

Electrical Characteristics @ T_j = 25°C (Unless Otherwise Specified)

	Parameter	Min	Typ	Max	Units	Test Conditions
BVDSS	Drain-to-Source Breakdown Voltage	-100	—	—	V	V _{GS} = 0V, I _D = -1.0mA
ΔBVDSS/ΔT _j	Temperature Coefficient of Breakdown Voltage	—	-0.1	—	V/°C	Reference to 25°C, I _D = -1.0mA
RDS(on)	Static Drain-to-Source On-State Resistance	—	—	0.30	Ω	V _{GS} = -10V, I _D = -7.1A ④
VGS(th)	Gate Threshold Voltage	-2.0	—	-4.0	V	V _{DS} = V _{GS} , I _D = -250μA
gfs	Forward Transconductance	2.5	—	—	S (r)	V _{DS} > -15V, I _{DS} = -7.1A ④
IDSS	Zero Gate Voltage Drain Current	—	—	-25	μA	V _{DS} = -80V, V _{GS} = 0V
		—	—	-250		V _{DS} = -80V, V _{GS} = 0V, T _j = 125°C
IGSS	Gate-to-Source Leakage Forward	—	—	-100	nA	V _{GS} = -20V
IGSS	Gate-to-Source Leakage Reverse	—	—	100		V _{GS} = 20V
Qg	Total Gate Charge	—	—	30	nC	V _{GS} = -10V, I _D = -11.2A V _{DS} = -50V
Qgs	Gate-to-Source Charge	—	—	7.1		
Qgd	Gate-to-Drain ('Miller') Charge	—	—	2.1		
td(on)	Turn-On Delay Time	—	—	60	ns	V _{DD} = -50V, I _D = -11.2A, R _G = 7.5Ω
tr	Rise Time	—	—	140		
td(off)	Turn-Off Delay Time	—	—	140		
tf	Fall Time	—	—	140		
LS + LD	Total Inductance	—	6.8	—	nH	Measured from drain lead (6mm/0.25in. from package) to source lead (6mm/0.25in. from package)
Ciss	Input Capacitance	—	800	—	pF	V _{GS} = 0V, V _{DS} = -25V f = 1.0MHz
Coss	Output Capacitance	—	350	—		
Crss	Reverse Transfer Capacitance	—	125	—		

Source-Drain Diode Ratings and Characteristics

	Parameter	Min	Typ	Max	Units	Test Conditions
IS	Continuous Source Current (Body Diode)	—	—	-11.2	A	T _j = 25°C, I _S = -11.2A, V _{GS} = 0V ④
ISM	Pulse Source Current (Body Diode) ①	—	—	-44		
VSD	Diode Forward Voltage	—	—	-4.7	V	T _j = 25°C, I _F = -11.2A, di/dt ≤ -100A/μs
trr	Reverse Recovery Time	—	—	250	nS	V _{DD} ≤ -50V ④
QRR	Reverse Recovery Charge	—	—	3.0	μC	
ton	Forward Turn-On Time	Intrinsic turn-on time is negligible. Turn-on speed is substantially controlled by L _S + L _D .				

Thermal Resistance

	Parameter	Min	Typ	Max	Units	Test Conditions
RthJC	Junction-to-Case	—	—	1.67	°C/W	
RthCS	Case-to-sink	—	0.21	—		
RthJA	Junction-to-Ambient	—	—	80		Typical socket mount

Note: Corresponding Spice and Saber models are available on the G&S Website.

For footnotes refer to the last page

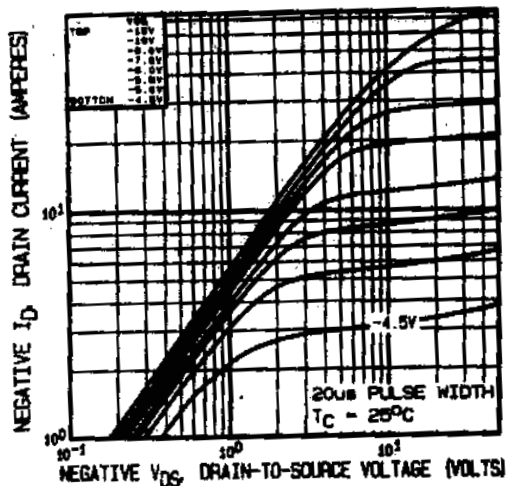


Fig 1. Typical Output Characteristics

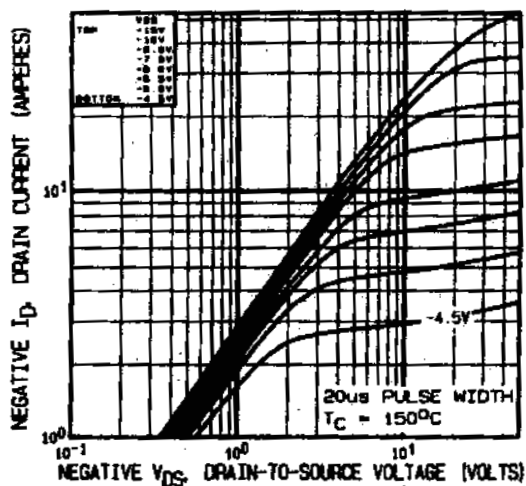


Fig 2. Typical Output Characteristics

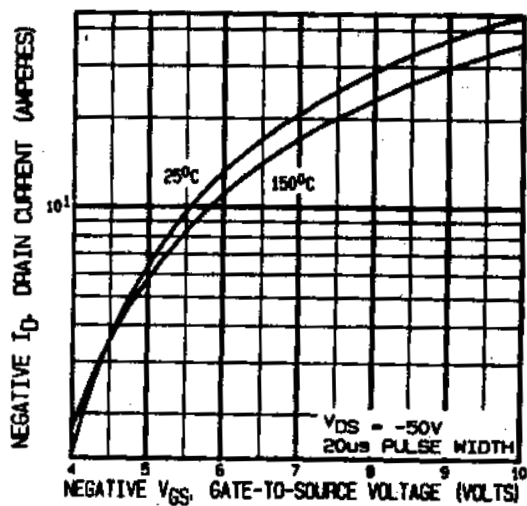


Fig 3. Typical Transfer Characteristics

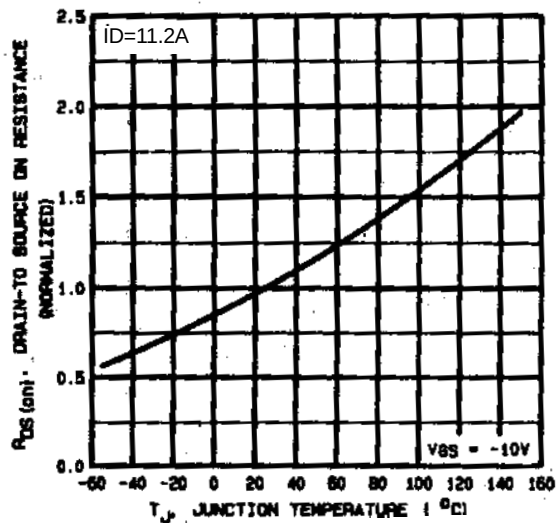


Fig 4. Normalized On-Resistance
Vs. Temperature

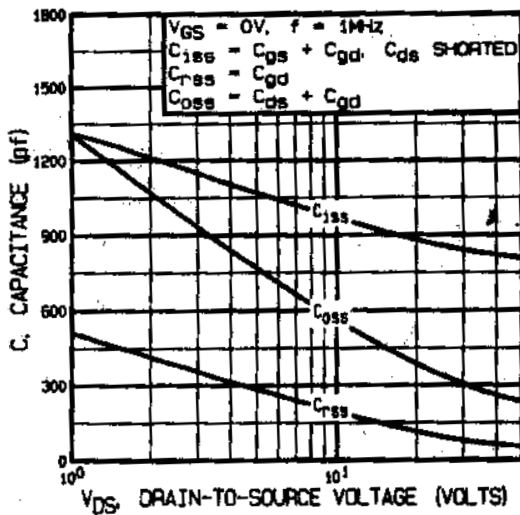


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

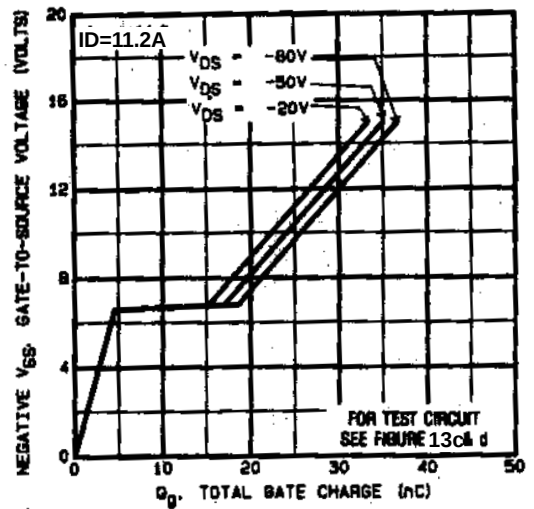


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

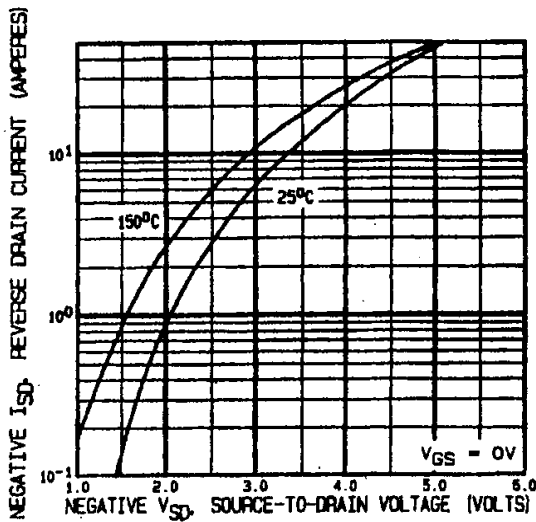


Fig 7. Typical Source-Drain Diode Forward Voltage

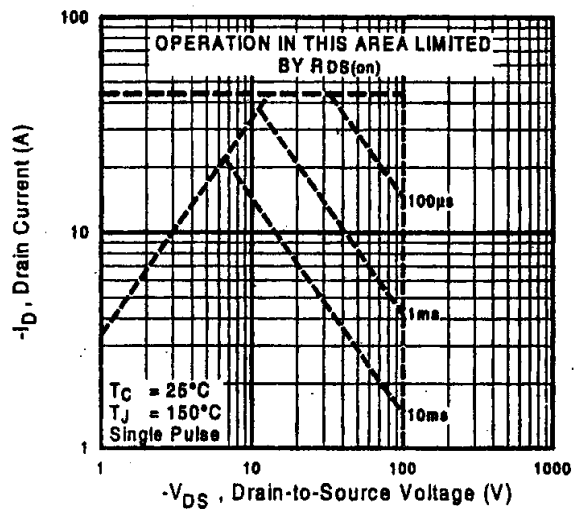


Fig 8. Maximum Safe Operating Area

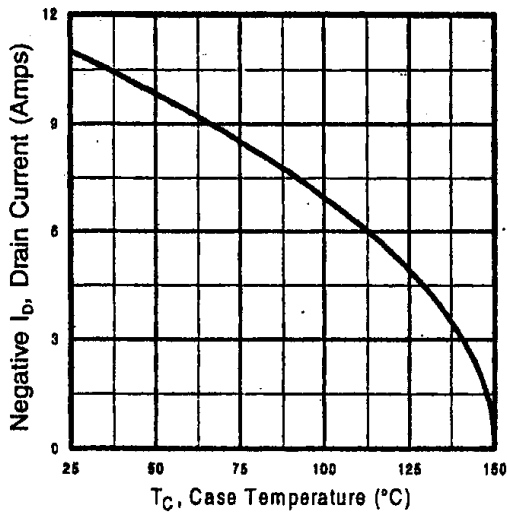


Fig 9. Maximum Drain Current Vs. Case Temperature

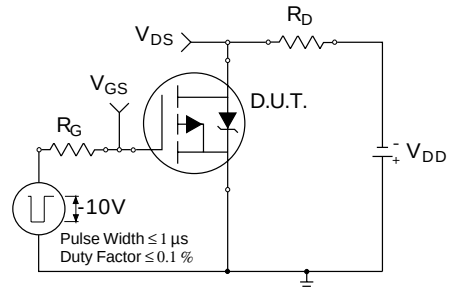


Fig 10a. Switching Time Test Circuit

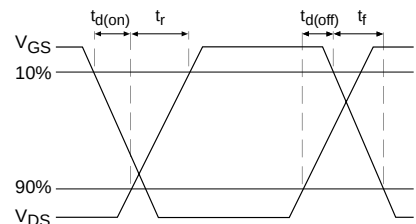


Fig 10b. Switching Time Waveforms

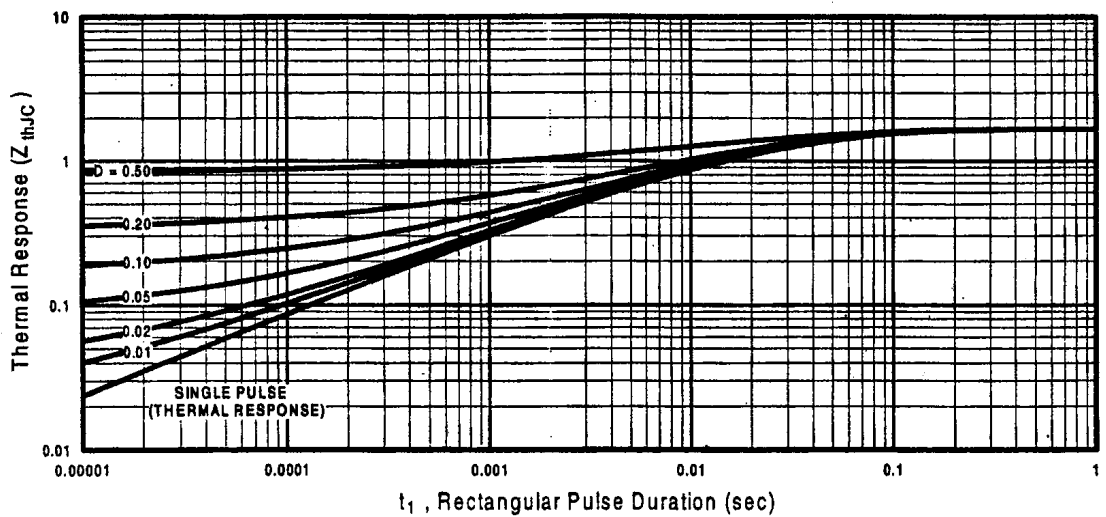


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Case

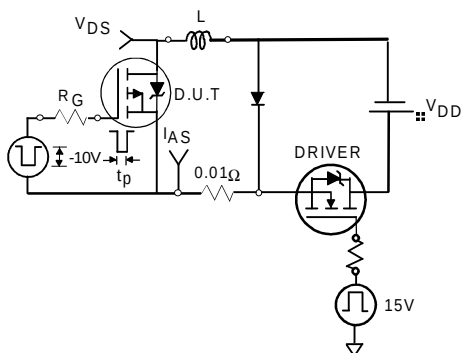


Fig 12a. Unclamped Inductive Test Circuit

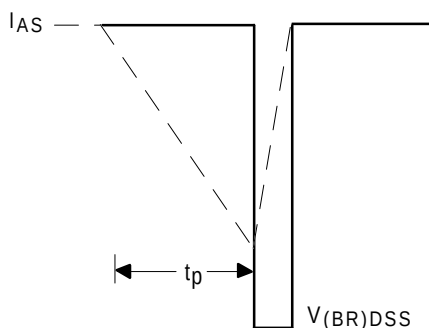


Fig 12b. Unclamped Inductive Waveforms

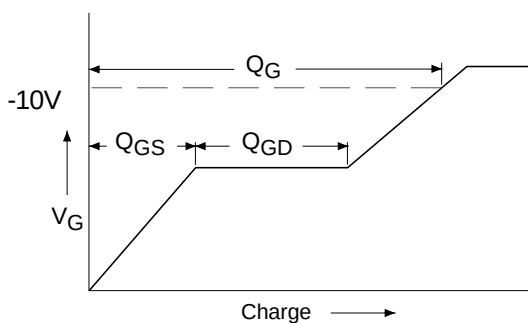


Fig 13a. Basic Gate Charge Waveform

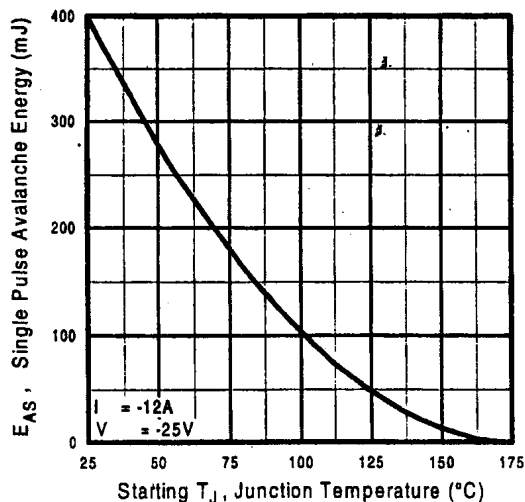


Fig 12c. Maximum Avalanche Energy Vs. Drain Current

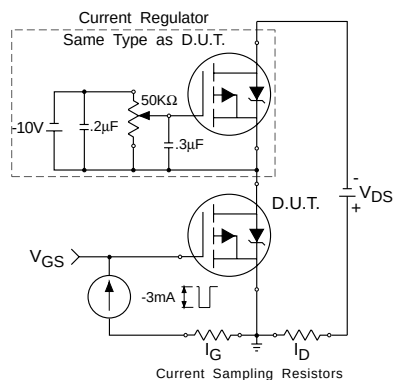
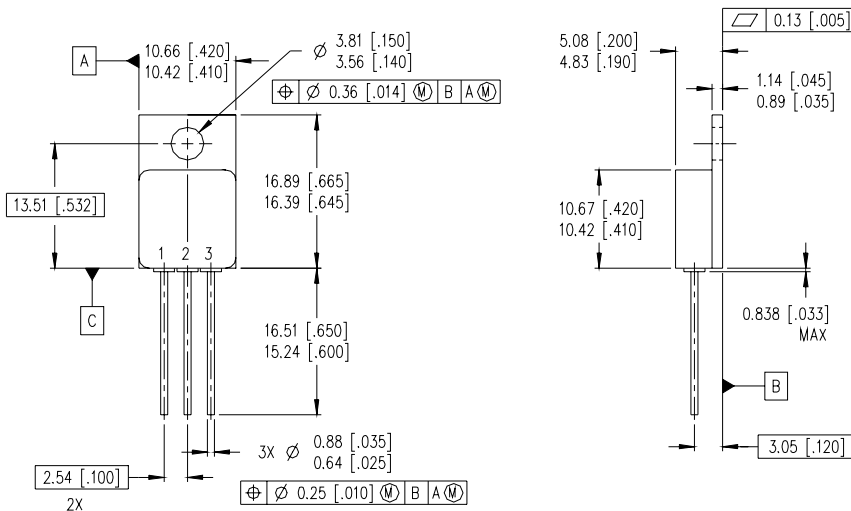


Fig 13b. Gate Charge Test Circuit

Foot Notes:

- ① Repetitive Rating; Pulse width limited by maximum junction temperature.
- ② $V_{DD} = -25V$, starting $T_J = 25^\circ C$, $L = 6.4mH$
Peak $I_L = -11.2A$, $V_{GS} = -10V$
- ③ $I_{SD} \leq -11.2A$, $di/dt \leq -140A/\mu s$,
 $V_{DD} \leq -100V$, $T_J \leq 150^\circ C$
- ④ Pulse width $\leq 300 \mu s$; Duty Cycle $\leq 2\%$

Case Outline and Dimensions — TO-257AA

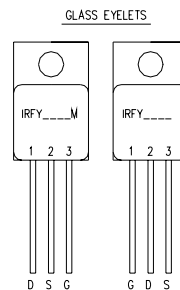


NOTES:

1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M-1994.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
4. OUTLINE CONFORMS TO JEDEC OUTLINE TO-257AA.

LEGEND

D - DRAIN
S - SOURCE
G - GATE



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Data and specifications subject to change without notice. 04/01