

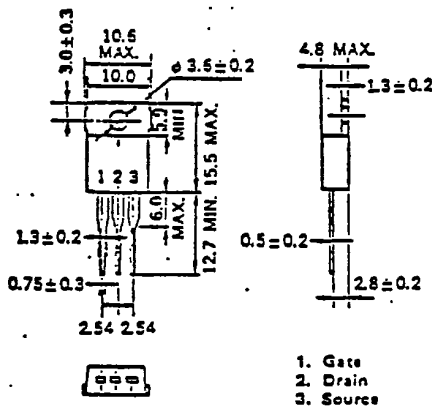
NEC
ELECTRON DEVICE

MOS FIELD EFFECT TRANSISTOR

2SK812

FAST SWITCHING N-CHANNEL SILICON POWER MOS FET

PACKAGE DIMENSIONS (Unit: mm)



Features

- Suitable for switching power supplies, actuator controls and pulse circuits
- 4V Gate Drive — Logic level —
- Large Current Switching : $I_D(DC)=27A$
- Low $R_{DS(on)}$
- No second breakdown

Absolute Maximum Ratings ($T_a=25^\circ C$)

Drain to Source Voltage	V_{DS}	60V
Gate to Source Voltage	V_{GS}	$\pm 20V$
Continuous Drain Current	$I_D(DC)$	$\pm 27A$
Pulse Drain Current	$I_D(pulse)$	$\pm 108A$
Total Power Dissipation	P_T	1.5W
Total Power Dissipation	P_{T*}	60W
Channel Temperature	T_{ch}	150 °C
Storage Temperature	T_{stg}	-55to+150 °C
* $T_{ch} \leq 150^\circ C$ Duty Cycles $\leq 2\%$		
** $T_c=25^\circ C$		

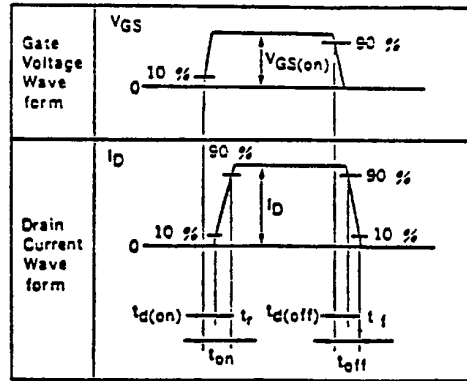
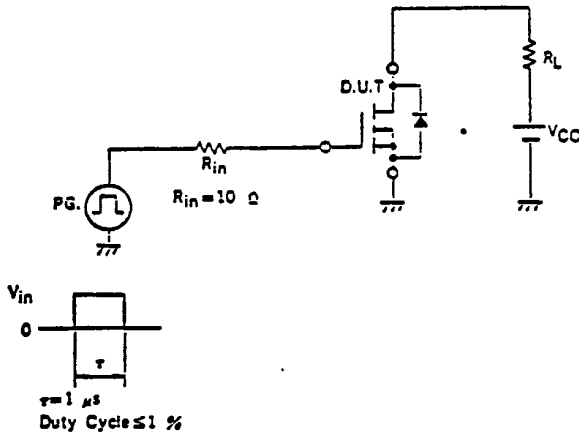
Electrical Characteristics ($T_a=25^\circ C$)

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	I_{DSS}			10	μA	$V_{DS}=60V, V_{GS}=0$
Gate to Source Leakage Current	I_{GSS}			100	nA	$V_{GS}=20V, V_{DS}=0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1.0		2.5	V	$V_{DS}=10V, I_D=1.0mA$
Forward Transfer Admittance	$ y_{fs} $	6.0	12		S	$V_{DS}=10V, I_D=15A$
Drain to Source On-State Resistance	$R_{DS(on)}$		0.07	0.085	Ω	$V_{GS}=10V, I_D=15A$
Drain to Source On-State Resistance	$R_{DS(on)}$		0.1	0.15	Ω	$V_{GS}=1.0V, I_D=15A$
Input Capacitance	C_{iss}		1200		pF	$V_{DS}=10V,$
Output Capacitance	C_{oss}		520		pF	$V_{GS}=0,$
Reverse Transfer Capacitance	C_{rss}		130		pF	$f=1.0MHz$
Turn-On Delay Time	$t_{d(on)}$		10		ns	$I_D=15A,$
Rise Time	t_r		10		ns	$V_{GS(on)}=10V,$
Turn-Off Delay Time	$t_{d(off)}$		70		ns	$V_{CC}=30V,$
Fall Time	t_f		100		ns	$R_L=2.0\Omega$

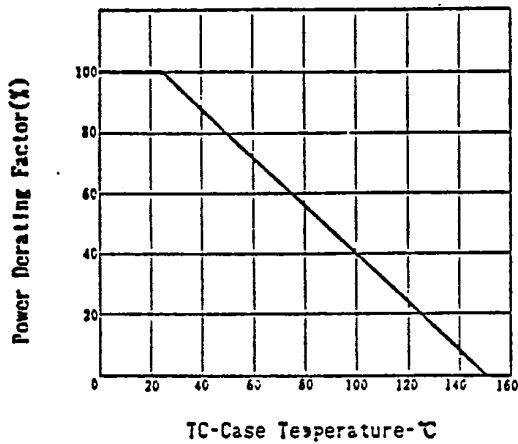
NEC cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement.

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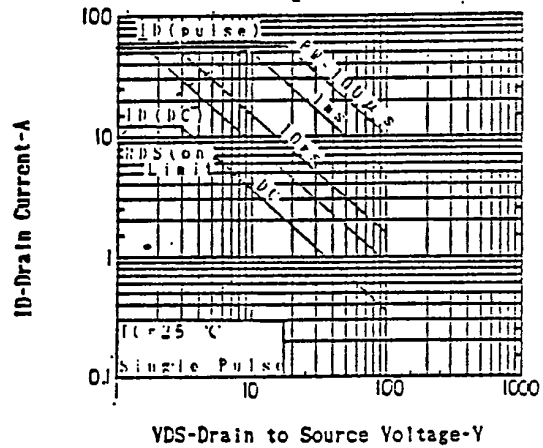
TURN-ON AND TURN-OFF TIME TEST CIRCUIT



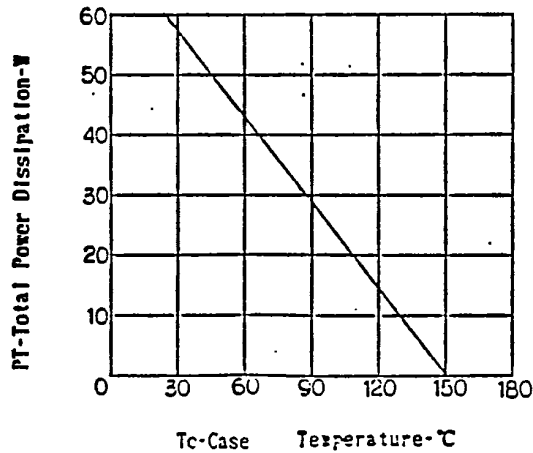
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



FORWARD BIAS SAFE OPERATING AREA



TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

