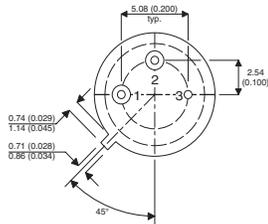
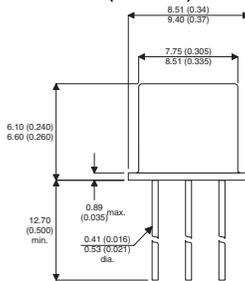


## MECHANICAL DATA

Dimensions in mm (inches)



### TO-39 PACKAGE (TO-205AD)

(Underside View)

PIN 1 – SOURCE      PIN 3 – DRAIN  
PIN 2 – GATE      CASE – DRAIN

## N-CHANNEL ENHANCEMENT MODE MOSFET

$V_{DSS}$       **60V**  
 $I_D$       **1.2A**  
 $R_{DS(on)}$       **2.0Ω**

## FEATURES

- Faster switching
- Low Ciss
- Integral Source-Drain Diode
- High Input Impedance and High Gain

## DESCRIPTION

This enhancement-mode (normally-off) vertical DMOS FET is ideally suited to a wide range of switching and amplifying applications where high breakdown voltage, high input impedance, low input capacitance, and fast switching speeds are desired.

High Reliability Screening options are available.

## ABSOLUTE MAXIMUM RATINGS $T_{CASE} = 25^{\circ}C$ unless otherwise stated

$V_{DS}$	Drain - Source Voltage	60V
$I_D$	Drain Current	1.2A
	- Continuous ( $T_C = 25^{\circ}C$ )	
	- Continuous ( $T_A = 25^{\circ}C$ )	0.45A
$I_{DM}$	Drain Current	8A
	- Pulsed (Note 1)	
$V_{GS}$	Gate - Source Voltage	$\pm 20V$
$P_{tot(1)}$	Total Power Dissipation at $T_{mb} \leq 25^{\circ}C$	5W
	De-rate Linearly above $25^{\circ}C$	0.040W/ $^{\circ}C$
$P_{tot(2)}$	Total Power Dissipation at $T_{amb} \leq 25^{\circ}C$	700mW
$T_j, T_{stg}$	Operating and Storage Junction Temperature Range	-55 to +150 $^{\circ}C$

## THERMAL DATA

$R_{thj-c}$	Thermal Resistance Junction – Case	Max	20	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction - Ambient	Max	179	$^{\circ}C/W$

NOTES:  
1) Repetitive Rating: Pulse Width limited by maximum junction temperature.  
2) Pulse Test: Pulse Width  $\leq 380\mu S$ , Duty Cycle,  $\delta \leq 2\%$

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.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit		
$V_{(BR)DSS}$	Drain – Source Breakdown Voltage	$V_{GS} = 0V$	$I_D = 10\mu A$	60	-	-	V
$V_{GS(th)}$	Gate – Source threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 1.0mA$	0.8	-	2.4	
$I_{GSS}$	Gate – Source Leakage Current	$V_{GS} = \pm 20V$	$V_{DS} = 0V$	-	-	$\pm 20$	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 60V$	$V_{GS} = 0V$	-	-	0.5	$\mu A$
		$V_{DS} = 48V$	$T_C = 125^{\circ}C$	-	-	100	
$I_{D(on)}$	On – State Drain Current (note 2)	$V_{DS} = 18V$	$V_{GS} = 10V$	2	-	-	A
$R_{DS(on)}$	Drain – Source On Resistance (note 2)	$V_{GS} = 10V$	$I_D = 1.0A$	-	-	2	$\Omega$
$g_{FS}$	Forward Transconductance (note 2)	$V_{DS} = 18V$	$I_D = 1.0A$	300	-	-	ms
$V_{SD}$	Diode Forward Voltage (note 2)	$V_{GS} = 0V$	$I_s = 0.45A$	-	0.8	-	V

## DYNAMIC CHARACTERISTICS

$C_{iss}$	Input Capacitance	$V_{DS} = 18V$ $f = 1.0MHz$	$V_{GS} = 0V$	-	-	75	pF
$C_{oss}$	Output Capacitance			-	-	45	
$C_{rss}$	Reverse Transfer Capacitance			-	-	20	
$t_{d(on)}$	Turn-On Delay	$V_{DD} = 18V$	$I_D = 1A$ (note 2)	-	-	7	ns
$t_r$	Rise Time			-	-	8	
$t_{d(off)}$	Turn-Off Delay Time			-	-	12	
$t_f$	Fall Time			-	-	15	
$t_{rr}$	Reverse Recovery Time	$V_{GS} = 0V, I_F = 0.45A, I_R = 0.1A$		-	50	-	ns

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