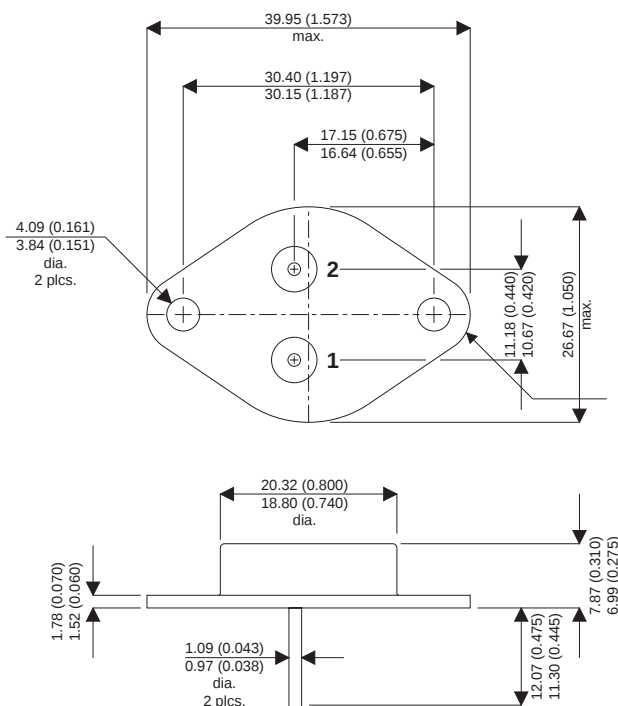


MECHANICAL DATA

Dimensions in mm (inches)


TO-3 Metal Package

Pin 1 – Gate

Pin 2 – Source

Case – Drain

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{GS}	Gate – Source Voltage	$\pm 20V$
I_D	Continuous Drain Current ($V_{GS} = 0$, $T_{case} = 25^{\circ}C$)	$-11A$
I_D	Continuous Drain Current ($V_{GS} = 0$, $T_{case} = 100^{\circ}C$)	$-7.0A$
I_{DM}	Pulsed Drain Current ¹	$-50A$
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	$75W$
	Linear Derating Factor	$0.6W/^{\circ}C$
E_{AS}	Single Pulse Avalanche Energy ²	$81mJ$
I_{AR}	Avalanche Current ¹	$-11A$
E_{AR}	Repetitive Avalanche Energy ¹	$7.5mJ$
dv/dt	Peak Diode Recovery ³	$-5.5V/ns$
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to $+150^{\circ}C$
T_L	Lead Temperature 1.6mm (0.63") from case for 10 sec.	$300^{\circ}C$

Notes

- 1) Repetitive Rating – Pulse width limited by maximum junction temperature.
- 2) @ $V_{DD} = -25V$, $L \geq 1.0mH$, $R_G = 25\Omega$, Peak $I_L = -11A$, Starting $T_J = 25^{\circ}C$
- 3) @ $I_{SD} \leq -11A$, $di/dt \leq -140A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^{\circ}C$, Suggested $R_G = 7.5\Omega$

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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Document Number 5676

Issue 1

**P-CHANNEL
POWER MOSFET**
 V_{DSS} **-100V**
 $I_{D(cont)}$ **-11A**
 $R_{DS(on)}$ **0.2 Ω**
FEATURES

- HERMETICALLY SEALED TO-3 METAL PACKAGE
- SIMPLE DRIVE REQUIREMENTS
- SCREENING OPTIONS AVAILABLE

ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS							
BV _{DSS}	Drain – Source Breakdown Voltage	V _{GS} = 0	I _D = –1mA	–100			V
ΔBV _{DSS} ΔT _J	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = –1mA			–0.087		V/°C
R _{DS(on)}	Static Drain – Source On–State Resistance ¹	V _{GS} = –10V	I _D = –7.0A			0.3	Ω
		V _{GS} = –10V	I _D = –11A			0.35	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = –250μA	–2		–4	V
g _{fs}	Forward Transconductance	V _{DS} ≥ –15V	I _{DS} = –7.0A	3			S (V)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0	V _{DS} = 0.8 x Max			–25	μA
			T _J = 125°C			–250	
I _{GSS}	Forward Gate – Source Leakage	V _{GS} = –20V				–100	nA
I _{GSS}	Reverse Gate – Source Leakage	V _{GS} = 20V				100	
DYNAMIC CHARACTERISTICS							
C _{DC}	Drain to Case Capacitance	V _{GS} = 0 V _{DS} = – 25V f = 1MHz			12		pF
C _{iss}	Input Capacitance				860		
C _{oss}	Output Capacitance				350		
C _{rss}	Reverse Transfer Capacitance				125		
Q _g	Total Gate Charge	V _{GS} = –10V		15		29	nC
Q _{gs}	Gate – Source Charge	I _D = –11A		1.0		7.1	
Q _{gd}	Gate – Drain (“Miller”) Charge	V _{DS} = 0.5 x max		2.0		21	
t _{d(on)}	Turn–On Delay Time	V _{DD} = –50V I _D = –11A R _G = 7.5Ω				60	ns
t _r	Rise Time					140	
t _{d(off)}	Turn–Off Delay Time					140	
t _f	Fall Time					140	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					–11	A
I _{SM}	Pulse Source Current ²					–50	
V _{SD}	Diode Forward Voltage	I _S = –11A	T _J = 25°C			–4.7	V
		V _{GS} = 0					
t _{rr}	Reverse Recovery Time	I _F = –11A	V _{DD} ≤ –50V			250	ns
Q _{rr}	Reverse Recovery Charge	d _i / d _t ≤ –100A/μs T _J = 25°C				3.0	μC
t _{on}	Forward Turn–On Time			Negligible			
PACKAGE CHARACTERISTICS							
L _D	Internal Drain Inductance (measured from 6mm down drain lead to centre of die)				5.0		nH
L _S	Internal Source Inductance (from 6mm down source lead to source bond pad)				13		
THERMAL CHARACTERISTICS							
R _{θJC}	Thermal Resistance Junction – Case				1.67		°C/W
R _{θCS}	Thermal Resistance Case – Sink				0.12		
R _{θJA}	Thermal Resistance Junction – Ambient				30		

- Notes**
- 1) Pulse Test: Pulse Width $\leq 300\text{ms}$, $\delta \leq 2\%$
 - 2) Repetitive Rating – Pulse width limited by maximum junction temperature.