

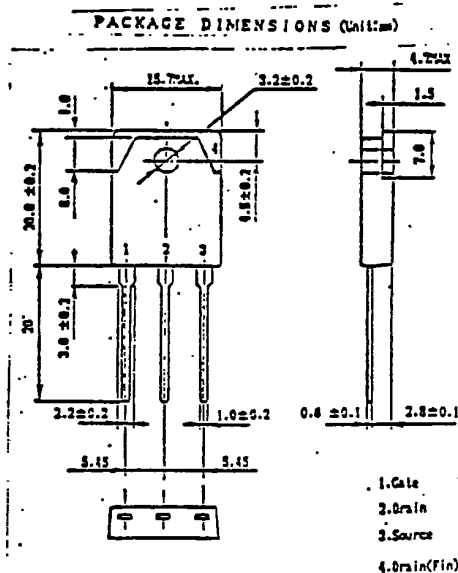
NEC
ELECTRON DEVICE

PRELIMINARY SPECIFICATION

MOS FIELD EFFECT POWER TRANSISTOR

2SK787

FAST SWITCHING
N-CHANNEL SILICON POWER MOS FET



FEATURES

- Suitable for switching power supplies, actuator controls, and pulse circuits
- Low $R_{DS(on)}$
- No second breakdown

ABSOLUTE MAXIMUM RATINGS

Drain to Source Voltage	V_{DSS}	900V
Gate to Source Voltage	V_{GSS}	$\pm 20V$
Continuous Drain Current	$I_{D(DC)}$	$\pm 8A$
Peak Drain Current	$I_{D(pulse)*}$	$\pm 32A$
Total Power Dissipation	PT	120W
		at $T_c=25^\circ C$
Total Power Dissipation	PT	3.0W
		at $T_a=25^\circ C$
Channel Temperature	T_{ch}	150 $^\circ C$
Storage Temperature	T_{stg}	-55 to 150 $^\circ C$

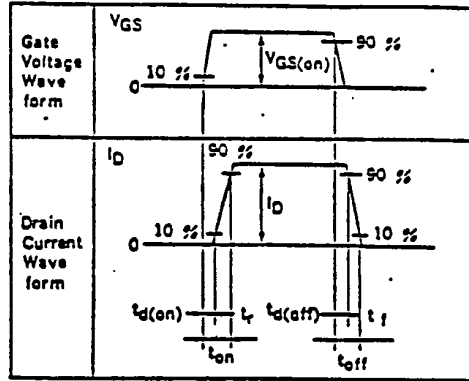
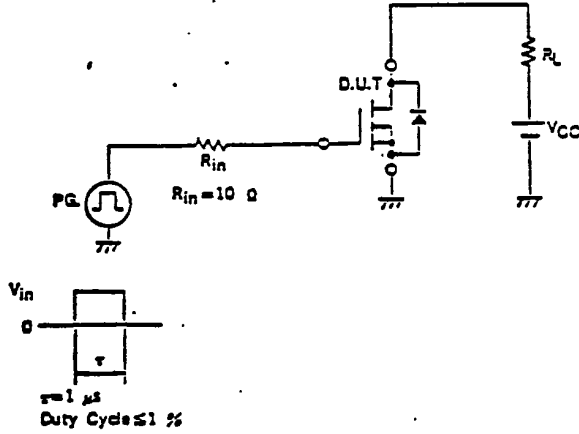
* Pulsed/ $PW \leq 100 \mu s$, Duty Cycle $\leq 2\%$

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ C$)

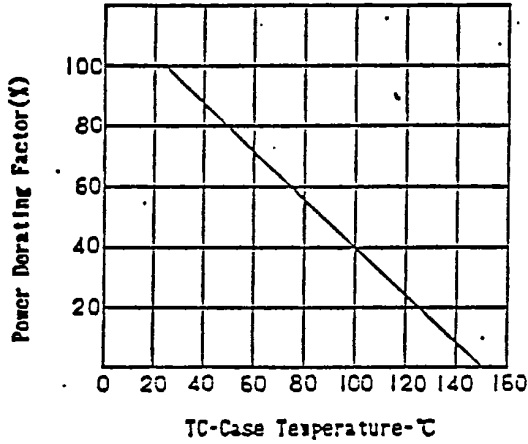
CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Leakage Current	I_{DSS}			100	μA	$V_{DS}=900V, V_{GS}=0$
Gate to Source Leakage Current	I_{GSS}			100	nA	$V_{GS}=20V, V_{DS}=0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1.5		3.5	V	$V_{DS}=10V, I_D=1mA$
Forward Transfer Admittance	yfs	1.0			S	$V_{DS}=10V, I_D=5A$
Drain to Source On-State Resistance	$R_{DS(on)}$		1.20	1.60		$V_{GS}=10V, I_D=4A$
Input Capacitance	C_{iss}		2400		pF	$V_{DS}=10V$
Output Capacitance	C_{oss}		350		pF	$V_{GS}=0$
Reverse Transfer Capacitance	C_{rss}		200		pF	$f=1MHz$
Turn-On Delay Time	$t_{d(on)}$		70		ns	$I_D=4A$
Rise Time	t_r		80		ns	$V_{GS(on)}=10V$
Turn-Off Delay Time	$t_{d(off)}$		100		ns	$V_{CC}=150V$
Fall Time	t_f		80		ns	$R_{in}=10\Omega$

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TURN-ON AND TURN-OFF TIME TEST CIRCUIT

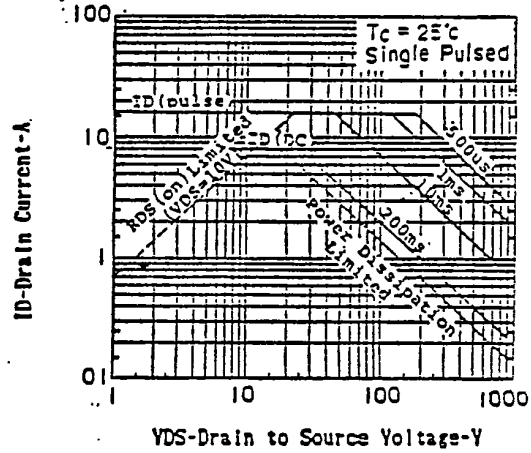
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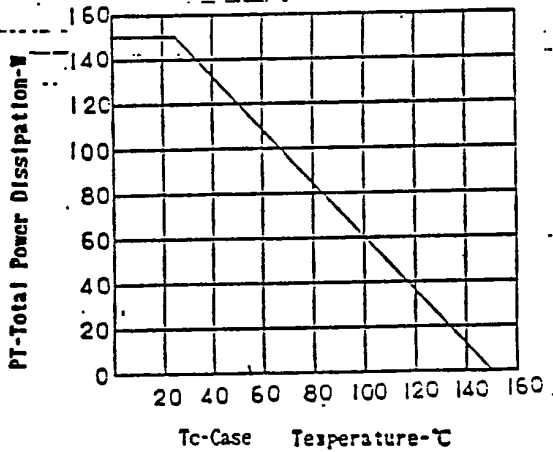
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



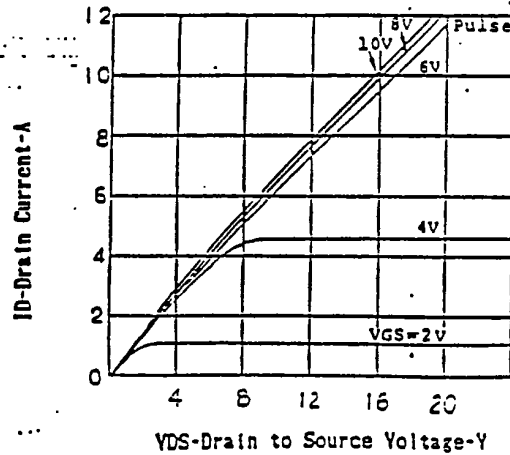
FORWARD BIAS SAFE OPERATING AREA

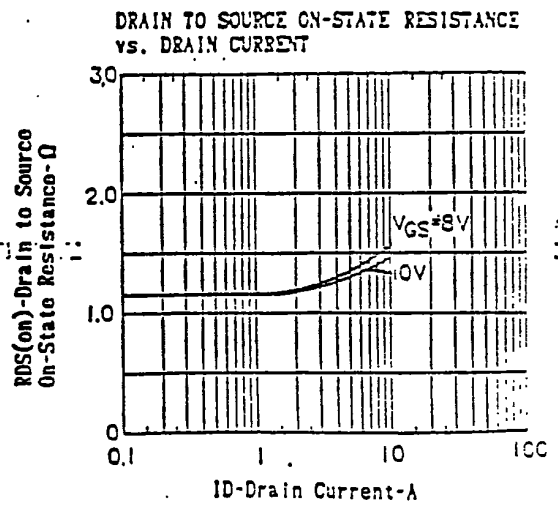
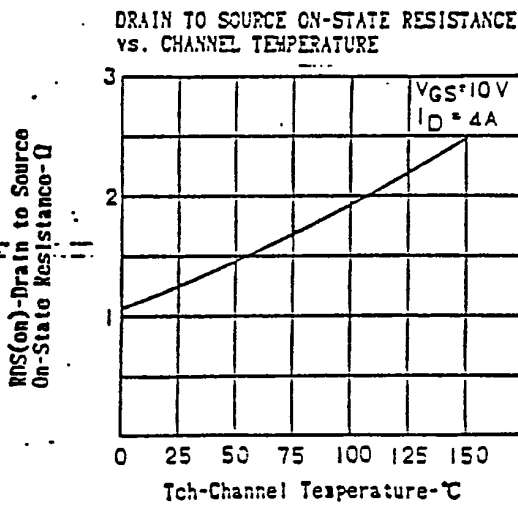
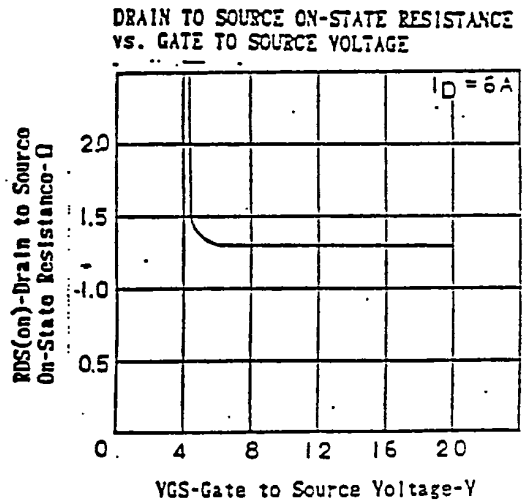
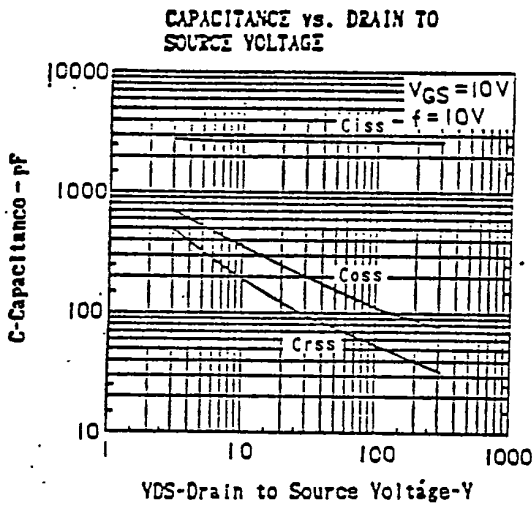
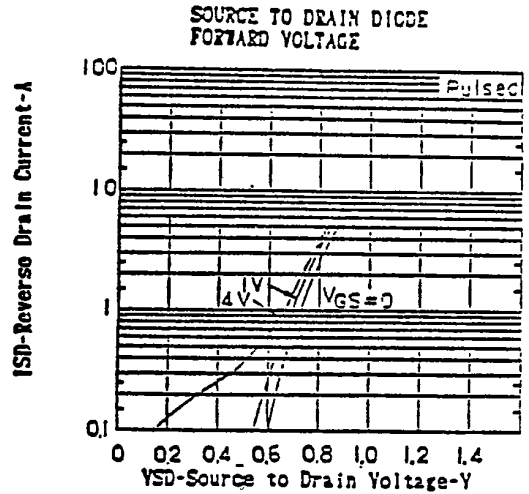
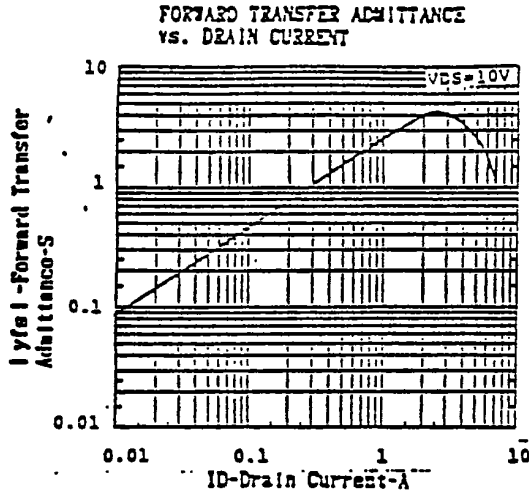


TOTAL POWER DISSIPATION vs. CASE TEMPERATURE

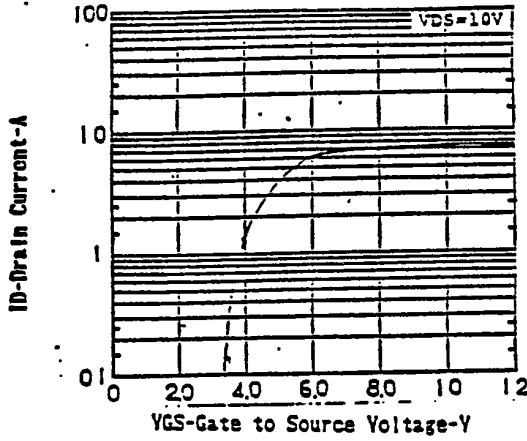


DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

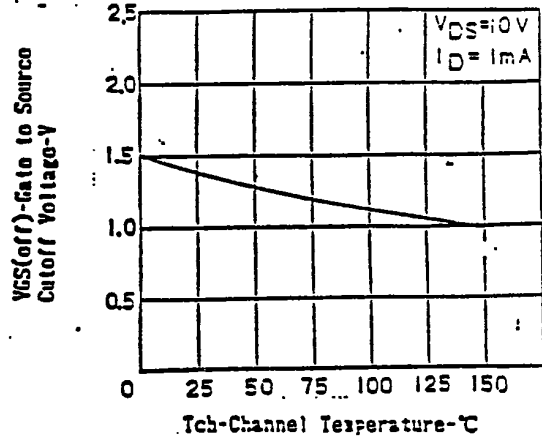




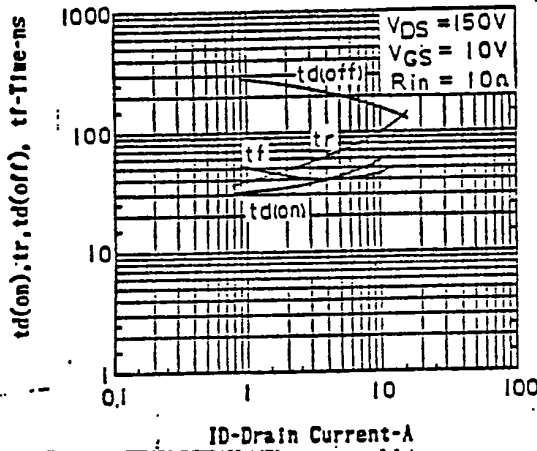
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



TURN-ON AND TURN-OFF TIME



NORMALIZED TRANSIENT THERMAL IMPEDANCE vs. PULSE WIDTH.

