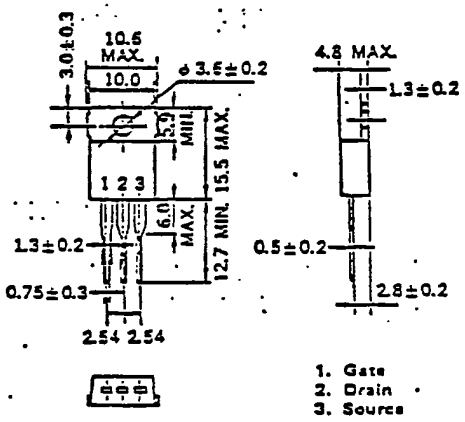
NEC
ELECTRON DEVICE

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 : ID(DC)=14A
Low RDS(on)
No second breakdown

Absolute Maximum Ratings(Ta=25°C)

Drain to Source Voltage	VDSS	100V
Gate to Source Voltage	VGSS	± 20V
Continuous Drain Curre	ID(DC)	± 14A
Pulse Drain Current	ID(pulse)	*± 56A
Total Power Dissipation	PT	1.5W
Total Power Dissipation	PT**	60W
Channel Temperature	Tch	150 °C
Storage Temperature	Tstg	-55to+150 °C

* Tch≦150 °C
** Tc=25 °C

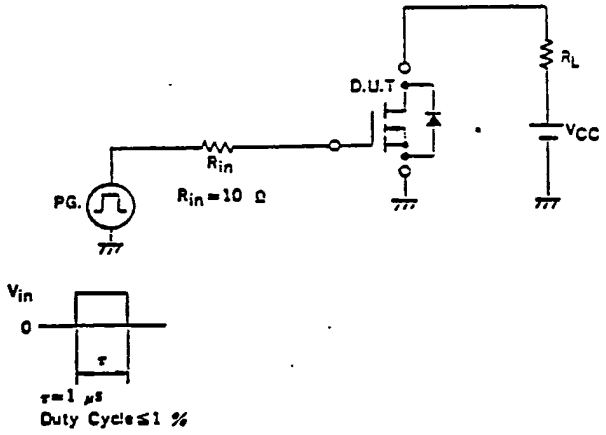
Electrical Characteristics (Ta=25 °C)

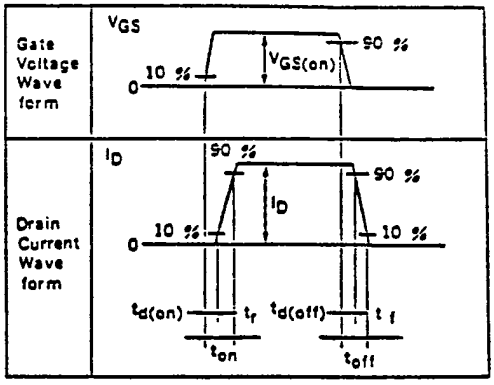
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	IDSS			10	μA	VDS=100V,VGS=0
Gate to Source Leakage Current	IGSS			100	nA	VGS= 20V,VDS=0
Gate to Source Cutoff Voltage	VGS(off)	1.0		2.5	V	VDS=10V,ID=1.0mA
Forward Transfer Admittance	|yfs|	4.0	10		S	VDS=10V,ID=8.0A
Drain to Source On-State Resistance	RDS(on)		0.1	0.18	Ω	VGS=10V,ID=8.0A
Drain to Source On-State Resistance	RDS(on)		0.15	0.25	Ω	VGS=4.0VID=8.0A
Input Capacitance	Ciss		1200		pF	VDS=.10V,
Output Capacitance	Coss		400		pF	VGS=0,
Reverse Transfer Capacitance	Crss		90		pF	f=1.0MHz
Turn-On Delay Time	td(on)		10		ns	ID=8.0A,
Rise Time	tr		20		ns	VGS(on)= 10V,
Turn-Off Delay Time	td(off)		65		ns	Vcc= 40V,
Fall Time	tf		55		ns	RL= 5.0 Ω

NEC Corporation

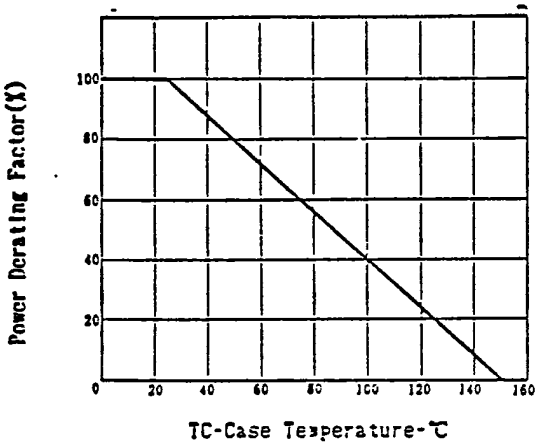
6427525 N E C ELECTRONICS INC 98D 18963 D T-39-11

TURN-ON AND TURN-OFF TIME TEST CIRCUIT

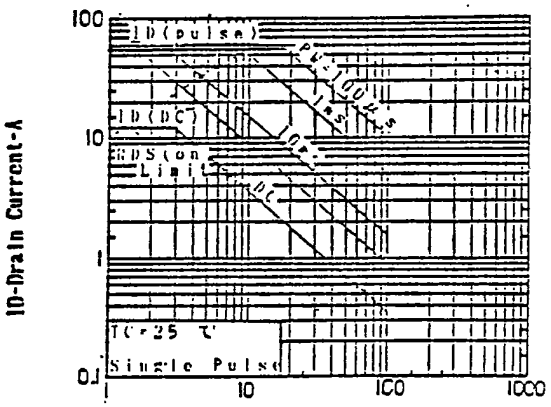




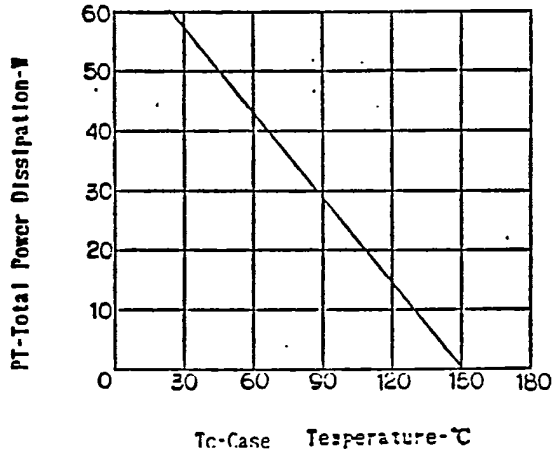
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



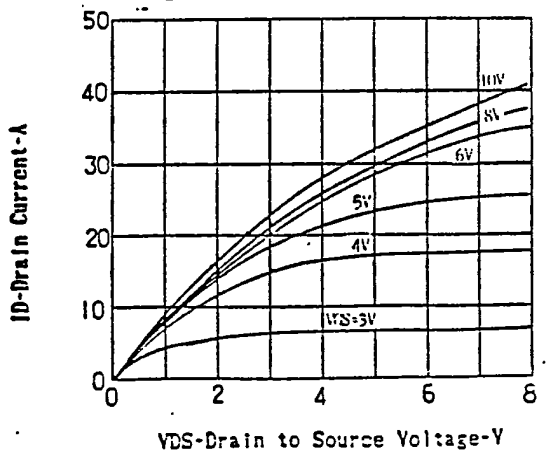
FORWARD BIAS SAFE OPERATING AREA



TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



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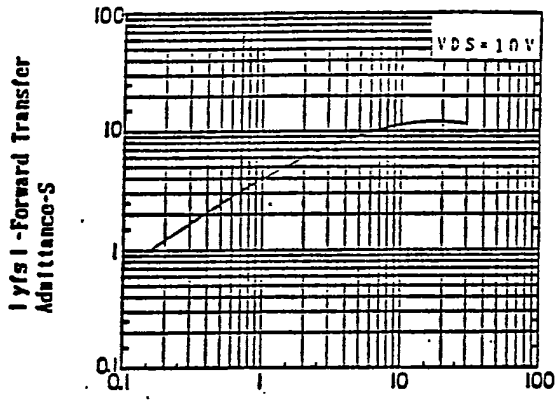
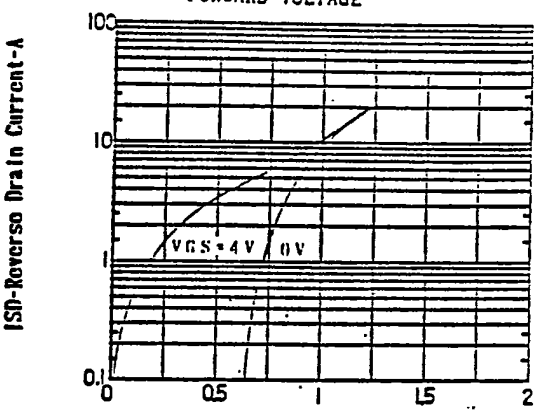
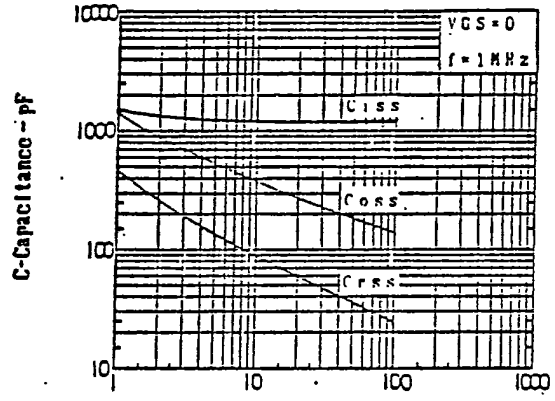
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



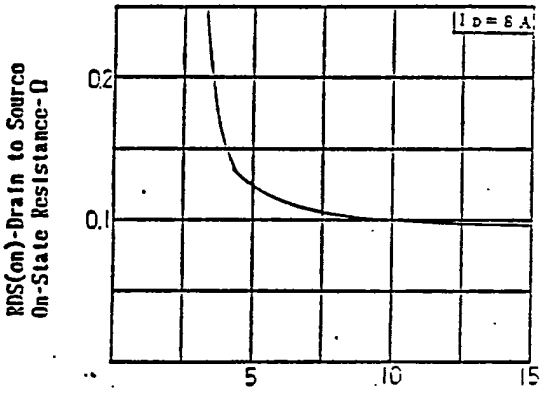
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



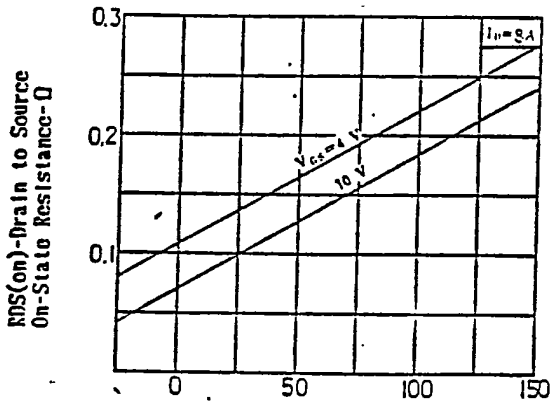
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



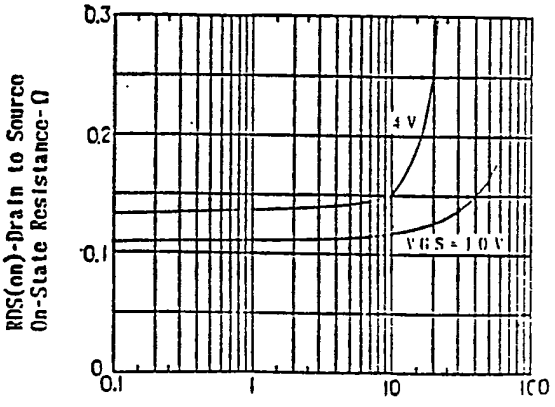
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



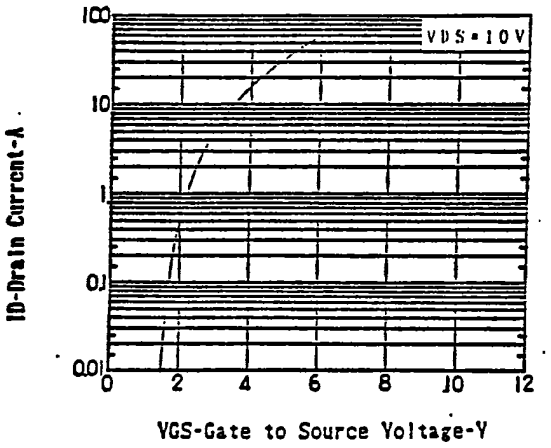
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



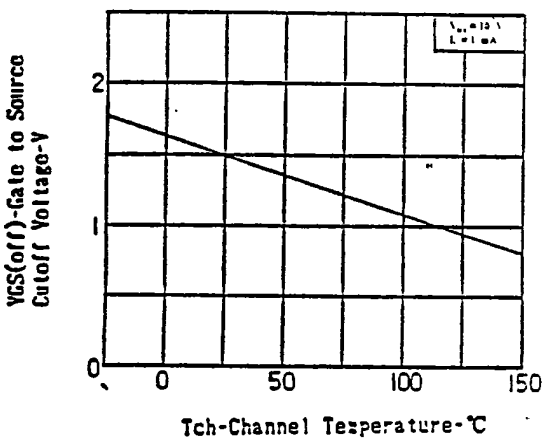
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



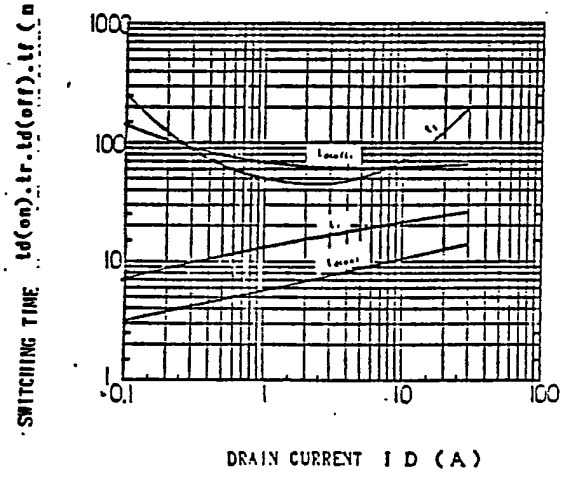
TRANSFER CHARACTERISTICS



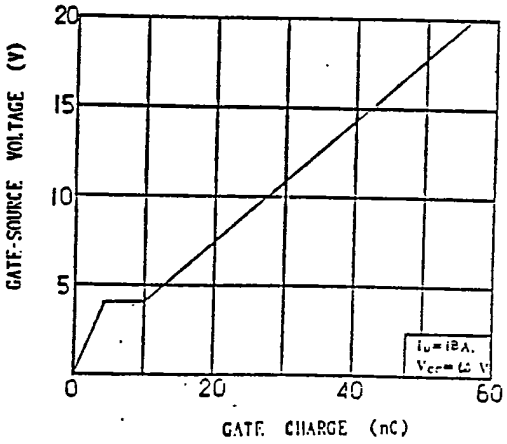
GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



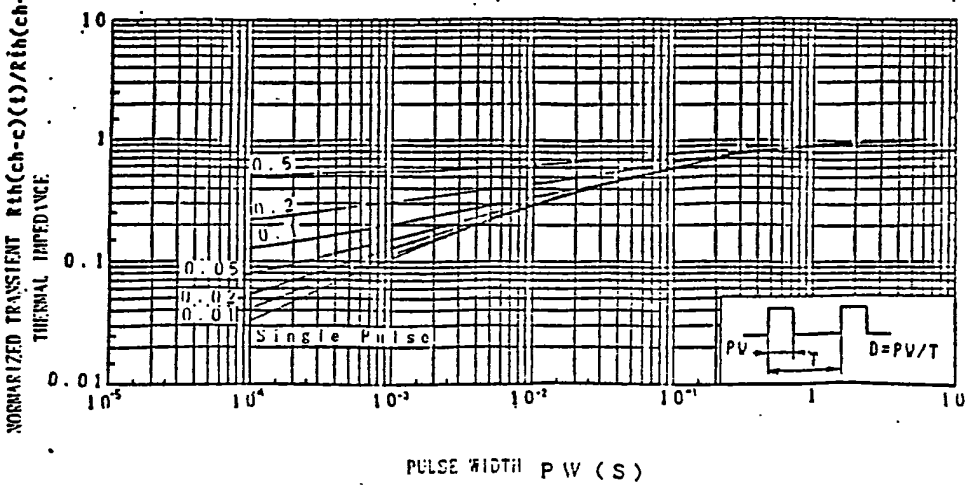
SWITCHING TIME vs. DRAIN CURRENT



GATE CHARGE VS GATE-SOURCE VOLTAGE



NORMARIZED TRANSIENT THERMAL IMPEDANCE vs. PULSE WIDTH



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