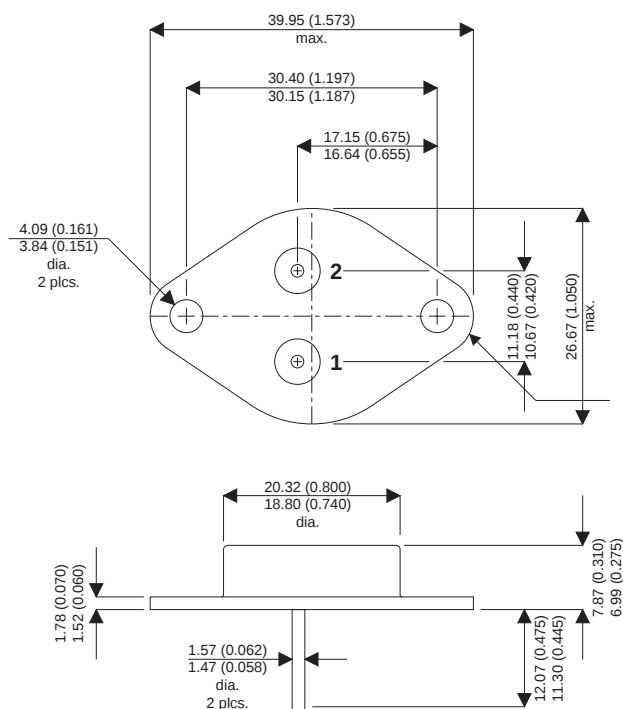


MECHANICAL DATA

Dimensions in mm (inches)


TO-3 Metal Package

Pin 1 – Gate

Pin 2 – Source

Case – Drain

**N-CHANNEL
POWER MOSFET**
 V_{DSS} **200V**
 $I_{D(cont)}$ **30A**
 $R_{DS(on)}$ **0.085 Ω**
FEATURES

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

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

V_{GS}	Gate – Source Voltage	$\pm 20V$
I_D	Continuous Drain Current ($V_{GS} = 0$, $T_{case} = 25^{\circ}C$)	30A
I_D	Continuous Drain Current ($V_{GS} = 0$, $T_{case} = 100^{\circ}C$)	19A
I_{DM}	Pulsed Drain Current ¹	120A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	150W
	Linear Derating Factor	1.2W/ $^{\circ}C$
E_{AS}	Single Pulse Avalanche Energy ²	200mJ
I_{AR}	Avalanche Current ²	30A
E_{AR}	Repetitive Avalanche Energy ²	15mJ
dv/dt	Peak Diode Recovery ³	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) Pulse Test: Pulse Width $\leq 300\mu s$, $\delta \leq 2\%$.

 2) @ $V_{DD} = 50V$, $L \geq 330mH$, $R_G = 25\Omega$, Peak $I_L = 30A$, Starting $T_J = 25^{\circ}C$.

 3) @ $I_{SD} \leq 30A$, $di/dt \leq 190A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^{\circ}C$, Suggested $R_G = 2.35\Omega$

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ 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	200			V
ΔBV _{DSS}	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1mA			0.029		V/°C
R _{DS(on)}	Static Drain – Source On–State Resistance ¹	V _{GS} = 10V V _{GS} = 10V	I _D = 19A I _D = 30A			0.085 0.090	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = 250mA	2		4	V
g _{fs}	Forward Transconductance ¹	V _{DS} > 15V	I _D = 19A	9			S (V)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0	V _{DS} = 0.8BV _{DSS} T _J = 125°C			25 250	μA
I _{GSS}	Forward Gate – Source Leakage	V _{GS} = 20V				100	nA
I _{GSS}	Reverse Gate – Source Leakage	V _{GS} = –20V				–100	
DYNAMIC CHARACTERISTICS							
C _{iss}	Input Capacitance	V _{GS} = 0			3500		pF
C _{oss}	Output Capacitance	V _{DS} = 25V			700		
C _{rss}	Reverse Transfer Capacitance	f = 1MHz			110		
Q _g	Total Gate Charge	V _{GS} = 10V		55		115	nC
Q _{gs}	Gate – Source Charge	I _D = 30A		8		22	
Q _{gd}	Gate – Drain (“Miller”) Charge	V _{DS} = 0.5BV _{DSS}		30		60	
t _{d(on)}	Turn–On Delay Time	V _{DD} = 100V				35	ns
t _r	Rise Time	I _D = 30A				190	
t _{d(off)}	Turn–Off Delay Time	R _G = 2.35Ω				170	
t _f	Fall Time					130	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					30	A
I _{SM}	Pulse Source Current ²					120	
V _{SD}	Diode Forward Voltage ¹	I _S = 30A V _{GS} = 0	T _J = 25°C			1.9	V
t _{rr}	Reverse Recovery Time	I _F = 30A	T _J = 25°C			950	ns
Q _{rr}	Reverse Recovery Charge ¹	d _i / d _t ≤ 100A/μs V _{DD} ≤ 50V				9.0	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					0.83	°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.