

N-CHANNEL MOS FIELD EFFECT POWER TRANSISTOR

2SK701

DESCRIPTION The 2SK701 is N-Channel MOS Field Effect Power Transistor designed for solenoid, motor and lamp driver.

FEATURES

- 4 V Gate Drive — Logic level —
- Low $R_{DS(on)}$
- No Second Breakdown

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to $+150$ °C

Junction Temperature 150 °C Maximum

Maximum Power Dissipations

Total Power Dissipation 1.3 W

Total Power Dissipation ($T_C = 25$ °C) 15 W

Maximum Voltages and Currents ($T_a = 25$ °C)

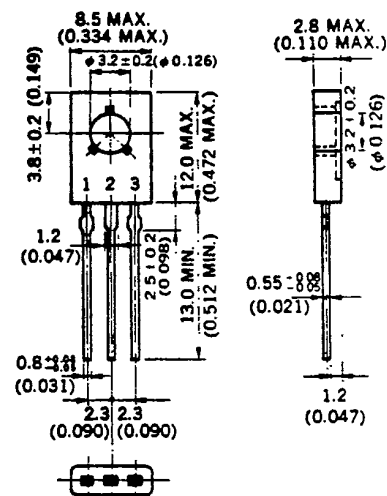
V_{DS} Drain to Source Voltage 60 V

V_{GS} Gate to Source Voltage ± 20 V

$I_{D(DC)}$ Drain Current (DC) ± 2 A

$I_{D(pulse)}$ Drain Current (pulse)* ± 6 A

* $PW \leq 300$ μs , Duty Cycle ≤ 10 %

PACKAGE DIMENSIONS
in millimeters (inches)

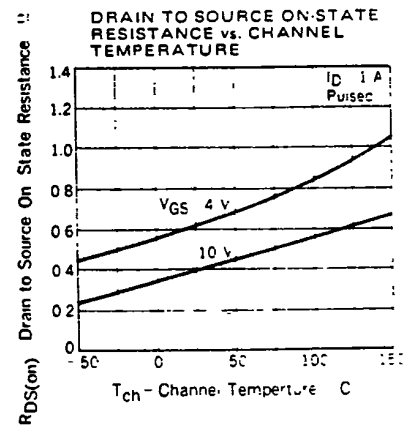
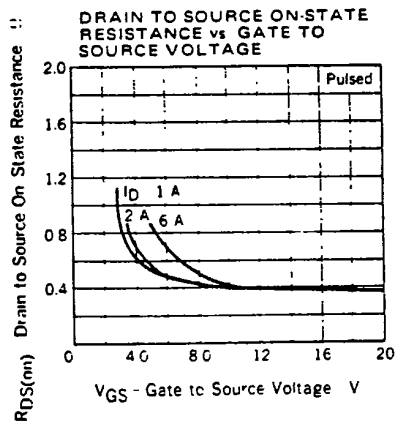
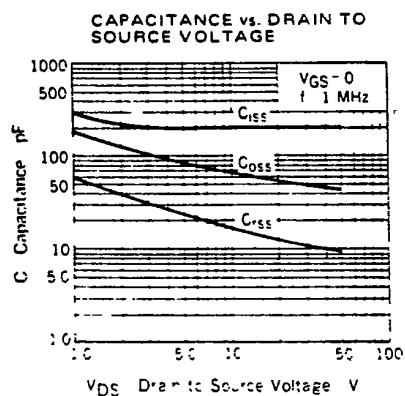
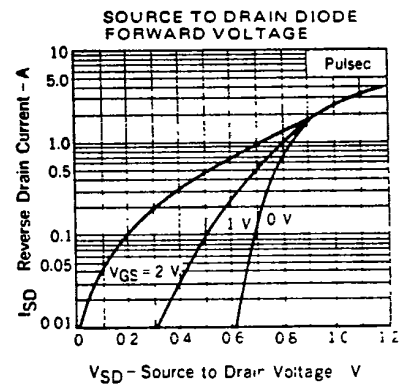
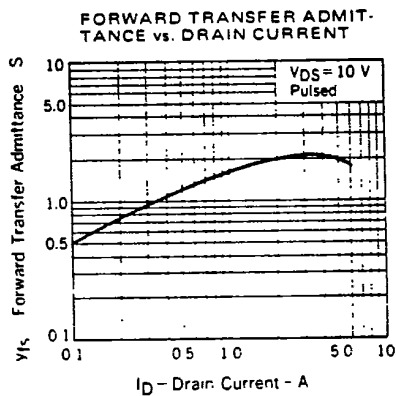
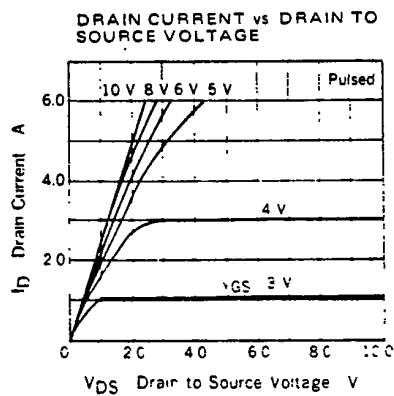
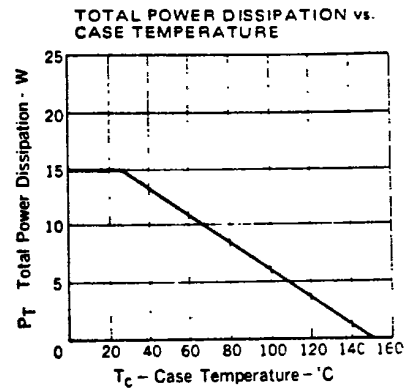
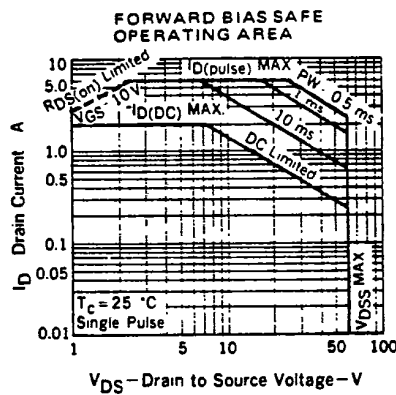
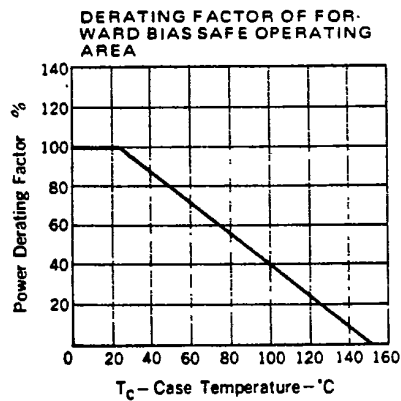
1. Source
2. Drain connected to mounting plane
3. Gate

ELECTRICAL CHARACTERISTICS ($T_a = 25$ °C)

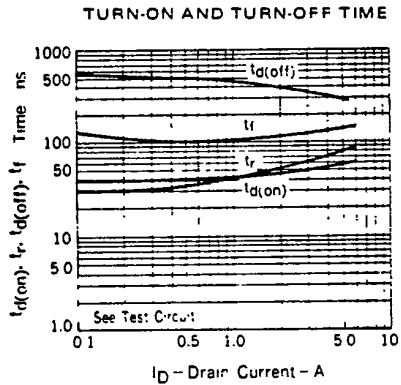
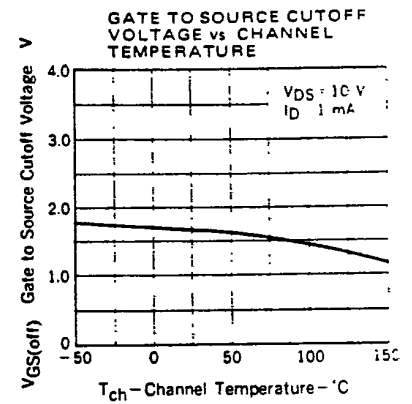
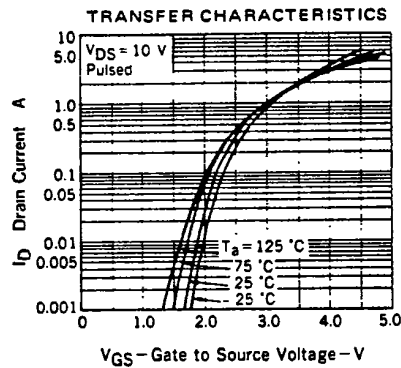
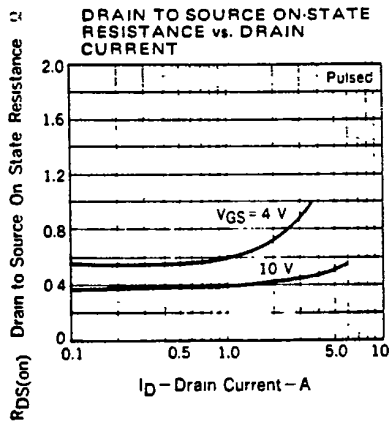
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$R_{DS(on)}$	Drain to Source On-State Resistance		0.4	0.6	Ω	$V_{GS} = 10$ V, $I_D = 1$ A
$R_{DS(on)}$	Drain to Source On-State Resistance		0.6	0.85	Ω	$V_{GS} = 4$ V, $I_D = 1$ A
$V_{GS(off)}$	Gate to Source Cutoff Voltage	1.0		2.5	V	$V_{DS} = 10$ V, $I_D = 1$ mA
$ y_{fs} $	Forward Transfer Admittance	0.5			S	$V_{DS} = 10$ V, $I_D = 1$ A
I_{DSS}	Drain Leakage Current			10	μA	$V_{DS} = 60$ V, $V_{GS} = 0$
I_{GSS}	Gate to Source Leakage Current			± 100	nA	$V_{GS} = \pm 20$ V, $V_{DS} = 0$
C_{iss}	Input Capacitance		200		pF	$V_{DS} = 10$ V $V_{GS} = 0$ $f = 1$ MHz
C_{oss}	Output Capacitance		70		pF	
C_{rss}	Reverse Transfer Capacitance		15		pF	
$t_{d(on)}$	Turn-On Delay Time		45		ns	$I_D = 1$ A, $V_{CC} = 50$ V $R_L = 50$ Ω $R_{in} = 10$ Ω
t_r	Rise Time		40		ns	
$t_{d(off)}$	Turn-Off Delay Time		450		ns	
t_f	Fall Time		110		ns	

2SK701

NEC MICRO DEVICE

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

ESK101



TURN-ON AND TURN-OFF TIME TEST CIRCUIT

