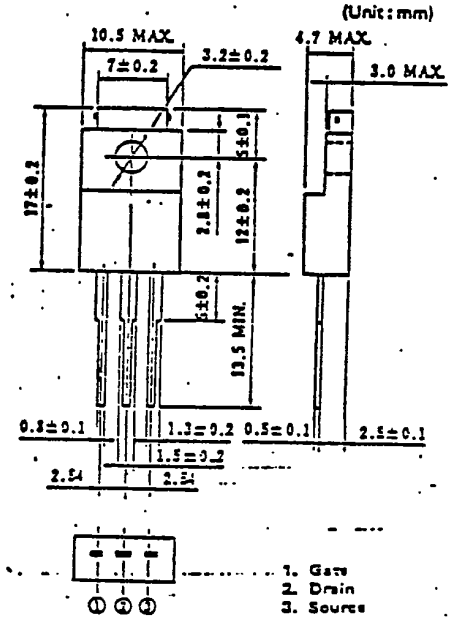
NEC
ELECTRON DEVICE

MOS FIELD EFFECT TRANSISTO

2SJ139

FAST SWITCHING P-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)=10A
Low RDS(on)
No Secondary Breakdown

Absolute Maximum Ratings(Ta=25℃)

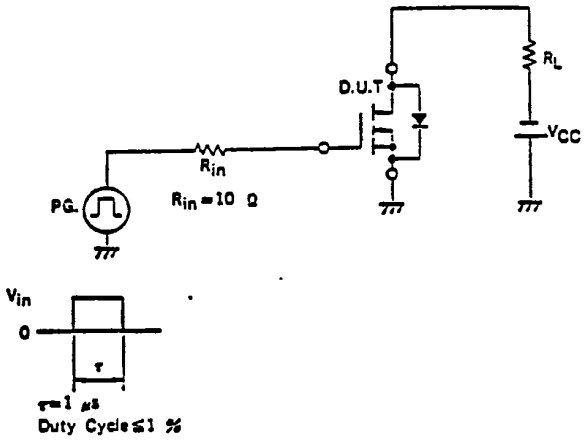
Drain to Source Voltage	VDSS	-100V
Gate to Source Voltage	VGSS	± 20V
Continuous Drain Current	ID(DC)	± 10A
Pulse Drain Current	ID(pulse)	*± 40A
Total Power Dissipation	PT	2.0W
Total Power Dissipation	PT**	35W
Channel Temperature	Tch	150 ℃
Storage Temperature	Tstg	-55to+150 ℃

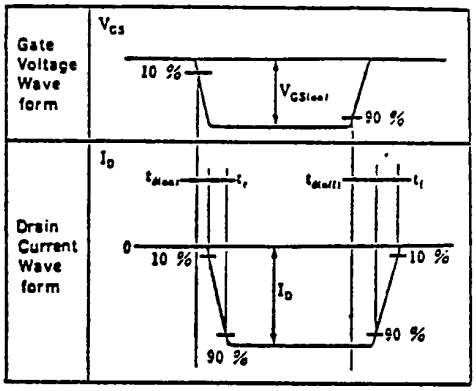
* Tch ≦ 150℃
** Tc=25 ℃

Electrical Characteristics (Ta=25 ℃)

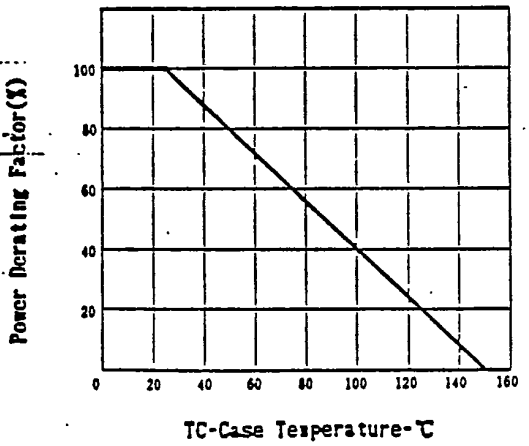
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	IDSS			- 10	μA	VDS=-100V,VGS=0
Gate to Source Leakage Current	IGSS			100	nA	VGS= 20V,VDS=0
Gate to Source Cutoff Voltage	VGS(off)	-1.0		-3.0	V	VDS=-10V,ID=-1.0mA
Forward Transfer Admittance	|yfs|	2.0			S	VDS=-10V,ID=-6.5A
Drain to Source On-State Resistance	RDS(on)			0.3	Ω	VGS=-10V,ID=-6.5A
Drain to Source On-State Resistance	RDS(on)			0.45	Ω	VGS=-4.0V,ID=-6.5A
Input Capacitance	Ciss		2700		pF	VDS=-10V,
Output Capacitance	Coss		600		pF	VGS=0,
Reverse Transfer Capacitance	Crss		110		pF	f=1.0MHz
Turn-On Delay Time	td(on)		15		ns	ID=-6.5A,
Rise Time	tr		70		ns	VGS(on)=-10V,
Turn-Off Delay Time	td(off)		85		ns	Vcc=-50V.
Fall Time	tf		70		ns	RL=8Ω

TURN-ON AND TURN-OFF TIME TEST CIRCUIT

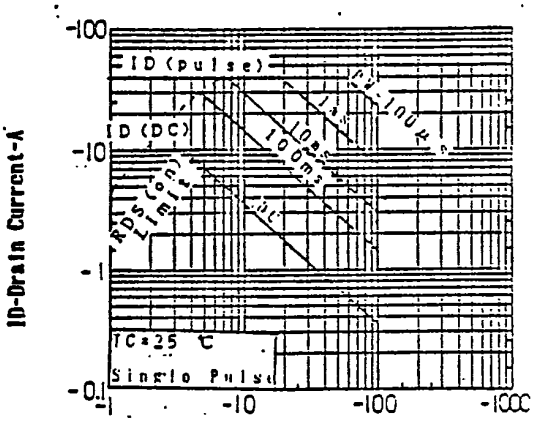




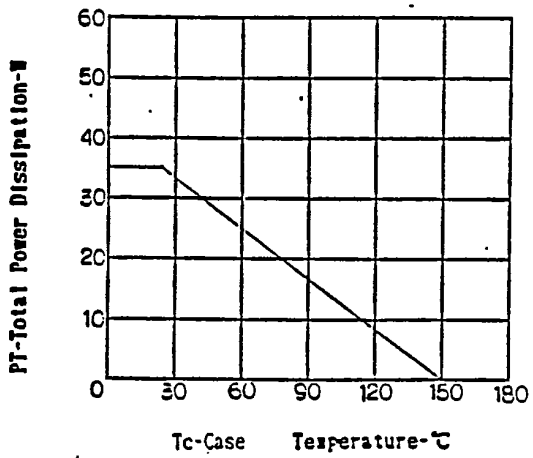
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



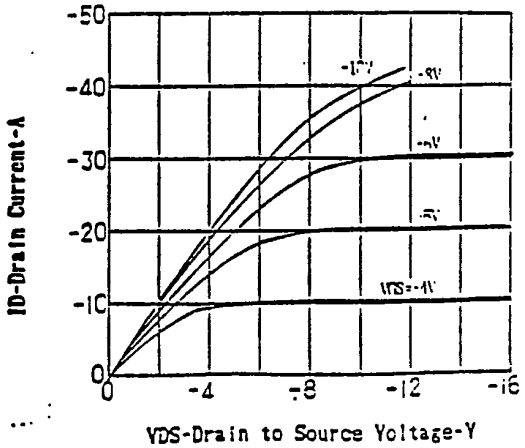
FORWARD BIAS SAFE OPERATING AREA



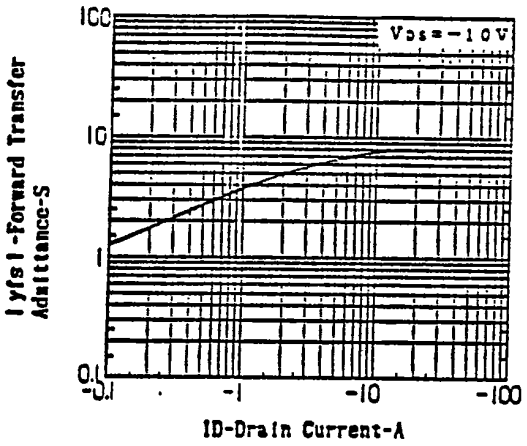
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



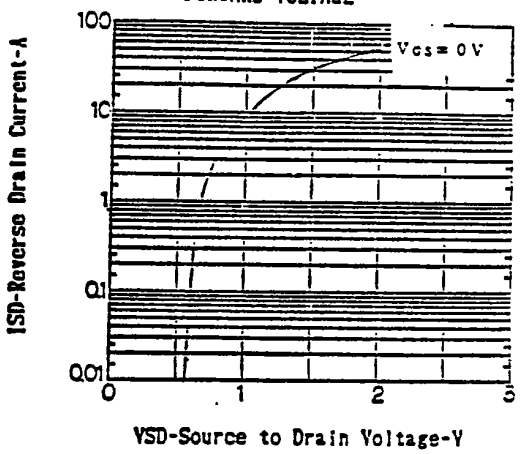
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



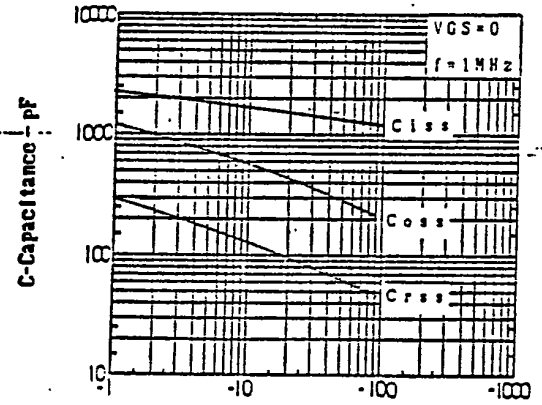
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



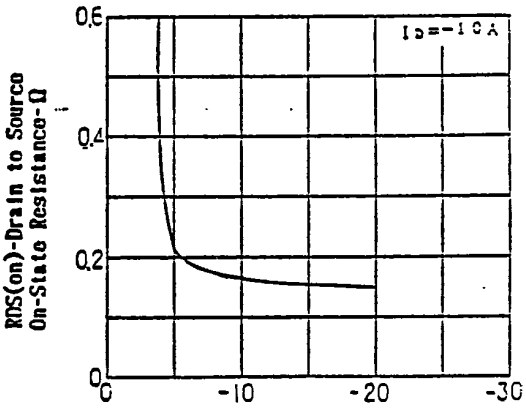
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



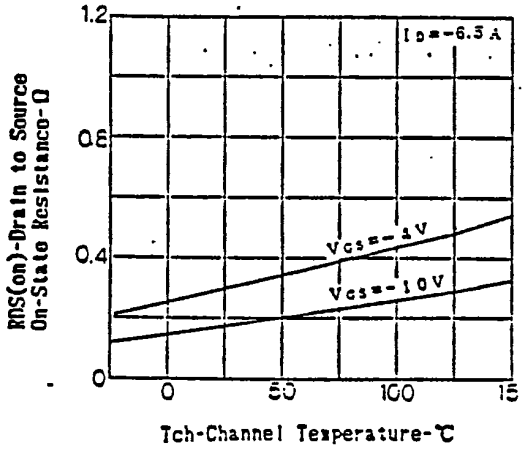
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



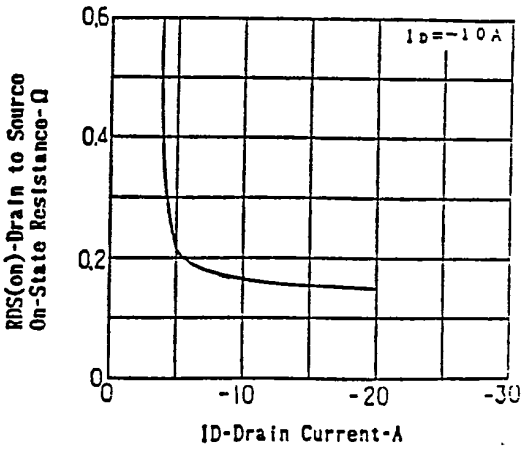
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



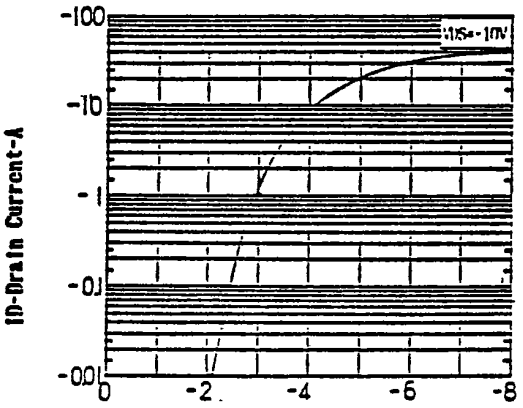
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



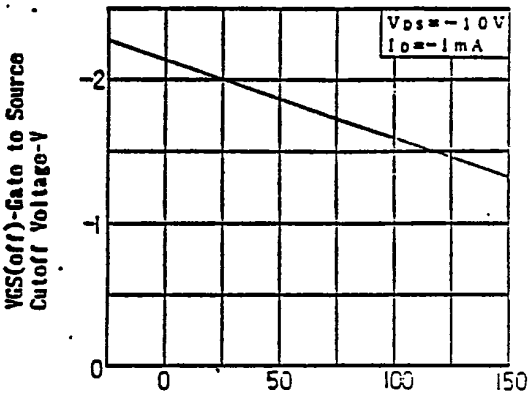
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



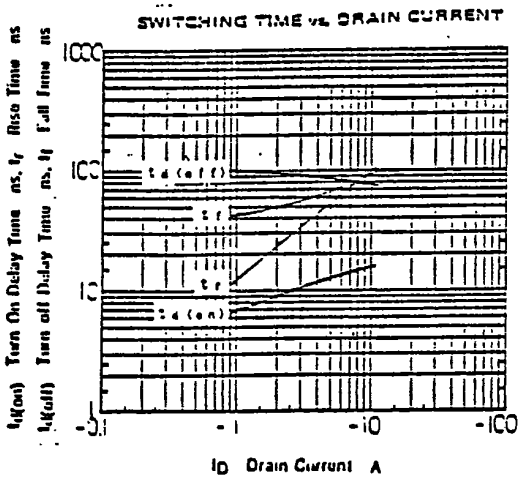
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



SWITCHING TIME vs. DRAIN CURRENT



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