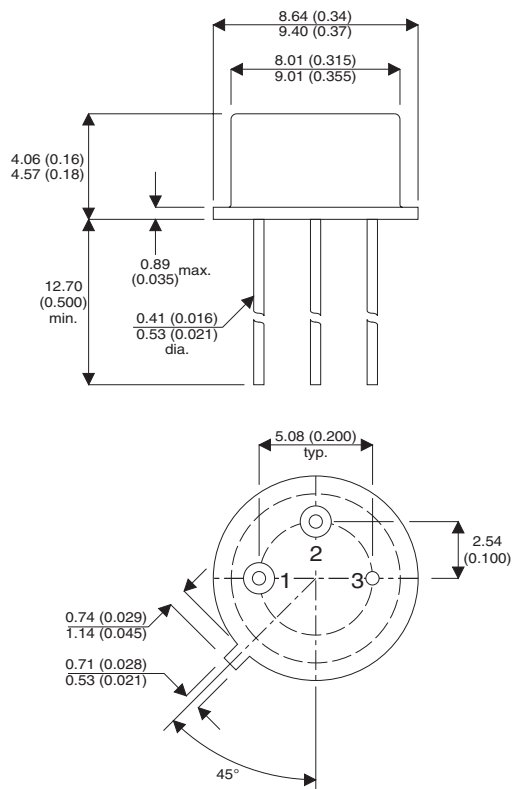


**MECHANICAL DATA**

Dimensions in mm (inches)



**P-CHANNEL  
ENHANCEMENT MODE  
HIGH VOLTAGE  
POWER MOSFETS**

**$V_{DSS}$  -100V**  
 **$I_{D(cont)}$  -4.0A**  
 **$R_{DS(on)}$  0.60Ω**

**FEATURES**

- HERMETICALLY SEALED TO-39 METAL PACKAGE
- SIMPLE DRIVE REQUIREMENTS
- LIGHTWEIGHT
- SCREENING OPTIONS AVAILABLE

**TO-39 (TO-205AF) METAL PACKAGE**

PIN1 – Source      PIN 2 – Gate      PIN 3 – Drain

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


$V_{GS}$	Gate – Source Voltage	$\pm 20V$
$I_D$	Continuous Drain Current ( $V_{GS} = 0, T_{case} = 25^{\circ}C$ )	-4.0A
$I_D$	Continuous Drain Current ( $V_{GS} = 0, T_{case} = 100^{\circ}C$ )	-2.6A
$I_{DM}$	Pulsed Drain Current <sup>1</sup>	-16A
$P_D$	Power Dissipation @ $T_{case} = 25^{\circ}C$	20 W
	Linear Derating Factor	0.16 W/ $^{\circ}C$
$T_J, T_{stg}$	Operating and Storage Temperature Range	-55 to 150 $^{\circ}C$
$T_L$	Package Mounting Surface Temperature (for 5 sec)	300 $^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	6.25 $^{\circ}C/W$

**Notes**

1) Repetitive Rating – Pulse width limited by maximum junction temperature.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
<b>STATIC ELECTRICAL RATINGS</b>						
$BV_{DSS}$	Drain – Source Breakdown Voltage	$V_{GS} = 0$ $I_D = -1\text{mA}$	- 100		V	
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to $25^{\circ}\text{C}$ $I_D = -1\text{mA}$		- 0.10	$\text{V}/^{\circ}\text{C}$	
$R_{DS(on)}$	Static Drain – Source On–State Resistance <sup>1</sup>	$V_{GS} = -10\text{V}$ $I_D = -2.6\text{A}$ $V_{GS} = -10\text{V}$ $I_D = -4.0\text{A}$		0.60 0.69	$\Omega$	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = -250\mu\text{A}$	- 2	- 4	V	
$g_{fs}$	Forward Transconductance <sup>1</sup>	$V_{DS} > -15\text{V}$ $I_D = -2.6\text{A}$	1.25		S	
$I_{DSS}$	Drain-to-Source Leakage Current	$V_{DS} = -80\text{V}$ $V_{GS} = 0$ $T_J = 125^{\circ}\text{C}$		-25 -250	$\mu\text{A}$	
$I_{GSS}$	Forward Gate – Source Leakage	$V_{GS} = 20\text{V}$		100	nA	
$I_{GSS}$	Reverse Gate – Source Leakage	$V_{GS} = -20\text{V}$		-100	nA	
<b>DYNAMIC CHARACTERISTICS</b>						
$C_{iss}$	Input Capacitance	$V_{GS} = 0$		380	pF	
$C_{oss}$	Output Capacitance	$V_{DS} = -25\text{V}$		170		
$C_{rss}$	Reverse Transfer Capacitance	$f = 1\text{MHz}$		45		
$Q_g$	Total Gate Charge	$V_{GS} = -10\text{V}$ $I_D = -4.0\text{A}$ $V_{DS} = -50\text{V}$	4.3		16.3	nC
$Q_{gs}$	Gate – Source Charge		1.3		4.7	
$Q_{gd}$	Gate – Drain (“Miller”) Charge		1.0		9.0	
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = -50\text{V}$			60	ns
$t_r$	Rise Time	$I_D = -4.0\text{A}$			100	
$t_{d(off)}$	Turn–Off Delay Time	$R_G = 7.5\Omega$			50	
$t_f$	Fall Time				70	
<b>SOURCE – DRAIN DIODE CHARACTERISTICS</b>						
$I_S$	Continuous Source Current	MOSFET symbol showing the integral reverse p-n junction diode 			- 4.0	A
$I_{SM}$	Pulse Source Current				- 16	
$V_{SD}$	Diode Forward Voltage <sup>1</sup>	$I_S = -4.0\text{A}$ $T_J = 25^{\circ}\text{C}$ $V_{GS} = 0\text{V}$			- 4.8	V
$t_{rr}$	Reverse Recovery Time <sup>1</sup>	$I_F = -4.0\text{A}$ $T_J = 25^{\circ}\text{C}$			200	ns
$Q_{rr}$	Reverse Recovery Charge <sup>1</sup>	$d_i / d_t \leq -100\text{A}/\mu\text{s}$ $V_{DD} \leq -50\text{V}$			3.1	$\mu\text{C}$
$t_{on}$	Forward Turn–On Time		Negligible			

**Notes**

1) Pulse Test: Pulse Width  $\leq 300\text{ms}$ ,  $\delta \leq 2\%$

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