

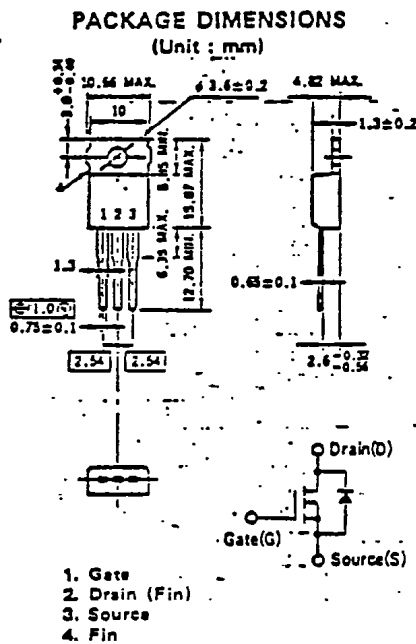
NEC
ELECTRON DEVICE

PRELIMINARY SPECIFICATION

MOS FIELD EFFECT TRANSISTOR

2SK786

FAST SWITCHING
N-CHANNEL SILICON POWER MOS FET



Features

Suitable for switching power supplies,
DC-DC converters and pulse circuits
Ultra High Voltage: $V_{DS} = 900V$
Low $R_{DS(on)}$
No second breakdown

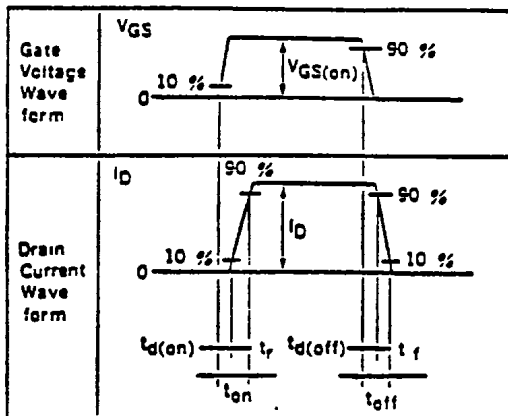
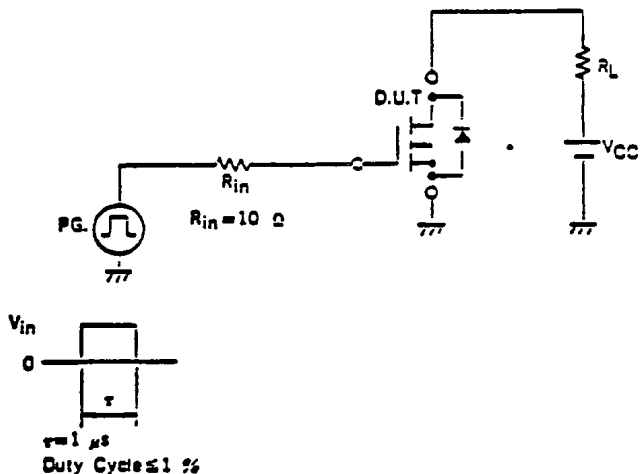
Absolute Maximum Ratings ($T_a = 25^\circ C$)

Drain to Source Voltage	V_{DS}	900V
Gate to Source Voltage	V_{GS}	$\pm 20V$
Continuous Drain Current	$I_D(DC)$	$\pm 3.0A$
Pulse Drain Current	$I_D(pulse)$	$\pm 6.0A$
Total Power Dissipation	P_T	1.5W
Total Power Dissipation	P_T^{**}	50W
Channel Temperature	T_{ch}	150 °C
Storage Temperature	T_{stg}	-55 to +150 °C

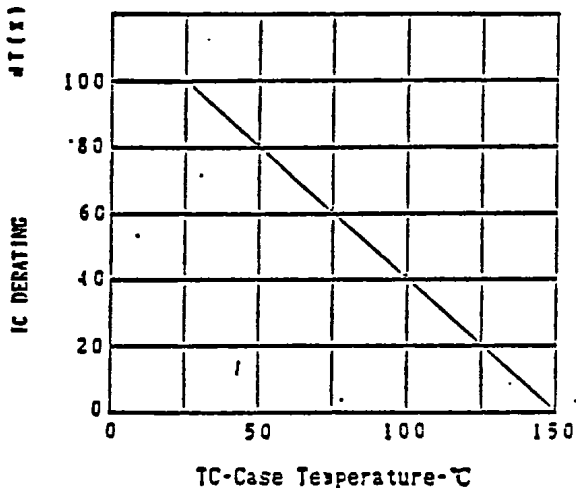
* $PW \leq 100 \mu s$, Duty Cycles $\leq 2\%$
** $T_c = 25^\circ C$

Electrical Characteristics ($T_a = 25^\circ C$)

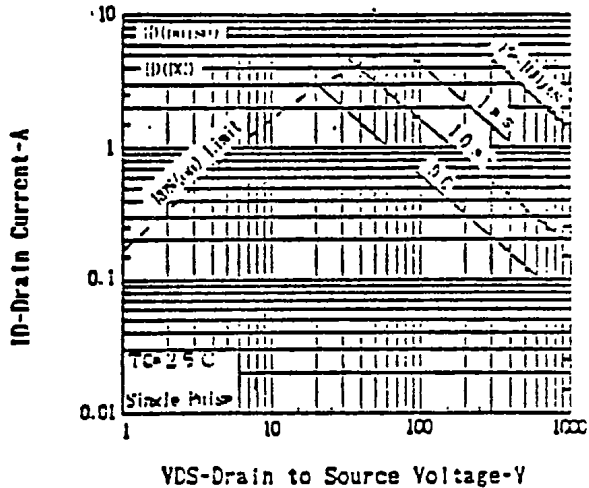
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	I_{DSS}			100	μA	$V_{DS} = 900V, V_{GS} = 0$
Gate to Source Leakage Current	I_{GSS}			± 100	nA	$V_{GS} = \pm 20V, V_{DS} = 0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1.5		3.5	V	$V_{DS} = 10V, I_D = 1.0mA$
Forward Transfer Admittance	$ y_{fs} $	0.8			S	$V_{DS} = 20V, I_D = 2.0A$
Drain To Source On-State Resistance	$R_{DS(on)}$			7.0	Ω	$V_{GS} = 15V, I_D = 20A$
Input Capacitance	C_{iss}		470		pF	$V_{DS} = 10V$
Output Capacitance	C_{oss}		100		pF	$V_{GS} = 0$
Reverse Transfer Capacitance	C_{rss}		40		pF	$f = 1.0MHz$
Turn-On Delay Time	$t_d(on)$		10		ns	$I_D = 1.5A,$
Rise Time	t_r		40		ns	$V_{GS(on)} = 10V$
Turn-Off Delay Time	$t_d(off)$		45		ns	$V_{cc} = 150V$
Fall Time	t_f		15		ns	$RL = 100\Omega$



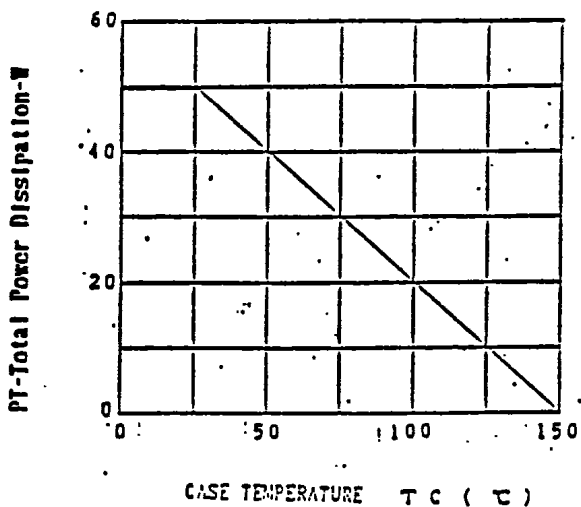
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



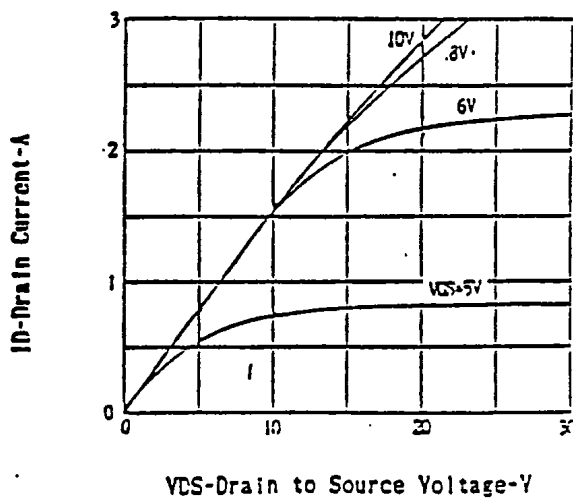
FORWARD BIAS SAFE OPERATING AREA



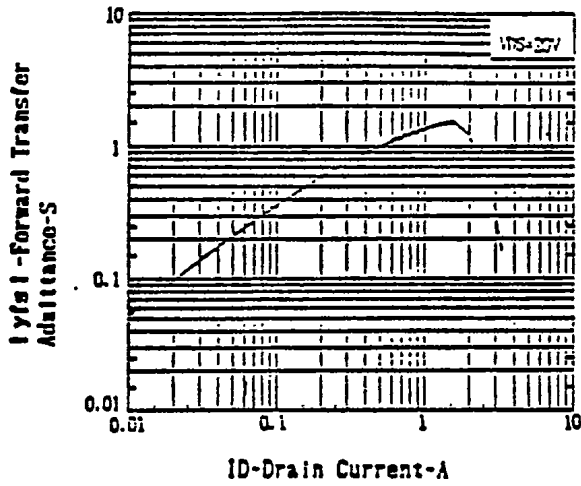
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



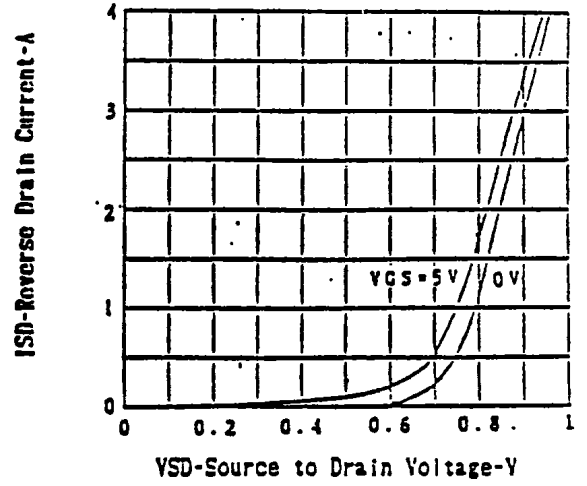
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



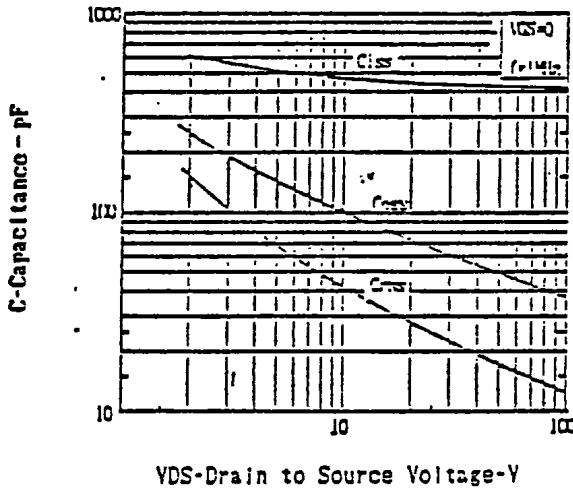
FORWARD TRANSFER ADMITTANCE
vs. DRAIN CURRENT



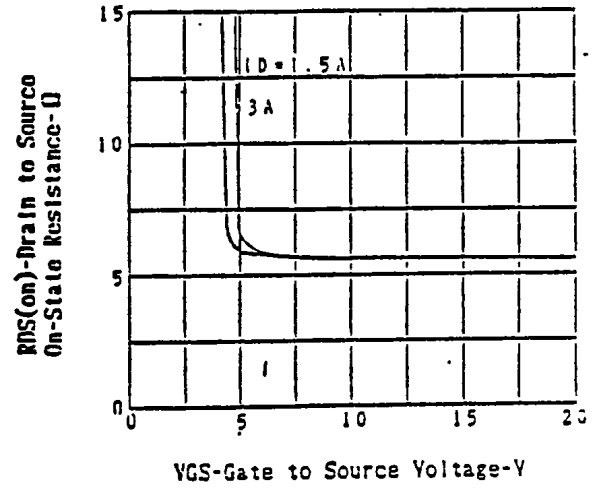
SOURCE TO DRAIN DIODE
FORWARD VOLTAGE



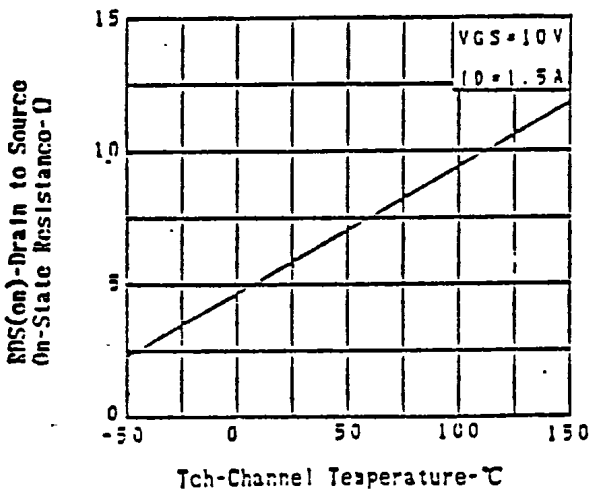
CAPACITANCE vs. DRAIN TO
SOURCE VOLTAGE



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

