

NEC
ELECTRON DEVICE

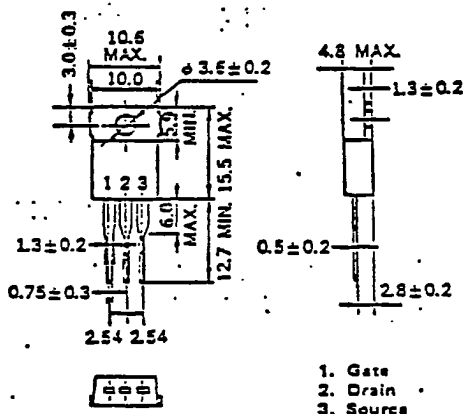
MOS FIELD EFFECT TRANSISTOR

2SK810

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 : $I_D(DC)=14A$
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	$I_D(DC)$	$\pm 14A$
Pulse Drain Current	$I_D(pulse)$	$\pm 56A$
Total Power Dissipation	P_T	1.5W
Total Power Dissipation	$P_{T\ddagger}$	60W
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 ($T_a=25^\circ C$)

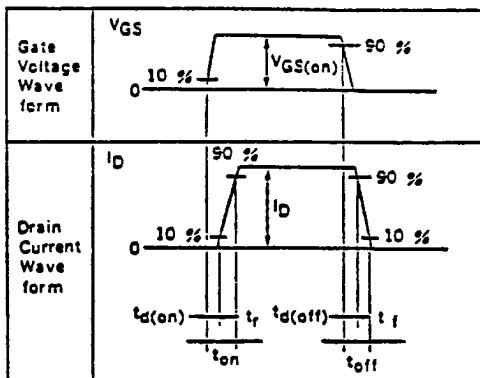
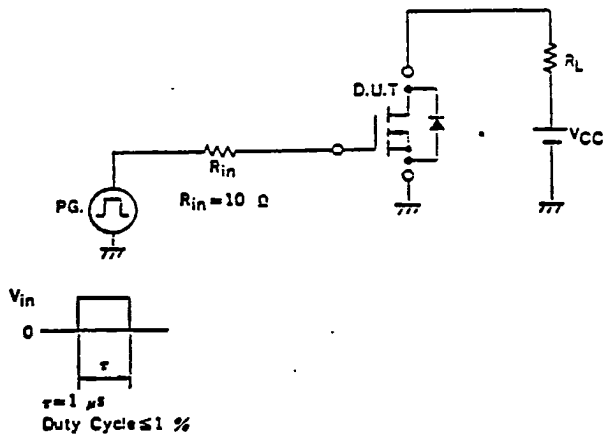
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	I_{DSS}			10	μA	$V_{DS}=100V, V_{GS}=0$
Gate to Source Leakage Current	I_{GSS}			100	nA	$V_{GS}=20V, V_{DS}=0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1.0		2.5	V	$V_{DS}=10V, I_D=1.0mA$
Forward Transfer Admittance	$ y_{fs} $	4.0	10		S	$V_{DS}=10V, I_D=3.0A$
Drain to Source On-State Resistance	$R_{DS(on)}$		0.1	0.18	Ω	$V_{GS}=10V, I_D=3.0A$
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	$I_D=3.0A,$ $V_{GS}(on)=10V,$
Turn-On Delay Time	$t_d(on)$		10		ns	$V_{cc}=40V,$ $RL=5.0\Omega$
Rise Time	t_r		20		ns	
Turn-Off Delay Time	$t_d(off)$		65		ns	
Fall Time	t_f		55		ns	

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

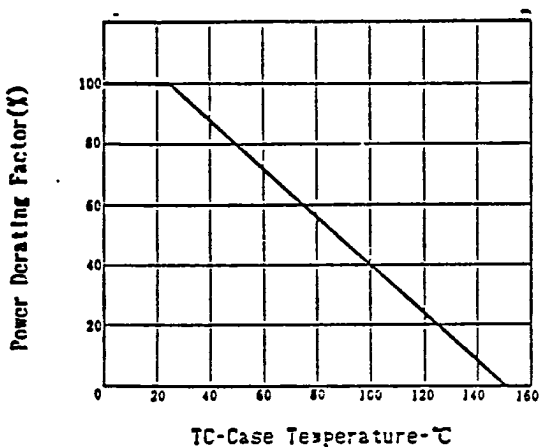
NEC Corporation

6427525 N E C ELECTRONICS INC
TURN-ON AND TURN-OFF TIME TEST CIRCUIT

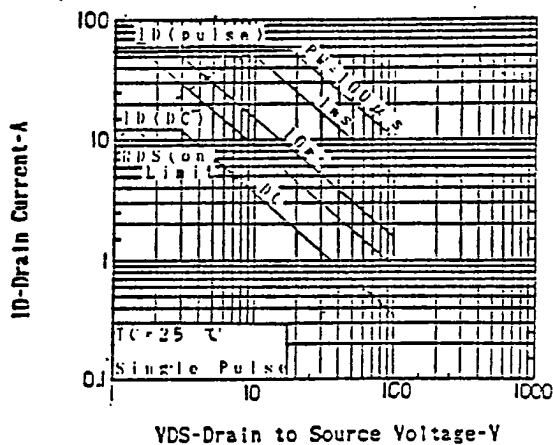
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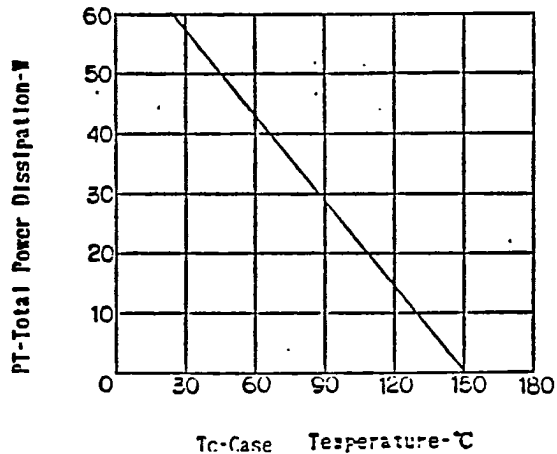
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



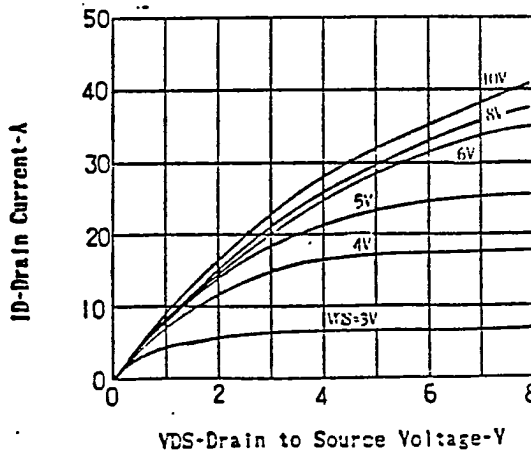
FORWARD BIAS SAFE OPERATING AREA



TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



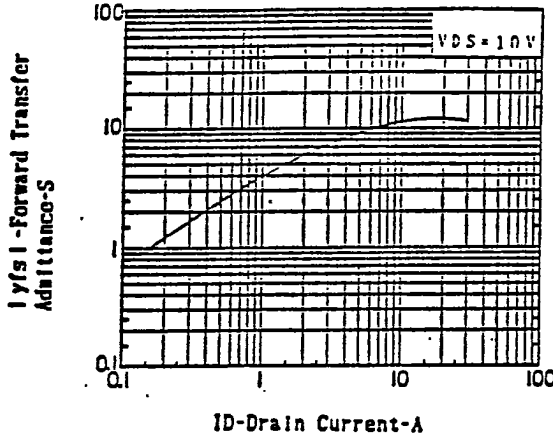
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



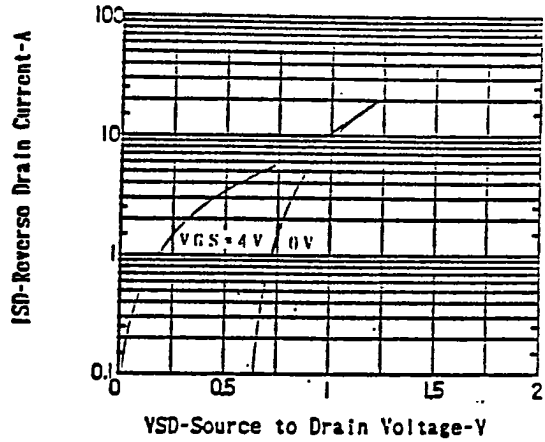
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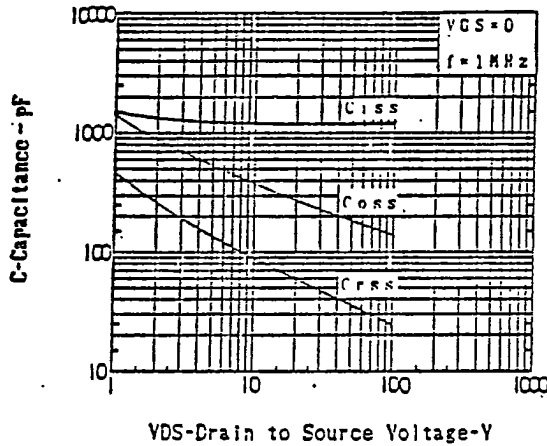
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



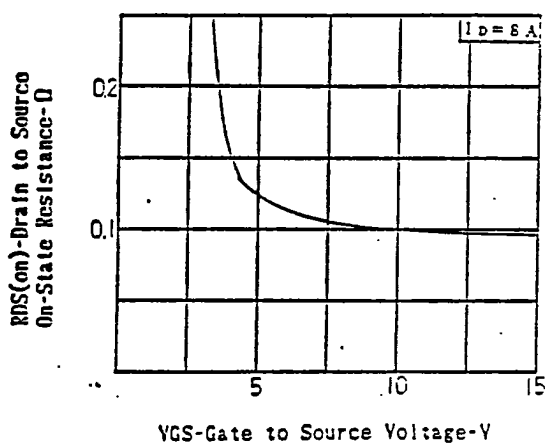
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



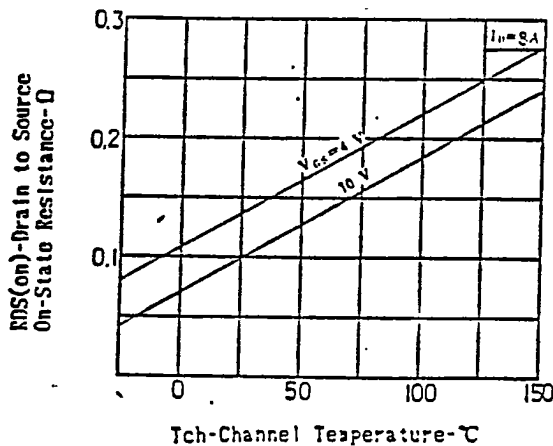
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



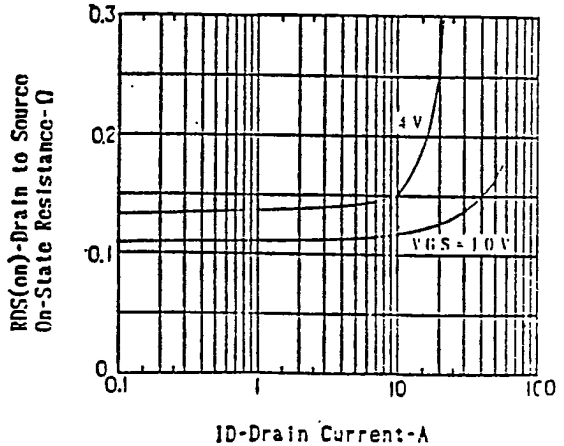
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE

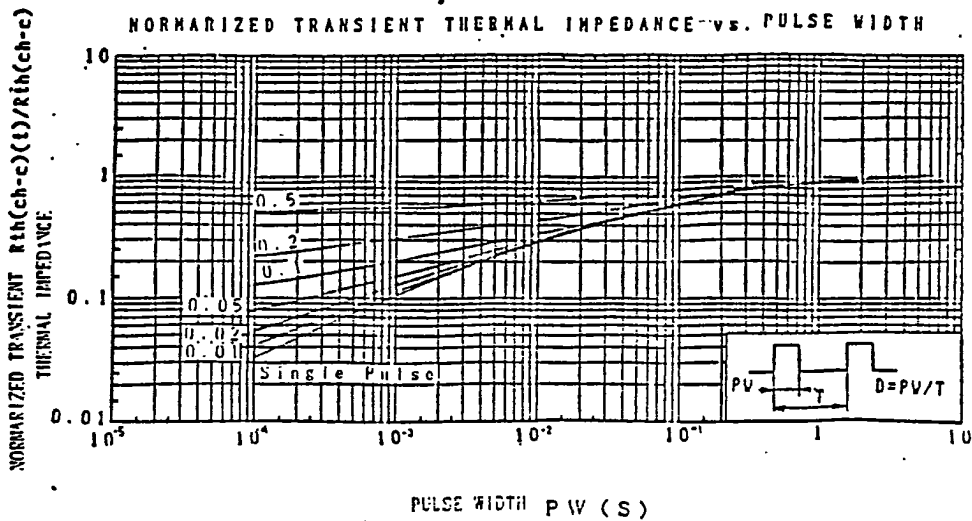
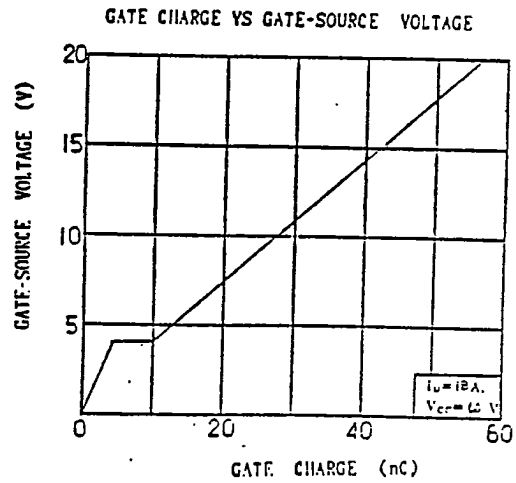
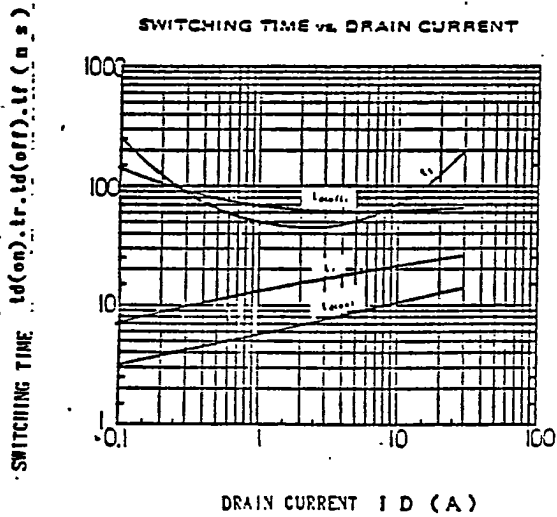
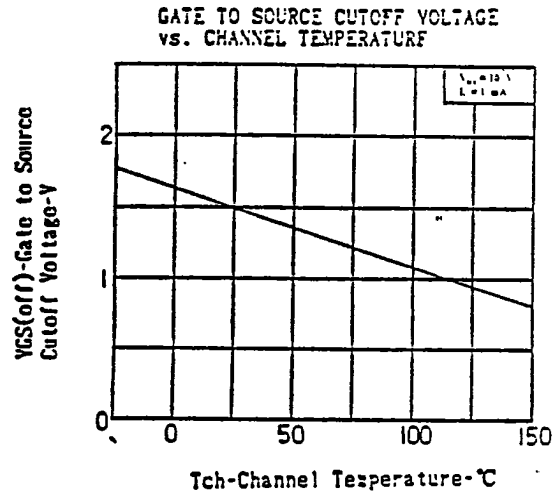
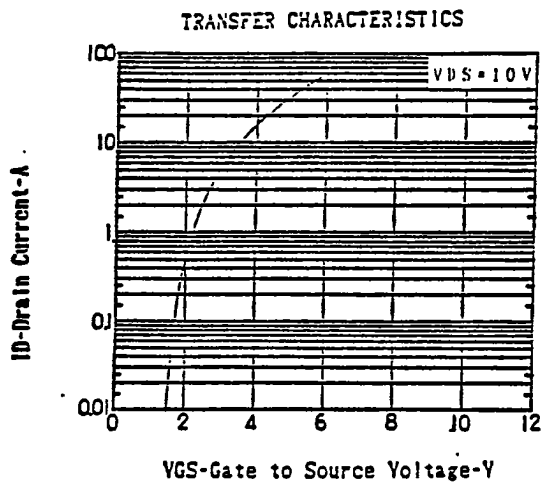


DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT





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