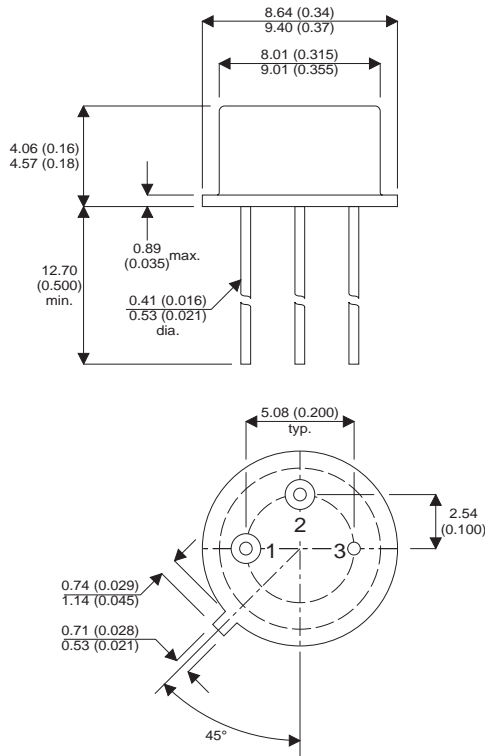


MECHANICAL DATA

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**

FEATURES

- AVALANCHE ENERGY RATING
- SIMPLE DRIVE REQUIREMENTS
- HERMETICALLY SEALED

APPLICATIONS

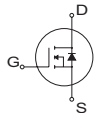
- FAST SWITCHING
- MOTOR CONTROLS
- POWER SUPPLIES

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

V_{DS}	Drain Source Voltage	100V
$I_D @ T_{case} = 25^{\circ}C$	Continuous Drain Current	6.0A
$I_D @ T_{case} = 100^{\circ}C$	Continuous Drain Current	3.5A
I_{DM}	Pulsed Drain Current ¹	24A
V_{GS}	Gate Source Voltage	$\pm 20V$
$P_D @ T_{case} = 25^{\circ}C$	Maximum Power Dissipation	20W
$R_{\theta J-C}$	Thermal Resistance Junction To Case	6.25°C/W
$R_{\theta J-A}$	Thermal Resistance Junction To Ambient	175°C/W
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to +150°C
Lead Temperature	($\frac{1}{16}$ " from case for 10 secs)	300°C

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.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS					
BV_{DSS} Drain – Source Breakdown Voltage	$V_{GS} = 0$ $I_D = 1.0mA$	100			V
$V_{GS(th)}^*$ Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 250\mu A$	2.0		4.0	
I_{GSSF} Gate Body Leakage Forward	$V_{GS} = 20V$			100	nA
I_{GSSR} Gate Body Leakage Reverse	$V_{GS} = -20V$			-100	
I_{DSS} Zero Gate Voltage Drain Current	$V_{DS} = 80V.$ $V_{GS} = 0$ $T_C = 125^{\circ}C$			25	μA
				250	
$R_{DS(on)}^*$ Static Drain Source On-State Resistance	$V_{GS} = 10V$ $I_D = 3.5A$			0.30	Ω
	$V_{GS} = 10V$ $I_D = 6.0A$			0.345	
g_{fs}^* Forward Transconductance	$V_{DS} = 15V$ $I_{DS} = 3.5A$	1.5			S (τ)
DYNAMIC CHARACTERISTICS					
C_{iss} Input Capacitance	$V_{GS} = 0$ $V_{DS} = 25V$		350		pF
C_{oss} Output Capacitance	$f = 1MHz$		150		
C_{rss} Reverse Transfer Capacitance			24		
$t_{d(on)}$ Turn-On Delay Time	$V_{DD} = 50V$ $I_D = 6.0A$			40	ns
t_r Rise Time	$R_G = 7.5\Omega$ $V_{GS} = 10V$			70	
$t_{d(off)}$ Turn-Off Delay Time	(MOSFET switching times are essentially independent of operating temperature.)			40	
t_f Fall Time				70	
Q_g Total Gate Charge	$V_{GS} = 10V$ $I_D = 6.0A$	7.7		17	nC
Q_{gs} Gate To Source Charge	$V_{DS} = 50V$	0.7		4.0	
Q_{gd} Gate To Drain ("Miller") Charge		2.0		7.7	
BODY- DRAIN DIODE RATINGS & CHARACTERISTICS					
I_S Continuous Source Current (Body Diode)	Modified MOS POWER symbol showing the intergal 			6.0	A
I_{SM} Source Current (Body Diode)	P-N junction rectifier.			24	
V_{SD} Diode Forward Voltage*	$I_S = 6.0A$ $V_{GS} = 0$ $T_J = 25^{\circ}C$			1.8	V
t_{rr} Reverse Recovery Time	$I_F = 6.0A$ $T_J = 25^{\circ}C$			240	ns
Q_{RR} Reverse Recovery Charge	$d_i / d_t = 100A/\mu s$ $V_{DD} = 50V$			2.0	μC

Notes

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