PRELIMINARY SPECIFICATION

NEC ELECTRON DEVICE

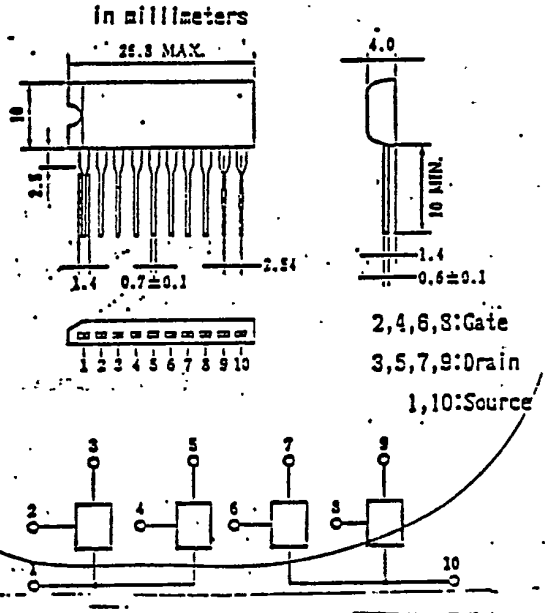
MOS FIELD EFFECT TRANSISTOR

μPA157H

FAST SWITCHING N-CHANNEL SILICON POWER MOS FET

PACKAGE DIMENSIONS

in millimeters



Features

Suitable for switching power supplies, actuater controls and pulse circuits

4V Gate Drive —— Logic level ——

Low RDS(on)

No second breakdown

Absolute Maximum Ratings(Ta=25°C)

Drain to Source Voltage	VDSS	30V
Gate to Source Voltage	VGSS	± 20V
Continuous Drain Current	ID(DC)	±2.0A/unit
Pulse Drain Current	ID(pulse)‡	±8.0A/unit
Total Power Dissipation	PT	3.5W
Total Power Dissipation	PT‡‡	28W
Channel Temperature	Tch	150 °C
Storage Temperature	Tstg	-55to+150 °C

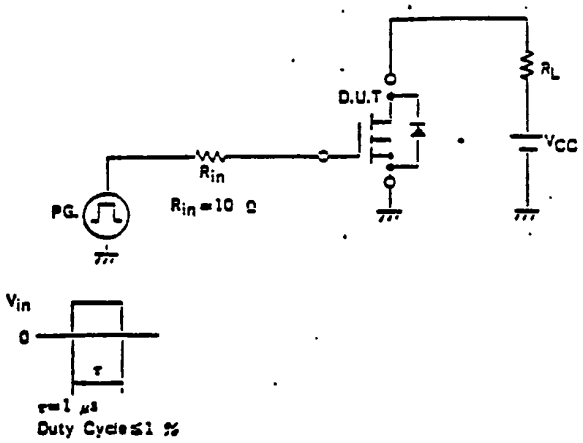
‡ PW≦100 μs, Duty Cycles ≦2 %

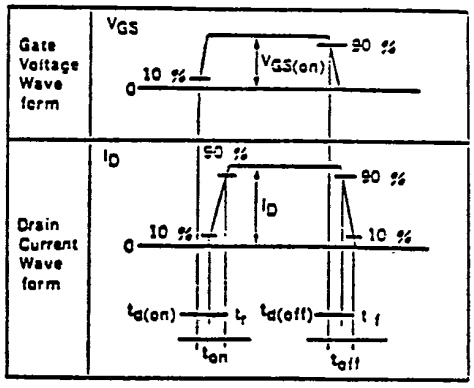
‡‡ Tc=25 °C

Electrical Characteristics (Ta=25 °C)

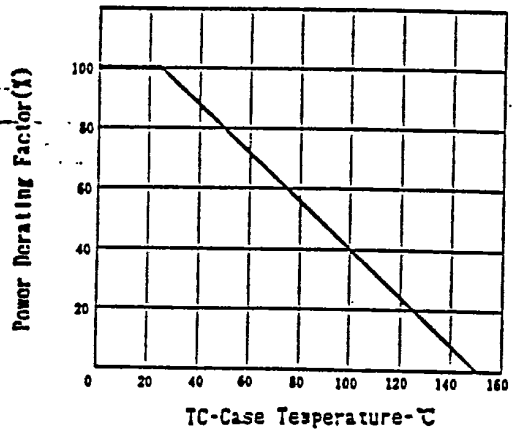
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	IDSS			10	μA	VDS=30 V, VGS=0
Gate to Source Leakage Current	IGSS			100	nA	VGS= 20V, VDS=0
Gate to Source Cutoff Voltage	VGS(off)	1.0		2.5	V	VDS=10V, ID=1.0mA
Forward Transfer Admittance	|yfs|	1.0			S	VDS=10V, ID=1.0A
Drain to Source On-State Resistance	RDS(on)			0.35	Ω	VGS=10V, ID=1.0A
Drain to Source On-State Resistance	RDS(on)			0.50	Ω	VGS=4.0V ID=1.0A
Input Capacitance	Ciss		270		pF	VDS= 10V
Output Capacitance	Coss		150		pF	VGS=0
Reverse Transfer Capacitance	Crss		70		pF	f=1.0MHz
Turn-On Delay Time	td(on)		45		ns	ID=1.0A,
Rise Time	tr		40		ns	VGS(on)= 10V
Turn-Off Delay Time	td(off)		450		ns	Vcc=15V,
Fall Time	tf		110		ns	RL=15 Ω

TURN-ON AND TURN-OFF TIME TEST CIRCUIT

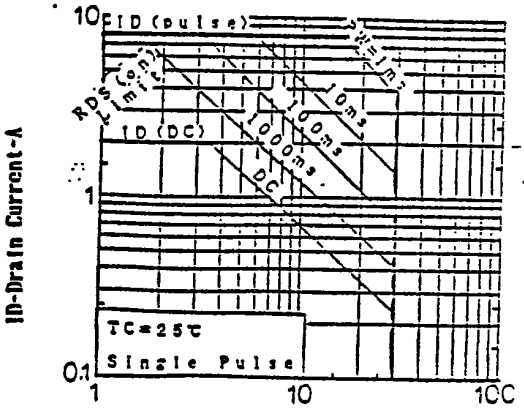




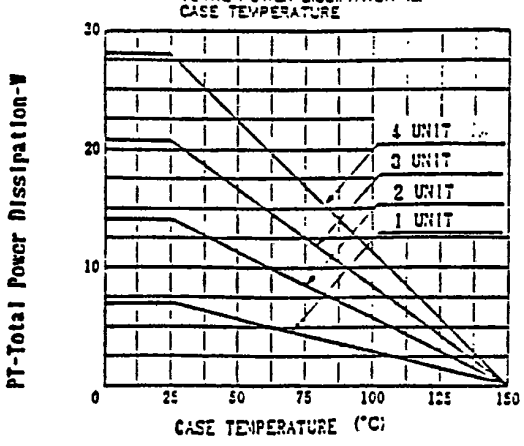
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



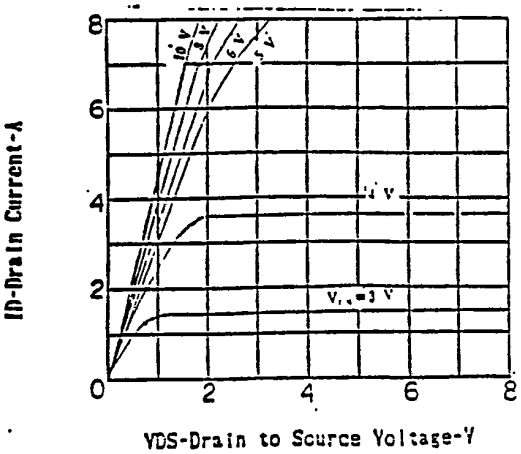
FORWARD BIAS SAFE OPERATING AREA



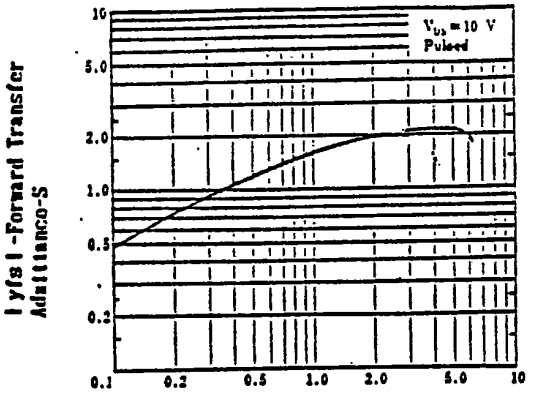
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



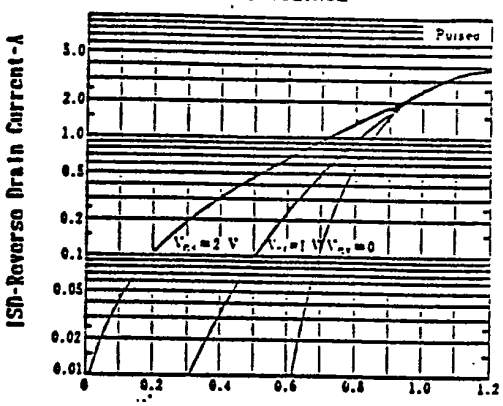
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



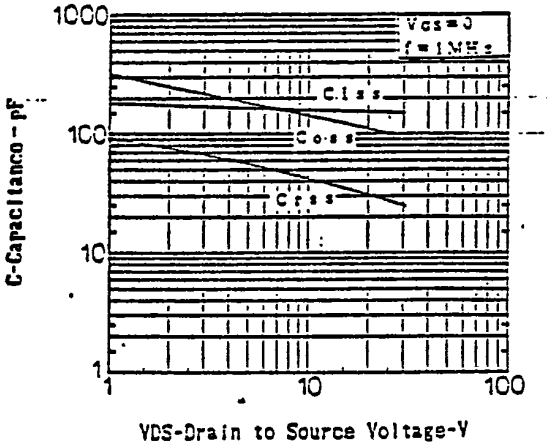
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



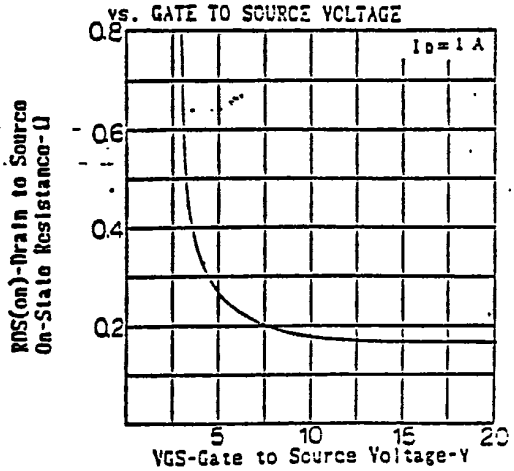
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



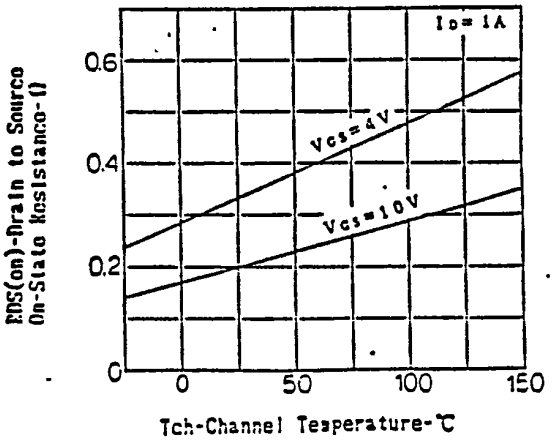
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



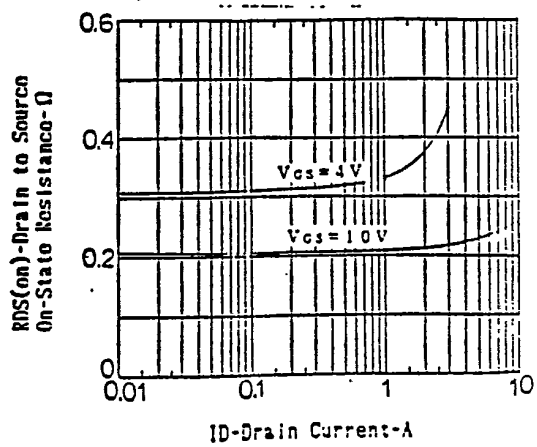
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



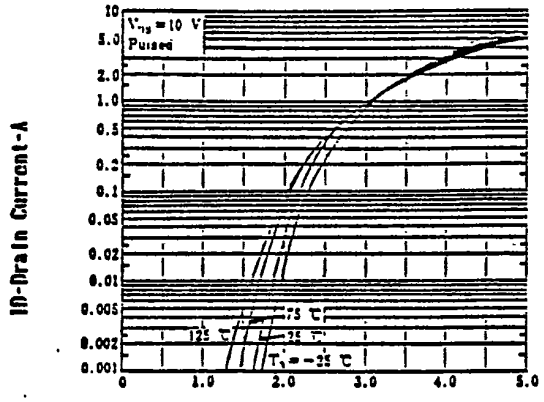
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



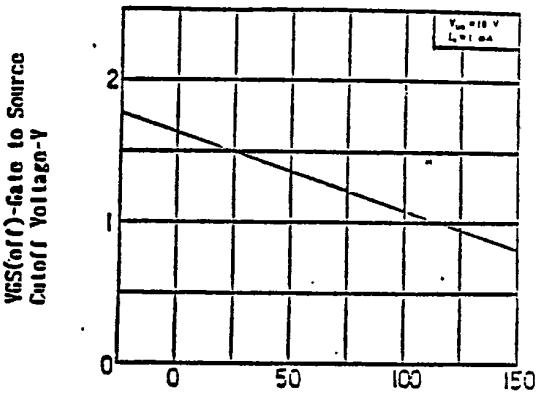
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



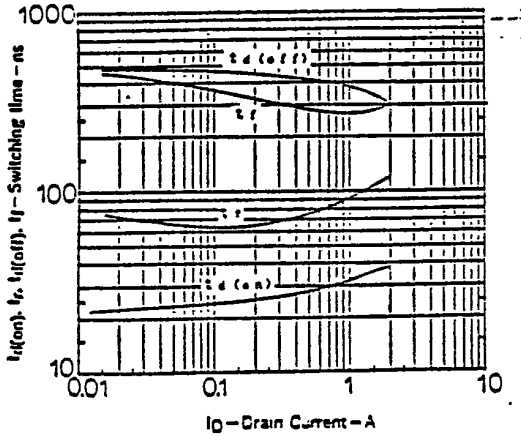
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



SWITCHING CHARACTERISTICS



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Printed in Japan