

6427525 N E C ELECTRONICS INC

05E 22812 D

BIPOLAR ANALOG INTEGRATED CIRCUIT

 μ PC1253HA2

T-74-05-01

RMS LEVEL SENSOR FOR dbx NOISE REDUCTION SYSTEM

DESCRIPTION

The μ PC1253HA2 is dbx noise reduction system RMS (Root Mean Square) level sensor, used in tape deck and other audio equipment.

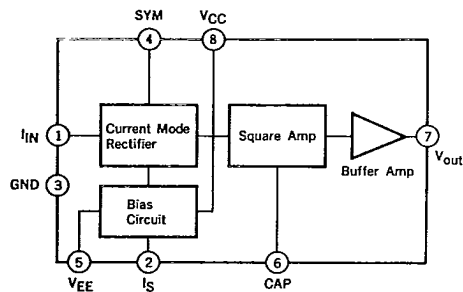
The μ PC1253HA2 features high accurate RMS level sensor for wide input due to NEC's super low noise and high h_{FE} PNP process.

Since the package is 8 pin SIP, it can be built in a compact set.

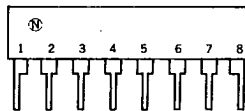
FEATURES

- Wide operating supply voltage $V_{CC} = \pm 4$ to ± 15 V (TYP. ± 12 V)
- Excellent linearity Control Constant $V_C = 5.9$ mV/dB
- Wider input range $v_{in} = -40$ dBV to $+10$ dBV

BLOCK DIAGRAM



CONNECTION DIAGRAM



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ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Supply Voltage	V_{CC}, V_{EE}	± 15	V
Supply Current	I_{CC}	30	mA
Power Dissipation	P_D	330*	mW
Operating Temperature Range	T_{opt}	-20 to $+75$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to $+125$	$^\circ\text{C}$

* Value at $T_a = 75^\circ\text{C}$

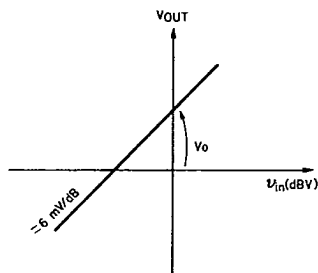
RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Operating Supply Voltage	V_{CC}, V_{EE}	± 4	± 12	± 15	V
Input Level Range	v_{in}	-40		$+10$	dBV
Bias Current	I_s		24		μA

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$, $V_{CC} = +12\text{ V}$, $V_{EE} = -12\text{ V}$, $f = 1\text{ kHz}$, $Z_{in} = 33\text{ k}\Omega$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Supply Current	I_{CC}		0.9	2.0	mA	No Signal
Output Level	V_O^*	111	136	161	mV	$V_{IN} = 0\text{ dBV}$
Control Constant	V_C	5.8	5.9	6.1	mV/dB	$v_{in} = -40\text{ dBV}$ to $+10\text{ dBV}$

* Output Level is defined as follows.



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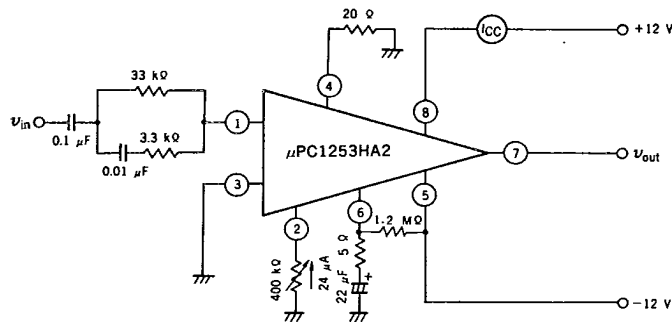
μ PC1253HA2
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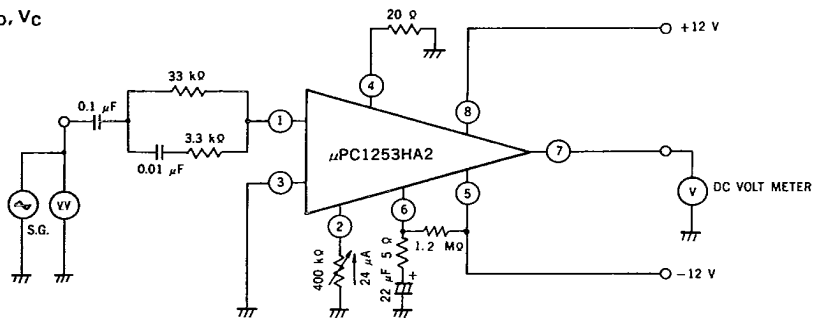
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TEST CIRCUIT

(1) I_{CC}



(2) V_o, V_c



Note for use

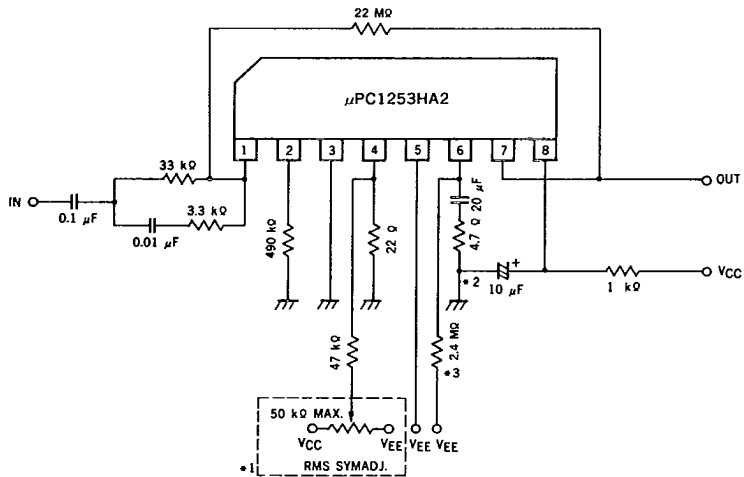
1. Since μ PC1253HA2 is designed for dbx Noise Reduction System, recommend to use μ PC1253HA2 with μ PC1252HA2 (VCA) in case of composing dbx NR system.
2. Documents issued by dbx incorporated have priority over NEC, such as application note or data about dbx NR system.

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μ PC1253HA2
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APPLICATION CIRCUIT

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*1. Possible to omit RMS SYM. ADJ. in case of using this IC with μ PC1252HA2 at THD $\geq$ 0.05 %.

*2. Make GND common about these terminals.

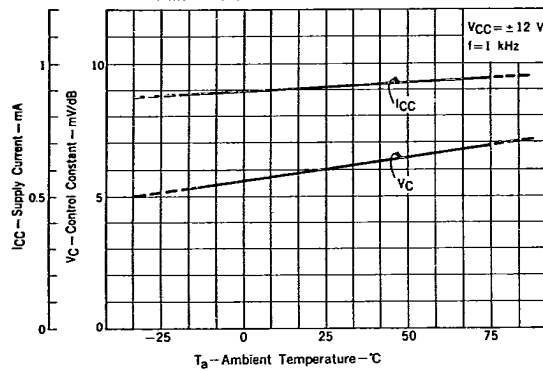
*3. This resistor is for RMS time constant.

Connect 7 PIN OUT to GC1 of μ PC1252HA2 (VCA).

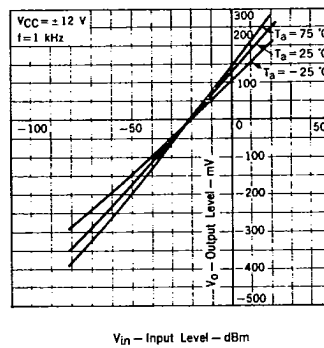
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TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)SUPPLY CURRENT, CONTROL CONSTANT vs.
AMBIENT TEMPERATURE

OUTPUT LEVEL vs. INPUT LEVEL

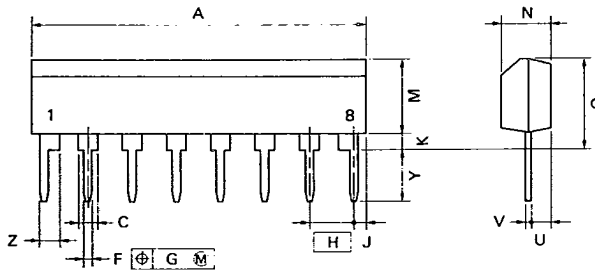


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8 PIN PLASTIC SLIM SIP

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**NOTE**

Each lead centerline is located within 0.25 mm (0.01 inch) of its true position (T.P.) at maximum material condition.

P8HA-254B

ITEM	MILLIMETERS	INCHES
A	20.32 MAX.	0.8 MAX.
C	1.1 MIN.	0.043 MIN.
F	0.5 ^{+0.1}	0.02 ^{+0.004}
G	0.25	0.01
H	2.54	0.1
J	1.27 MAX.	0.05 MAX.
K	0.51 MIN.	0.02 MIN.
M	5.08 MAX.	0.2 MAX.
N	2.8 ^{+0.2}	0.11 ^{+0.008}
Q	5.75 MAX.	0.227 MAX.
U	1.5 MAX.	0.059 MAX.
V	0.25 ^{+0.08}	0.01 ^{+0.003}
Y	3.2 ^{+0.5}	0.126 ^{+0.02}
Z	1.1 MIN.	0.043 MIN.

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