



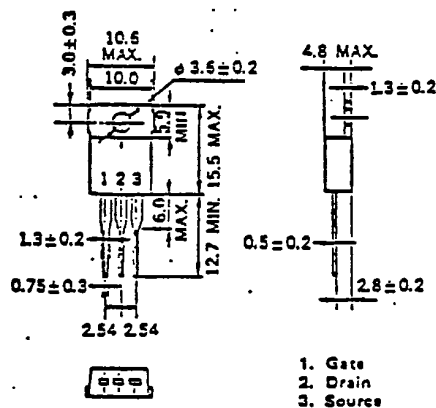
MOS FIELD EFFECT TRANSISTOR

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

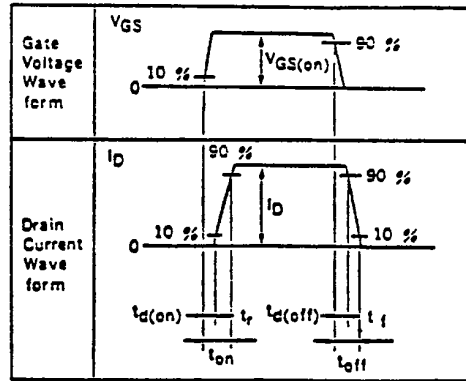
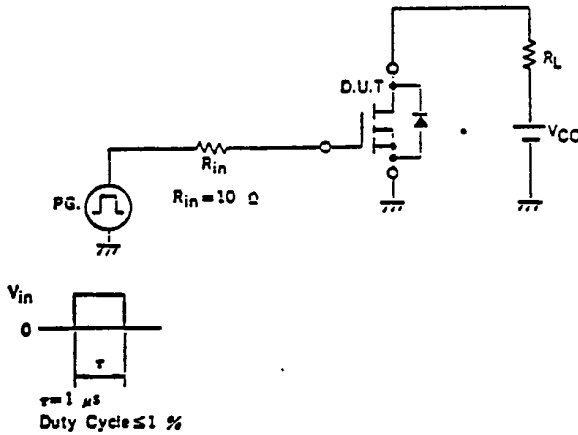
Absolute Maximum Ratings ($T_a=25^\circ C$)

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 $\leq 2\%$		
** $T_c=25^\circ C$		

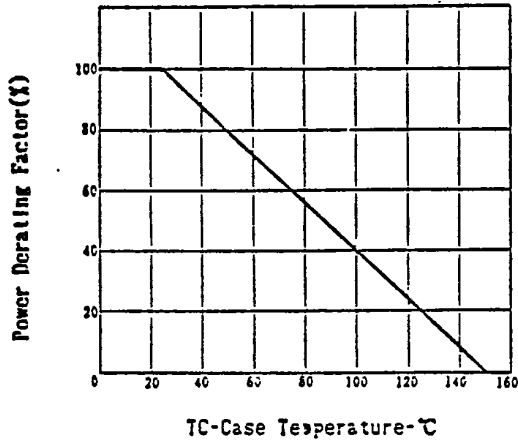
Electrical Characteristics ($T_a=25^\circ C$)

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	$R_L=2.0\Omega$

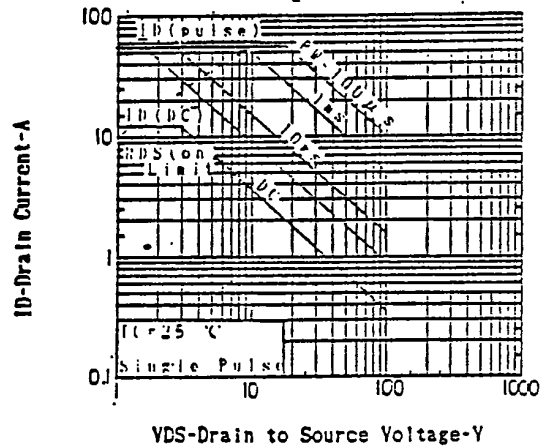
TURN-ON AND TURN-OFF TIME TEST CIRCUIT



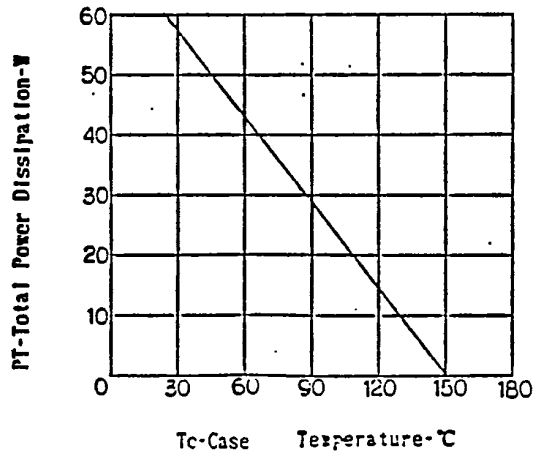
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



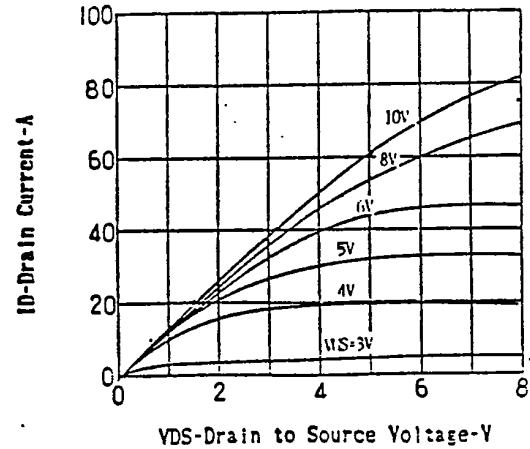
FORWARD BIAS SAFE OPERATING AREA

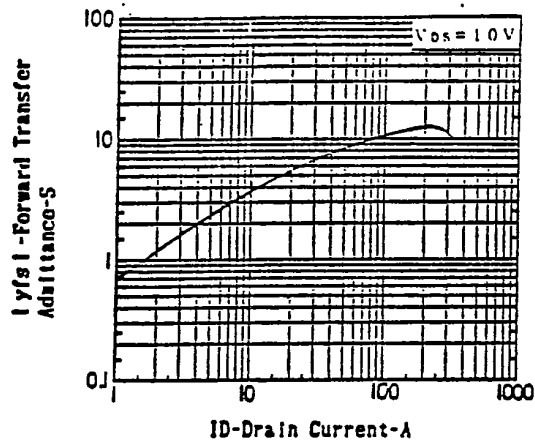
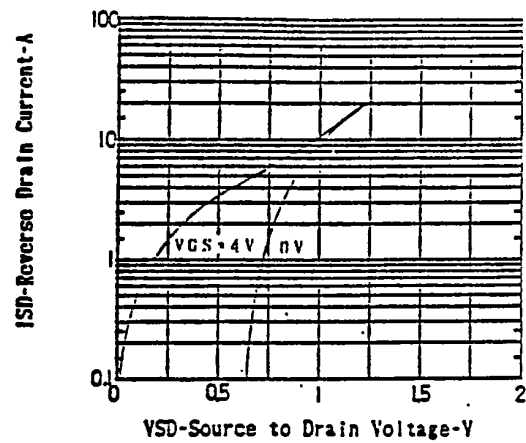
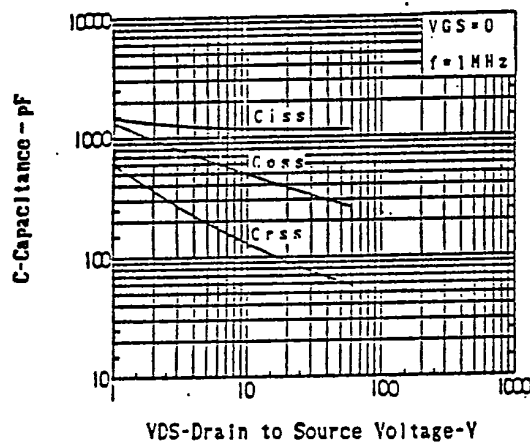
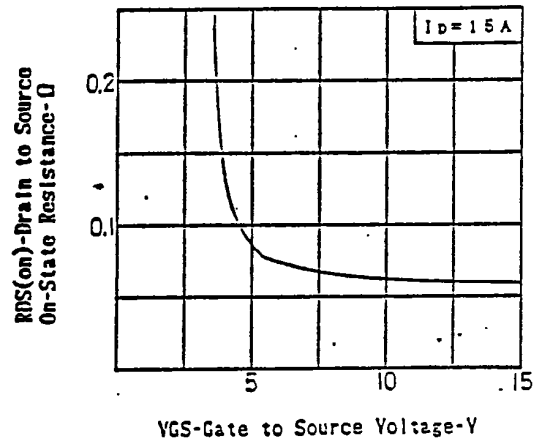
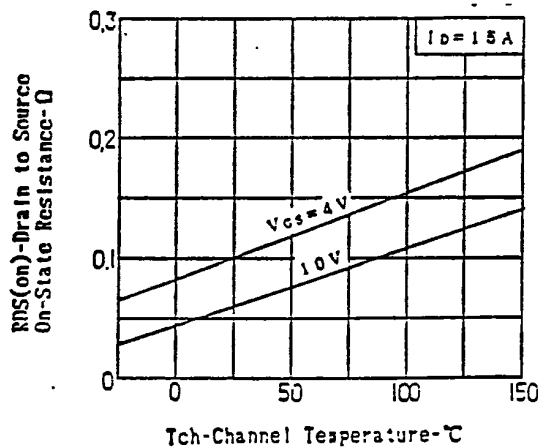
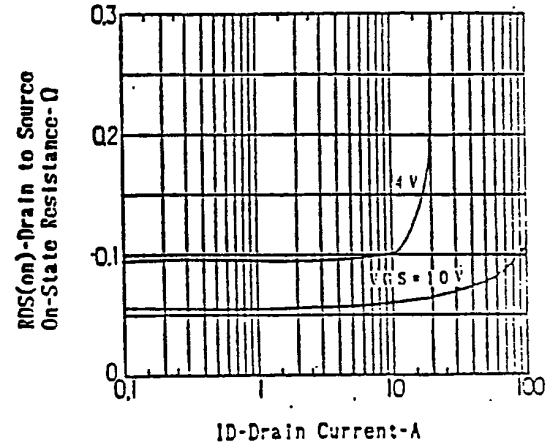


TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



FORWARD TRANSFER ADMITTANCE
vs. DRAIN CURRENTSOURCE TO DRAIN DIODE
FORWARD VOLTAGECAPACITANCE vs. DRAIN TO
SOURCE VOLTAGEDRAIN TO SOURCE ON-STATE RESISTANCE
vs. GATE TO SOURCE VOLTAGEDRAIN TO SOURCE ON-STATE RESISTANCE
vs. CHANNEL TEMPERATUREDRAIN TO SOURCE ON-STATE RESISTANCE
vs. DRAIN CURRENT

6427525 N E C ELECTRONICS INC

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