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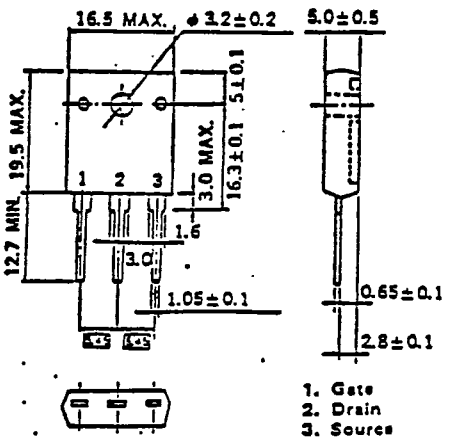
NEC ELECTRON DEVICE

MOS FIELD EFFECT TRANSISTOR

2SK707

FAST SWITCHING N-CHANNEL SILICON POWER MOS FET

PACKAGE DIMENSIONS
(Unit: mm)



Features
- Suitable for switching power supplies, DC-DC converters and pulse circuits
- High speed switching
- Low RDS(on)
- No second breakdown

Absolute Maximum Ratings(Ta=25°C)

Drain to Source Voltage	VDSS	250V
Gate to Source Voltage	VGSS	± 20V
Continuous Drain Current	ID(DC)	± 25A
Pulse Drain Current	ID(pulse)*	±100A
Total Power Dissipation	PT	3.0W
Total Power Dissipation	PT**	120W
Channel Temperature	Tch	150 °C
Storage Temperature	Tstg	-55to+150 °C

* PW≦100 μs, Duty Cycles ≦2 %
** Tc=25 °C

Electrical Characteristics (Ta=25 °C)

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	IDSS			100	μA	VDS=250V, VGS=0
Gate to Source Leakage Current	IGSS			±100	nA	VGS=±20V, VDS=0
Gate to Source Cutoff Voltage	VGS(off)	1.5		3.5	V	VDS=10V, ID=1.0mA
Forward Transfer Admittance	|yfs|	5.0			S	VDS=10V, ID= 13A
Drain to Source On-State Resistance	RDS(on)		0.12	0.15	Ω	VGS=10V, ID= 13A
Input Capacitance	Ciss		2950		pF	VDS= 10V,
Output Capacitance	Coss		990		pF	VGS=0,
Reverse Transfer Capacitance	Crss		450		pF	f=1.0MHz
Turn-On Delay Time	td(on)		25		ns	ID= 13A,
Rise Time	tr		85		ns	VGS(on)= 10V,
Turn-Off Delay Time	td(off)		115		ns	Vcc=150V,
Fall Time	tf		85		ns	RL=11.5 Ω

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

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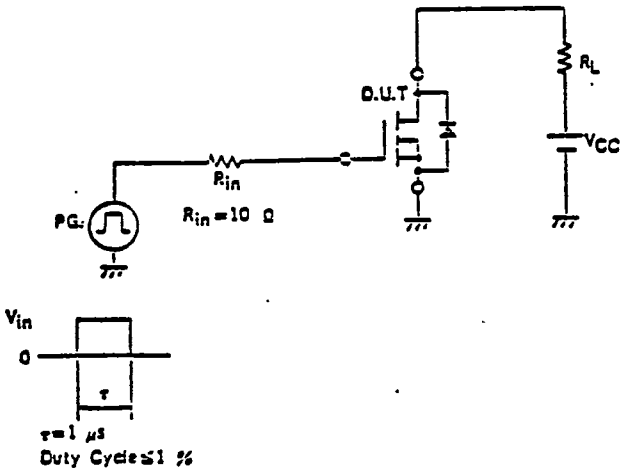
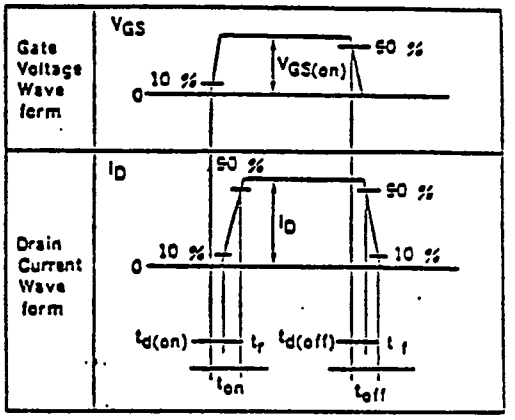
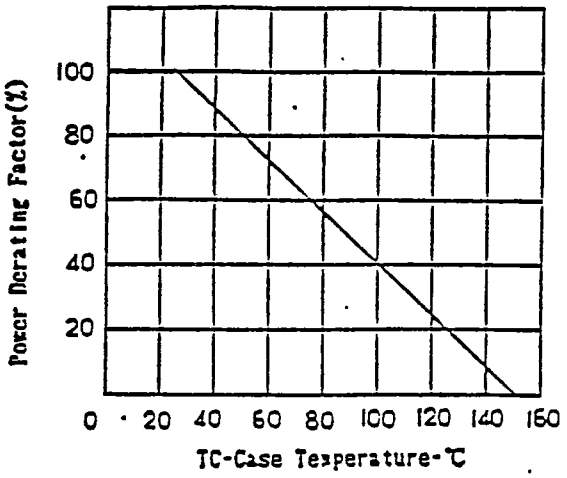
TURN-ON AND TURN-OFF TIME TEST CIRCUIT

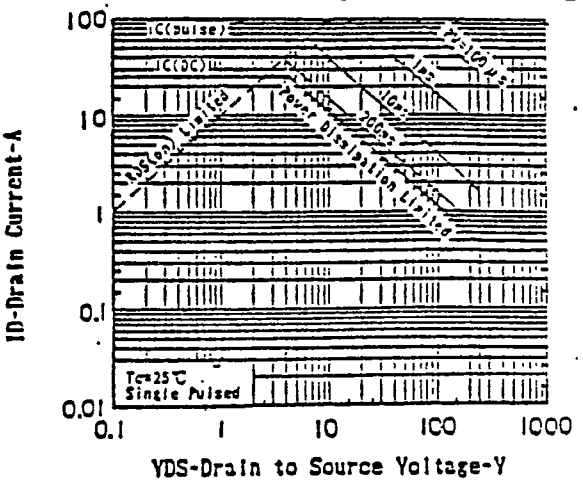




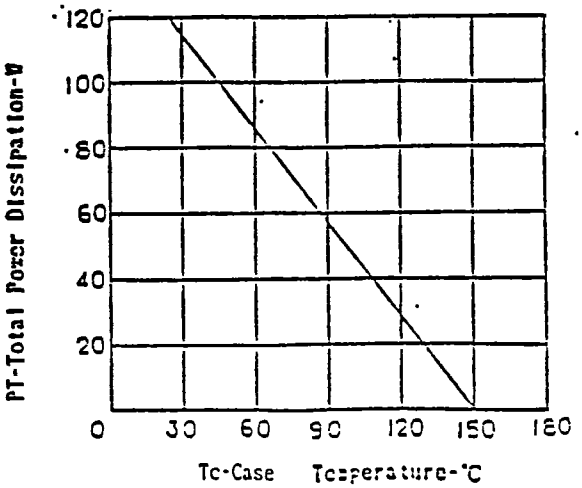
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



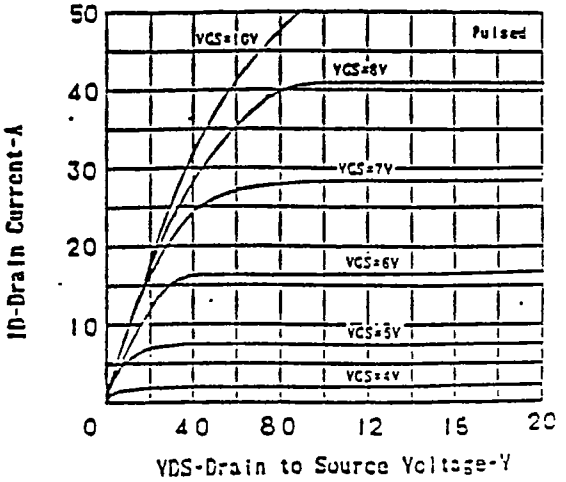
FORWARD BIAS SAFE OPERATING AREA



TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



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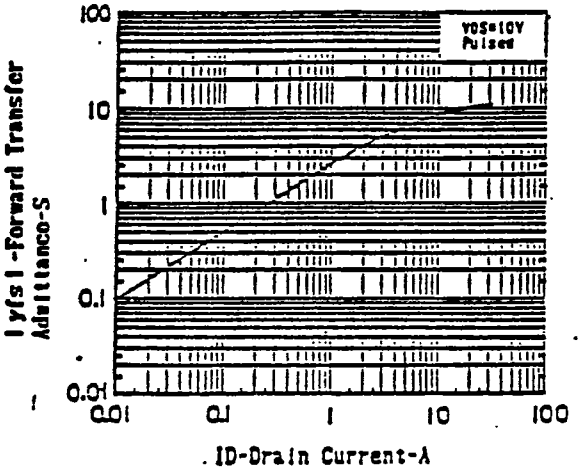
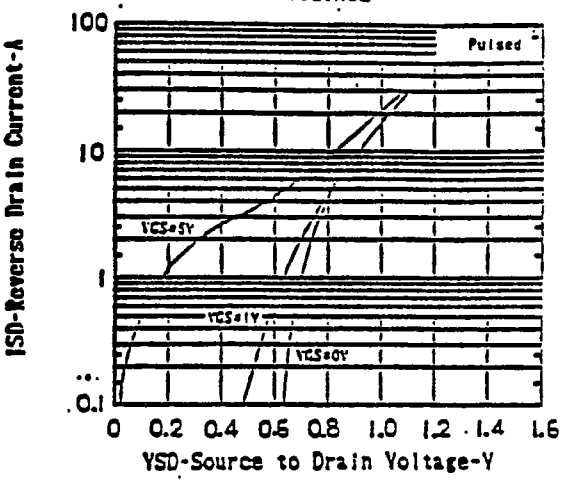
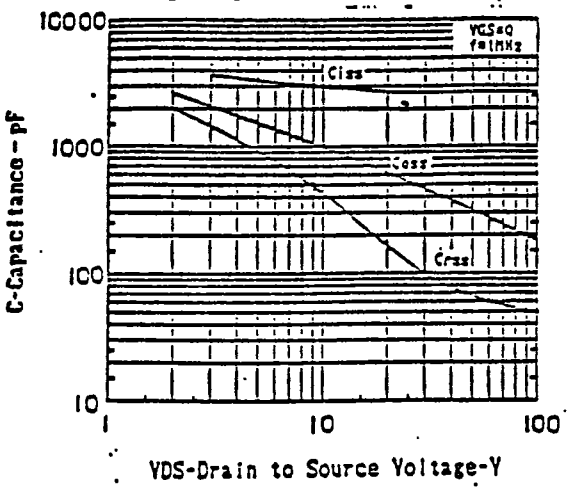
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



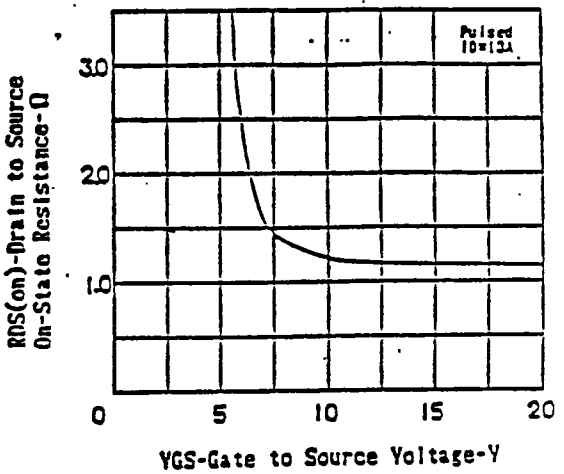
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



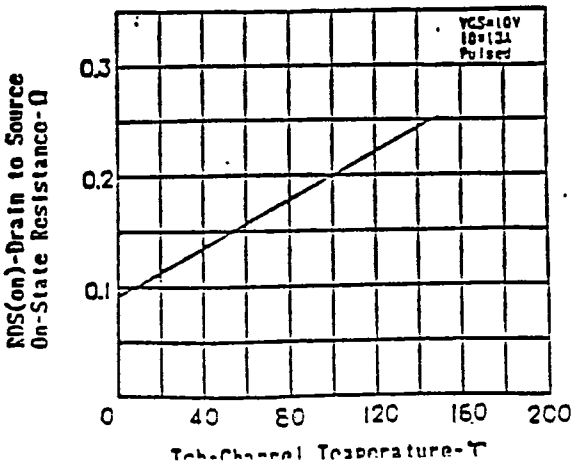
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



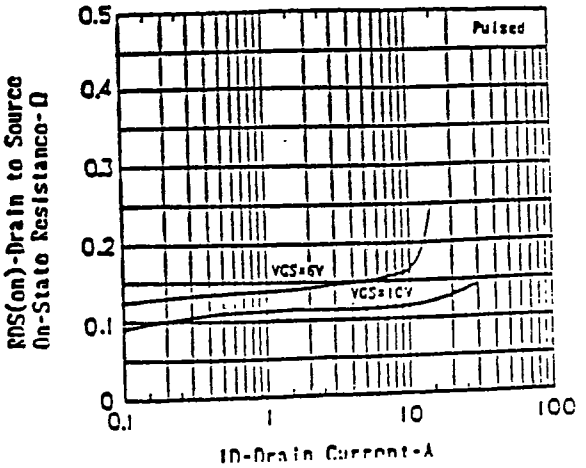
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



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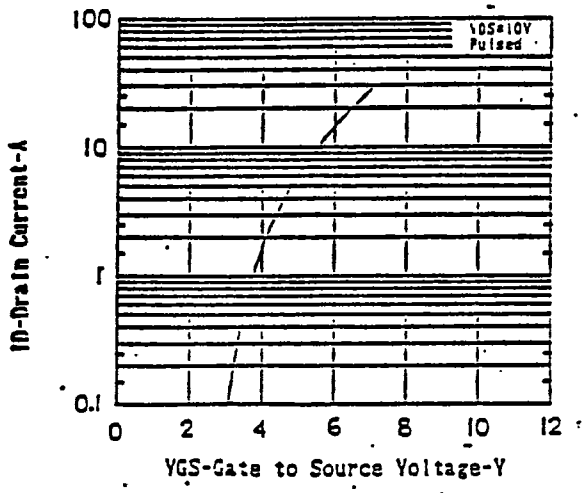
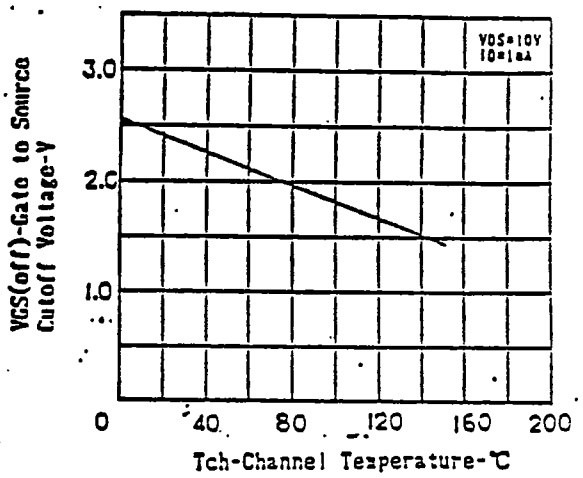
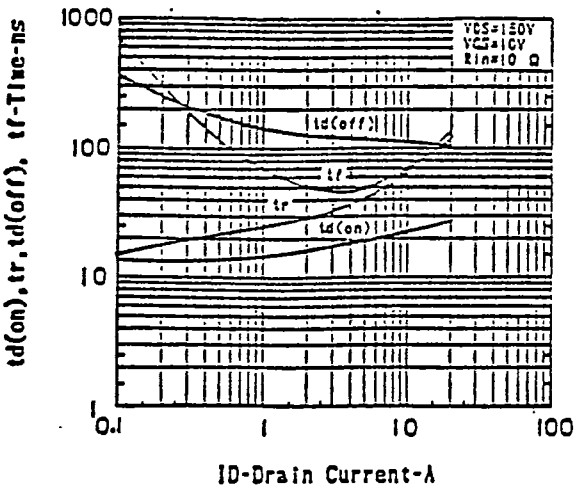
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



TURN-ON AND TURN-OFF TIME



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