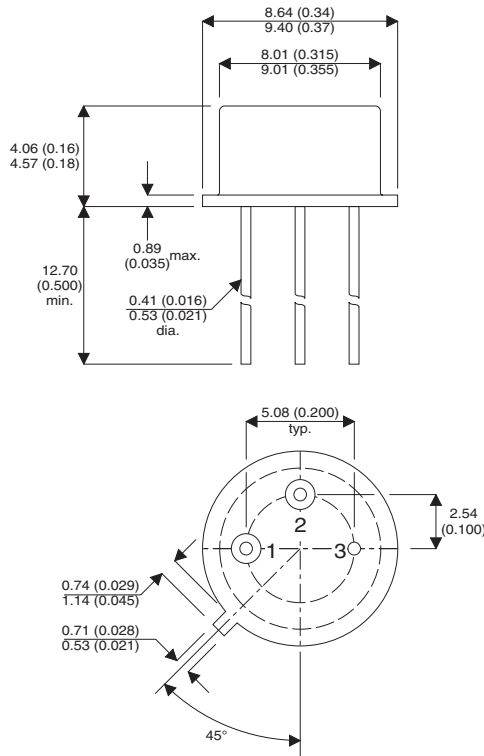


**MECHANICAL DATA**

Dimensions in mm (inches)



**TO39 Package (TO-205AF)**

**Underside View**

Pin 1 - Source

Pin 2 - Gate

Pin 3 - Drain and Case

**N-CHANNEL  
POWER MOSFET  
ENHANCEMENT MODE**

**APPLICATIONS**

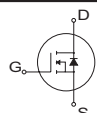
- FAST SWITCHING
- MOTOR CONTROLS
- POWER SUPPLIES

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

$V_{DS}$	Drain Source Voltage	100V
$V_{DGR}$	Drain Gate Voltage ( $R_{GS} = 1M\Omega$ )	100V
$I_D @ T_{case} = 25^{\circ}C$	Continuous Drain Current	3.5A
$I_D @ T_{case} = 100^{\circ}C$	Continuous Drain Current	2.25A
$I_{DM}$	Pulsed Drain Current <sup>1</sup>	14A
$V_{GS}$	Gate Source Voltage	$\pm 20V$
$P_D @ T_{case} = 25^{\circ}C$	Maximum Power Dissipation	15W
$P_D @ T_{case} = 100^{\circ}C$	Maximum Power Dissipation	6W
Junction to Case	Linear Derating Factor	0.12W/ $^{\circ}C$
Junction to ambient	Linear Derating Factor	0.005W/ $^{\circ}C$
$T_J, T_{stg}$	Operating and Storage Temperature Range	-55 to +150 $^{\circ}C$
Lead Temperature	( $\frac{1}{16}$ " from case for 10 secs)	300 $^{\circ}C$

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**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	$V_{GS} = 0$ $I_D = 0.25mA$	100*			V
$V_{GS(th)}$ Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 0.5A$	2*		4.0*	V
	$V_{DS} = 0$ $T_A = 125^{\circ}C$	1*		4.0*	
$I_{GSSF}$ Gate Body Leakage Forward	$V_{GS} = 20V$			100*	nA
	$V_{DS} = 0$ $T_A = 125^{\circ}C$			200*	
$I_{GSSR}$ Gate Body Leakage Reverse	$V_{GS} = -20V$			-100*	
$I_{DSS}$ Zero Gate Voltage Drain Current	$V_{DS} = 80V$ $V_{GS} = 0$			0.25*	mA
	$V_{DS} = 100V$ $V_{GS} = 0$			1*	
	$T_C = 125^{\circ}C$			1	
$I_{D(on)}$ On State Drain Current1	$V_{GS} = 10V$	3.5			A
$V_{DS(on)}$ Static Drain Source On-State Voltage1	$V_{GS} = 10V$ $I_D = 3.5A$	2.1*			V
$R_{DS(on)}$ Static Drain Source On-State Resistance1	$V_{GS} = 10V$ $I_D = 2.25A$			0.6*	$\Omega$
	$T_C = 125^{\circ}C$			1.08*	
<b>DYNAMIC CHARACTERISTICS</b>					
$g_{fs}$ Forward Transductance 1	$V_{DS} = 5V$ $I_{DS} = 2.25A$	1.0*		3.0*	S ( $\bar{\tau}$ )
$C_{iss}$ Input Capacitance	$V_{GS} = 0$ $V_{DS} = 25V$ $f = 1MHz$	60*		200*	pF
$C_{oss}$ Output Capacitance		40*		100*	
$C_{rss}$ Reverse Transfer Capacitance		10*		25*	
$t_{d(on)}$ Turn-On Delay Time	$V_{DD} = 34V$ $I_D = 2.25A$			15*	ns
$t_r$ Rise Time	$R_G = 50\Omega$ $R_L = 15\Omega$			25*	
$t_{d(off)}$ Turn-Off Delay Time	(MOSFET switching times are essentially independent of operating temperature.)			25*	
$t_f$ Fall Time				20*	
<b>BODY– DRAIN DIODE RATINGS &amp; CHARACTERISTICS</b>					
$I_S$ Continuous Source Current Body Diode	Modified MOS POWER symbol showing the intergal 			3.5*	A
$I_{SM}$ Source Current1 (Body Diode)	P-N junction rectifier.			14	A
$V_{SD}$ Diode Forward Voltage 1	$I_S = 3.5A$ $V_{GS} = 0$ $T_J = 25^{\circ}C$			1.5*	V
$t_{rr}$ Reverse Recovery Time	$I_F = I_S$ $T_J = 25^{\circ}C$ $d_i / d_t = 100A/\mu s$		200		nS
<b>THERMAL CHARACTERISTICS</b>					
$R_{\theta JC}$ Thermal Resistance Junction – Case	Free Air Operation			8.33*	$^{\circ}C/W$
$R_{\theta JA}$ Thermal Resistance Junction – Ambient				175	

**Notes**

 1) Pulse Test: Pulse Width  $\leq 300\mu s$ ,  $\delta \leq 2\%$ 

\* JEDEC registered Values

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