



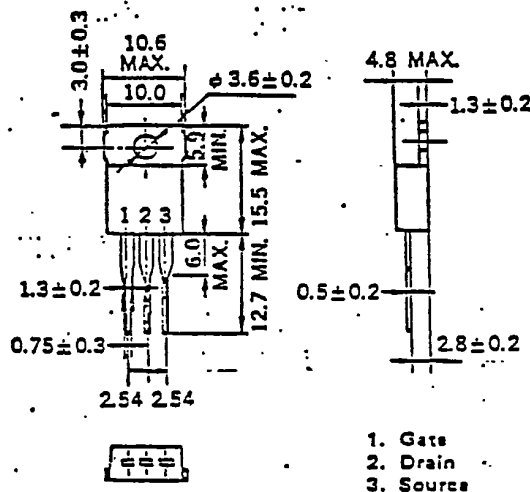
MOS FIELD EFFECT TRANSISTOR

2SJ138

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 : $I_{D(DC)}=12A$
Low $R_{DS(on)}$
No Secondary Breakdown

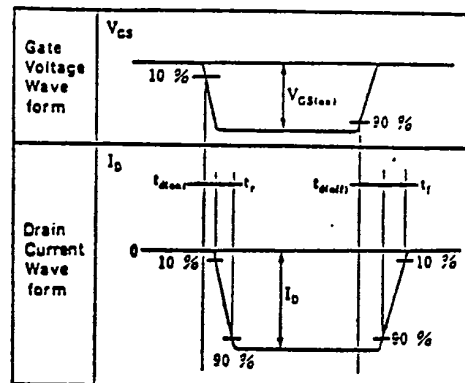
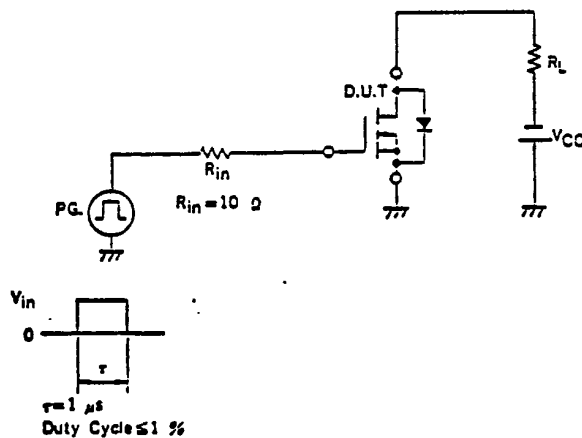
Absolute Maximum Ratings(Ta=25°C)

Drain to Source Voltage	V _{DS}	-100V
Gate to Source Voltage	V _{GS}	± 20V
Continuous Drain Current	I _D (DC)	± 12A
Pulse Drain Current	I _D (pulse)	* ± 48A
Total Power Dissipation	P _T	1.5W
Total Power Dissipation	P _T **	60W
Channel Temperature	T _{ch}	150 °C
Storage Temperature	T _{stg}	-55to+150 °C
* T _{ch} ≤ 150°C		
** T _c =25 °C		

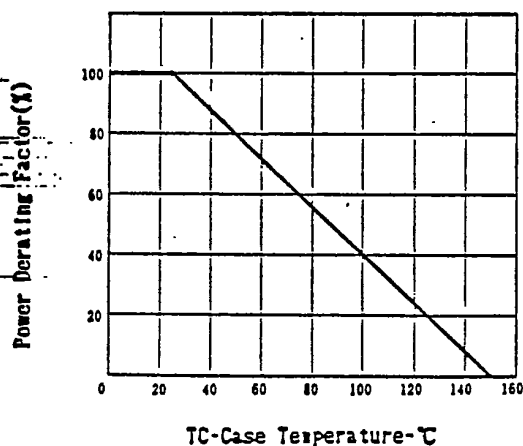
Electrical Characteristics (Ta=25. °C)

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=-10V, 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=-50%.
Fall Time	tf		70		ns	RL=8Ω

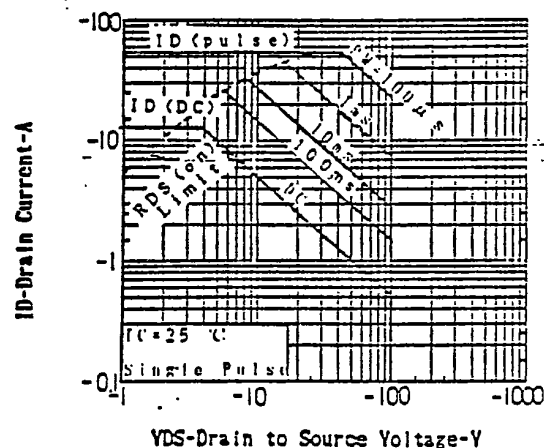
TURN-ON AND TURN-OFF TIME TEST CIRCUIT



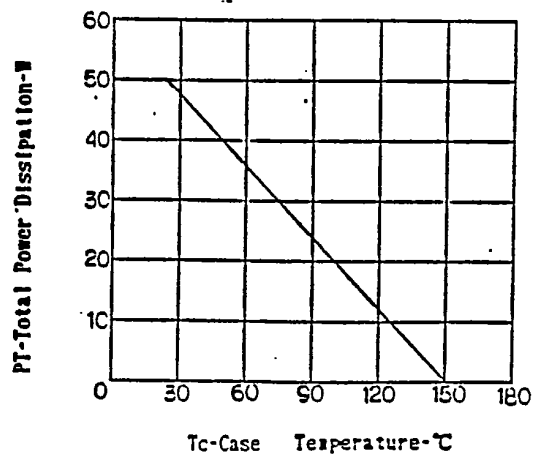
DERATING FACTOR OF FORWARD BIAS
SAFE OPERATING AREA



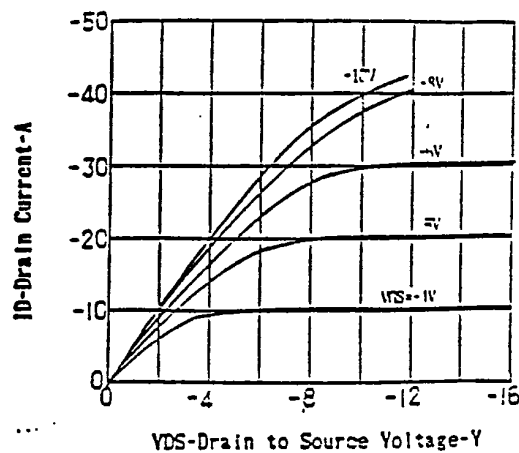
FORWARD BIAS SAFE OPERATING AREA

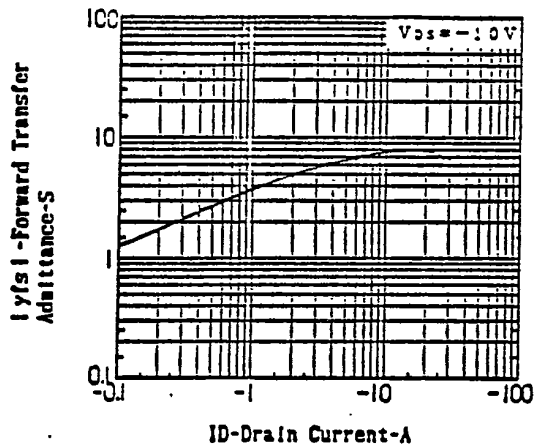
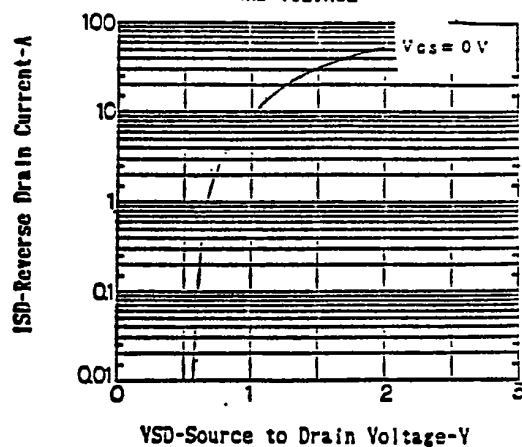
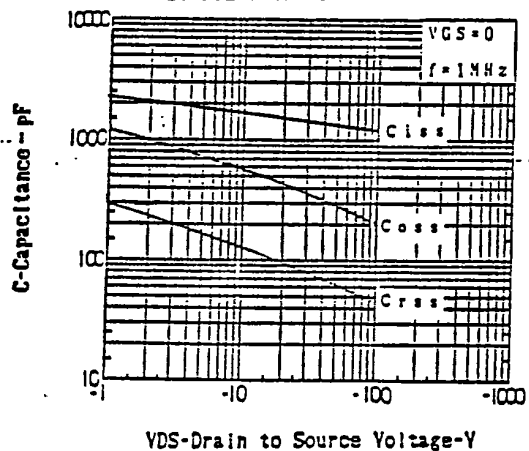
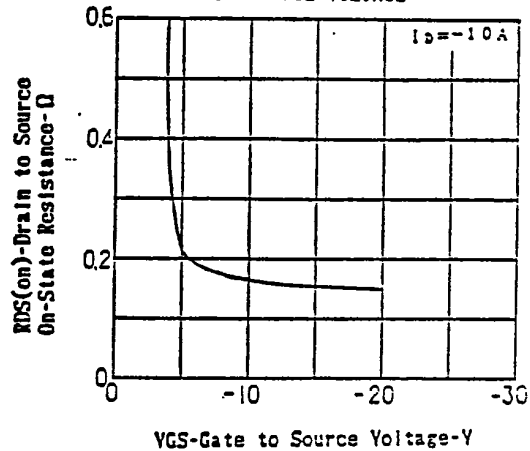
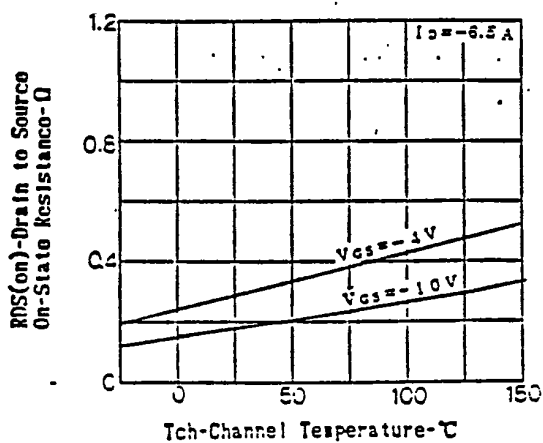
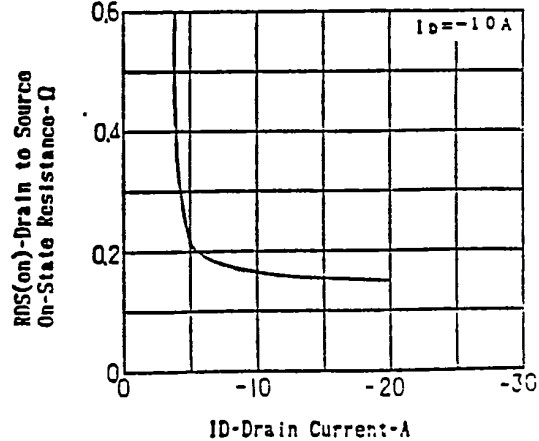


TOTAL POWER DISSIPATION vs.
CASE TEMPERATURE

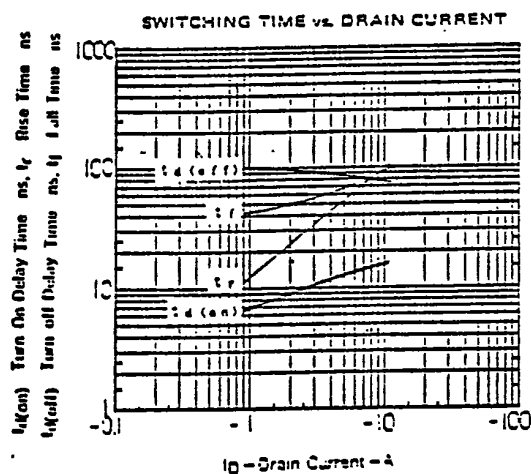
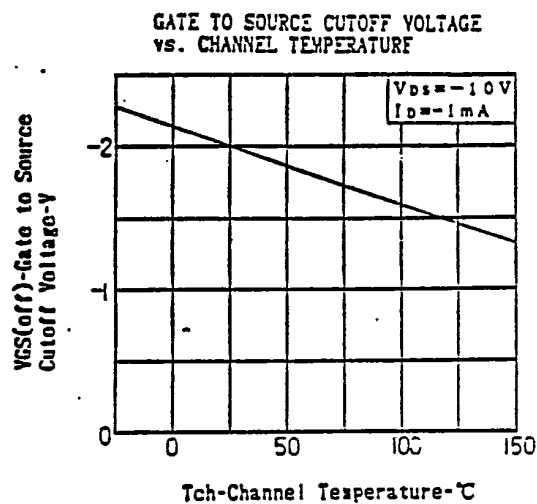
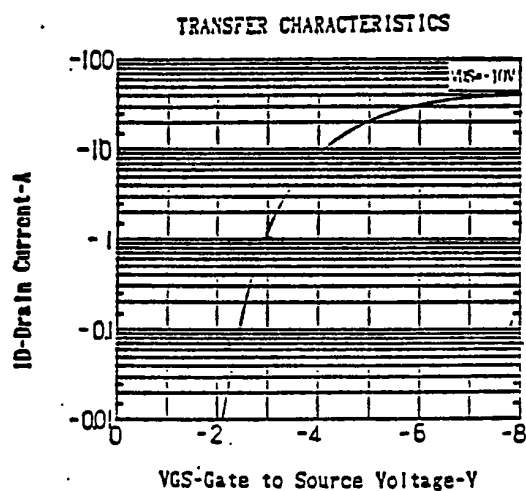


DRAIN CURRENT vs. DRAIN TO
SOURCE VOLTAGE



FORWARD TRANSFER ADMITTANCE
vs. DRAIN CURRENTSOURCE TO DRAIN DIODE
FORWARD VOLTAGECAPACITANCE vs. DRAIN TO
SOURCE VOLTAGEDRAIN TO SOURCE ON-STATE RESISTANCE
vs. GATE TO SOURCE VOLTAGEDRAIN TO SOURCE ON-STATE RESISTANCE
vs. CHANNEL TEMPERATUREDRAIN TO SOURCE ON-STATE RESISTANCE
vs. DRAIN CURRENT

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