



6427525 N E C ELECTRONICS INC

98D 18966 D 7-39-01

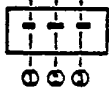
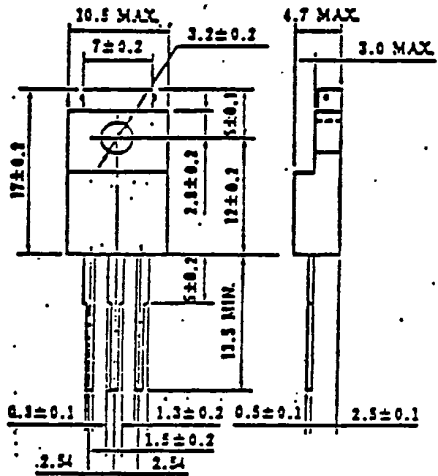
MOS FIELD EFFECT TRANSISTOR

2SK811

FAST SWITCHING
N-CHANNEL SILICON POWER MOS FET

PACKAGE DIMENSIONS

(Unit: mm)



- 1. Gate
- 2. Drain
- 3. Source

Features

- Suitable for switching power supplies, actuator controls and pulse circuits
- 4V Gate Drive — Logic level —
- Large Current Switching : $I_D(DC)=12A$
- Low $R_{DS(on)}$
- No second breakdown

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

Drain to Source Voltage	V_{DS}	100V
Gate to Source Voltage	V_{GS}	$\pm 20V$
Continuous Drain Current	$I_D(DC)$	$\pm 12A$
Pulse Drain Current	$I_D(pulse)$	$* \pm 48A$
Total Power Dissipation	P_T	2.0W
Total Power Dissipation	P_{T*}	35W
Channel Temperature	T_{ch}	150 °C
Storage Temperature	T_{stg}	-55to+150 °C
	* $T_{ch} \leq 150^\circ C$	
	** $T_c = 25^\circ C$	

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

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	I_{DSS}			10	μA	$V_{DS}=100V, V_{GS}=0$
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} $	4.0	10		S	$V_{DS}=10V, I_D=8.0A$
Drain to Source On-State Resistance	$R_{DS(on)}$		0.1	0.18	Ω	$V_{GS}=10V, I_D=8.0A$
Drain to Source On-State Resistance	$R_{DS(on)}$		0.15	0.25	Ω	$V_{GS}=4.0V, I_D=8.0A$
Input Capacitance	C_{iss}		1200		pF	$V_{DS}=10V, V_{GS}=0,$
Output Capacitance	C_{oss}		400		pF	$f=1.0MHz$
Reverse Transfer Capacitance	C_{rss}		90		pF	$I_D=8.0A,$
Turn-On Delay Time	$t_d(on)$		10		ns	$V_{GS(on)}=10V,$
Rise Time	t_r		20		ns	$V_{CC}=40V,$
Turn-Off Delay Time	$t_d(off)$		65		ns	$R_L=5.0\Omega$
Fall Time	t_f		55		ns	

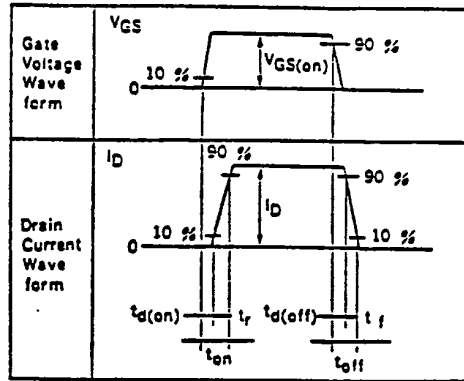
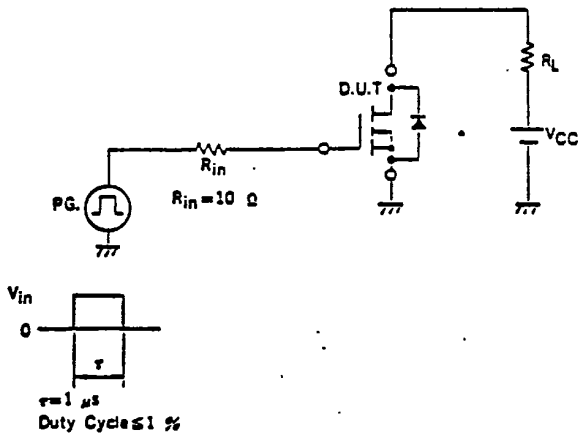
NEC cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement.

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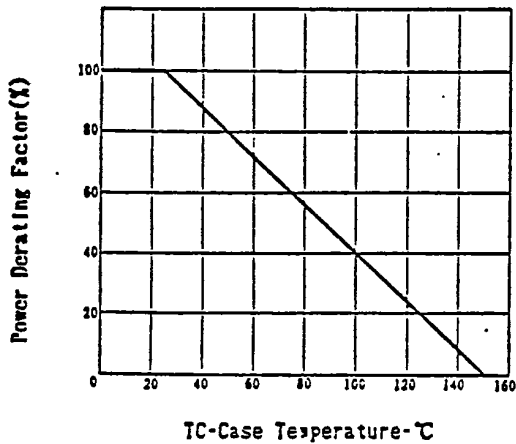
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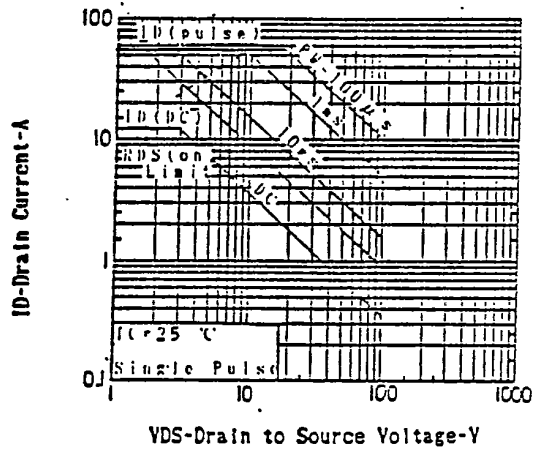
TURN-ON AND TURN-OFF TIME TEST CIRCUIT



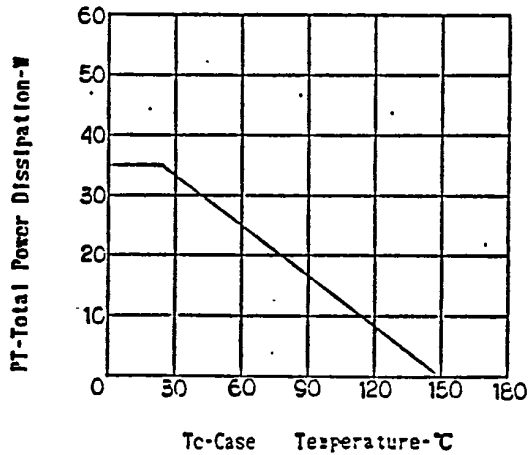
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



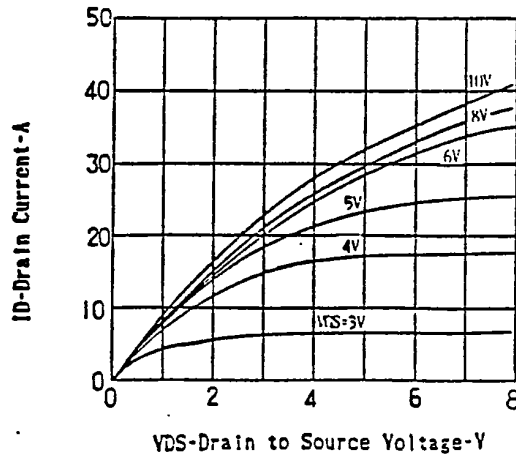
FORWARD BIAS SAFE OPERATING AREA

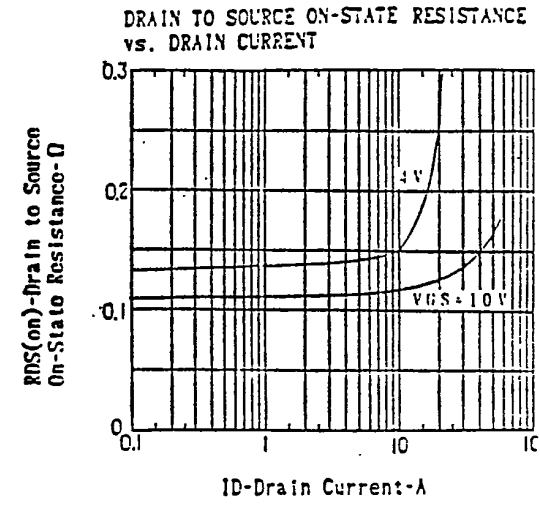
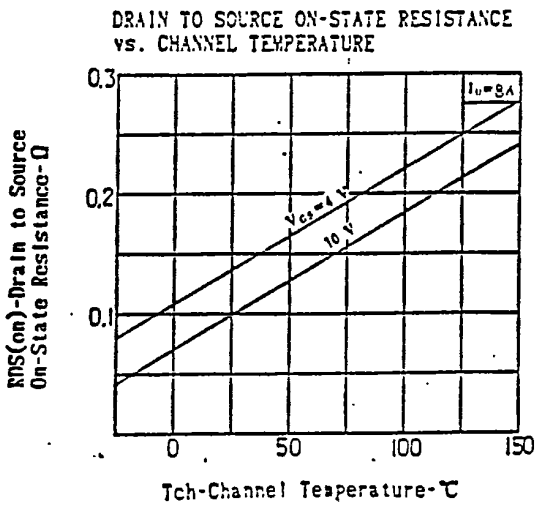
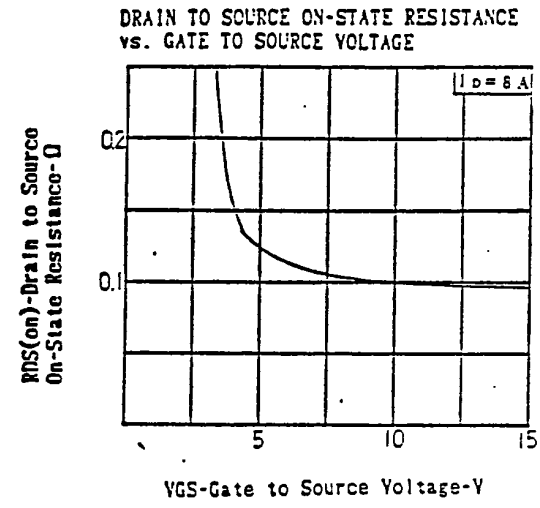
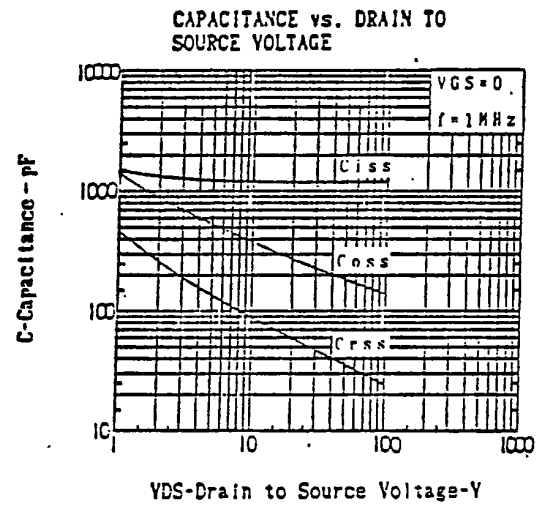
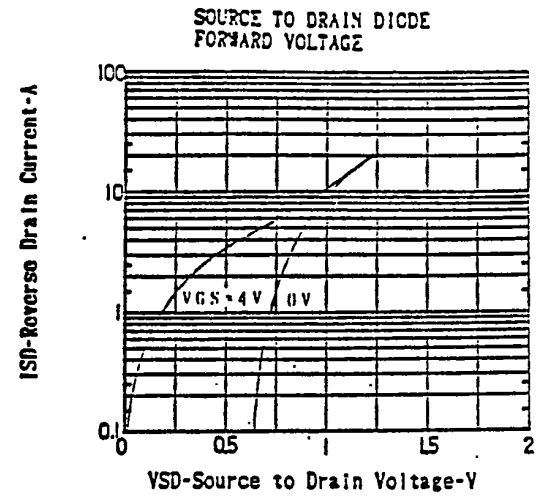
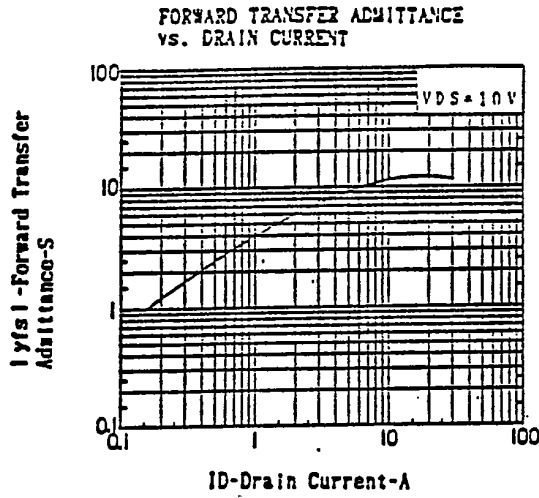


TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE





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