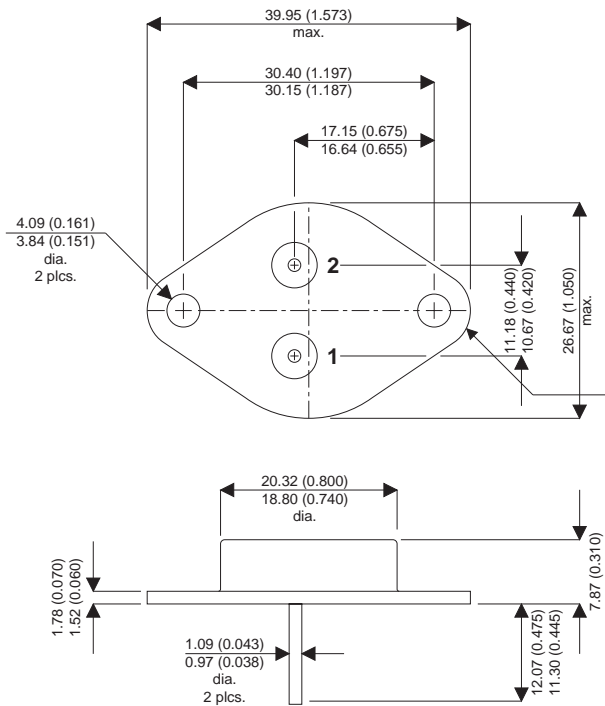


**MECHANICAL DATA**

Dimensions in mm (inches)



**TO-3 Metal Package**

Pin 1 – Gate      Pin 2 – Source      Case – Drain

**P-CHANNEL  
POWER MOSFET**

$V_{DSS}$       **-100V**  
 $I_{D(cont)}$       **-18A**  
 $R_{DS(on)}$       **0.2Ω**

**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	±20V
$I_D$	Continuous Drain Current ( $V_{GS} = 0, T_{case} = 25^{\circ}C$ )	-18A
$I_D$	Continuous Drain Current ( $V_{GS} = 0, T_{case} = 100^{\circ}C$ )	-11A
$I_{DM}$	Pulsed Drain Current <sup>1</sup>	-72A
$P_D$	Power Dissipation @ $T_{case} = 25^{\circ}C$	125W
	Linear Derating Factor	1W/°C
$E_{AS}$	Single Pulse Avalanche Energy <sup>2</sup>	500mJ
$I_{AR}$	Avalanche Current <sup>2</sup>	-18A
$E_{AR}$	Repetitive Avalanche Energy <sup>2</sup>	12.5mJ
dv/dt	Peak Diode Recovery <sup>3</sup>	-5.5V/ns
$T_J, T_{stg}$	Operating and Storage Temperature Range	-55 to +150°C
$T_L$	Lead Temperature 1.6mm (0.63") from case for 10 sec.	300°C

**Notes**

- 1) Pulse Test: Pulse Width ≤ 300μs, δ ≤ 2%
- 2) @  $V_{DD} = -25V, L ≥ 2.3mH, R_G = 25Ω, Peak I_L = -18A, Starting T_J = 25^{\circ}C$
- 3) @  $I_{SD} ≤ -18A, di/dt ≤ -100A/μs, V_{DD} ≤ BV_{DSS}, T_J ≤ 150^{\circ}C, Suggested R_G = 9.1Ω$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
<b>STATIC ELECTRICAL RATINGS</b>						
$BV_{DSS}$	Drain – Source Breakdown Voltage	$V_{GS} = 0$ $I_D = -1mA$	-100		V	
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to $25^{\circ}C$ $I_D = -1mA$		-0.087	$V/^{\circ}C$	
$R_{DS(on)}$	Static Drain – Source On-State Resistance <sup>1</sup>	$V_{GS} = 10V$ $I_D = -11A$		0.2	$\Omega$	
		$V_{GS} = 10V$ $I_D = -18A$		0.23		
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = -250mA$	-2	-4	V	
$g_{fs}$	Forward Transconductance <sup>1</sup>	$V_{DS} \geq -15V$ $I_{DS} = -11A$	6.2		S ( $\bar{O}$ )	
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{GS} = 0$ $V_{DS} = 0.8BV_{DSS}$ $T_J = 125^{\circ}C$		-25	$\mu A$	
				-250		
$I_{GSS}$	Forward Gate – Source Leakage	$V_{GS} = -20V$		-100	nA	
$I_{GSS}$	Reverse Gate – Source Leakage	$V_{GS} = 20V$		100		
<b>DYNAMIC CHARACTERISTICS</b>						
$C_{iss}$	Input Capacitance	$V_{GS} = 0$		1400	pF	
$C_{oss}$	Output Capacitance	$V_{DS} = -25V$		600		
$C_{riss}$	Reverse Transfer Capacitance	$f = 1MHz$		200		
$Q_g$	Total Gate Charge	$V_{GS} = -10V$	31	60	nC	
$Q_{gs}$	Gate – Source Charge	$I_D = -18A$	3.7	13		
$Q_{gd}$	Gate – Drain (“Miller”) Charge	$V_{DS} = 0.5BV_{DSS}$	7.0	35.2		
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = -50V$ $I_D = -18A$ $R_G = 9.1\Omega$		35	ns	
$t_r$	Rise Time			85		
$t_{d(off)}$	Turn-Off Delay Time			85		
$t_f$	Fall Time			65		
<b>SOURCE – DRAIN DIODE CHARACTERISTICS</b>						
$I_S$	Continuous Source Current			-18	A	
$I_{SM}$	Pulse Source Current <sup>2</sup>			-72		
$V_{SD}$	Diode Forward Voltage <sup>1</sup>	$I_S = -18A$ $T_J = 25^{\circ}C$ $V_{GS} = 0$		-4.2	V	
$t_{rr}$	Reverse Recovery Time <sup>1</sup>	$I_F = -18A$ $T_J = 25^{\circ}C$		170	280	ns
$Q_{rr}$	Reverse Recovery Charge	$d_i / d_t \leq -100A/\mu s$ $V_{DD} \leq -50V$			3.6	$\mu C$
$t_{on}$	Forward Turn-On Time		Negligible			
<b>PACKAGE CHARACTERISTICS</b>						
$L_D$	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			
<b>THERMAL CHARACTERISTICS</b>						
$R_{\theta JC}$	Thermal Resistance Junction – Case			1.0	$^{\circ}C/W$	
$R_{\theta CS}$	Thermal Resistance Case – Sink		0.12			
$R_{\theta JA}$	Thermal Resistance Junction – Ambient			30		

**Notes**

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