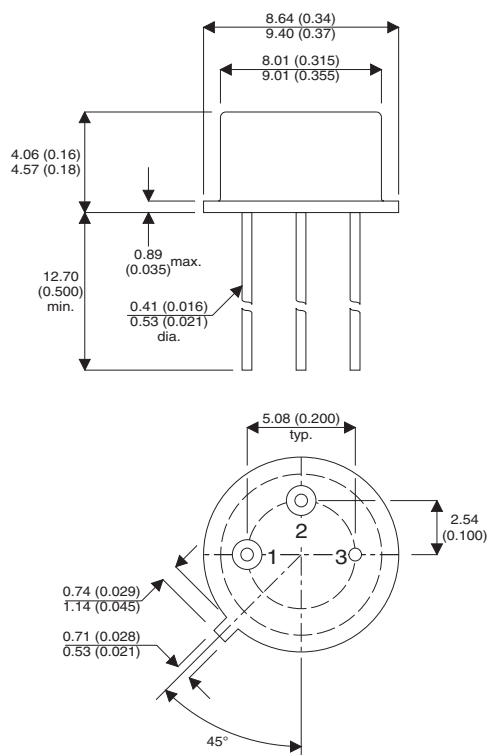


MECHANICAL DATA

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

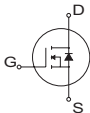
- FAST SWITCHING
- MOTOR CONTROLS
- POWER SUPPLIES

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 ¹	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 $^{\circ}C$

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS							
BV _{DSS}	Drain – Source Breakdown Voltage	V _{GS} = 0	I _D = 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°C	1*		4.0*	
I _{GSSF}	Gate Body Leakage Forward	V _{GS} = 20V				100*	nA
		V _{DS} = 0	T _A = 125°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°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*	Ω
			T _C = 125°C			1.08*	
DYNAMIC CHARACTERISTICS							
g _{fs}	Forward Transductance 1	V _{DS} = 5V	I _{DS} = 2.25A	1.0*		3.0*	S (τ)
C _{iss}	Input Capacitance	V _{GS} = 0 f = 1MHz	V _{DS} = 25V	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 = 50Ω	R _L = 15Ω			25*	
t _{d(off)}	Turn–Off Delay Time	(MOSFET switching times are essentially				25*	
t _f	Fall Time	independent of operating temperature.)				20*	
BODY– DRAIN DIODE RATINGS & CHARACTERISTICS							
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			1.5*	V
		T _J = 25°C					
t _{rr}	Reverse Recovery Time	I _F =I _S	T _J = 25°C		200		nS
		d _i / d _t = 100A/μs					
THERMAL CHARACTERISTICS							
R _{θJC}	Thermal Resistance Junction – Case	Free Air Operation				8.33*	°C/W
R _{θJA}	Thermal Resistance Junction – Ambient					175	

Notes

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

* JEDEC registered Values

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.