

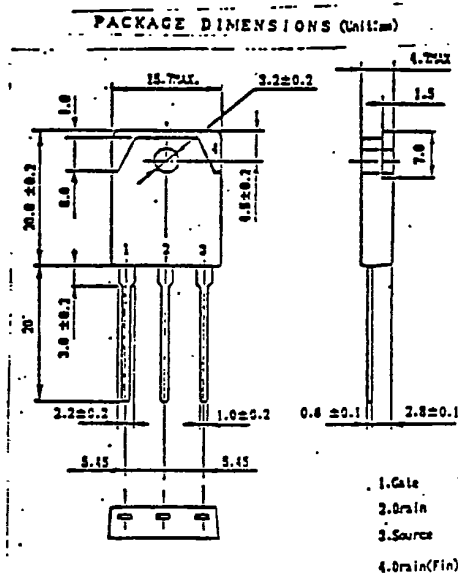
**NEC**  
ELECTRON DEVICE

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 $^\circ C$

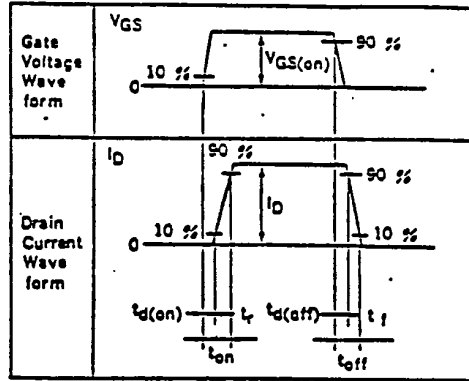
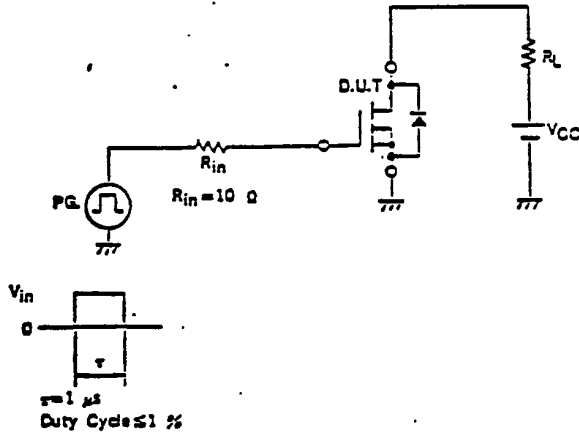
\* Pulsed/ $PW \leq 100 \mu s$ , Duty Cycle  $\leq 2\%$

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

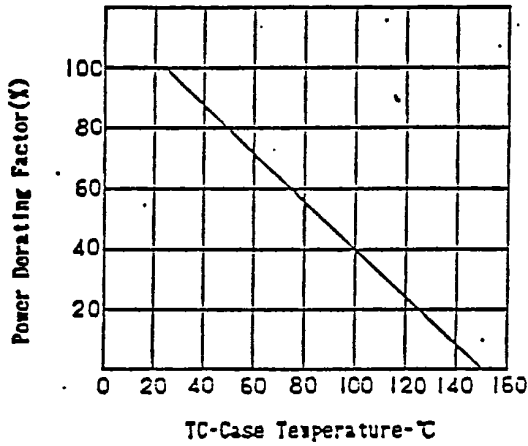
CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Leakage Current	$I_{DSS}$			100	$\mu A$	$V_{DS}=900V, V_{GS}=0$
Gate to Source Leakage Current	$I_{GSS}$			100	nA	$V_{GS}=20V, V_{DS}=0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1.5		3.5	V	$V_{DS}=10V, I_D=1mA$
Forward Transfer Admittance	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	tr		80		ns	$V_{GS(on)}=10V$
Turn-Off Delay Time	$t_{d(off)}$		100		ns	$V_{CC}=150V$
Fall Time	tf		80		ns	$R_{in}=10\Omega$

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TURN-ON AND TURN-OFF TIME TEST CIRCUIT

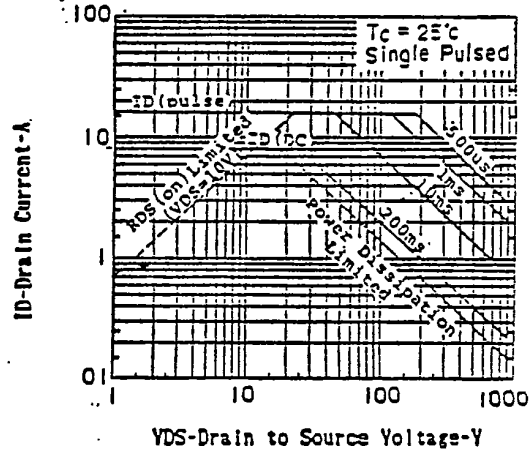
98D 18939 D T-39-13



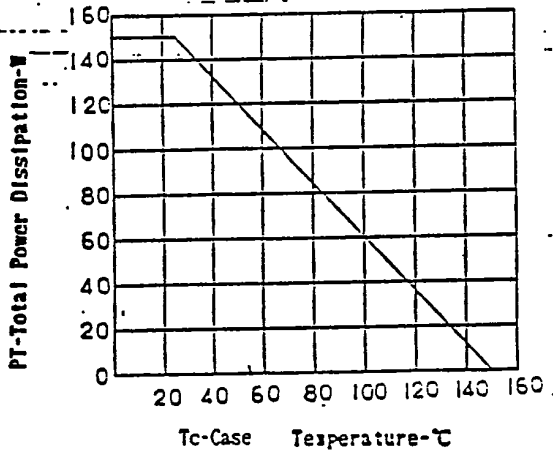
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



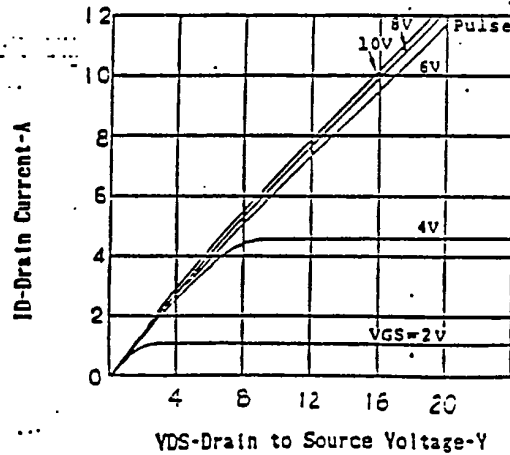
FORWARD BIAS SAFE OPERATING AREA

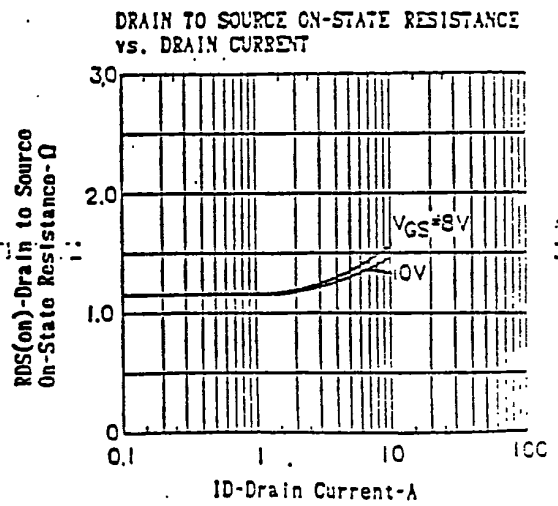
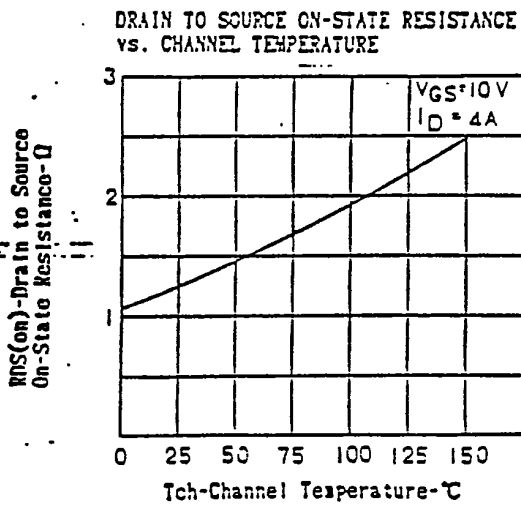
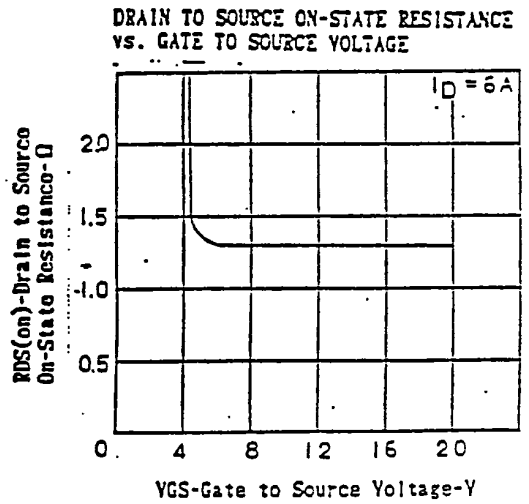
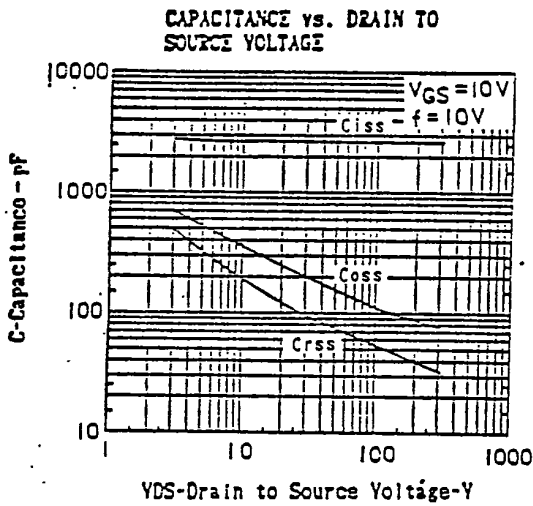
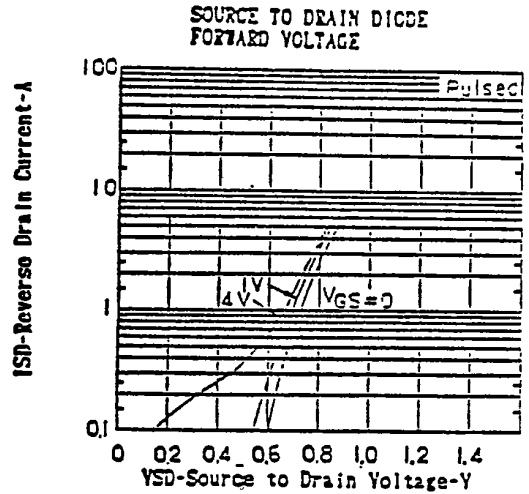
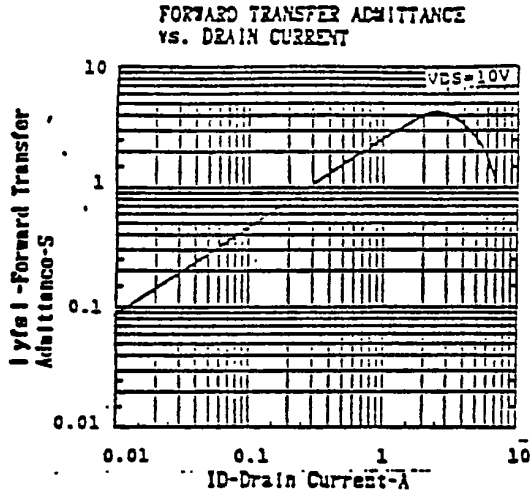


TOTAL POWER DISSIPATION vs. CASE TEMPERATURE

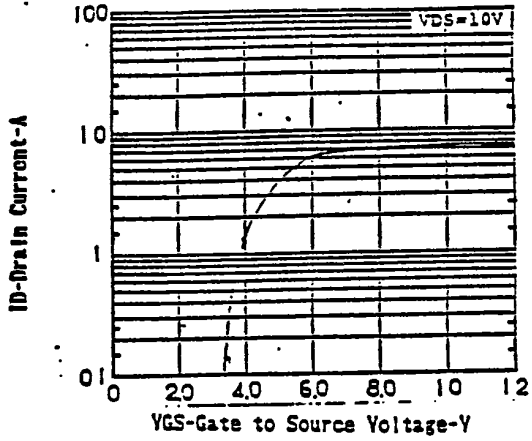


DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

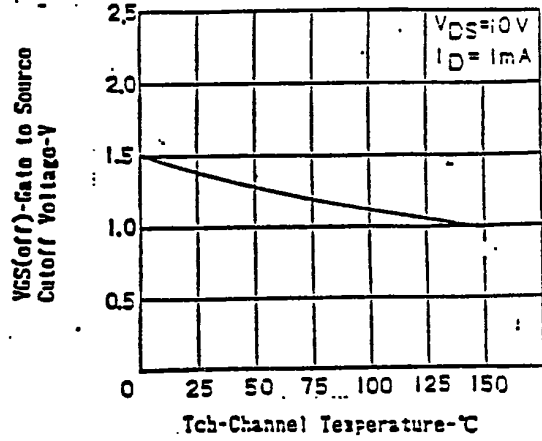




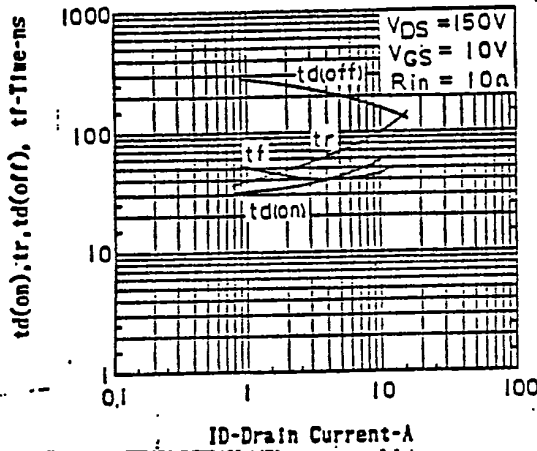
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



TURN-ON AND TURN-OFF TIME



NORMALIZED TRANSIENT THERMAL IMPEDANCE vs. PULSE WIDTH.

