PRELIMINARY SPECIFICATION

NEC ELECTRON DEVICE

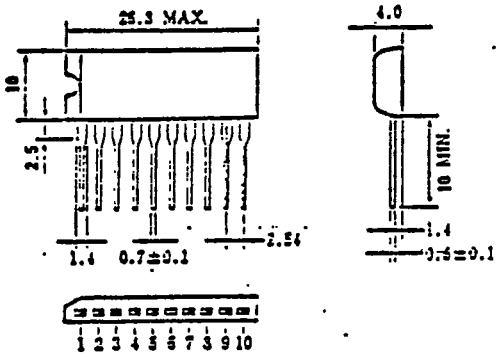
MOS FIELD EFFECT POWER TRANSISTOR ARRAY

μPA157

FAST SWITCHING N-CHANNEL SILICON POWER MOS FET ARRAY

PACKAGE DIMENSIONS

in millimeters



2,4,6,8:Gate

3,5,7,9:Drain

1,10:Source

FEATURES

- Suitable for switching power supplies, actuator controls, and pulse circuits
- Low RDS(on)
- No second breakdown

ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

Drain to Source Voltage	VDSS	60V
Gate to Source Voltage	VGSS	±20V
Continuous Drain Current	ID(DC)	± 2A
Total Power Dissipation	PT	3.5W
Total Power Dissipation	PT*	25W
Channel Temperature	Tch	150°C
Storage Temperature	Tstg	-55~150 °C

*Tc=25°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Leakage Current	IDSS			10	μA	VDS= 60V, 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=1mA
Forward Transfer Admittance	|yfs|	0.5			S	VDS=10V, ID=1A
Drain to Source On-State Resistance	RDS(on)		0.40	0.60	Ω	VGS=10V, ID=1A
			0.60	0.35	Ω	VGS=4V, ID=1A
Input Capacitance	Ciss		200		pF	VDS=10V
Output Capacitance	Coss		70		pF	VGS=0
Reverse Transfer Capacitance	Crss		15		pF	f=1MHz
Turn-On Delay Time	td(on)		45		ns	ID=1A , Vcc=50V
Rise Time	tr		40		ns	VGS(on)=10V
Turn-Off Delay Time	td(off)		450		ns	RL=50 Ω
Fall Time	tf		110		ns	

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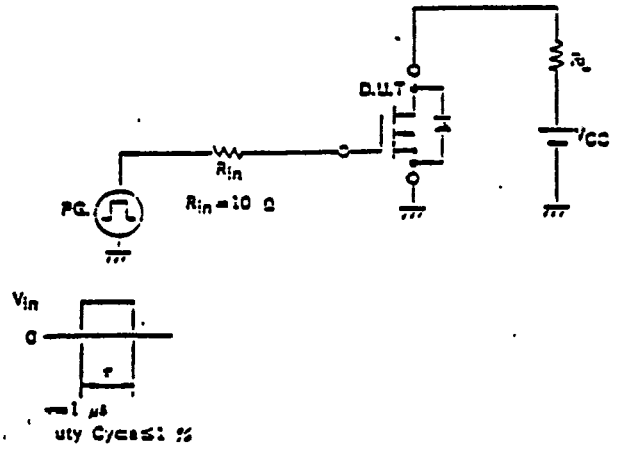
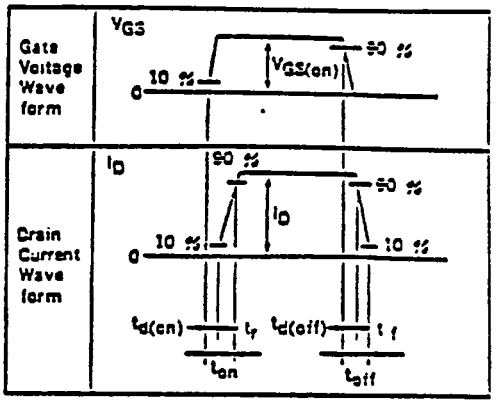
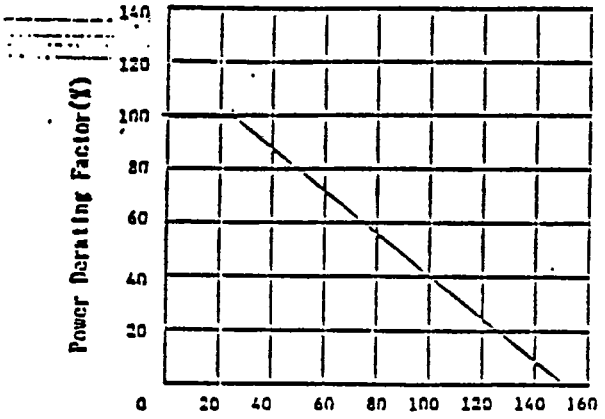
TURN-ON AND TURN-OFF TIME TEST CIRCUIT

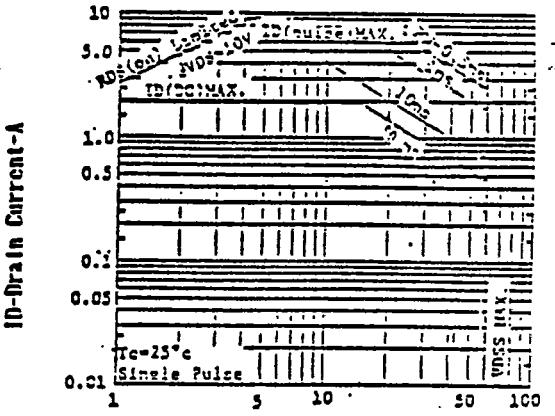




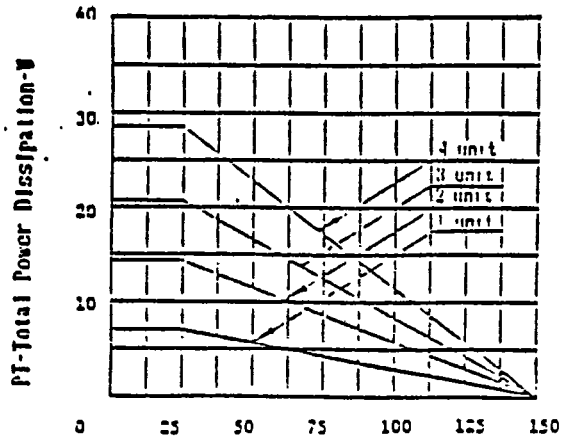
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



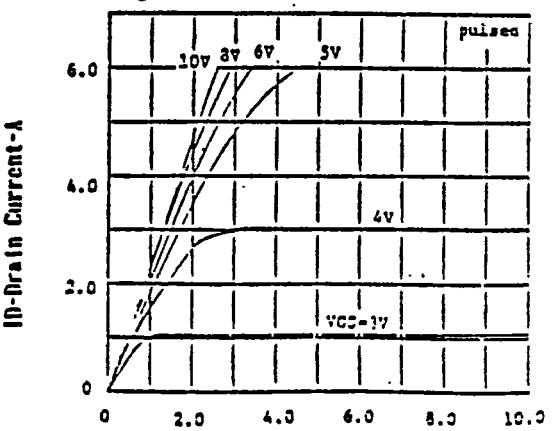
FORWARD BIAS SAFE OPERATING AREA



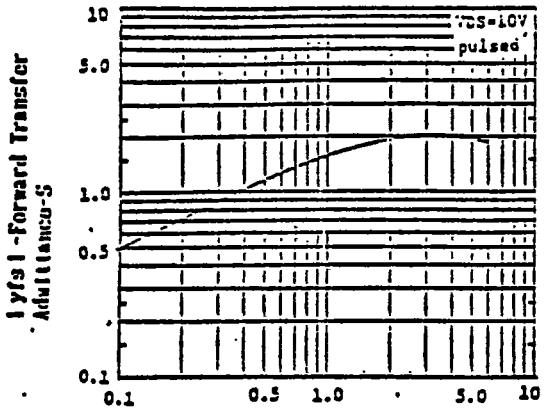
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



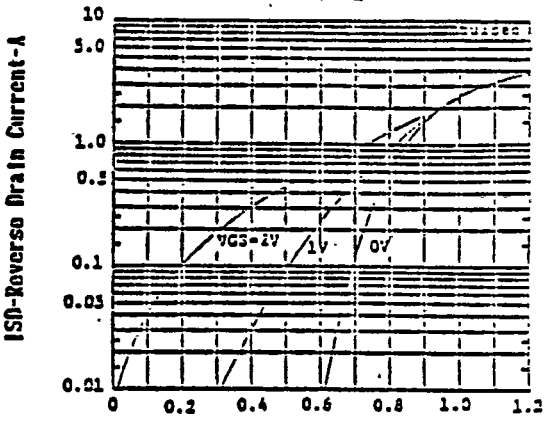
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



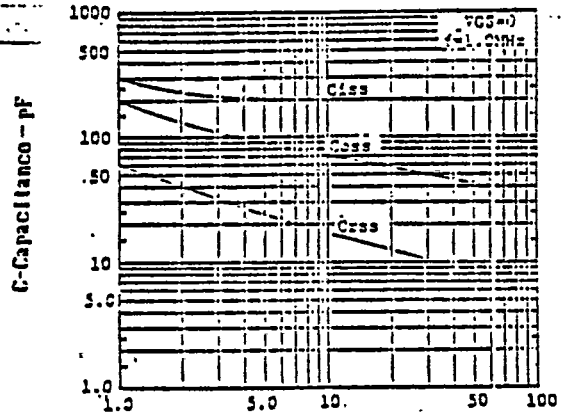
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



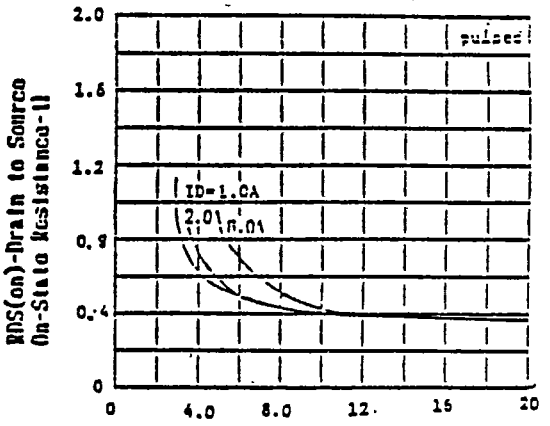
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



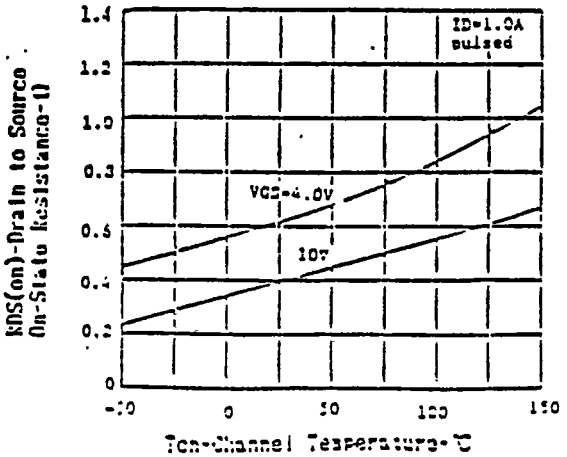
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



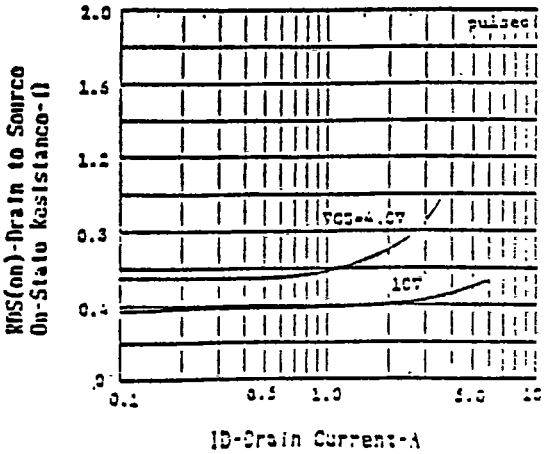
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



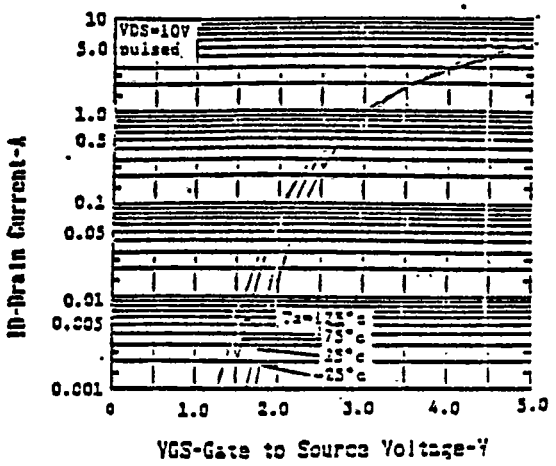
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE.



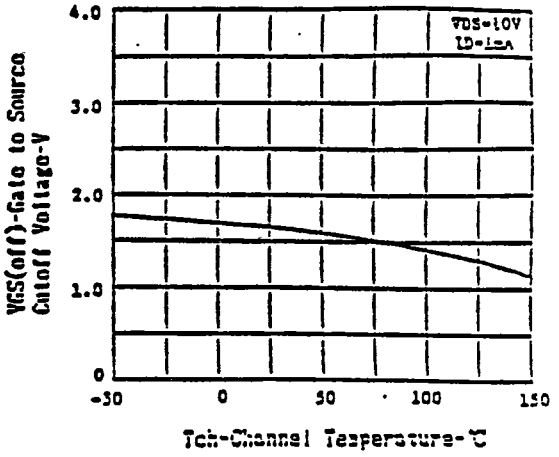
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



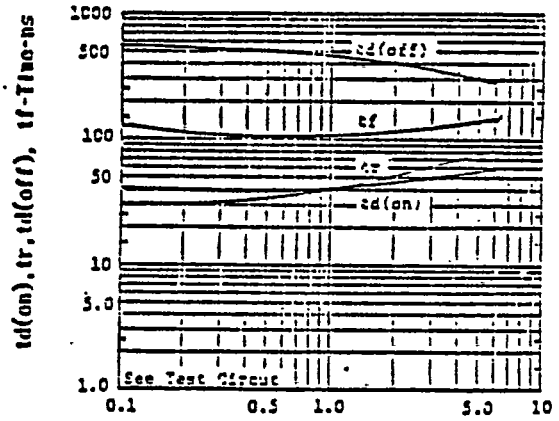
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



TURN-ON AND TURN-OFF TIME



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