000	76×120	0.60	18.1	ESME500LGC154MEC0M
	180,000	76×140	0.70	19.5	ESME500LGC184MEE0M
	270,000	89×140	0.80	24.6	ESME500LGC274MFE0M
63	5,600	35×50	0.20	3.00	ESME630LGB562MA50M
	10,000	35×80	0.25	4.00	ESME630LGB103MA80M
	15,000	35×100	0.25	5.30	ESME630LGB153MAA0M
	18,000	35×120	0.25	6.20	ESME630LGB183MAC0M
	22,000	50×80	0.30	6.50	ESME630LGC223MC80M
	33,000	50×100	0.35	8.10	ESME630LGC333MCA0M
	39,000	50×120	0.35	9.60	ESME630LGC393MCC0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
63	47,000	63.5×100	0.40	10.2	ESME630LGC473MDA0M
	68,000	63.5×120	0.40	13.3	ESME630LGC683MDC0M
	100,000	76×120	0.45	17.1	ESME630LGC104MEC0M
	120,000	76×140	0.50	19.0	ESME630LGC124MEE0M
	150,000	89×140	0.55	22.0	ESME630LGC154MFE0M
80	3,300	35×50	0.15	2.50	ESME800LGB332MA50M
	6,800	35×80	0.20	3.70	ESME800LGB682MA80M
	10,000	35×100	0.20	4.90	ESME800LGB103MAA0M
	12,000	35×120	0.20	5.40	ESME800LGB123MAC0M
	15,000	50×80	0.25	6.00	ESME800LGC153MC80M
	22,000	50×100	0.30	7.10	ESME800LGC223MCA0M
	27,000	50×120	0.30	8.60	ESME800LGC273MCC0M
	33,000	63.5×100	0.35	9.30	ESME800LGC333MDA0M
	47,000	63.5×120	0.35	12.0	ESME800LGC473MDC0M
	68,000	76×120	0.35	15.4	ESME800LGC683MEC0M
	82,000	76×140	0.35	18.1	ESME800LGC823MEE0M
	100,000	89×140	0.40	21.0	ESME800LGC104MFE0M
100	2,200	35×50	0.10	2.50	ESME101LGB222MA50M
	4,700	35×80	0.15	3.40	ESME101LGB472MA80M
	6,800	35×100	0.15	4.20	ESME101LGB682MAA0M
	8,200	35×120	0.15	5.00	ESME101LGB822MAC0M
	10,000	50×80	0.20	5.20	ESME101LGC103MC80M
	18,000	50×120	0.20	8.10	ESME101LGC183MCC0M
	22,000	63.5×100	0.25	8.60	ESME101LGC223MDA0M
	27,000	63.5×120	0.25	10.3	ESME101LGC273MDC0M
	33,000	76×100	0.25	11.1	ESME101LGC333MEA0M
	39,000	76×120	0.25	12.4	ESME101LGC393MEC0M
	47,000	76×140	0.25	14.3	ESME101LGC473MEE0M
	68,000	89×140	0.30	18.0	ESME101LGC683MFE0M
160	1,200	35×50	0.15	2.00	ESME161LGB122MA50M
	2,200	35×80	0.15	3.40	ESME161LGB222MA80M
	2,700	35×100	0.15	3.70	ESME161LGB272MAA0M
	3,300	35×120	0.15	4.50	ESME161LGB332MAC0M
	4,700	50×80	0.20	5.60	ESME161LGC472MC80M
	6,800	50×100	0.20	7.50	ESME161LGC682MCA0M
	8,200	50×120	0.20	8.10	ESME161LGC822MCC0M
	10,000	63.5×100	0.20	9.80	ESME161LGC103MDA0M
	12,000	63.5×120	0.20	10.8	ESME161LGC123MDC0M
	15,000	76×100	0.20	12.7	ESME161LGC153MEA0M
	18,000	76×120	0.20	14.0	ESME161LGC183MEC0M
	22,000	76×140	0.20	16.6	ESME161LGC223MEE0M
	33,000	89×140	0.25	18.9	ESME161LGC333MFE0M
200	820	35×50	0.15	1.60	ESME201LGB821MA50M
	1,800	35×80	0.15	2.80	ESME201LGB182MA80M
	2,200	35×100	0.15	3.60	ESME201LGB222MAA0M
	2,700	35×120	0.15	4.00	ESME201LGB272MAC0M
	3,300	50×80	0.15	4.50	ESME201LGC332MC80M
	4,700	50×100	0.15	7.10	ESME201LGC472MCA0M
	5,600	50×120	0.15	8.20	ESME201LGC562MCC0M
	8,200	63.5×100	0.20	10.0	ESME201LGC822MDA0M
	10,000	63.5×120	0.20	11.0	ESME201LGC103MDC0M
	12,000	76×100	0.20	11.5	ESME201LGC123MEA0M
	15,000	76×120	0.20	12.8	ESME201LGC153MEC0M
	18,000	76×140	0.20	15.0	ESME201LGC183MEE0M
	22,000	89×140	0.25	15.6	ESME201LGC223MFE0M
250	560	35×50	0.15	1.30	ESME251LGB561MA50M
	1,200	35×80	0.15	2.30	ESME251LGB122MA80M
	1,500	35×100	0.15	3.00	ESME251LGB152MAA0M
	1,800	35×120	0.15	3.30	ESME251LGB182MAC0M
	2,200	50×80	0.15	3.70	ESME251LGC222MC80M
	3,300	50×100	0.15	5.10	ESME251LGC332MCA0M
	3,900	50×120	0.15	5.90	ESME251LGC392MCC0M
	4,700	63.5×100	0.20	6.90	ESME251LGC472MDA0M
	6,800	63.5×120	0.20	8.70	ESME251LGC682MDC0M
	10,000	76×120	0.20	11.1	ESME251LGC103MEC0M
	12,000	76×140	0.20	13.0	ESME251LGC123MEE0M
	15,000	89×140	0.20	14.9	ESME251LGC153MFE0M

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

KMH Series

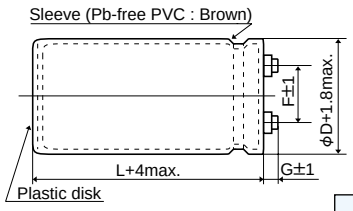
- Downsized from KME series
- Endurance with ripple current : 2,000 hours at 105℃
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +105℃ (10 to 100Vdc) −25 to +105℃ (160 to 400Vdc)
Rated Voltage Range	10 to 400Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	Shall not exceed the values shown in the STANDARD RATINGS (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change 10 to 100Vdc : C(−40℃)/C(+20℃)≧0.6 160 to 400Vdc : C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105℃. Capacitance change ≦±20% of the initial value D.F. (tanδ) ≦200% of the initial specified value Leakage current ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change ≦±20% of the initial value D.F. (tanδ) ≦200% of the initial specified value Leakage current ≦The initial specified value

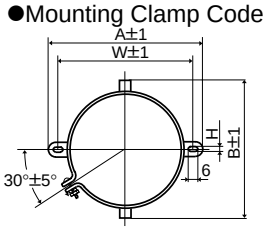
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



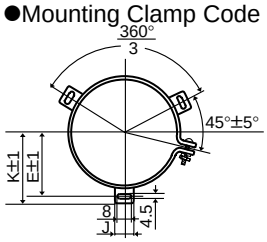
ϕ35 to ϕ63.5 : G=6
ϕ76 & ϕ89 : G=5

●Mounting Clamp Code : B



ϕD	A	B	W	H	F
35	58.0	44.0	48.0	3.5	12.7
50	78.0	64.0	68.0	4.5	22.4
63.5	90.0	76.0	80.0	4.5	28.0
76	104.5	90.0	93.5	4.5	31.5

●Mounting Clamp Code : C



ϕD	E	K	J	F
50	32.5	37.0	14.0	22.4
63.5	38.1	43.5	14.0	28.0
76	44.5	50.0	14.0	31.5
89	50.8	56.5	16.0	31.5

<Screw specifications>
Plus hexagon-headed screw:
M5×0.8×10
Maximum screw tightening torque:
3.23Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	K	M	H				L	G					M				M

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 180μF:181, 1,000μF:102)
Mounting clamp code (N, B, C)
Terminal code
Voltage code (ex. 10V:100, 100V:101, 315V:3B1)
Series code
Category

Please refer to "Product code guide (screw-mount terminal type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
10	27,000	35×50	0.45	4.90	EKMH100LGB273MA50M
	33,000	35×50	0.50	5.10	EKMH100LGB333MA50M
	39,000	35×60	0.50	5.90	EKMH100LGB393MA60M
	47,000	35×80	0.50	7.10	EKMH100LGB473MA80M
	56,000	35×80	0.60	7.10	EKMH100LGB563MA80M
	68,000	35×100	0.60	8.50	EKMH100LGB683MAA0M
	82,000	35×100	0.65	8.90	EKMH100LGB823MAA0M
	100,000	35×120	0.65	10.7	EKMH100LGB104MAC0M
	120,000	50×80	0.75	11.0	EKMH100LGC124MC80M
	150,000	50×100	0.80	13.2	EKMH100LGC154MCA0M
	180,000	50×120	0.80	15.7	EKMH100LGC184MCC0M
	220,000	50×120	0.85	16.8	EKMH100LGC224MCC0M
	270,000	63.5×120	1.00	19.6	EKMH100LGC274MDC0M
	330,000	63.5×120	1.20	19.7	EKMH100LGC334MDC0M
	390,000	76×120	1.50	21.3	EKMH100LGC394MEC0M
	470,000	76×120	1.80	21.4	EKMH100LGC474MEC0M
	560,000	76×140	2.00	23.6	EKMH100LGC564MEE0M
	680,000	89×140	2.40	26.0	EKMH100LGC684MFE0M
16	18,000	35×50	0.40	4.20	EKMH160LGB183MA50M
	22,000	35×50	0.40	4.70	EKMH160LGB223MA50M
	27,000	35×60	0.40	5.50	EKMH160LGB273MA60M
	33,000	35×60	0.45	5.70	EKMH160LGB333MA60M
	39,000	35×80	0.45	6.80	EKMH160LGB393MA80M
	47,000	35×80	0.50	7.10	EKMH160LGB473MA80M
	56,000	35×100	0.50	8.40	EKMH160LGB563MAA0M
	68,000	35×100	0.55	8.80	EKMH160LGB683MAA0M
	82,000	50×80	0.55	10.7	EKMH160LGC823MC80M
	100,000	50×80	0.65	10.8	EKMH160LGC104MC80M
	120,000	50×100	0.65	13.1	EKMH160LGC124MCA0M
	150,000	50×120	0.70	15.3	EKMH160LGC154MCC0M
	180,000	50×120	0.80	15.7	EKMH160LGC184MCC0M
	220,000	63.5×120	0.85	19.2	EKMH160LGC224MDC0M
	270,000	63.5×120	1.00	19.6	EKMH160LGC274MDC0M
	330,000	76×120	1.30	21.1	EKMH160LGC334MEC0M
	390,000	76×120	1.50	21.3	EKMH160LGC394MEC0M
	470,000	76×140	1.60	24.2	EKMH160LGC474MEE0M
	560,000	89×140	2.00	28.1	EKMH160LGC564MFE0M
	680,000	89×140	2.40	28.5	EKMH160LGC684MFE0M
25	12,000	35×50	0.35	3.70	EKMH250LGB123MA50M
	15,000	35×50	0.35	4.10	EKMH250LGB153MA50M
	18,000	35×60	0.35	4.80	EKMH250LGB183MA60M
	22,000	35×60	0.35	5.30	EKMH250LGB223MA60M
	27,000	35×80	0.35	6.40	EKMH250LGB273MA80M
	33,000	35×80	0.40	6.70	EKMH250LGB333MA80M
	39,000	35×100	0.40	7.80	EKMH250LGB393MAA0M
	47,000	35×120	0.40	9.30	EKMH250LGB473MAC0M
	56,000	50×80	0.45	9.70	EKMH250LGC563MC80M
	68,000	50×100	0.45	11.2	EKMH250LGC683MCA0M
	82,000	50×100	0.50	11.2	EKMH250LGC823MCA0M
	100,000	50×120	0.50	14.8	EKMH250LGC104MCC0M
	120,000	63.5×100	0.65	14.9	EKMH250LGC124MDA0M
	150,000	63.5×120	0.65	17.9	EKMH250LGC154MDC0M
	180,000	63.5×120	0.80	17.9	EKMH250LGC184MDC0M
	220,000	76×120	0.85	21.3	EKMH250LGC224MEC0M
	270,000	76×120	1.00	21.7	EKMH250LGC274MEC0M
	330,000	76×140	1.20	23.4	EKMH250LGC334MEE0M
	390,000	89×140	1.50	24.9	EKMH250LGC394MFE0M
35	8,200	35×50	0.30	3.30	EKMH350LGB822MA50M
	10,000	35×50	0.30	3.60	EKMH350LGB103MA50M
	12,000	35×60	0.30	4.20	EKMH350LGB123MA60M
	15,000	35×60	0.30	4.70	EKMH350LGB153MA60M
	18,000	35×80	0.30	5.70	EKMH350LGB183MA80M
	22,000	35×80	0.30	6.30	EKMH350LGB223MA80M
	27,000	35×100	0.30	7.50	EKMH350LGB273MAA0M
	33,000	35×120	0.30	9.00	EKMH350LGB333MAC0M
	39,000	50×80	0.35	9.20	EKMH350LGC393MC80M
	47,000	50×100	0.35	11.2	EKMH350LGC473MCA0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
35	56,000	50×100	0.40	11.4	EKMH350LGC563MCA0M
	68,000	50×120	0.40	13.6	EKMH350LGC683MCC0M
	82,000	63.5×100	0.45	14.8	EKMH350LGC823MDA0M
	100,000	63.5×120	0.45	17.6	EKMH350LGC104MDC0M
	120,000	63.5×120	0.55	17.6	EKMH350LGC124MDC0M
	150,000	76×120	0.65	19.8	EKMH350LGC154MEC0M
	180,000	76×120	0.80	19.8	EKMH350LGC184MEC0M
	220,000	76×140	0.80	23.4	EKMH350LGC224MEE0M
	270,000	89×140	1.00	25.5	EKMH350LGC274MFE0M
50	3,900	35×50	0.20	2.80	EKMH500LGB392MA50M
	4,700	35×50	0.20	3.10	EKMH500LGB472MA50M
	5,600	35×50	0.20	3.30	EKMH500LGB562MA50M
	6,800	35×50	0.25	3.30	EKMH500LGB682MA50M
	8,200	35×60	0.25	3.80	EKMH500LGB822MA60M
	10,000	35×80	0.25	4.60	EKMH500LGB103MA80M
	12,000	35×80	0.25	5.10	EKMH500LGB123MA80M
	15,000	35×80	0.25	5.70	EKMH500LGB153MA80M
	18,000	35×100	0.25	6.70	EKMH500LGB183MAA0M
	22,000	35×120	0.25	8.10	EKMH500LGB223MAC0M
	27,000	50×80	0.25	9.10	EKMH500LGC273MC80M
	33,000	50×100	0.25	11.1	EKMH500LGC333MCA0M
	39,000	50×120	0.25	13.1	EKMH500LGC393MCC0M
	47,000	50×120	0.30	13.9	EKMH500LGC473MCC0M
	56,000	63.5×100	0.35	13.9	EKMH500LGC563MDA0M
	68,000	63.5×120	0.35	16.6	EKMH500LGC683MDC0M
	82,000	76×120	0.40	18.9	EKMH500LGC823MEC0M
	100,000	76×120	0.45	19.5	EKMH500LGC104MEC0M
	120,000	76×120	0.55	19.5	EKMH500LGC124MEC0M
	150,000	89×140	0.60	23.9	EKMH500LGC154MFE0M
	180,000	89×140	0.75	23.9	EKMH500LGC184MFE0M
63	2,700	35×50	0.20	2.30	EKMH630LGB272MA50M
	3,300	35×50	0.20	2.50	EKMH630LGB332MA50M
	3,900	35×50	0.20	2.80	EKMH630LGB392MA50M
	4,700	35×50	0.20	3.10	EKMH630LGB472MA50M
	5,600	35×60	0.20	3.50	EKMH630LGB562MA60M
	6,800	35×60	0.20	3.90	EKMH630LGB682MA60M
	8,200	35×80	0.20	4.70	EKMH630LGB822MA80M
	10,000	35×80	0.25	4.70	EKMH630LGB103MA80M
	12,000	35×100	0.25	5.50	EKMH630LGB123MAA0M
	15,000	35×120	0.25	6.60	EKMH630LGB153MAC0M
	18,000	50×80	0.25	7.40	EKMH630LGC183MC80M
	22,000	50×100	0.25	9.00	EKMH630LGC223MCA0M
	27,000	50×120	0.25	10.9	EKMH630LGC273MCC0M
	33,000	50×120	0.25	12.0	EKMH630LGC333MCC0M
	39,000	63.5×100	0.30	12.5	EKMH630LGC393MDA0M
	47,000	63.5×120	0.30	14.9	EKMH630LGC473MDC0M
	56,000	63.5×120	0.30	16.3	EKMH630LGC563MDC0M
	68,000	76×120	0.35	18.4	EKMH630LGC683MEC0M
	82,000	76×140	0.40	20.0	EKMH630LGC823MEE0M
	100,000	76×140	0.50	20.0	EKMH630LGC104MEE0M
	120,000	89×140	0.60	21.8	EKMH630LGC124MFE0M
80	2,200	35×50	0.15	2.40	EKMH800LGB222MA50M
	2,700	35×50	0.15	2.70	EKMH800LGB272MA50M
	3,300	35×50	0.15	3.00	EKMH800LGB332MA50M
	3,900	35×60	0.15	3.40	EKMH800LGB392MA60M
	4,700	35×60	0.15	3.70	EKMH800LGB472MA60M
	5,600	35×80	0.15	4.50	EKMH800LGB562MA80M
	6,800	35×80	0.15	4.90	EKMH800LGB682MA80M
	8,200	35×100	0.20	5.10	EKMH800LGB822MAA0M
	10,000	35×120	0.20	6.10	EKMH800LGB103MAC0M
	12,000	50×80	0.20	6.70	EKMH800LGC123MC80M
	15,000	50×100	0.20	8.30	EKMH800LGC153MCA0M
	18,000	50×120	0.20	9.90	EKMH800LGC183MCC0M
	22,000	50×120	0.20	11.0	EKMH800LGC223MCC0M
	27,000	63.5×100	0.25	11.4	EKMH800LGC273MDA0M
	33,000	76×100	0.25	13.9	EKMH800LGC333MEA0M
	39,000	76×100	0.30	13.9	EKMH800LGC393MEA0M

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
80	47,000	76×120	0.30	16.5	EKMH800LGC473MEC0M
	56,000	76×120	0.30	18.1	EKMH800LGC563MEC0M
	68,000	76×140	0.35	19.7	EKMH800LGC683MEE0M
	82,000	89×140	0.40	22.1	EKMH800LGC823MFE0M
100	1,800	35×50	0.10	2.70	EKMH101LGB182MA50M
	2,200	35×50	0.10	3.00	EKMH101LGB222MA50M
	2,700	35×60	0.10	3.50	EKMH101LGB272MA60M
	3,300	35×80	0.10	4.20	EKMH101LGB332MA80M
	3,900	35×80	0.12	4.20	EKMH101LGB392MA80M
	4,700	35×100	0.12	5.00	EKMH101LGB472MAA0M
	5,600	35×100	0.12	5.40	EKMH101LGB562MAA0M
	6,800	35×120	0.15	5.80	EKMH101LGB682MAC0M
	8,200	50×80	0.15	6.40	EKMH101LGC822MC80M
	10,000	50×100	0.15	7.80	EKMH101LGC103MCA0M
	12,000	50×120	0.15	9.30	EKMH101LGC123MCC0M
	15,000	50×120	0.15	10.4	EKMH101LGC153MCC0M
	18,000	63.5×100	0.20	10.4	EKMH101LGC183MDA0M
	22,000	63.5×120	0.20	12.5	EKMH101LGC223MDC0M
	27,000	76×120	0.25	13.7	EKMH101LGC273MEC0M
	33,000	76×120	0.25	15.2	EKMH101LGC333MEC0M
	39,000	76×140	0.30	16.1	EKMH101LGC393MEE0M
	47,000	89×140	0.30	19.3	EKMH101LGC473MFE0M
	56,000	89×140	0.30	21.1	EKMH101LGC563MFE0M
160	560	35×50	0.15	1.20	EKMH161LGB561MA50M
	680	35×50	0.15	1.30	EKMH161LGB681MA50M
	820	35×50	0.15	1.40	EKMH161LGB821MA50M
	1,000	35×50	0.15	1.60	EKMH161LGB102MA50M
	1,200	35×60	0.15	1.90	EKMH161LGB122MA60M
	1,500	35×60	0.15	2.10	EKMH161LGB152MA60M
	1,800	35×80	0.15	2.50	EKMH161LGB182MA80M
	2,200	35×80	0.15	2.80	EKMH161LGB222MA80M
	2,700	35×100	0.15	3.30	EKMH161LGB272MAA0M
	3,300	35×120	0.15	3.80	EKMH161LGB332MAC0M
	3,900	50×80	0.20	3.80	EKMH161LGC392MC80M
	4,700	50×100	0.20	4.60	EKMH161LGC472MCA0M
	5,600	50×100	0.20	5.10	EKMH161LGC562MCA0M
	6,800	50×120	0.20	6.10	EKMH161LGC682MCC0M
	8,200	63.5×100	0.20	7.00	EKMH161LGC822MDA0M
	10,000	63.5×120	0.20	8.40	EKMH161LGC103MDC0M
	12,000	76×100	0.20	9.40	EKMH161LGC123MEA0M
	15,000	76×120	0.20	11.4	EKMH161LGC153MEC0M
	18,000	76×140	0.20	13.4	EKMH161LGC183MEE0M
	22,000	89×140	0.25	14.5	EKMH161LGC223MFE0M
	27,000	89×140	0.25	16.0	EKMH161LGC273MFE0M
200	330	35×50	0.15	0.90	EKMH201LGB331MA50M
	390	35×50	0.15	1.00	EKMH201LGB391MA50M
	470	35×50	0.15	1.10	EKMH201LGB471MA50M
	560	35×50	0.15	1.20	EKMH201LGB561MA50M
	680	35×50	0.15	1.30	EKMH201LGB681MA50M
	820	35×50	0.15	1.40	EKMH201LGB821MA50M
	1,000	35×60	0.15	1.70	EKMH201LGB102MA60M
	1,200	35×60	0.15	1.90	EKMH201LGB122MA60M
	1,500	35×80	0.15	2.30	EKMH201LGB152MA80M
	1,800	35×80	0.15	2.50	EKMH201LGB182MA80M
	2,200	35×100	0.15	3.00	EKMH201LGB222MAA0M
	2,700	35×120	0.15	3.60	EKMH201LGB272MAC0M
	3,300	50×80	0.15	4.10	EKMH201LGC332MC80M
	3,900	50×100	0.15	4.90	EKMH201LGC392MCA0M
	4,700	63.5×100	0.20	5.30	EKMH201LGC472MDA0M
	5,600	63.5×100	0.20	5.80	EKMH201LGC562MDA0M
	6,800	63.5×120	0.20	6.90	EKMH201LGC682MDC0M
	8,200	63.5×120	0.20	7.60	EKMH201LGC822MDC0M
	10,000	76×120	0.20	9.30	EKMH201LGC103MEC0M
	12,000	76×120	0.20	10.2	EKMH201LGC123MEC0M
	15,000	76×140	0.20	12.2	EKMH201LGC153MEE0M
	18,000	89×140	0.25	13.1	EKMH201LGC183MFE0M
250	270	35×50	0.15	0.80	EKMH251LGB271MA50M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
250	330	35×50	0.15	0.90	EKMH251LGB331MA50M
	390	35×50	0.15	1.00	EKMH251LGB391MA50M
	470	35×50	0.15	1.10	EKMH251LGB471MA50M
	560	35×50	0.15	1.20	EKMH251LGB561MA50M
	680	35×60	0.15	1.40	EKMH251LGB681MA60M
	820	35×80	0.15	1.60	EKMH251LGB821MA80M
	1,000	35×80	0.20	1.60	EKMH251LGB102MA80M
	1,200	35×80	0.20	1.80	EKMH251LGB122MA80M
	1,500	35×100	0.20	2.10	EKMH251LGB152MAA0M
	1,800	35×120	0.20	2.50	EKMH251LGB182MAC0M
	2,200	50×80	0.20	2.90	EKMH251LGC222MC80M
	2,700	50×100	0.20	3.50	EKMH251LGC272MCA0M
	3,300	50×120	0.20	4.20	EKMH251LGC332MCC0M
	3,900	50×120	0.20	4.60	EKMH251LGC392MCC0M
	4,700	63.5×120	0.20	5.70	EKMH251LGC472MDC0M
	5,600	63.5×120	0.20	6.30	EKMH251LGC562MDC0M
	6,800	76×120	0.20	7.70	EKMH251LGC682MEC0M
	8,200	76×120	0.20	8.40	EKMH251LGC822MEC0M
	10,000	76×140	0.20	10.0	EKMH251LGC103MEE0M
	12,000	89×140	0.20	11.9	EKMH251LGC123MFE0M
315	180	35×50	0.10	0.80	EKMH3B1LGB181MA50M
	220	35×50	0.10	0.90	EKMH3B1LGB221MA50M
	270	35×50	0.10	1.00	EKMH3B1LGB271MA50M
	330	35×50	0.10	1.10	EKMH3B1LGB331MA50M
	390	35×50	0.10	1.20	EKMH3B1LGB391MA50M
	470	35×60	0.10	1.40	EKMH3B1LGB471MA60M
	560	35×60	0.10	1.50	EKMH3B1LGB561MA60M
	680	35×80	0.10	1.70	EKMH3B1LGB681MA80M
	820	35×80	0.15	1.70	EKMH3B1LGB821MA80M
	1,000	35×100	0.15	2.00	EKMH3B1LGB102MAA0M
	1,200	35×120	0.15	2.40	EKMH3B1LGB122MAC0M
	1,500	50×80	0.15	2.70	EKMH3B1LGC152MC80M
	1,800	50×100	0.15	3.30	EKMH3B1LGC182MCA0M
	2,200	50×120	0.15	4.00	EKMH3B1LGC222MCC0M
	2,700	50×120	0.15	4.40	EKMH3B1LGC272MCC0M
	3,300	63.5×100	0.15	5.10	EKMH3B1LGC332MDA0M
	3,900	63.5×120	0.15	6.00	EKMH3B1LGC392MDC0M
	4,700	76×100	0.15	6.80	EKMH3B1LGC472MEA0M
	5,600	76×120	0.15	8.00	EKMH3B1LGC562MEC0M
	6,800	76×130	0.15	9.20	EKMH3B1LGC682MED0M
	8,200	89×140	0.15	11.4	EKMH3B1LGC822MFE0M
	10,000	89×140	0.15	12.6	EKMH3B1LGC103MFE0M
350	180	35×50	0.10	0.80	EKMH351LGB181MA50M
	220	35×50	0.10	0.90	EKMH351LGB221MA50M
	270	35×50	0.10	1.00	EKMH351LGB271MA50M
	330	35×50	0.10	1.10	EKMH351LGB331MA50M
	390	35×60	0.10	1.30	EKMH351LGB391MA60M
	470	35×60	0.10	1.40	EKMH351LGB471MA60M
	560	35×80	0.10	1.60	EKMH351LGB561MA80M
	680	35×80	0.15	1.60	EKMH351LGB681MA80M
	820	35×100	0.15	1.80	EKMH351LGB821MAA0M
	1,000	35×120	0.15	2.20	EKMH351LGB102MAC0M
	1,200	50×80	0.15	2.40	EKMH351LGC122MC80M
	1,500	50×100	0.15	3.00	EKMH351LGC152MCA0M
	1,800	50×120	0.15	3.60	EKMH351LGC182MCC0M
	2,200	50×120	0.15	4.00	EKMH351LGC222MCC0M
	2,700	63.5×100	0.15	4.60	EKMH351LGC272MDA0M
	3,900	76×120	0.15	6.70	EKMH351LGC392MEC0M
	5,600	76×130	0.15	8.30	EKMH351LGC562MED0M
	6,800	76×140	0.15	9.50	EKMH351LGC682MEE0M
	8,200	89×140	0.15	11.4	EKMH351LGC822MFE0M
400	180	35×50	0.10	0.80	EKMH401LGB181MA50M
	220	35×50	0.10	0.90	EKMH401LGB221MA50M
	270	35×50	0.10	1.00	EKMH401LGB271MA50M
	330	35×60	0.10	1.20	EKMH401LGB331MA60M
	390	35×60	0.10	1.30	EKMH401LGB391MA60M
	470	35×80	0.10	1.40	EKMH401LGB471MA80M

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Standard screw terminals, 105℃

KMH Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	560	35×80	0.15	1.40	EKMH401LGB561MA80M
	680	35×100	0.15	1.70	EKMH401LGB681MAA0M
	820	35×120	0.15	2.00	EKMH401LGB821MAC0M
	1,000	50×80	0.15	2.20	EKMH401LGC102MC80M
	1,200	50×100	0.15	2.70	EKMH401LGC122MCA0M
	1,500	50×120	0.15	3.30	EKMH401LGC152MCC0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	2,200	63.5×100	0.15	4.20	EKMH401LGC222MDA0M
	3,300	63.5×120	0.15	5.50	EKMH401LGC332MDC0M
	4,700	76×130	0.15	7.60	EKMH401LGC472MED0M
	5,600	89×140	0.15	9.40	EKMH401LGC562MFE0M
	6,800	89×140	0.15	10.4	EKMH401LGC682MFE0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Rated voltage (Vdc)	Case diameter (mm)	Frequency (Hz)					
		50	120	300	1k	10k	50k
10 to 50	φ35 to φ89	0.95	1.00	1.03	1.05	1.09	1.12
63 & 80	φ35	0.90	1.00	1.06	1.10	1.18	1.22
	φ50 to φ89	0.95	1.00	1.03	1.05	1.09	1.12
100	φ35	0.82	1.00	1.12	1.22	1.30	1.33
	φ50	0.90	1.00	1.06	1.10	1.18	1.22
	φ63.5 to φ89	0.95	1.00	1.03	1.05	1.09	1.12
160 to 250	φ35	0.80	1.00	1.19	1.34	1.46	1.52
	φ50 & φ63.5	0.81	1.00	1.14	1.26	1.36	1.41
	φ76 & φ89	0.82	1.00	1.12	1.22	1.30	1.33
315 to 400	φ35 to φ89	0.80	1.00	1.19	1.34	1.46	1.52

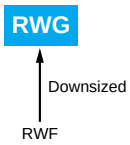
The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWG Series

- Downsized, high ripple version of RWF series
- 20% better ripple current at 300Hz than RWF series
- Endurance with ripple current : 5,000 hours at 85℃
- **RoHS Compliant**

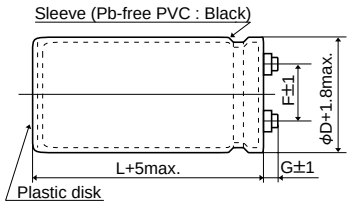


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +85℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

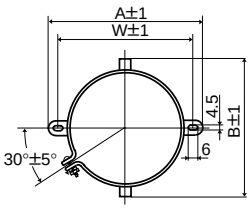
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



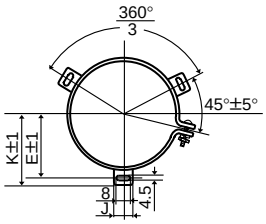
ϕ50 : G=6
ϕ63.5, ϕ76 : G=5
ϕ89 : G=4

●Mounting Clamp Code : B



ϕD	A	B	W	F
50	78.0	64.0	68.0	22.4
63.5	90.0	76.0	80.0	28.0
76	104.5	90.0	93.5	31.5

●Mounting Clamp Code : C

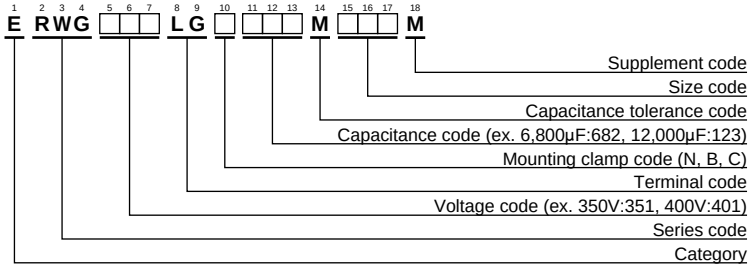


ϕD	E	K	F	J
50	32.5	37.0	22.4	14.0
63.5	38.1	43.5	28.0	14.0
76	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0

<Screw specifications>
ϕ50 to ϕ89
Plus hexagon-headed screw : M5×0.8×10
Maximum screw tightening torque : 3.23Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWG Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/85℃) 120Hz	Rated ripple current (Arms/85℃) 300Hz	Part No.
350	2,200	50×96	0.25	7.70	9.20	ERWG351LGC222MC96M
	2,700	50×105	0.25	8.90	10.6	ERWG351LGC272MCA5M
	3,300	50×115	0.25	10.3	12.3	ERWG351LGC332MCB5M
	3,900	50×130	0.25	11.8	14.1	ERWG351LGC392MCD0M
	4,700	63.5×115	0.25	13.6	16.3	ERWG351LGC472MDB5M
	5,600	63.5×130	0.25	15.7	18.8	ERWG351LGC562MDD0M
	6,800	63.5×155	0.25	18.8	22.5	ERWG351LGC682MDF5M
	6,800	76×115	0.25	18.2	21.8	ERWG351LGC682MEB5M
	8,200	63.5×190	0.25	22.6	27.1	ERWG351LGC822MDK0M
	8,200	76×130	0.25	21.0	25.2	ERWG351LGC822MED0M
	10,000	76×155	0.25	25.1	30.1	ERWG351LGC103MEF5M
	12,000	76×170	0.25	28.7	34.4	ERWG351LGC123MEH0M
	15,000	89×155	0.25	33.6	40.3	ERWG351LGC153MFF5M
	15,000	89×170	0.25	35.0	42.0	ERWG351LGC153MFH0M
	18,000	89×190	0.25	40.3	48.3	ERWG351LGC183MFK0M
400	1,800	50×96	0.25	7.00	8.40	ERWG401LGC182MC96M
	2,200	50×105	0.25	8.10	9.70	ERWG401LGC222MCA5M
	2,700	50×115	0.25	9.30	11.1	ERWG401LGC272MCB5M
	3,300	50×130	0.25	10.9	13.0	ERWG401LGC332MCD0M
	3,900	63.5×115	0.25	12.4	14.8	ERWG401LGC392MDB5M
	4,700	63.5×130	0.25	14.4	17.2	ERWG401LGC472MDD0M
	5,600	63.5×155	0.25	17.0	20.4	ERWG401LGC562MDF5M
	5,600	76×115	0.25	16.5	19.8	ERWG401LGC562MEB5M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/85℃) 120Hz	Rated ripple current (Arms/85℃) 300Hz	Part No.
400	6,800	63.5×190	0.25	20.6	24.7	ERWG401LGC682MDK0M
	6,800	76×130	0.25	19.2	23.0	ERWG401LGC682MED0M
	8,200	76×155	0.25	22.7	27.2	ERWG401LGC822MEF5M
	10,000	76×170	0.25	26.2	31.4	ERWG401LGC103MEH0M
	12,000	89×155	0.25	30.0	36.0	ERWG401LGC123MFF5M
	12,000	89×170	0.25	31.3	37.5	ERWG401LGC123MFH0M
	15,000	89×190	0.25	36.7	44.0	ERWG401LGC153MFK0M
450	1,500	50×96	0.25	6.40	7.60	ERWG451LGC152MC96M
	1,800	50×105	0.25	7.30	8.70	ERWG451LGC182MCA5M
	2,200	50×115	0.25	8.40	10.0	ERWG451LGC222MCB5M
	2,700	50×130	0.25	9.80	11.7	ERWG451LGC272MCD0M
	3,300	63.5×115	0.25	11.4	13.6	ERWG451LGC332MDB5M
	3,900	63.5×130	0.25	13.1	15.7	ERWG451LGC392MDD0M
	4,700	63.5×155	0.25	15.6	18.7	ERWG451LGC472MDF5M
	4,700	76×115	0.25	15.1	18.1	ERWG451LGC472MEB5M
	5,600	63.5×190	0.25	18.7	22.4	ERWG451LGC562MDK0M
	5,600	76×130	0.25	17.4	20.8	ERWG451LGC562MED0M
	6,800	76×155	0.25	20.7	24.8	ERWG451LGC682MEF5M
	8,200	76×170	0.25	23.7	28.4	ERWG451LGC822MEH0M
	10,000	89×155	0.25	27.4	32.8	ERWG451LGC103MFF5M
	10,000	89×170	0.25	28.6	34.3	ERWG451LGC103MFH0M
	12,000	89×190	0.25	32.9	39.4	ERWG451LGC123MFK0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.2	1.4	1.5

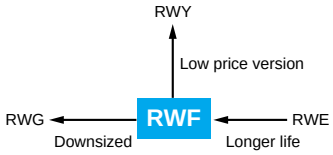
Note : The endurancce of capacitors is reduced with internal heating produced by ripple currents at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWG series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWF Series

- ●High ripple capability
- ●Endurance with ripple current : 5,000 hours at 85℃
- ●Wide range of case sizes from ϕ50 to ϕ100
- ●**RoHS Compliant**

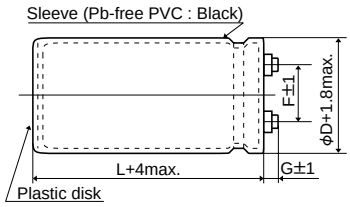


◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +85℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

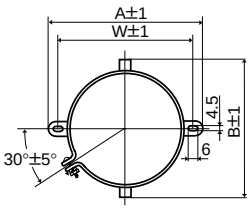
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



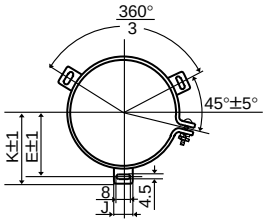
ϕ50 & ϕ63.5 : G=6
ϕ76 & ϕ89 : G=5
ϕ100 : G=10

●Mounting Clamp Code : B



ϕD	A	B	W	F
50	78.0	64.0	68.0	22.4
63.5	90.0	76.0	80.0	28.0
76	104.5	90.0	93.5	31.5

●Mounting Clamp Code : C



ϕD	E	K	F	J
50	32.5	37.0	22.4	14.0
63.5	38.1	43.5	28.0	14.0
76	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0
100	56.5	63.4	41.5	18.0

<Screw specifications>
ϕ50 to ϕ89
Plus hexagon-headed screw : M5×0.8×10
Maximum screw tightening torque : 3.23Nm
ϕ100
Cross-recessed head (phillips) screw : M8×1.25×16
Spring washer
Washer
Maximum screw tightening torque : 6.31Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	R	W	F				L	G					M				M

- Supplement code
- Size code
- Capacitance tolerance code
- Capacitance code (ex. 6,800μF:682, 12,000μF:123)
- Mounting clamp code (N, B, C)
- Terminal code
- Voltage code (ex. 350V:351, 400V:401)
- Series code
- Category

Please refer to "Product code guide (screw-mount terminal type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWF Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	1,200	50×60	0.25	4.90	ERWF351LGC122MC60M
	1,800	50×75	0.25	6.50	ERWF351LGC182MC75M
	2,200	50×85	0.25	7.50	ERWF351LGC222MC85M
	2,200	50×96	0.25	7.70	ERWF351LGC222MC96M
	2,700	50×115	0.25	9.30	ERWF351LGC272MCB5M
	3,300	50×130	0.25	10.8	ERWF351LGC332MCD0M
	3,900	63.5×115	0.25	12.1	ERWF351LGC392MDB5M
	4,700	63.5×130	0.25	14.0	ERWF351LGC472MDD0M
	5,600	63.5×155	0.25	16.6	ERWF351LGC562MDF5M
	5,600	76×115	0.25	16.1	ERWF351LGC562MEB5M
	6,800	63.5×190	0.25	20.0	ERWF351LGC682MDK0M
	6,800	76×130	0.25	18.6	ERWF351LGC682MED0M
	8,200	76×155	0.25	22.2	ERWF351LGC822MEF5M
	10,000	76×170	0.25	25.2	ERWF351LGC103MEH0M
	12,000	89×155	0.25	29.1	ERWF351LGC123MFF5M
	15,000	89×190	0.25	35.7	ERWF351LGC153MFK0M
	18,000	100×190	0.25	36.9	ERWF351LGC183MGK0M
	22,000	100×250	0.25	46.1	ERWF351LGC223MGR0M
400	1,000	50×60	0.25	4.40	ERWF401LGC102MC60M
	1,500	50×75	0.25	5.90	ERWF401LGC152MC75M
	1,800	50×85	0.25	6.80	ERWF401LGC182MC85M
	1,800	50×96	0.25	7.00	ERWF401LGC182MC96M
	2,200	50×105	0.25	8.00	ERWF401LGC222MCA5M
	2,700	50×130	0.25	9.80	ERWF401LGC272MCD0M
	3,300	63.5×115	0.25	11.1	ERWF401LGC332MDB5M
	3,900	63.5×130	0.25	12.7	ERWF401LGC392MDD0M
	4,700	63.5×155	0.25	15.2	ERWF401LGC472MDF5M
	4,700	76×115	0.25	14.7	ERWF401LGC472MEB5M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
400	5,600	63.5×190	0.25	18.2	ERWF401LGC562MDK0M
	5,600	76×130	0.25	16.9	ERWF401LGC562MED0M
	6,800	76×155	0.25	20.2	ERWF401LGC682MEF5M
	8,200	76×170	0.25	22.8	ERWF401LGC822MEH0M
	10,000	89×155	0.25	26.6	ERWF401LGC103MFF5M
	12,000	89×170	0.25	30.0	ERWF401LGC123MFH0M
	15,000	100×190	0.25	33.7	ERWF401LGC153MGK0M
	18,000	100×220	0.25	37.4	ERWF401LGC183MGN0M
450	820	50×60	0.25	4.00	ERWF451LGC821MC60M
	1,000	50×75	0.25	4.80	ERWF451LGC102MC75M
	1,200	50×85	0.25	5.60	ERWF451LGC122MC85M
	1,200	50×96	0.25	5.70	ERWF451LGC122MC96M
	1,500	50×96	0.25	6.30	ERWF451LGC152MC96M
	1,800	50×115	0.25	7.60	ERWF451LGC182MCB5M
	2,200	50×130	0.25	8.80	ERWF451LGC222MCD0M
	2,700	63.5×115	0.25	10.1	ERWF451LGC272MDB5M
	3,300	63.5×130	0.25	11.7	ERWF451LGC332MDD0M
	3,900	63.5×155	0.25	13.8	ERWF451LGC392MDF5M
	3,900	76×115	0.25	13.4	ERWF451LGC392MEB5M
	4,700	63.5×190	0.25	16.7	ERWF451LGC472MDK0M
	4,700	76×130	0.25	15.5	ERWF451LGC472MED0M
	5,600	76×155	0.25	18.3	ERWF451LGC562MEF5M
	6,800	76×170	0.25	20.7	ERWF451LGC682MEH0M
	8,200	89×155	0.25	24.1	ERWF451LGC822MFF5M
	10,000	89×170	0.25	27.8	ERWF451LGC103MFH0M
	12,000	100×190	0.25	29.3	ERWF451LGC123MGK0M
	15,000	100×250	0.25	37.0	ERWF451LGC153MGR0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.1	1.3	1.4

Note : The endurancce of capacitors is reduced with internal heating produced by ripple currents at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWF series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWE Series

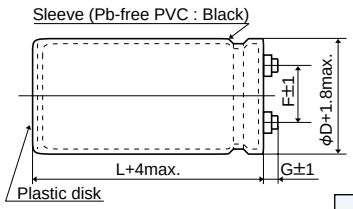
- Rated voltage range : 350 to 550Vdc
- Endurance with ripple current : 85℃ 2,000 hours
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics				
Category Temperature Range	−25 to +85℃				
Rated Voltage Range	350 to 550Vdc				
Capacitance Tolerance	±20% (M)				(at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)				(at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max.				(at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change	Rated Voltage (Vdc)	350 to 450V	500 & 550V	(at 120Hz)
		C(−25℃)/C(+20℃)	≧0.7	≧0.6	
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.				
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.				
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 85℃.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦300% of the initial specified value			
	Leakage current	≦The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.				
	Capacitance change	≦±20% of the initial value			
	D.F. (tanδ)	≦300% of the initial specified value			
	Leakage current	≦The initial specified value			

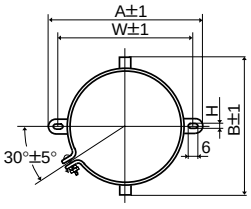
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



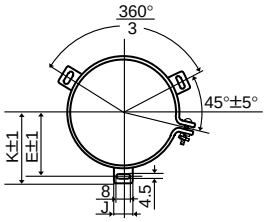
ϕ35 to ϕ63.5 : G=6
ϕ76 & ϕ89 : G=5

●Mounting Clamp Code : B



ϕD	A	B	W	H	F
35	58.0	44.0	48.0	3.5	12.7
50	78.0	64.0	68.0	4.5	22.4
63.5	90.0	76.0	80.0	4.5	28.0
76	104.5	90.0	93.5	4.5	31.5

●Mounting Clamp Code : C



ϕD	E	K	F	J
50	32.5	37.0	22.4	14.0
63.5	38.1	43.5	28.0	14.0
76	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0

<Screw specifications>
Plus hexagon-headed screw:
M5×0.8×10
Maximum screw tightening torque:
3.23Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	R	W	E				L	G					M				M

Supplement code
Size code
Capacitance tolerance code
Capacitance code (ex. 680μF:681, 6,800μF:682)
Mounting clamp code (N, B, C)
Terminal code
Voltage code (ex. 350V:351, 500V:501)
Series code
Category

Please refer to "Product code guide (screw-mount terminal type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWE Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	390	35×50	0.25	1.90	ERWE351LGB391MA50M
	680	35×80	0.25	2.90	ERWE351LGB681MA80M
	1,000	35×100	0.25	3.80	ERWE351LGB102MAA0M
	1,200	35×120	0.25	4.20	ERWE351LGB122MAC0M
	1,500	50×75	0.25	4.70	ERWE351LGC152MC75M
	2,200	50×96	0.25	6.30	ERWE351LGC222MC96M
	3,300	50×130	0.25	8.80	ERWE351LGC332MCD0M
	3,300	63.5×96	0.25	8.80	ERWE351LGC332MD96M
	3,900	63.5×115	0.25	10.3	ERWE351LGC392MDB5M
	4,700	63.5×130	0.25	12.0	ERWE351LGC472MDD0M
	4,700	76×96	0.25	11.7	ERWE351LGC472ME96M
	5,600	76×115	0.25	12.6	ERWE351LGC562MEB5M
	6,800	76×130	0.25	15.9	ERWE351LGC682MED0M
	8,200	76×155	0.25	19.0	ERWE351LGC822MEF5M
	12,000	89×155	0.25	22.5	ERWE351LGC123MFF5M
400	330	35×50	0.25	1.70	ERWE401LGB331MA50M
	560	35×80	0.25	2.70	ERWE401LGB561MA80M
	820	35×100	0.25	3.40	ERWE401LGB821MAA0M
	1,000	35×120	0.25	3.90	ERWE401LGB102MAC0M
	1,200	50×75	0.25	4.20	ERWE401LGC122MC75M
	1,800	50×96	0.25	5.70	ERWE401LGC182MC96M
	2,200	50×130	0.25	7.20	ERWE401LGC222MCD0M
	2,700	63.5×96	0.25	7.90	ERWE401LGC272MD96M
	3,300	63.5×115	0.25	9.50	ERWE401LGC332MDB5M
	3,900	63.5×130	0.25	10.9	ERWE401LGC392MDD0M
	3,900	76×96	0.25	10.6	ERWE401LGC392ME96M
	4,700	76×115	0.25	12.6	ERWE401LGC472MEB5M
	5,600	76×130	0.25	14.5	ERWE401LGC562MED0M
	6,800	76×155	0.25	17.3	ERWE401LGC682MEF5M
	10,000	89×155	0.25	20.5	ERWE401LGC103MFF5M
450	270	35×50	0.25	1.60	ERWE451LGB271MA50M
	470	35×80	0.25	2.40	ERWE451LGB471MA80M
	680	35×100	0.25	3.10	ERWE451LGB681MAA0M
	820	35×120	0.25	3.50	ERWE451LGB821MAC0M
	1,000	50×75	0.25	3.90	ERWE451LGC102MC75M
	1,200	50×96	0.25	4.70	ERWE451LGC122MC96M
	1,500	50×115	0.25	5.60	ERWE451LGC152MCB5M
	1,800	50×130	0.25	6.50	ERWE451LGC182MCD0M
	2,200	63.5×96	0.25	7.20	ERWE451LGC222MD96M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
450	2,700	63.5×115	0.25	8.60	ERWE451LGC272MDB5M
	3,300	63.5×130	0.25	10.0	ERWE451LGC332MDD0M
	3,300	76×96	0.25	9.80	ERWE451LGC332ME96M
	3,900	76×115	0.25	11.5	ERWE451LGC392MEB5M
	4,700	76×130	0.25	13.3	ERWE451LGC472MED0M
	5,600	76×155	0.25	15.7	ERWE451LGC562MEF5M
	8,200	89×155	0.25	18.6	ERWE451LGC822MFF5M
500	120	35×50	0.25	0.70	ERWE501LGB121MA50M
	270	35×80	0.25	1.20	ERWE501LGB271MA80M
	330	35×100	0.25	1.40	ERWE501LGB331MAA0M
	390	35×120	0.25	1.70	ERWE501LGB391MAC0M
	470	50×75	0.25	1.80	ERWE501LGC471MC75M
	680	50×96	0.25	2.50	ERWE501LGC681MC96M
	820	50×115	0.25	2.90	ERWE501LGC821MCB5M
	1,000	50×130	0.25	3.40	ERWE501LGC102MCD0M
	1,000	63.5×96	0.25	3.40	ERWE501LGC102MD96M
	1,500	63.5×115	0.25	4.50	ERWE501LGC152MDB5M
	1,500	76×96	0.25	4.60	ERWE501LGC152ME96M
	1,800	63.5×130	0.25	5.20	ERWE501LGC182MDD0M
	2,200	76×115	0.25	6.10	ERWE501LGC222MEB5M
	2,700	76×155	0.25	7.70	ERWE501LGC272MEF5M
	3,900	89×155	0.25	10.1	ERWE501LGC392MFF5M
550	100	35×50	0.25	0.60	ERWE551LGB101MA50M
	180	35×80	0.25	1.00	ERWE551LGB181MA80M
	270	35×100	0.25	1.30	ERWE551LGB271MAA0M
	330	35×120	0.25	1.60	ERWE551LGB331MAC0M
	390	50×75	0.25	1.70	ERWE551LGC391MC75M
	560	50×96	0.25	2.10	ERWE551LGC561MC96M
	560	63.5×96	0.25	2.50	ERWE551LGC561MD96M
	680	50×115	0.25	2.70	ERWE551LGC681MCB5M
	680	63.5×115	0.25	3.00	ERWE551LGC681MDB5M
	820	50×130	0.25	3.10	ERWE551LGC821MCD0M
	820	63.5×130	0.25	3.50	ERWE551LGC821MDD0M
	1,200	76×96	0.25	4.20	ERWE551LGC122ME96M
	1,500	76×115	0.25	5.00	ERWE551LGC152MEB5M
	1,800	76×130	0.25	5.80	ERWE551LGC182MED0M
	2,200	76×155	0.25	7.00	ERWE551LGC222MEF5M
	3,300	89×155	0.25	9.30	ERWE551LGC332MFF5M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.1	1.3	1.4

Note : The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the RWE series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWY Series

- ●High ripple capability
- ●Endurance with ripple current : 5,000 hours at 85℃
- ●Reduced cost design for three-phase input inverters
- ●**RoHS Compliant**

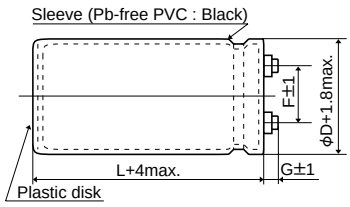
RWY
↑ Low price version
RWF

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +85℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.12 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When it is measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

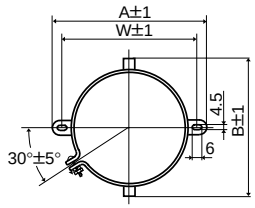
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



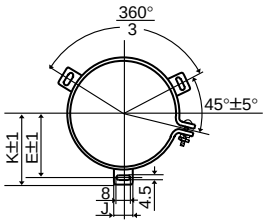
ϕ50 to ϕ76 : G=6
ϕ89 : G=4
ϕ100 : G=10

●Mounting Clamp Code : B



ϕD	A	B	W	F
50	78.0	64.0	68.0	22.4
63.5	90.0	76.0	80.0	28.0
76	104.5	90.0	93.5	31.5

●Mounting Clamp Code : C

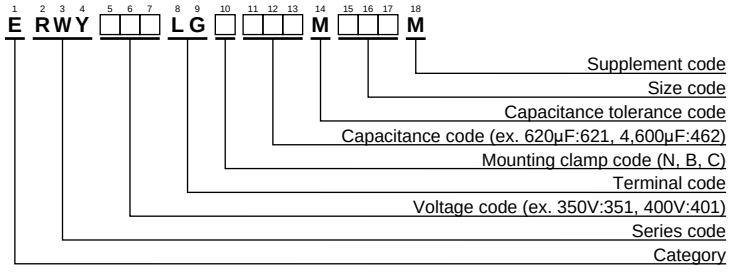


ϕD	E	K	F	J
50	32.5	37.0	22.4	14.0
63.5	38.1	43.5	28.0	14.0
76	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0
100	56.5	63.4	41.5	18.0

<Screw specifications>
ϕ50 to ϕ89
Plus hexagon-headed screw : M5×0.8×10
Maximum screw tightening torque : 3.23Nm
ϕ100
Cross-recessed head (phillips) screw : M8×1.25×16
Spring washer
Washer
Maximum screw tightening torque : 6.31Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWY Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,300Hz)	Part No.
350	750	50×75	0.12	5.10	ERWY351LGC751MC75M
	1,100	50×96	0.12	6.90	ERWY351LGC112MC96M
	1,300	50×105	0.12	7.80	ERWY351LGC132MCA5M
	1,600	50×130	0.12	9.50	ERWY351LGC162MCD0M
	1,800	63.5×96	0.12	10.0	ERWY351LGC182MD96M
	1,900	50×145	0.12	10.7	ERWY351LGC192MCE5M
	2,400	63.5×115	0.12	12.6	ERWY351LGC242MDB5M
	2,800	63.5×130	0.12	14.3	ERWY351LGC282MDD0M
	3,400	63.5×155	0.12	17.1	ERWY351LGC342MDF5M
	3,500	76×115	0.12	16.9	ERWY351LGC352MEB5M
	3,800	63.5×170	0.12	18.8	ERWY351LGC382MDH0M
	4,000	76×130	0.12	19.0	ERWY351LGC402MED0M
	5,000	76×155	0.12	23.0	ERWY351LGC502MEF5M
	5,600	76×170	0.12	25.3	ERWY351LGC562MEH0M
	6,900	89×155	0.12	27.2	ERWY351LGC692MFF5M
	7,700	89×170	0.12	29.6	ERWY351LGC772MFH0M
	8,400	89×190	0.12	32.9	ERWY351LGC842MFK0M
	9,500	100×190	0.12	37.3	ERWY351LGC952MGK0M
	11,000	100×220	0.12	42.9	ERWY351LGC113MGN0M
	14,000	100×270	0.12	53.1	ERWY351LGC143MGT0M
400	620	50×75	0.12	4.60	ERWY401LGC621MC75M
	880	50×96	0.12	6.10	ERWY401LGC881MC96M
	1,000	50×105	0.12	6.80	ERWY401LGC102MCA5M
	1,400	50×130	0.12	8.90	ERWY401LGC142MCD0M
	1,500	63.5×96	0.12	9.10	ERWY401LGC152MD96M
	1,600	50×145	0.12	9.90	ERWY401LGC162MCE5M
	2,000	63.5×115	0.12	11.5	ERWY401LGC202MDB5M
	2,300	63.5×130	0.12	13.0	ERWY401LGC232MDD0M
	2,800	63.5×155	0.12	15.5	ERWY401LGC282MDF5M
	2,900	76×115	0.12	15.4	ERWY401LGC292MEB5M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,300Hz)	Part No.
400	3,200	63.5×170	0.12	17.3	ERWY401LGC322MDH0M
	3,400	76×130	0.12	17.5	ERWY401LGC342MED0M
	4,200	76×155	0.12	21.1	ERWY401LGC422MEF5M
	4,600	76×170	0.12	23.0	ERWY401LGC462MEH0M
	5,700	89×155	0.12	24.7	ERWY401LGC572MFF5M
	6,400	89×170	0.12	27.0	ERWY401LGC642MFH0M
	7,000	89×190	0.12	30.0	ERWY401LGC702MFK0M
	7,900	100×190	0.12	34.0	ERWY401LGC792MGK0M
	9,400	100×220	0.12	39.6	ERWY401LGC942MGN0M
	12,000	100×270	0.12	49.2	ERWY401LGC123MGT0M
450	500	50×75	0.12	4.00	ERWY451LGC501MC75M
	710	50×96	0.12	5.20	ERWY451LGC711MC96M
	840	50×105	0.12	5.90	ERWY451LGC841MCA5M
	1,100	50×130	0.12	7.50	ERWY451LGC112MCD0M
	1,200	63.5×96	0.12	7.80	ERWY451LGC122MD96M
	1,300	50×145	0.12	8.40	ERWY451LGC132MCE5M
	1,600	63.5×115	0.12	9.80	ERWY451LGC162MDB5M
	1,800	63.5×130	0.12	10.9	ERWY451LGC182MDD0M
	2,300	63.5×155	0.12	13.3	ERWY451LGC232MDF5M
	2,300	76×115	0.12	13.0	ERWY451LGC232MEB5M
	2,500	63.5×170	0.12	14.5	ERWY451LGC252MDH0M
	2,700	76×130	0.12	14.8	ERWY451LGC272MED0M
	3,300	76×155	0.12	17.7	ERWY451LGC332MEF5M
	3,700	76×170	0.12	19.5	ERWY451LGC372MEH0M
	4,600	89×155	0.12	22.2	ERWY451LGC462MFF5M
	5,100	89×170	0.12	24.1	ERWY451LGC512MFH0M
	5,700	89×190	0.12	27.1	ERWY451LGC572MFK0M
	6,400	100×190	0.12	30.6	ERWY451LGC642MGK0M
	7,600	100×220	0.12	35.6	ERWY451LGC762MGN0M
	9,500	100×270	0.12	43.7	ERWY451LGC952MGT0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	120	300	1k	3k
Coefficient	0.83	1.00	1.25	1.33

Note : The endurance of capacitors is reduced with internal heating produced by ripple currents at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for RWY series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWL Series

- ●High ripple capability
- ●For train systems and high power consuming inverter circuits
- ●Endurance with ripple current : 20,000 hours at 85℃
- ●**RoHS Compliant**

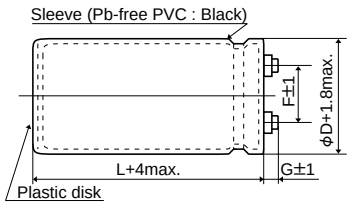
RWL
↑ Longer life
RWF

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +85℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied 20,000 hours at 85℃. Capacitance change: ≦±30% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 500 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦300% of the initial specified value Leakage current: ≦The initial specified value

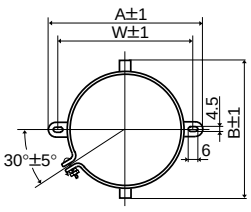
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



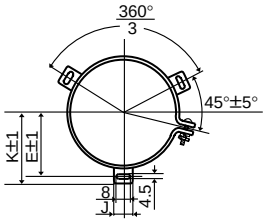
ϕ63.5 : G=6
ϕ76 & ϕ89 : G=5

●Mounting Clamp Code : B



ϕD	A	B	W	F
63.5	90.0	76.0	80.0	28.0
76	104.5	90.0	93.5	31.5

●Mounting Clamp Code : C

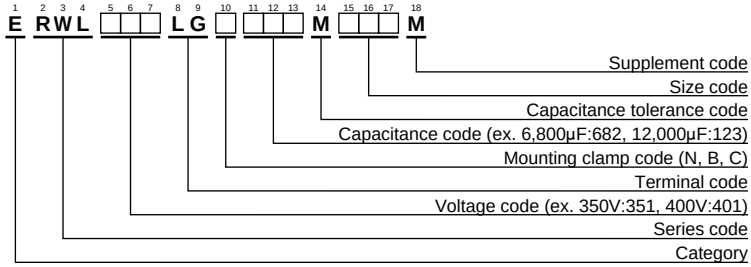


ϕD	E	K	F	J
63.5	38.1	43.5	28.0	14.0
76	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0

<Screw specifications>
Plus hexagon-headed screw:
M5×0.8×10
Maximum screw tightening torque:
3.23Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

RWL Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
350	3,300	63.5×115	0.25	11.1	ERWL351LGC332MDB5M
	3,900	63.5×130	0.25	12.8	ERWL351LGC392MDD0M
	4,700	63.5×155	0.25	15.2	ERWL351LGC472MDF5M
	4,700	76×115	0.25	14.7	ERWL351LGC472MEB5M
	5,600	63.5×170	0.25	17.3	ERWL351LGC562MDH0M
	5,600	76×130	0.25	16.9	ERWL351LGC562MED0M
	6,800	63.5×190	0.25	20.0	ERWL351LGC682MDK0M
	6,800	76×155	0.25	20.2	ERWL351LGC682MEF5M
	8,200	76×170	0.25	23.1	ERWL351LGC822MEH0M
	10,000	89×155	0.25	26.6	ERWL351LGC103MFF5M
	12,000	89×190	0.25	32.0	ERWL351LGC123MFK0M
400	2,700	63.5×115	0.25	10.1	ERWL401LGC272MDB5M
	3,300	63.5×130	0.25	11.7	ERWL401LGC332MDD0M
	3,900	63.5×155	0.25	13.8	ERWL401LGC392MDF5M
	3,900	76×115	0.25	14.7	ERWL401LGC392MEB5M
	4,700	63.5×170	0.25	15.8	ERWL401LGC472MDH0M
	4,700	76×130	0.25	15.5	ERWL401LGC472MED0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 85℃,120Hz)	Part No.
400	5,600	63.5×190	0.25	18.2	ERWL401LGC562MDK0M
	5,600	76×155	0.25	18.3	ERWL401LGC562MEF5M
	6,800	76×170	0.25	21.0	ERWL401LGC682MEH0M
	8,200	89×155	0.25	24.1	ERWL401LGC822MFF5M
	10,000	89×190	0.25	29.1	ERWL401LGC103MFK0M
450	2,200	63.5×115	0.25	9.10	ERWL451LGC222MDB5M
	2,700	63.5×130	0.25	10.6	ERWL451LGC272MDD0M
	2,700	76×115	0.25	11.2	ERWL451LGC272MEB5M
	3,300	63.5×155	0.25	12.7	ERWL451LGC332MDF5M
	3,300	76×130	0.25	13.0	ERWL451LGC332MED0M
	3,900	63.5×170	0.25	14.4	ERWL451LGC392MDH0M
	4,700	76×155	0.25	16.7	ERWL451LGC472MEF5M
	5,600	76×190	0.25	20.1	ERWL451LGC562MEK0M
	5,600	89×155	0.25	19.9	ERWL451LGC562MFF5M
	6,800	89×170	0.25	23.0	ERWL451LGC682MFH0M
	8,200	89×190	0.25	26.4	ERWL451LGC822MFK0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.1	1.3	1.4

Note : The endurance of capacitors is reduced with internal heating produced by ripple currents at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for RWL series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

FTP Series

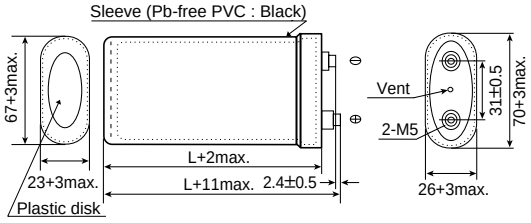
- Ideal for inverter smoothing capacitors such as Electric Vehicles, Hybrid Cars, etc.
- Endurance with ripple current : 5,000 hours at 85℃
- Rated voltage range : 63 to 450Vdc
- Lower profile offers drastic space saving compared with conventional cylindrical type
- Superior heat radiation realizes higher ripple current
- **RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40 to +85℃ (63～100Vdc), −25 to +85℃ (350～450Vdc)
Rated Voltage Range	63 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.25 max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change 63 to 100Vdc : C(-40℃)/C(+20℃)≧0.6 350 to 450Vdc : C(-25℃)/C(+20℃)≧0.7 (at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 85℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

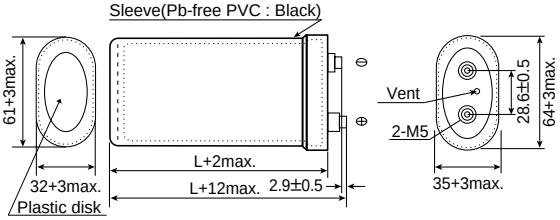
◆DIMENSIONS (Screw-Mount) [mm]

- Terminal Code : LG
- Size Code : L



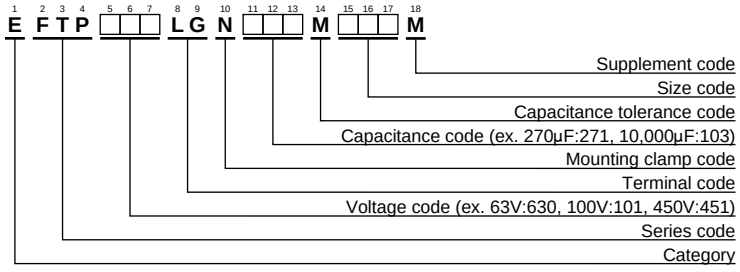
* Polyolefin is available upon request.

- Size Code : R



<Screw specifications>
Plus hexagon-headed screw: M5×0.8
Maximum screw tightening torque: 3.23Nm

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

◆SIZE CODE

Code	Case size H×W×L (mm)
L50	26×70×50
L75	26×70×75
L95	26×70×95
R50	35×64×50
R75	35×64×75
R95	35×64×95

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 85℃

FTP Series

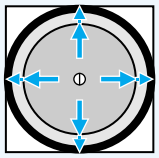
◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size HXWXL(mm)	tanδ	Rated ripple current (Arms/ 85℃,10kHz)	Part No.
63	6,000	26X70X50	0.25	14.0	EFTP630LGN602ML50M
	12,000	26X70X75	0.25	19.0	EFTP630LGN123ML75M
	17,000	26X70X95	0.25	22.0	EFTP630LGN173ML95M
	7,400	35X64X50	0.25	16.1	EFTP630LGN742MR50M
	15,000	35X64X75	0.25	21.7	EFTP630LGN153MR75M
	21,000	35X64X95	0.25	25.3	EFTP630LGN213MR95M
80	4,300	26X70X50	0.25	14.0	EFTP800LGN432ML50M
	8,600	26X70X75	0.25	19.0	EFTP800LGN862ML75M
	12,000	26X70X95	0.25	22.0	EFTP800LGN123ML95M
	5,300	35X64X50	0.25	16.1	EFTP800LGN532MR50M
	10,000	35X64X75	0.25	21.7	EFTP800LGN103MR75M
	15,000	35X64X95	0.25	25.3	EFTP800LGN153MR95M
100	2,900	26X70X50	0.25	14.0	EFTP101LGN292ML50M
	5,700	26X70X75	0.25	19.0	EFTP101LGN572ML75M
	8,100	26X70X95	0.25	22.0	EFTP101LGN812ML95M
	3,600	35X64X50	0.25	16.1	EFTP101LGN362MR50M
	7,100	35X64X75	0.25	21.7	EFTP101LGN712MR75M
	10,000	35X64X95	0.25	25.3	EFTP101LGN103MR95M

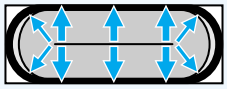
WV (Vdc)	Cap (μF)	Case size HXWXL(mm)	tanδ	Rated ripple current (Arms/ 85℃,10kHz)	Part No.
350	400	26X70X50	0.25	10.6	EFTP351LGN401ML50M
	800	26X70X75	0.25	15.7	EFTP351LGN801ML75M
	1,100	26X70X95	0.25	18.7	EFTP351LGN112ML95M
	490	35X64X50	0.25	11.9	EFTP351LGN491MR50M
	970	35X64X75	0.25	17.6	EFTP351LGN971MR75M
	1,400	35X64X95	0.25	21.0	EFTP351LGN142MR95M
400	330	26X70X50	0.25	10.6	EFTP401LGN331ML50M
	660	26X70X75	0.25	15.7	EFTP401LGN661ML75M
	930	26X70X95	0.25	18.7	EFTP401LGN931ML95M
	400	35X64X50	0.25	11.9	EFTP401LGN401MR50M
	800	35X64X75	0.25	17.6	EFTP401LGN801MR75M
	1,100	35X64X95	0.25	21.0	EFTP401LGN112MR95M
450	270	26X70X50	0.25	10.1	EFTP451LGN271ML50M
	540	26X70X75	0.25	15.0	EFTP451LGN541ML75M
	760	26X70X95	0.25	18.0	EFTP451LGN761ML95M
	330	35X64X50	0.25	11.4	EFTP451LGN331MR50M
	660	35X64X75	0.25	16.7	EFTP451LGN661MR75M
	930	35X64X95	0.25	20.1	EFTP451LGN931MR95M

◆Improvement of space factor and heat radiation

Dead spaces are found in the conventional cylindrial shape. But lower profile offers reduced dead space, and makes the equipment smaller in size. Moreover, the internal element of the lower profile capacitor is in greater contact with the can. This greatly improves the heat dissipation compared with the cylindrical shape.



Cylindrical shape



FTP series

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

LXA Series

- ●Rated voltage range up to 525Vdc
- ●Endurance with ripple current : 5,000 hours at 105℃ (2,000 hours for 500Vdc & 525Vdc)
- ●High reliability products
- ●**RoHS Compliant**

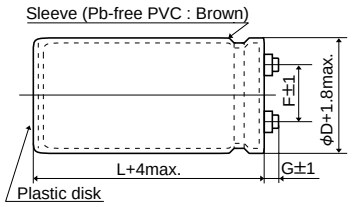
LXA
Long life
KMH

◆SPECIFICATIONS

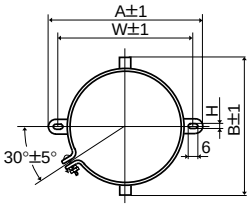
Items	Characteristics
Category Temperature Range	−40 to +105℃ (10 to 100Vdc) −25 to +105℃ (160 to 525Vdc)
Rated Voltage Range	10 to 525Vdc
Capacitance Tolerance	−10 to +50% (T) (10 to 250Vdc) ±20% (M) (350 to 525Vdc) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	See STANDARD RATINGS (10 to 250Vdc) 0.20max (350 to 525Vdc) (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C(-40℃)/C(+20℃)≧0.6(10 to 100Vdc) C(-25℃)/C(+20℃)≧0.7(160 to 250Vdc) C(-25℃)/C(+20℃)≧0.65(350 to 525Vdc) (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after DC voltage with the rated ripple current is applied for 5,000 hours (2,000 hours for 500 & 525Vdc products) at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Rated voltage: 10 to 250Vdc / 350 to 525Vdc Capacitance change: ≦±15% of the initial value / ≦±20% of the initial value D.F. (tanδ): ≦150% of the initial specified value / ≦200% of the initial specified value Leakage current: ≦The initial specified value / ≦The initial specified value

◆DIMENSIONS (Screw-Mount) [mm]

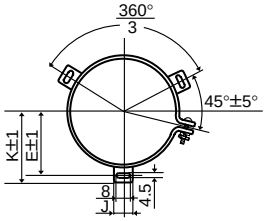
●Terminal Code : LG



●Mounting Clamp Code : B



●Mounting Clamp Code : C



ϕD	G	
	10 to 250Vdc	350 to 525Vdc
～ϕ63.5	6	6
ϕ76	5	6
ϕ89	5	4

ϕD	A	B	W	H	F
35	58	44	48	3.5	12.7
50	78	64	68	4.5	22.4
63.5	90	76	80	4.5	28.0
76	104.5	90	93.5	4.5	31.5

ϕD	E	K	J	F
50	32.5	37.0	14.0	22.4
63.5	38.1	43.5	14.0	28.0
76	44.5	50.0	14.0	31.5
89	50.8	56.5	16.0	31.5

<Screw specifications>
Plus hexagon-headed screw:
M5×0.8×10
Maximum screw tightening torque:
3.23Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
E	L	X	A				L	G									M

Supplement code
Size code
Capacitance tolerance code (ex. M, T)
Capacitance code (ex. 390μF:391, 3,300μF:332)
Mounting clamp code (N, B, C)
Terminal code
Voltage code (ex. 10V:100, 100V:101, 525V:5C1)
Series code
Category

Please refer to "Product code guide (screw-mount terminal type)"

CAT. No. E1001H

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

LXA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
10	27,000	35×80	0.45	4.30	ELXA100LGB273TA80M
	33,000	35×80	0.45	4.70	ELXA100LGB333TA80M
	39,000	35×80	0.45	5.30	ELXA100LGB393TA80M
	47,000	35×100	0.45	6.10	ELXA100LGB473TAA0M
	56,000	35×100	0.50	6.20	ELXA100LGB563TAA0M
	68,000	35×120	0.60	6.80	ELXA100LGB683TAC0M
	82,000	50×80	0.60	7.80	ELXA100LGC823TC80M
	100,000	50×100	0.70	8.50	ELXA100LGC104TCA0M
	120,000	50×100	0.70	9.50	ELXA100LGC124TCA0M
	150,000	63.5×100	0.80	11.0	ELXA100LGC154TDA0M
	180,000	63.5×100	0.80	12.1	ELXA100LGC184TDA0M
	220,000	76×100	1.00	13.2	ELXA100LGC224TEA0M
	270,000	76×120	1.20	14.4	ELXA100LGC274TEC0M
	330,000	76×140	1.20	17.0	ELXA100LGC334TEE0M
	390,000	89×140	1.40	18.6	ELXA100LGC394TFE0M
16	15,000	35×50	0.45	2.90	ELXA160LGB153TA50M
	18,000	35×80	0.45	3.50	ELXA160LGB183TA80M
	22,000	35×80	0.45	3.90	ELXA160LGB223TA80M
	27,000	35×80	0.45	4.30	ELXA160LGB273TA80M
	33,000	35×100	0.50	4.80	ELXA160LGB333TAA0M
	39,000	35×100	0.50	5.30	ELXA160LGB393TAA0M
	47,000	35×120	0.50	6.20	ELXA160LGB473TAC0M
	56,000	50×80	0.60	6.30	ELXA160LGC563TC80M
	68,000	50×100	0.60	7.60	ELXA160LGC683TCA0M
	82,000	50×120	0.70	8.30	ELXA160LGC823TCC0M
	100,000	50×120	0.70	9.20	ELXA160LGC104TCC0M
	120,000	63.5×100	0.80	9.90	ELXA160LGC124TDA0M
	150,000	76×100	0.80	12.3	ELXA160LGC154TEA0M
	180,000	76×120	0.80	14.5	ELXA160LGC184TEC0M
	220,000	76×140	1.00	15.2	ELXA160LGC224TEE0M
	270,000	89×140	1.20	16.8	ELXA160LGC274TFE0M
25	12,000	35×80	0.35	3.30	ELXA250LGB123TA80M
	15,000	35×80	0.35	3.70	ELXA250LGB153TA80M
	18,000	35×80	0.35	4.00	ELXA250LGB183TA80M
	22,000	35×80	0.35	4.50	ELXA250LGB223TA80M
	27,000	35×100	0.40	5.00	ELXA250LGB273TAA0M
	33,000	35×120	0.40	5.90	ELXA250LGB333TAC0M
	39,000	50×80	0.40	6.50	ELXA250LGC393TC80M
	47,000	50×100	0.40	7.90	ELXA250LGC473TCA0M
	56,000	50×120	0.40	8.80	ELXA250LGC563TCC0M
	68,000	50×120	0.50	9.10	ELXA250LGC683TCC0M
	82,000	63.5×100	0.50	10.6	ELXA250LGC823TDA0M
	100,000	63.5×120	0.60	11.4	ELXA250LGC104TDC0M
	120,000	76×100	0.60	12.8	ELXA250LGC124TEA0M
	150,000	76×120	0.75	13.7	ELXA250LGC154TEC0M
	180,000	76×140	0.75	16.1	ELXA250LGC184TEE0M
	220,000	89×140	1.00	16.6	ELXA250LGC224TFE0M
35	8,200	35×80	0.30	3.00	ELXA350LGB822TA80M
	10,000	35×80	0.30	3.30	ELXA350LGB103TA80M
	12,000	35×80	0.30	3.60	ELXA350LGB123TA80M
	15,000	35×80	0.30	4.10	ELXA350LGB153TA80M
	18,000	35×100	0.30	4.80	ELXA350LGB183TAA0M
	22,000	35×120	0.35	5.20	ELXA350LGB223TAC0M
	27,000	50×80	0.40	5.90	ELXA350LGC273TC80M
	33,000	50×100	0.40	6.60	ELXA350LGC333TCA0M
	39,000	50×120	0.40	7.80	ELXA350LGC393TCC0M
	47,000	50×120	0.45	8.00	ELXA350LGC473TCC0M
	56,000	63.5×100	0.45	9.20	ELXA350LGC563TDA0M
	68,000	63.5×120	0.45	11.0	ELXA350LGC683TDC0M
	82,000	76×120	0.50	12.7	ELXA350LGC823TEC0M
	100,000	76×140	0.60	13.5	ELXA350LGC104TEE0M
	120,000	89×140	0.60	16.1	ELXA350LGC124TFE0M
50	3,900	35×50	0.20	2.00	ELXA500LGB392TA50M
	4,700	35×50	0.25	2.20	ELXA500LGB472TA50M
	5,600	35×80	0.25	2.80	ELXA500LGB562TA80M
	6,800	35×80	0.25	3.00	ELXA500LGB682TA80M
	8,200	35×80	0.25	3.30	ELXA500LGB822TA80M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
50	10,000	35×80	0.25	3.70	ELXA500LGB103TA80M
	12,000	35×100	0.25	4.40	ELXA500LGB123TAA0M
	15,000	35×120	0.30	4.70	ELXA500LGB153TAC0M
	18,000	50×80	0.35	4.80	ELXA500LGC183TC80M
	22,000	50×100	0.35	5.90	ELXA500LGC223TCA0M
	27,000	50×120	0.35	7.00	ELXA500LGC273TCC0M
	33,000	63.5×100	0.40	7.60	ELXA500LGC333TDA0M
	39,000	63.5×120	0.40	8.90	ELXA500LGC393TDC0M
	47,000	63.5×120	0.40	9.80	ELXA500LGC473TDC0M
	56,000	76×120	0.40	11.9	ELXA500LGC563TEC0M
	68,000	76×140	0.45	13.1	ELXA500LGC683TEE0M
	82,000	89×140	0.50	14.8	ELXA500LGC823TFE0M
63	2,700	35×50	0.15	1.90	ELXA630LGB272TA50M
	3,300	35×50	0.15	2.10	ELXA630LGB332TA50M
	3,900	35×80	0.20	2.70	ELXA630LGB392TA80M
	4,700	35×80	0.20	2.90	ELXA630LGB472TA80M
	5,600	35×80	0.20	3.20	ELXA630LGB562TA80M
	6,800	35×80	0.20	3.50	ELXA630LGB682TA80M
	8,200	35×100	0.20	4.20	ELXA630LGB822TAA0M
	10,000	35×120	0.25	4.30	ELXA630LGB103TAC0M
	12,000	50×80	0.25	4.80	ELXA630LGC123TC80M
	15,000	50×100	0.25	5.90	ELXA630LGC153TCA0M
	18,000	50×120	0.25	6.30	ELXA630LGC183TCC0M
	22,000	50×120	0.30	6.70	ELXA630LGC223TCC0M
	27,000	63.5×120	0.30	8.80	ELXA630LGC273TDC0M
	33,000	76×100	0.30	10.0	ELXA630LGC333TEA0M
	39,000	76×120	0.35	10.7	ELXA630LGC393TEC0M
	47,000	76×140	0.35	12.5	ELXA630LGC473TEE0M
	56,000	89×140	0.40	13.8	ELXA630LGC563TFE0M
80	2,200	35×50	0.15	1.90	ELXA800LGB222TA50M
	2,700	35×80	0.15	2.20	ELXA800LGB272TA80M
	3,300	35×80	0.15	2.50	ELXA800LGB332TA80M
	3,900	35×80	0.15	2.90	ELXA800LGB392TA80M
	4,700	35×100	0.15	3.10	ELXA800LGB472TAA0M
	5,600	35×100	0.15	3.50	ELXA800LGB562TAA0M
	6,800	35×120	0.20	4.10	ELXA800LGB682TAC0M
	8,200	50×80	0.20	4.80	ELXA800LGC822TC80M
	10,000	50×100	0.20	5.60	ELXA800LGC103TCA0M
	12,000	50×100	0.20	6.10	ELXA800LGC123TCA0M
	15,000	50×120	0.20	7.40	ELXA800LGC153TCC0M
	18,000	63.5×120	0.25	8.00	ELXA800LGC183TDC0M
	22,000	76×100	0.25	9.10	ELXA800LGC223TEA0M
	27,000	76×120	0.30	9.70	ELXA800LGC273TEC0M
	33,000	76×140	0.30	11.5	ELXA800LGC333TEE0M
	39,000	89×140	0.35	12.5	ELXA800LGC393TFE0M
100	1,200	35×50	0.15	1.40	ELXA101LGB122TA50M
	1,500	35×80	0.15	1.60	ELXA101LGB152TA80M
	1,800	35×80	0.15	1.80	ELXA101LGB182TA80M
	2,200	35×80	0.15	2.00	ELXA101LGB222TA80M
	2,700	35×80	0.15	2.40	ELXA101LGB272TA80M
	3,300	35×100	0.15	2.80	ELXA101LGB332TAA0M
	3,900	35×120	0.15	3.10	ELXA101LGB392TAC0M
	4,700	50×80	0.15	3.60	ELXA101LGC472TC80M
	5,600	50×100	0.15	4.30	ELXA101LGC562TCA0M
	6,800	50×120	0.15	5.00	ELXA101LGC682TCC0M
	8,200	50×120	0.15	5.50	ELXA101LGC822TCC0M
	10,000	63.5×100	0.15	6.40	ELXA101LGC103TDA0M
	12,000	63.5×120	0.20	6.60	ELXA101LGC123TDC0M
	15,000	76×100	0.20	7.50	ELXA101LGC153TEA0M
	18,000	76×120	0.25	8.00	ELXA101LGC183TEC0M
	22,000	76×140	0.25	9.40	ELXA101LGC223TEE0M
	27,000	89×140	0.30	10.4	ELXA101LGC273TFE0M
160	680	35×50	0.15	1.10	ELXA161LGB681TA50M
	820	35×80	0.15	1.20	ELXA161LGB821TA80M
	1,000	35×80	0.15	1.30	ELXA161LGB102TA80M
	1,200	35×80	0.15	1.50	ELXA161LGB122TA80M
	1,500	35×80	0.15	1.70	ELXA161LGB152TA80M

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

LXA Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
160	1,800	35×100	0.15	2.00	ELXA161LGB182TAA0M
	2,200	35×120	0.15	2.30	ELXA161LGB222TAC0M
	2,700	35×120	0.15	2.70	ELXA161LGB272TAC0M
	3,300	50×100	0.15	3.30	ELXA161LGC332TCA0M
	3,900	50×120	0.15	3.80	ELXA161LGC392TCC0M
	4,700	50×120	0.15	4.20	ELXA161LGC472TCC0M
	5,600	50×120	0.15	4.70	ELXA161LGC562TCC0M
	6,800	63.5×120	0.15	5.70	ELXA161LGC682TDC0M
	8,200	76×100	0.20	6.40	ELXA161LGC822TEA0M
	10,000	76×120	0.20	6.60	ELXA161LGC103TEC0M
	12,000	76×140	0.20	7.80	ELXA161LGC123TEE0M
	15,000	89×140	0.20	9.50	ELXA161LGC153TFE0M
200	470	35×50	0.15	0.90	ELXA201LGB471TA50M
	560	35×80	0.15	1.00	ELXA201LGB561TA80M
	680	35×80	0.15	1.10	ELXA201LGB681TA80M
	820	35×80	0.15	1.30	ELXA201LGB821TA80M
	1,000	35×100	0.15	1.50	ELXA201LGB102TAA0M
	1,200	35×120	0.15	1.70	ELXA201LGB122TAC0M
	1,500	35×120	0.15	1.90	ELXA201LGB152TAC0M
	1,800	50×80	0.15	2.20	ELXA201LGC182TC80M
	2,200	50×100	0.15	2.70	ELXA201LGC222TCA0M
	2,700	50×120	0.15	3.20	ELXA201LGC272TCC0M
	3,300	50×120	0.15	3.50	ELXA201LGC332TCC0M
	3,900	63.5×100	0.15	4.00	ELXA201LGC392TDA0M
	4,700	63.5×120	0.15	4.70	ELXA201LGC472TDC0M
	5,600	76×100	0.15	5.30	ELXA201LGC562TEA0M
	6,800	76×120	0.15	6.30	ELXA201LGC682TEC0M
	8,200	76×140	0.20	6.40	ELXA201LGC822TEE0M
	10,000	89×140	0.20	7.70	ELXA201LGC103TFE0M
250	330	35×50	0.15	0.70	ELXA251LGB331TA50M
	390	35×80	0.15	0.80	ELXA251LGB391TA80M
	470	35×80	0.15	0.90	ELXA251LGB471TA80M
	560	35×80	0.15	1.00	ELXA251LGB561TA80M
	680	35×100	0.15	1.20	ELXA251LGB681TAA0M
	820	35×100	0.15	1.40	ELXA251LGB821TAA0M
	1,000	35×120	0.15	1.60	ELXA251LGB102TAC0M
	1,200	50×80	0.15	1.80	ELXA251LGC122TC80M
	1,500	50×100	0.15	2.20	ELXA251LGC152TCA0M
	1,800	50×120	0.15	2.60	ELXA251LGC182TCC0M
	2,200	50×120	0.15	2.80	ELXA251LGC222TCC0M
	2,700	63.5×100	0.15	3.30	ELXA251LGC272TDA0M
	3,300	63.5×120	0.15	4.00	ELXA251LGC332TDC0M
	3,900	76×100	0.15	4.40	ELXA251LGC392TEA0M
	4,700	76×120	0.15	5.20	ELXA251LGC472TEC0M
	5,600	76×140	0.15	6.10	ELXA251LGC562TEE0M
	6,800	89×140	0.15	7.40	ELXA251LGC682TFE0M
350	820	50×60	0.20	3.30	ELXA351LGC821MC60M
	1,500	50×85	0.20	5.20	ELXA351LGC152MC85M
	2,200	50×105	0.20	7.00	ELXA351LGC222MCA5M
	2,700	50×125	0.20	8.40	ELXA351LGC272MCC5M
	2,700	63.5×85	0.20	8.10	ELXA351LGC272MD85M
	3,300	50×145	0.20	9.90	ELXA351LGC332MCE5M
	3,300	63.5×105	0.20	9.80	ELXA351LGC332MDA5M
	3,900	63.5×125	0.20	11.5	ELXA351LGC392MDC5M
	3,900	76×85	0.20	10.8	ELXA351LGC392ME85M
	5,600	63.5×145	0.20	14.7	ELXA351LGC562MDE5M
	6,800	76×125	0.20	16.8	ELXA351LGC682MEC5M
	8,200	76×145	0.20	19.6	ELXA351LGC822MEE5M
	8,200	89×125	0.20	18.9	ELXA351LGC822MFC5M
	10,000	76×190	0.20	23.0	ELXA351LGC103MEK0M
	10,000	89×145	0.20	22.2	ELXA351LGC103MFE5M
	15,000	89×190	0.20	30.6	ELXA351LGC153MFK0M
	22,000	89×270	0.20	43.5	ELXA351LGC223MFT0M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	680	50×60	0.20	3.00	ELXA401LGC681MC60M
	1,200	50×85	0.20	4.70	ELXA401LGC122MC85M
	1,800	50×105	0.20	6.30	ELXA401LGC182MCA5M
	2,200	50×125	0.20	7.50	ELXA401LGC222MCC5M
	2,200	63.5×85	0.20	7.30	ELXA401LGC222MD85M
	2,700	50×145	0.20	8.90	ELXA401LGC272MCE5M
	2,700	63.5×105	0.20	8.80	ELXA401LGC272MDA5M
	3,300	63.5×125	0.20	10.5	ELXA401LGC332MDC5M
	3,300	76×85	0.20	9.90	ELXA401LGC332ME85M
	4,700	63.5×145	0.20	13.4	ELXA401LGC472MDE5M
	4,700	76×125	0.20	13.9	ELXA401LGC472MEC5M
	6,800	76×145	0.20	17.9	ELXA401LGC682MEE5M
	6,800	89×125	0.20	17.2	ELXA401LGC682MFC5M
	8,200	76×190	0.20	20.8	ELXA401LGC822MEK0M
	8,200	89×145	0.20	20.1	ELXA401LGC822MFE5M
	12,000	89×190	0.20	27.4	ELXA401LGC123MFK0M
	18,000	89×270	0.20	39.4	ELXA401LGC183MFT0M
450	560	50×60	0.20	2.60	ELXA451LGC561MC60M
	1,000	50×85	0.20	4.00	ELXA451LGC102MC85M
	1,200	50×105	0.20	4.80	ELXA451LGC122MCA5M
	1,800	50×125	0.20	6.40	ELXA451LGC182MCC5M
	1,800	63.5×85	0.20	6.20	ELXA451LGC182MD85M
	2,200	50×145	0.20	7.60	ELXA451LGC222MCE5M
	2,200	63.5×105	0.20	7.50	ELXA451LGC222MDA5M
	2,700	63.5×125	0.20	8.90	ELXA451LGC272MDC5M
	2,700	76×85	0.20	8.40	ELXA451LGC272ME85M
	3,300	63.5×145	0.20	10.6	ELXA451LGC332MDE5M
	3,300	76×105	0.20	10.2	ELXA451LGC332MEA5M
	3,900	76×125	0.20	11.9	ELXA451LGC392MEC5M
	4,700	76×145	0.20	14.0	ELXA451LGC472MEE5M
	5,600	89×125	0.20	14.2	ELXA451LGC562MFC5M
	6,800	76×190	0.20	17.3	ELXA451LGC682MEK0M
	6,800	89×145	0.20	16.7	ELXA451LGC682MFE5M
	10,000	89×190	0.20	22.8	ELXA451LGC103MFK0M
	15,000	89×270	0.20	32.8	ELXA451LGC153MFT0M
500	470	50×60	0.20	2.40	ELXA501LGC471MC60M
	820	50×85	0.20	3.60	ELXA501LGC821MC85M
	1,000	50×105	0.20	4.40	ELXA501LGC102MCA5M
	1,200	50×125	0.20	5.20	ELXA501LGC122MCC5M
	1,200	63.5×85	0.20	5.00	ELXA501LGC122MD85M
	1,500	50×145	0.20	6.30	ELXA501LGC152MCE5M
	1,800	63.5×105	0.20	6.80	ELXA501LGC182MDA5M
	2,700	63.5×145	0.20	9.60	ELXA501LGC272MDE5M
	2,700	76×105	0.20	9.20	ELXA501LGC272MEA5M
	3,900	76×145	0.20	12.7	ELXA501LGC392MEE5M
	3,900	89×125	0.20	11.9	ELXA501LGC392MFC5M
	6,800	89×190	0.20	18.8	ELXA501LGC682MFK0M
	10,000	89×270	0.20	26.8	ELXA501LGC103MFT0M
525	390	50×60	0.20	2.20	ELXA5C1LGC391MC60M
	680	50×85	0.20	3.30	ELXA5C1LGC681MC85M
	1,000	50×125	0.20	4.80	ELXA5C1LGC102MCC5M
	1,500	63.5×105	0.20	6.20	ELXA5C1LGC152MDA5M
	1,800	63.5×125	0.20	7.30	ELXA5C1LGC182MDC5M
	2,200	63.5×145	0.20	8.60	ELXA5C1LGC222MDE5M
	2,200	76×105	0.20	8.30	ELXA5C1LGC222MEA5M
	2,700	76×125	0.20	9.90	ELXA5C1LGC272MEC5M
	3,300	76×145	0.20	11.7	ELXA5C1LGC332MEE5M
	4,700	76×190	0.20	14.4	ELXA5C1LGC472MEK0M
	4,700	89×145	0.20	13.9	ELXA5C1LGC472MFE5M
	5,600	89×190	0.20	17.1	ELXA5C1LGC562MFK0M

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS long life screw terminals ,105℃

LXA Series

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multiplirs

(10 to 250Vdc)

Frequency (Hz)	50	120	300	1k	10k	50k
10 to 50Vdc	0.95	1.00	1.03	1.05	1.09	1.12
63 to 80Vdc	0.90	1.00	1.06	1.10	1.18	1.22
100 to 250Vdc	0.80	1.00	1.12	1.22	1.30	1.33

(350 to 525Vdc)

Frequency (Hz)	50	120	300	1k	3k
Coefficient	0.8	1.0	1.2	1.5	1.6

Note : The endurance of capacitors is reduced with internal heating produced by ripple currents at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is requested in actual use, the rms ripple current has to be reduced. Also, for the LXA series capacitors (350 to 525Vdc products), using them at operating voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-con.

NIPPON CHEMI-CON

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 105℃

LXR Series

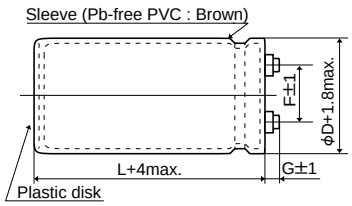
- ●Higher ripple capability than LXA series
- ●Endurance with ripple current : 5,000 hours at 105℃
- ●**RoHS Compliant**

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−25 to +105℃
Rated Voltage Range	350 to 450Vdc
Capacitance Tolerance	±20% (M) (at 20℃, 120Hz)
Leakage Current	I=0.02CV or 5mA, whichever is smaller. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20℃ after 5 minutes)
Dissipation Factor (tanδ)	0.15max. (at 20℃, 120Hz)
Low Temperature Characteristics	Capacitance change C (−25℃)/C(+20℃)≧0.7 (at 120Hz)
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than than 100MΩ.
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage.
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 105℃. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. Capacitance change: ≦±20% of the initial value D.F. (tanδ): ≦200% of the initial specified value Leakage current: ≦The initial specified value

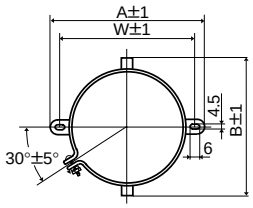
◆DIMENSIONS (Screw-Mount) [mm]

●Terminal Code : LG



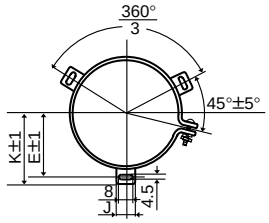
ϕ63.5 & ϕ76 : G=6
ϕ89 : G=4
ϕ100 : G=10

●Mounting Clamp Code : B



ϕD	A	B	W	F
63.5	90	76	80	28.0
76	104.5	90	93.5	31.5

●Mounting Clamp Code : C

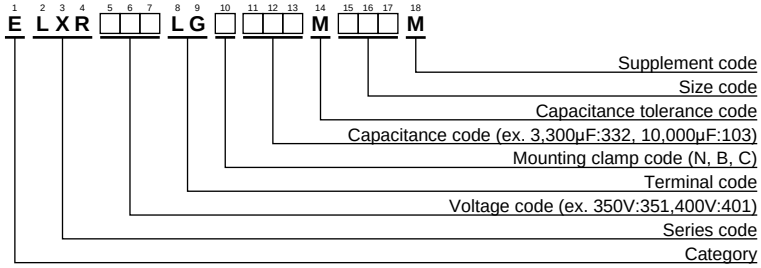


ϕD	E	K	F	J
63.5	38.1	43.5	28.0	14.0
76	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0
100	56.5	63.4	41.5	18.0

<Screw specifications>
ϕ63.5 to ϕ89
Plus hexagon-headed screw :
M5×0.8×10
Maximum screw tightening torque :
3.23Nm
ϕ100
Cross-recessed head (Phillips) screw :
M8×1.25×16
Spring washer
Washer
Maximum screw tightening torque :
6.31Nm

* The screw and the mounting clamp are separately supplied and not attached to the product.

◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

CAT. No. E1001H

LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Inverter-use screw terminal, 105℃

LXR Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
350	3,300	63.5×115	0.15	14.4	ELXR351LGC332MDB5M
	3,900	63.5×130	0.15	16.6	ELXR351LGC392MDD0M
	4,700	63.5×155	0.15	19.8	ELXR351LGC472MDF5M
	4,700	76×115	0.15	19.1	ELXR351LGC472MEB5M
	5,600	63.5×170	0.15	22.5	ELXR351LGC562MDH0M
	5,600	76×130	0.15	21.9	ELXR351LGC562MED0M
	6,800	76×155	0.15	26.2	ELXR351LGC682MEF5M
	8,200	76×170	0.15	30.0	ELXR351LGC822MEH0M
	8,200	89×155	0.15	29.2	ELXR351LGC822MFF5M
	10,000	89×170	0.15	33.7	ELXR351LGC103MFH0M
	12,000	100×190	0.15	37.8	ELXR351LGC123MGK0M
	15,000	100×250	0.15	47.7	ELXR351LGC153MGR0M
400	2,700	63.5×115	0.15	13.1	ELXR401LGC272MDB5M
	3,300	63.5×130	0.15	15.2	ELXR401LGC332MDD0M
	3,900	63.5×155	0.15	17.9	ELXR401LGC392MDF5M
	3,900	76×115	0.15	18.2	ELXR401LGC392MEB5M
	4,700	63.5×170	0.15	20.5	ELXR401LGC472MDH0M
	4,700	76×130	0.15	20.1	ELXR401LGC472MED0M
	5,600	76×155	0.15	23.8	ELXR401LGC562MEF5M

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	tanδ	Rated ripple current (Arms/ 105℃,120Hz)	Part No.
400	6,800	76×170	0.15	27.3	ELXR401LGC682MEH0M
	6,800	89×155	0.15	26.6	ELXR401LGC682MFF5M
	8,200	89×170	0.15	30.5	ELXR401LGC822MFH0M
	10,000	100×190	0.15	34.5	ELXR401LGC103MGK0M
	12,000	100×220	0.15	40.2	ELXR401LGC123MGN0M
450	2,200	63.5×115	0.15	11.8	ELXR451LGC222MDB5M
	2,700	63.5×130	0.15	13.7	ELXR451LGC272MDD0M
	2,700	76×115	0.15	14.5	ELXR451LGC272MEB5M
	3,300	63.5×155	0.15	16.5	ELXR451LGC332MDF5M
	3,300	76×130	0.15	16.9	ELXR451LGC332MED0M
	3,900	63.5×170	0.15	18.7	ELXR451LGC392MDH0M
	4,700	76×155	0.15	21.7	ELXR451LGC472MEF5M
	5,600	76×190	0.15	26.1	ELXR451LGC562MEK0M
	5,600	89×155	0.15	24.1	ELXR451LGC562MFF5M
	6,800	89×170	0.15	27.8	ELXR451LGC682MFH0M
	8,200	89×190	0.15	32.0	ELXR451LGC822MFK0M
	10,000	100×220	0.15	36.8	ELXR451LGC103MGN0M
	12,000	100×250	0.15	42.7	ELXR451LGC123MGR0M

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	120	300	1k	3k
Coefficient	1.0	1.1	1.3	1.4

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10℃ rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the LXR series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For details, please contact a representative of Nippon Chemi-Con.

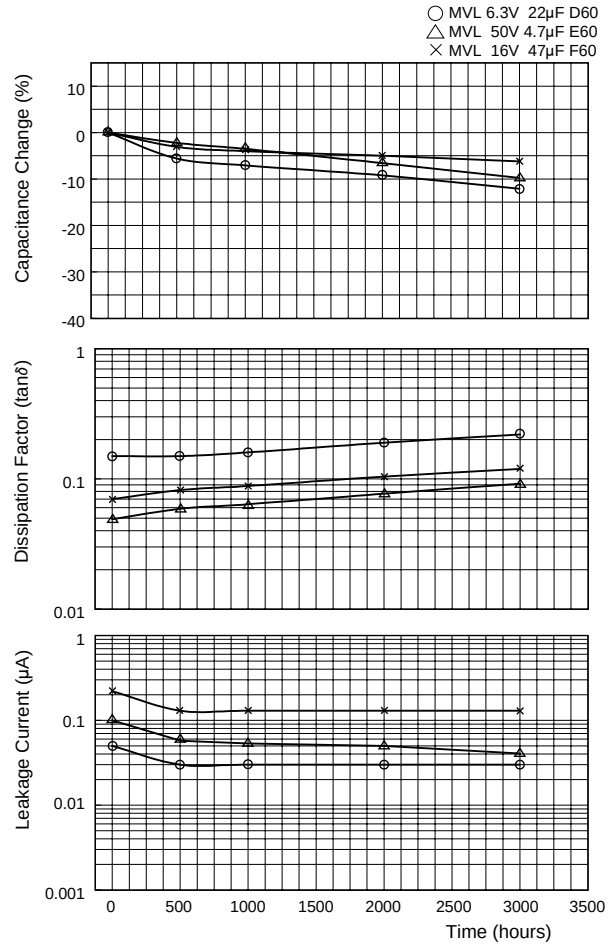
NIPPON CHEMI-CON

RELIABILITY DATA

Surface Mount

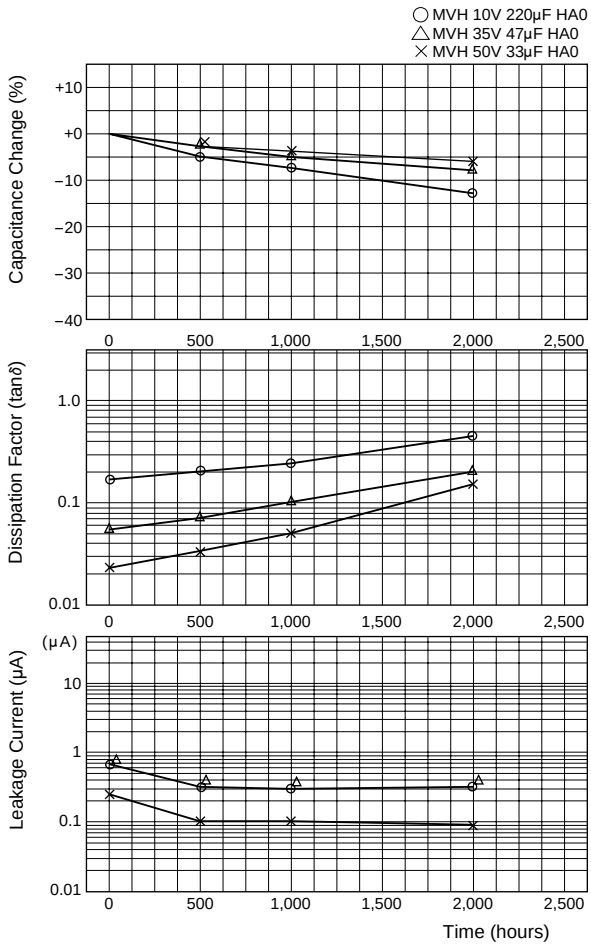
MVL Series

●105℃ Endurance



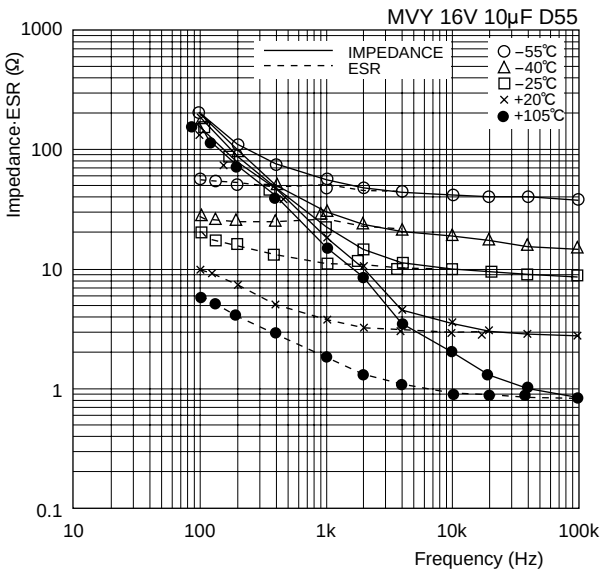
MVH Series

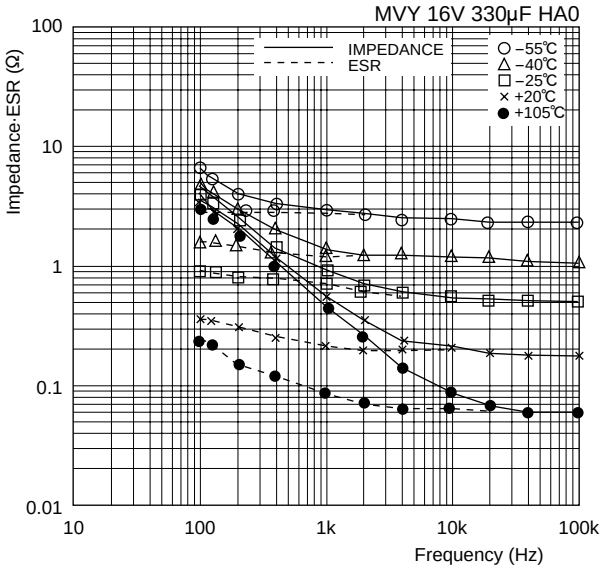
●125℃ Endurance



MVY Series

●Impedance/ESR vs Frequency





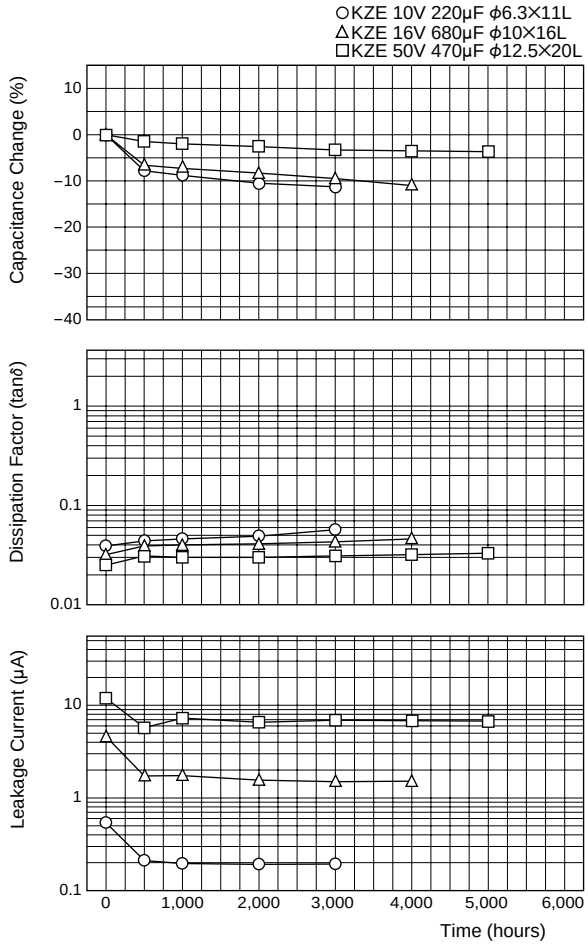
NIPPON CHEMI-CON

RELIABILITY DATA

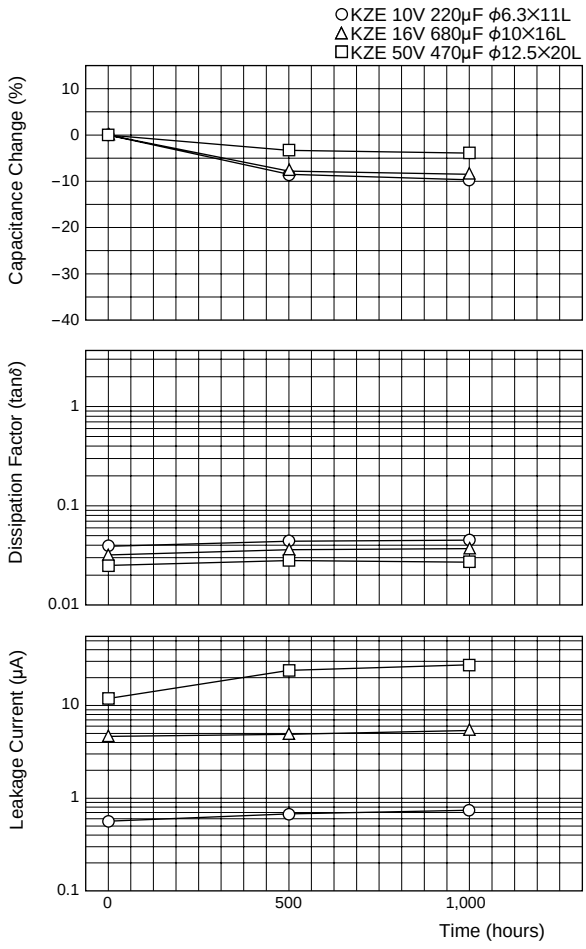
Radial

KZE Series

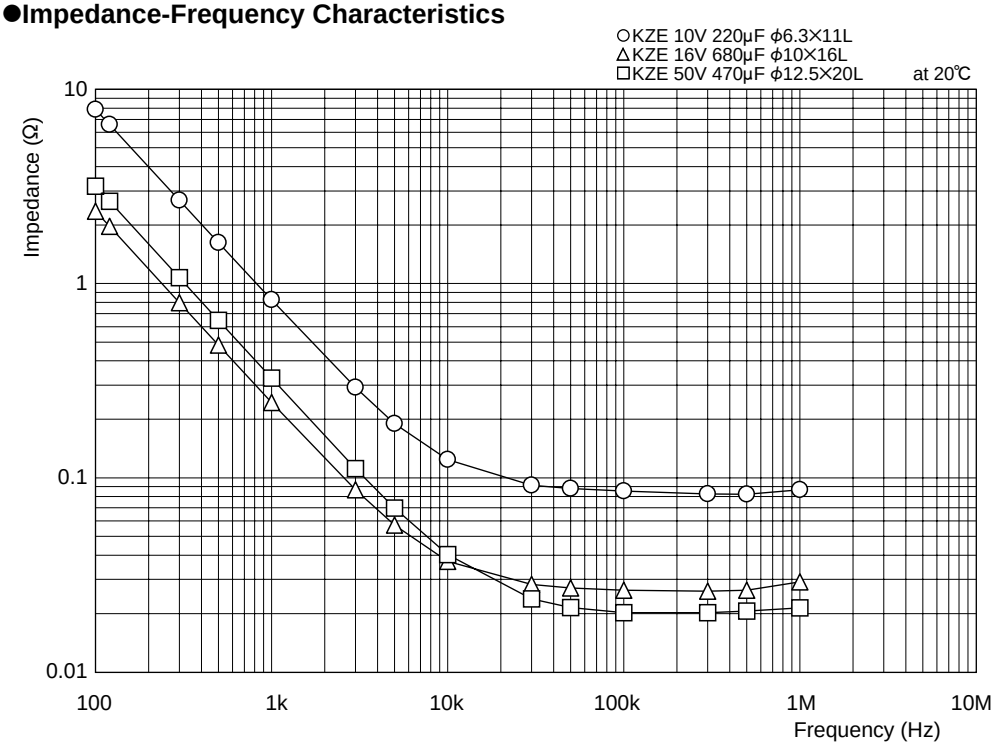
●105℃ Endurance with Rated Ripple Current



●105℃ Shelf Life



●Impedance-Frequency Characteristics



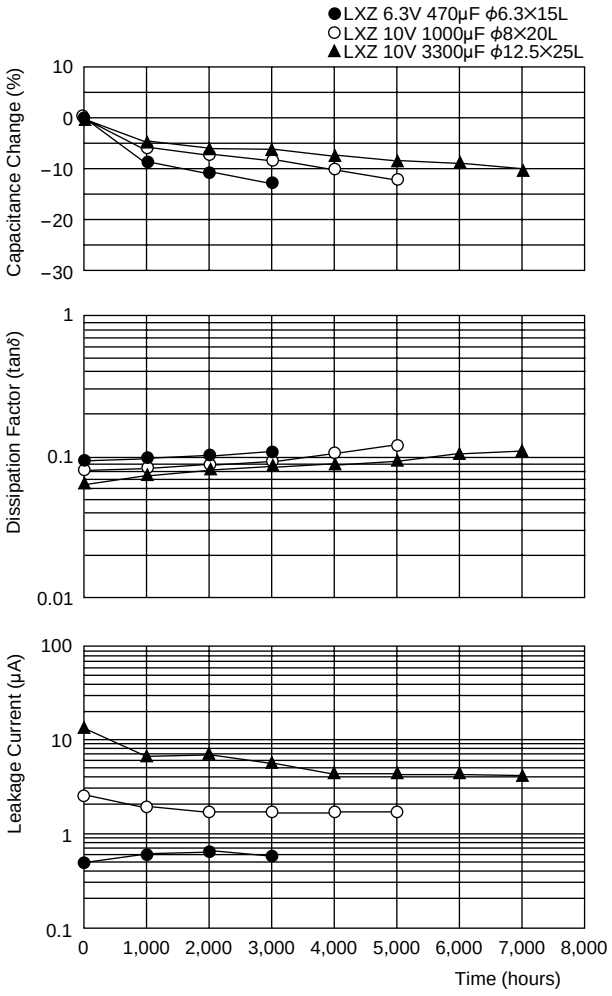
NIPPON CHEMI-CON

RELIABILITY DATA

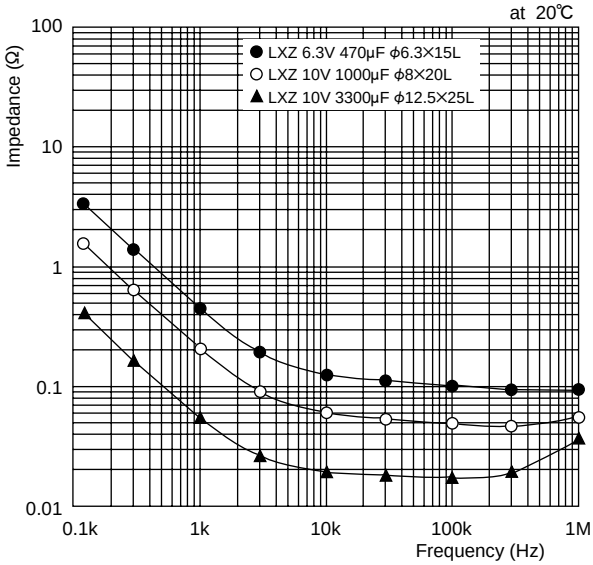
Low Impedance Radial

LXZ Series

●105℃ Endurance with Rated Ripple Current

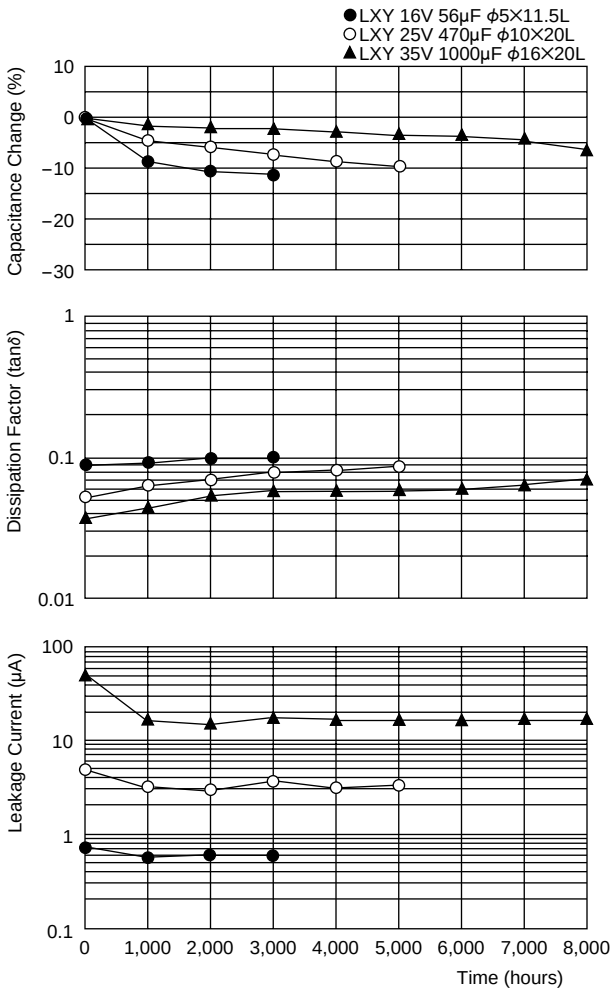


●Impedance-Frequency Characteristics

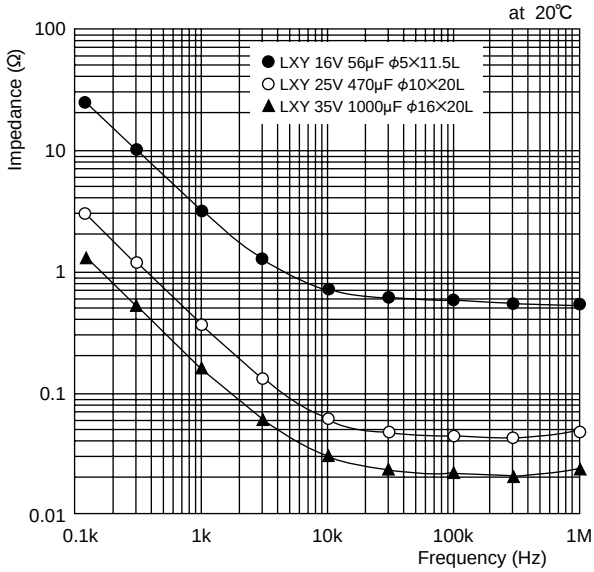


LXY Series

●105℃ Endurance with Rated Ripple Current



●Impedance-Frequency Characteristics



NIPPON CHEMI-CON

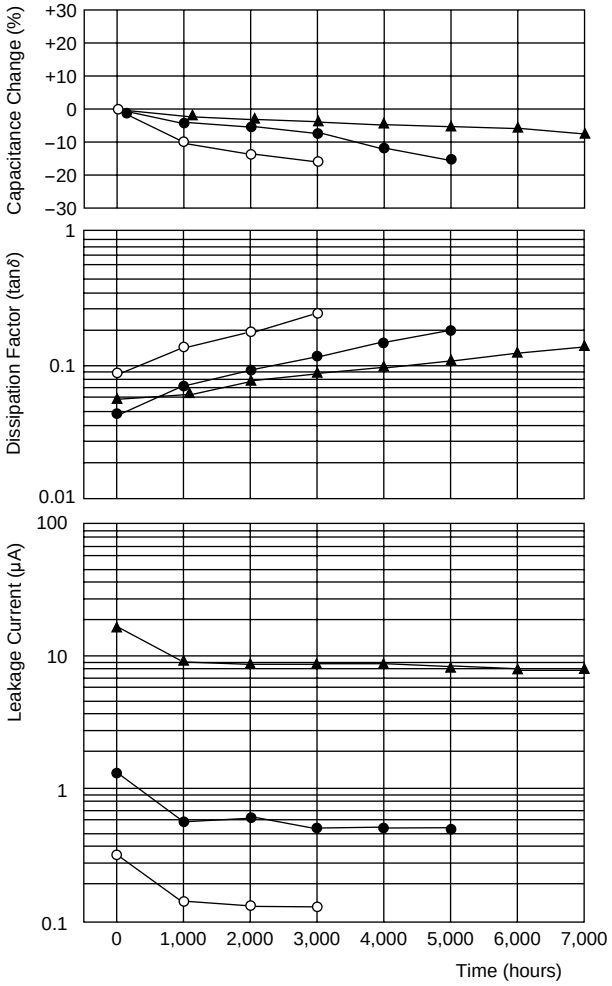
RELIABILITY DATA

Low Impedance Radial

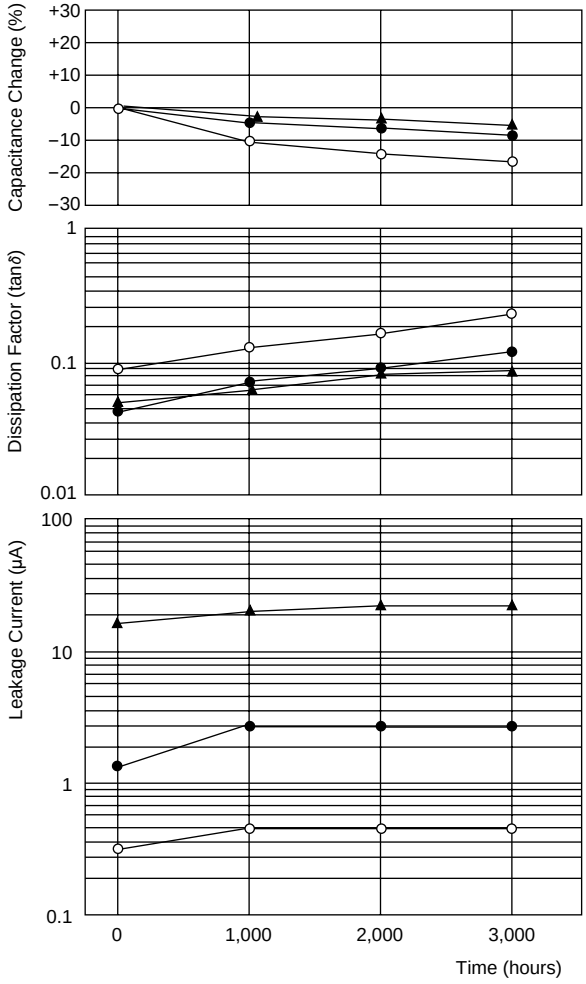
LXV Series

● LXV 10V 820μF φ5×11.5L
○ LXV 25V 220μF φ8×15L
▲ LXV 35V 560μF φ12.5×20L

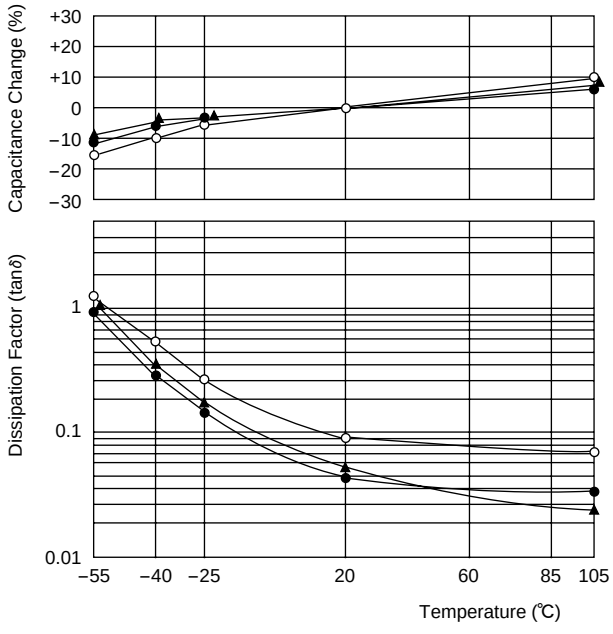
●105℃ Endurance with Rated Ripple Current



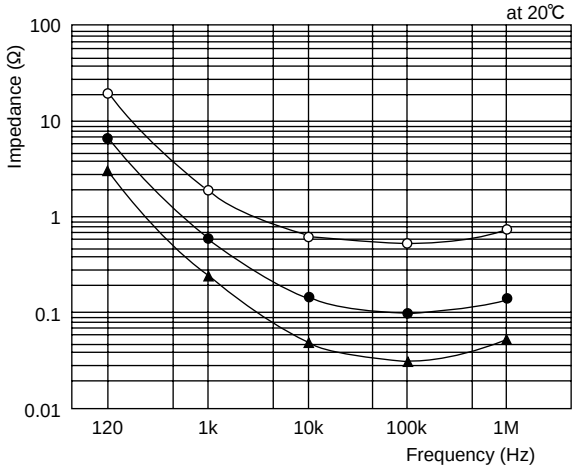
●105℃ Shelf Life test



●Temperature Characteristics



●Impedance-Frequency Characteristics

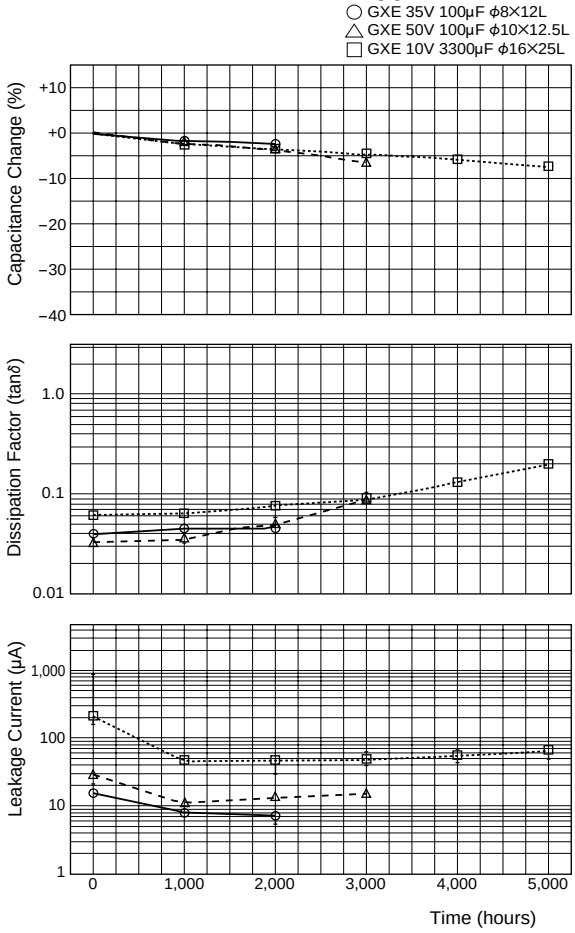


RELIABILITY DATA

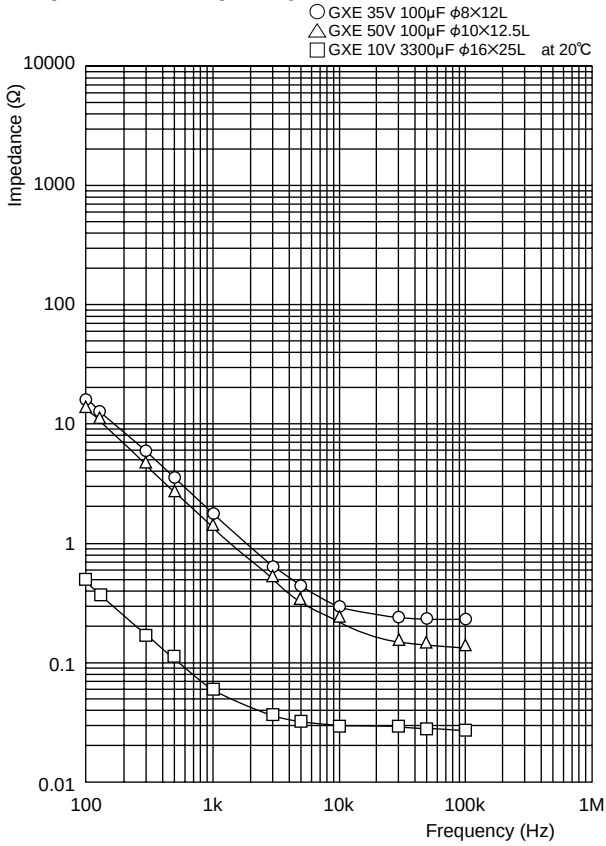
Radial

GXE Series

●125℃ Endurance with Rated Ripple Current



●Impedance-Frequency Characteristics

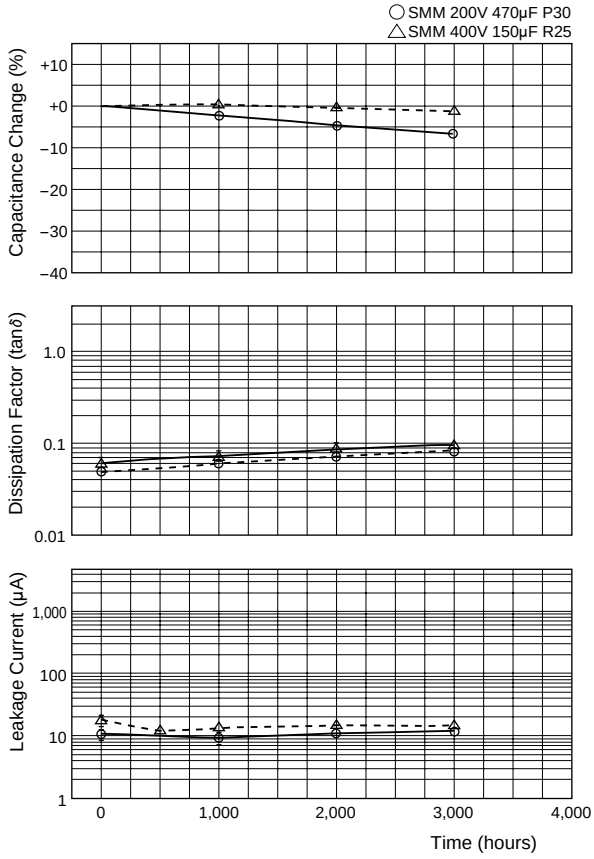


NIPPON CHEMI-CON

RELIABILITY DATA

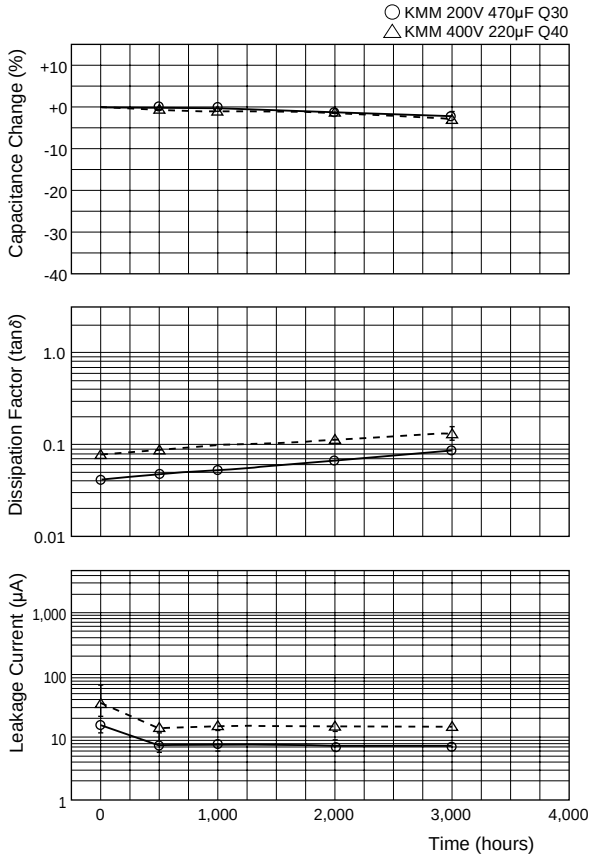
SMM Series

●85℃ Endurance with Rated Ripple Current



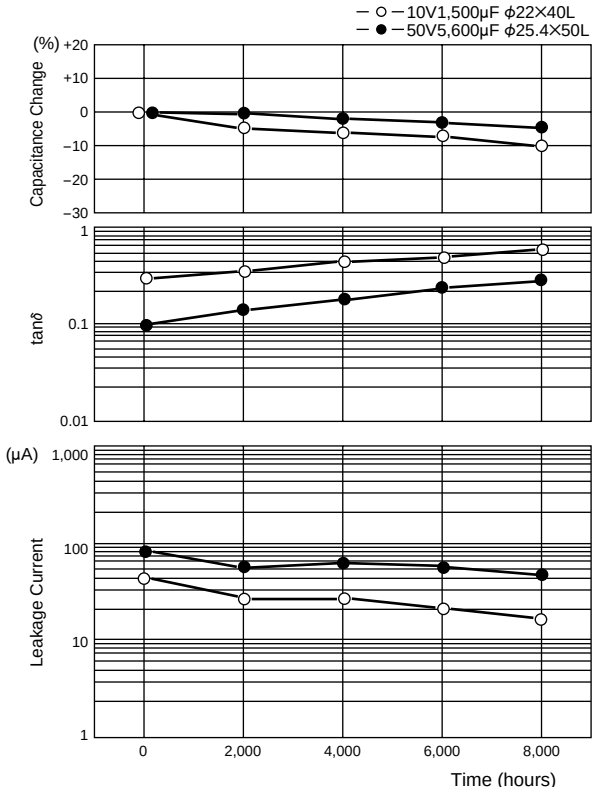
KMM Series

●105℃ Endurance with Rated Ripple Current



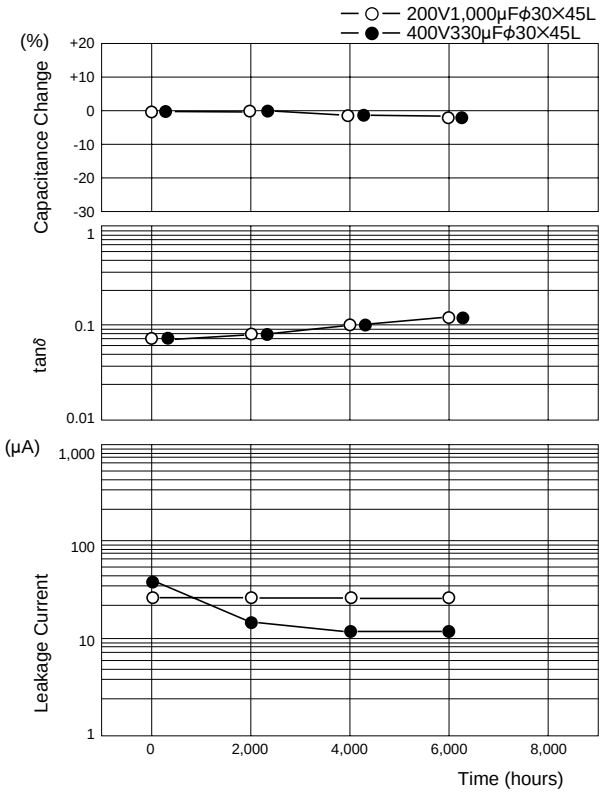
LXG Series

●105℃ Endurance with Rated Ripple Current



LXH Series

●105℃ Endurance with Rated Ripple Current



NIPPON CHEMI-CON

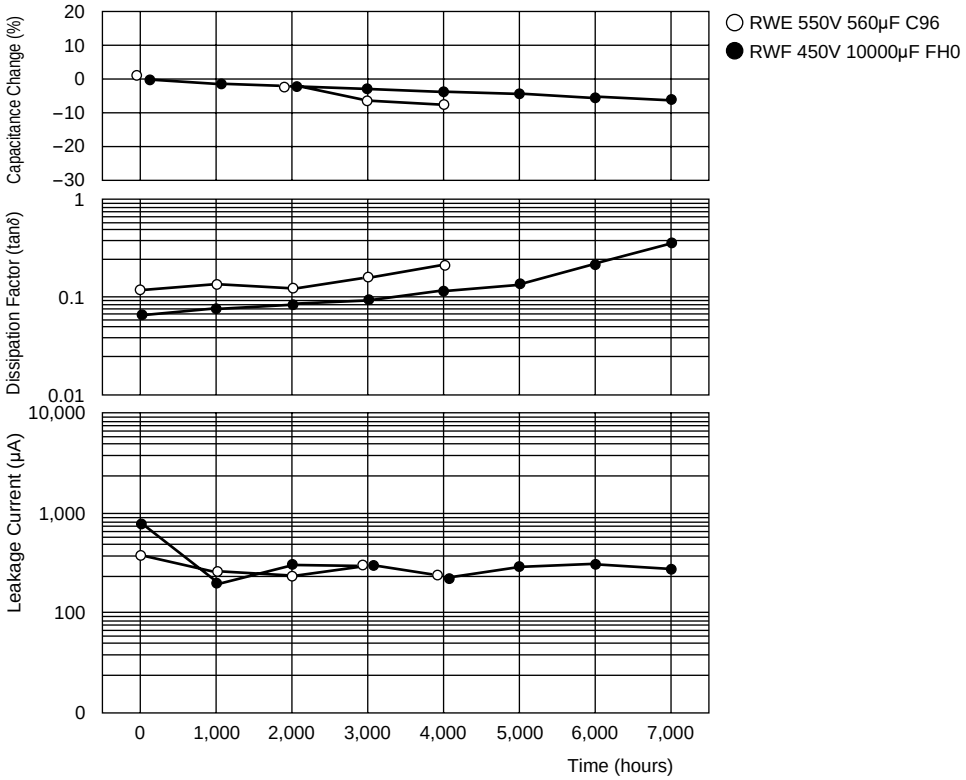
RELIABILITY DATA

Screw-Mount

RWE/RWF/RWL Series

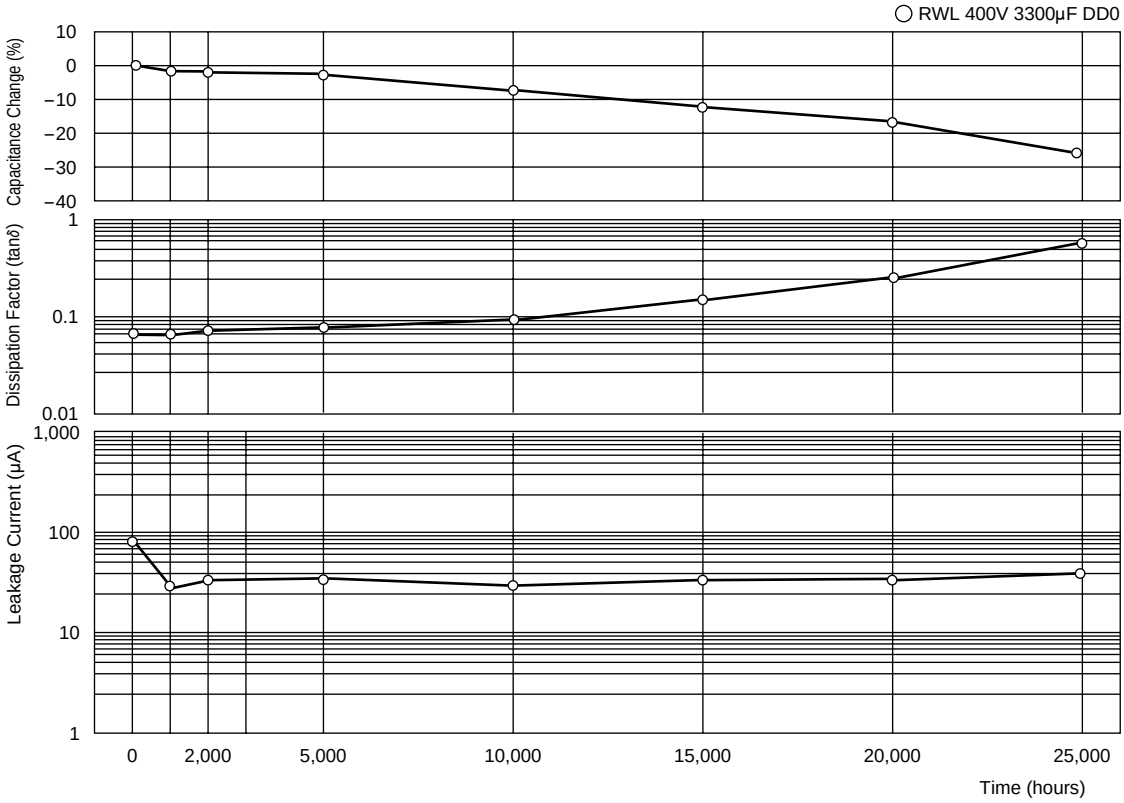
RWE/RWF series

●85℃ Endurance with Rated Ripple Current



RWL series

●85℃ Endurance with Rated Ripple Current



NIPPON CHEMI-CON

PART NUMBERING SYSTEM

Appendix (Part number)

◆Capacitance code

* How to use the table

	1st
2nd	Cap. Value

Capacitance value part

2nd	1st								
	1	2	3	4	5	6	7	8	9
0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0
A	10.5	20.5	30.5	40.5	50.5	60.5	70.5	80.5	90.5
1	11.0	21.0	31.0	41.0	51.0	61.0	71.0	81.0	91.0
B	11.5	21.5	31.5	41.5	51.5	61.5	71.5	81.5	91.5
2	12.0	22.0	32.0	42.0	52.0	62.0	72.0	82.0	92.0
C	12.5	22.5	32.5	42.5	52.5	62.5	72.5	82.5	92.5
3	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0	93.0
D	13.5	23.5	33.5	43.5	53.5	63.5	73.5	83.5	93.5
4	14.0	24.0	34.0	44.0	54.0	64.0	74.0	84.0	94.0
E	14.5	24.5	34.5	44.5	54.5	64.5	74.5	84.5	94.5
5	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	95.0
F	15.5	25.5	35.5	45.5	55.5	65.5	75.5	85.5	95.5
6	16.0	26.0	36.0	46.0	56.0	66.0	76.0	86.0	96.0
G	16.5	26.5	36.5	46.5	56.5	66.5	76.5	86.5	96.5
7	17.0	27.0	37.0	47.0	57.0	67.0	77.0	87.0	97.0
H	17.5	27.5	37.5	47.5	57.5	67.5	77.5	87.5	97.5
8	18.0	28.0	38.0	48.0	58.0	68.0	78.0	88.0	98.0
J	18.5	28.5	38.5	48.5	58.5	68.5	78.5	88.5	98.5
9	19.0	29.0	39.0	49.0	59.0	69.0	79.0	89.0	99.0
K	19.5	29.5	39.5	49.5	59.5	69.5	79.5	89.5	99.5

For less than 10μF, a decimal point position is displayed with R.
For 10μF or more, capacitance code is set to the first 2 digits and index (1digit).
Treatment of fraction (Refer to the table)

Example of conversion

Real cap.	The first 2 digits	Treatment of fraction	Code 11th	12th	13th
10.0μF →	10.0 →	10.0 →	1	0	0
10.1μF →	10.1 →	10.0 →	1	0	0
10.2μF →	10.2 →	10.0 →	1	0	0
10.3μF →	10.3 →	10.5 →	1	A	0
10.4μF →	10.4 →	10.5 →	1	A	0
10.5μF →	10.5 →	10.5 →	1	A	0
10.6μF →	10.6 →	10.5 →	1	A	0
10.7μF →	10.7 →	10.5 →	1	A	0
10.8μF →	10.8 →	11.0 →	1	1	0
10.9μF →	10.9 →	11.0 →	1	1	0
11.0μF →	11.0 →	11.0 →	1	1	0
132μF →	13.2 →	13.0 →	1	3	1
133μF →	13.3 →	13.5 →	1	D	1
167μF →	16.7 →	16.5 →	1	G	1
168μF →	16.8 →	17.0 →	1	7	1
1110μF →	11.1 →	11.0 →	1	1	2
1340μF →	13.4 →	13.5 →	1	D	2
13200μF →	13.2 →	13.0 →	1	3	3
13600μF →	13.6 →	13.5 →	1	D	3
270000μF →	27.0 →	27.0 →	2	7	4

◆Case length (Radial lead type)

Case length [mm]	16th	17th
0.0	—	—
0.1	0	B
0.2	0	C
0.3	0	D
0.4	0	E
0.5	0	F
0.6	0	G
0.7	0	H
0.8	0	J
0.9	0	K

Case length [mm]	16th	17th
1.0	0	1
1.1	1	B
1.2	1	C
1.3	1	D
1.4	1	E
1.5	1	F
1.6	1	G
1.7	1	H
1.8	1	J
1.9	1	K

Case length [mm]	16th	17th
2.0	0	2
2.1	2	B
2.2	2	C
2.3	2	D
2.4	2	E
2.5	2	F
2.6	2	G
2.7	2	H
2.8	2	J
2.9	2	K

Case length [mm]	16th	17th
3.0	0	3
3.1	3	B
3.2	3	C
3.3	3	D
3.4	3	E
3.5	3	F
3.6	3	G
3.7	3	H
3.8	3	J
3.9	3	K

Case length [mm]	16th	17th
4.0	0	4
4.1	4	B
4.2	4	C
4.3	4	D
4.4	4	E
4.5	4	F
4.6	4	G
4.7	4	H
4.8	4	J
4.9	4	K

Case length [mm]	16th	17th
5.0	0	5
5.1	5	B
5.2	5	C
5.3	5	D
5.4	5	E
5.5	5	F
5.6	5	G
5.7	5	H
5.8	5	J
5.9	5	K

Case length [mm]	16th	17th
6.0	0	6
6.1	6	B
6.2	6	C
6.3	6	D
6.4	6	E
6.5	6	F
6.6	6	G
6.7	6	H
6.8	6	J
6.9	6	K

Case length [mm]	16th	17th
7.0	0	7
7.1	7	B
7.2	7	C
7.3	7	D
7.4	7	E
7.5	7	F
7.6	7	G
7.7	7	H
7.8	7	J
7.9	7	K

Case length [mm]	16th	17th
8.0	0	8
8.1	8	B
8.2	8	C
8.3	8	D
8.4	8	E
8.5	8	F
8.6	8	G
8.7	8	H
8.8	8	J
8.9	8	K

Case length [mm]	16th	17th
9.0	0	9
9.1	9	B
9.2	9	C
9.3	9	D
9.4	9	E
9.5	9	F
9.6	9	G
9.7	9	H
9.8	9	J
9.9	9	K

Case length [mm]	16th	17th
10.0	1	0
10.1	A	1
10.2	A	2
10.3	A	3
10.4	A	4
10.5	A	5
10.6	A	6
10.7	A	7
10.8	A	8
10.9	A	9

Case length [mm]	16th	17th
11.0	1	1
11.1	B	1
11.2	B	2
11.3	B	3
11.4	B	4
11.5	B	5
11.6	B	6
11.7	B	7
11.8	B	8
11.9	B	9

Case length [mm]	16th	17th
12.0	1	2
12.1	C	1
12.2	C	2
12.3	C	3
12.4	C	4
12.5	C	5
12.6	C	6
12.7	C	7
12.8	C	8
12.9	C	9

Case length [mm]	16th	17th
13.0	1	3
13.1	D	1
13.2	D	2
13.3	D	3
13.4	D	4
13.5	D	5
13.6	D	6
13.7	D	7
13.8	D	8
13.9	D	9

Case length [mm]	16th	17th
14.0	1	4
14.1	E	1
14.2	E	2
14.3	E	3
14.4	E	4
14.5	E	5
14.6	E	6
14.7	E	7
14.8	E	8
14.9	E	9

PART NUMBERING SYSTEM

Case length [mm]	16th	17th
15.0	1	5
15.1	F	1
15.2	F	2
15.3	F	3
15.4	F	4
15.5	F	5
15.6	F	6
15.7	F	7
15.8	F	8
15.9	F	9

Case length [mm]	16th	17th
16.0	1	6
16.1	G	1
16.2	G	2
16.3	G	3
16.4	G	4
16.5	G	5
16.6	G	6
16.7	G	7
16.8	G	8
16.9	G	9

Case length [mm]	16th	17th
17.0	1	7
17.1	H	1
17.2	H	2
17.3	H	3
17.4	H	4
17.5	H	5
17.6	H	6
17.7	H	7
17.8	H	8
17.9	H	9

Case length [mm]	16th	17th
18.0	1	8
18.1	J	1
18.2	J	2
18.3	J	3
18.4	J	4
18.5	J	5
18.6	J	6
18.7	J	7
18.8	J	8
18.9	J	9

Case length [mm]	16th	17th
19.0	1	9
19.1	K	1
19.2	K	2
19.3	K	3
19.4	K	4
19.5	K	5
19.6	K	6
19.7	K	7
19.8	K	8
19.9	K	9

Case length [mm]	16th	17th
20.0	2	0
20.5	L	1
21.0	2	1
21.5	L	3
22.0	2	2
22.5	L	5
23.0	2	3
23.5	L	7
24.0	2	4
24.5	L	9
25.0	2	5
25.5	M	1
26.0	2	6
26.5	M	3
27.0	2	7
27.5	M	5
28.0	2	8
28.5	M	7
29.0	2	9
29.5	M	9

Case length [mm]	16th	17th
30.0	3	0
30.5	N	1
31.0	3	1
31.5	N	3
32.0	3	2
32.5	N	5
33.0	3	3
33.5	N	7
34.0	3	4
34.5	N	9
35.0	3	5
35.5	P	1
36.0	3	6
36.5	P	3
37.0	3	7
37.5	P	5
38.0	3	8
38.5	P	7
39.0	3	9
39.5	P	9

Case length [mm]	16th	17th
40.0	4	0
40.5	Q	1
41.0	4	1
41.5	Q	3
42.0	4	2
42.5	Q	5
43.0	4	3
43.5	Q	7
44.0	4	4
44.5	Q	9
45.0	4	5
45.5	R	1
46.0	4	6
46.5	R	3
47.0	4	7
47.5	R	5
48.0	4	8
48.5	R	7
49.0	4	9
49.5	R	9

Case length [mm]	16th	17th
50.0	5	0
50.5	S	1
51.0	5	1
51.5	S	3
52.0	5	2
52.5	S	5
53.0	5	3
53.5	S	7
54.0	5	4
54.5	S	9
55.0	5	5
55.5	T	1
56.0	5	6
56.5	T	3
57.0	5	7
57.5	T	5
58.0	5	8
58.5	T	7
59.0	5	9
59.5	T	9

Case length [mm]	16th	17th
60.0	6	0
60.5	U	1
61.0	6	1
61.5	U	3
62.0	6	2
62.5	U	5
63.0	6	3
63.5	U	7
64.0	6	4
64.5	U	9
65.0	6	5
65.5	V	1
66.0	6	6
66.5	V	3
67.0	6	7
67.5	V	5
68.0	6	8
68.5	V	7
69.0	6	9
69.5	V	9

Case length [mm]	16th	17th
70.0	7	0
70.5	W	1
71.0	7	1
71.5	W	3
72.0	7	2
72.5	W	5
73.0	7	3
73.5	W	7
74.0	7	4
74.5	W	9
75.0	7	5
75.5	X	1
76.0	7	6
76.5	X	3
77.0	7	7
77.5	X	5
78.0	7	8
78.5	X	7
79.0	7	9
79.5	X	9

Case length [mm]	16th	17th
80.0	8	0
80.5	Y	1
81.0	8	1
81.5	Y	3
82.0	8	2
82.5	Y	5
83.0	8	3
83.5	Y	7
84.0	8	4
84.5	Y	9
85.0	8	5
85.5	Z	1
86.0	8	6
86.5	Z	3
87.0	8	7
87.5	Z	5
88.0	8	8
88.5	Z	7
89.0	8	9
89.5	Z	9

PART NUMBERING SYSTEM

◆Case length (Snap-in type / Screw mount terminal type)

Case length [mm]	16th	17th
20	2	0
21	2	1
22	2	2
23	2	3
24	2	4
25	2	5
26	2	6
27	2	7
28	2	8
29	2	9

Case length [mm]	16th	17th
30	3	0
31	3	1
32	3	2
33	3	3
34	3	4
35	3	5
36	3	6
37	3	7
38	3	8
39	3	9

Case length [mm]	16th	17th
40	4	0
41	4	1
42	4	2
43	4	3
44	4	4
45	4	5
46	4	6
47	4	7
48	4	8
49	4	9

Case length [mm]	16th	17th
50	5	0
51	5	1
52	5	2
53	5	3
54	5	4
55	5	5
56	5	6
57	5	7
58	5	8
59	5	9

Case length [mm]	16th	17th
60	6	0
61	6	1
62	6	2
63	6	3
64	6	4
65	6	5
66	6	6
67	6	7
68	6	8
69	6	9

Case length [mm]	16th	17th
70	7	0
71	7	1
72	7	2
73	7	3
74	7	4
75	7	5
76	7	6
77	7	7
78	7	8
79	7	9

Case length [mm]	16th	17th
80	8	0
81	8	1
82	8	2
83	8	3
84	8	4
85	8	5
86	8	6
87	8	7
88	8	8
89	8	9

Case length [mm]	16th	17th
90	9	0
91	9	1
92	9	2
93	9	3
94	9	4
95	9	5
96	9	6
97	9	7
98	9	8
99	9	9

Case length [mm]	16th	17th
100	A	0
101	A	1
102	A	2
103	A	3
104	A	4
105	A	5
106	A	6
107	A	7
108	A	8
109	A	9

Case length [mm]	16th	17th
110	B	0
111	B	1
112	B	2
113	B	3
114	B	4
115	B	5
116	B	6
117	B	7
118	B	8
119	B	9

Case length [mm]	16th	17th
120	C	0
121	C	1
122	C	2
123	C	3
124	C	4
125	C	5
126	C	6
127	C	7
128	C	8
129	C	9

Case length [mm]	16th	17th
130	D	0
131	D	1
132	D	2
133	D	3
134	D	4
135	D	5
136	D	6
137	D	7
138	D	8
139	D	9

Case length [mm]	16th	17th
140	E	0
141	E	1
142	E	2
143	E	3
144	E	4
145	E	5
146	E	6
147	E	7
148	E	8
149	E	9

Case length [mm]	16th	17th
150	F	0
151	F	1
152	F	2
153	F	3
154	F	4
155	F	5
156	F	6
157	F	7
158	F	8
159	F	9

Case length [mm]	16th	17th
160	G	0
161	G	1
162	G	2
163	G	3
164	G	4
165	G	5
166	G	6
167	G	7
168	G	8
169	G	9

Case length [mm]	16th	17th
170	H	0
171	H	1
172	H	2
173	H	3
174	H	4
175	H	5
176	H	6
177	H	7
178	H	8
179	H	9

Case length [mm]	16th	17th
180	J	0
181	J	1
182	J	2
183	J	3
184	J	4
185	J	5
186	J	6
187	J	7
188	J	8
189	J	9

Case length [mm]	16th	17th
190	K	0
191	K	1
192	K	2
193	K	3
194	K	4
195	K	5
196	K	6
197	K	7
198	K	8
199	K	9

Case length [mm]	16th	17th
200	L	0
201	L	1
202	L	2
203	L	3
204	L	4
205	L	5
206	L	6
207	L	7
208	L	8
209	L	9

Case length [mm]	16th	17th
210	M	0
211	M	1
212	M	2
213	M	3
214	M	4
215	M	5
216	M	6
217	M	7
218	M	8
219	M	9

Case length [mm]	16th	17th
220	N	0
221	N	1
222	N	2
223	N	3
224	N	4
225	N	5
226	N	6
227	N	7
228	N	8
229	N	9

Case length [mm]	16th	17th
230	P	0
231	P	1
232	P	2
233	P	3
234	P	4
235	P	5
236	P	6
237	P	7
238	P	8
239	P	9

Case length [mm]	16th	17th
240	Q	0
241	Q	1
242	Q	2
243	Q	3
244	Q	4
245	Q	5
246	Q	6
247	Q	7
248	Q	8
249	Q	9

Case length [mm]	16th	17th
250	R	0
251	R	1
252	R	2
253	R	3
254	R	4
255	R	5
256	R	6
257	R	7
258	R	8
259	R	9

PART NUMBERING SYSTEM

◆Supplement code

Surface mount type / Conductive polymer (Include Radial lead type)

	Terminal plating material (Radial lead type)		
	Sn100%	Sn-Bi	Sn-Pb
Coating case	S	G	N

Radial lead type / Snap-in type

		Terminal plating material (Radial lead type)		
		Sn100%	Sn-Bi	Sn-Pb
Outer sleeve	PET	S	D	C
	Coating case	H	G	F
	Polyolefin	L	—	—
	Pb-free PVC	M	—	N
	PVC	B	A	N

* Pb-free snap-in type does not have a top disc.
We also produce Pb-free snap-in type with "Top disk, Pb-free PVC sleeve and Sn100% terminal plating".
In this case, supplement code (the 18th digit) is "T".

Screw mount terminal type

	Screw terminal
Pb-free PVC	M
Polyolefin	S
PET	C
PVC	N