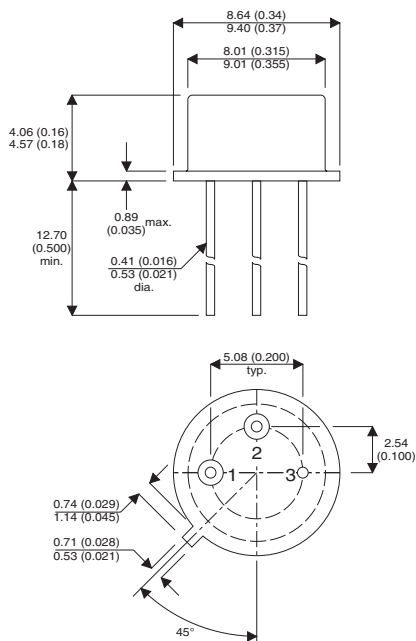


**MECHANICAL DATA**

Dimensions in mm (inches)



**N-CHANNEL ENHANCEMENT  
MODE TRANSISTOR**

**FEATURES**

- $V_{(BR)DSS} = 200V$
- $I_D = 5.5A$
- $R_{DS(ON)} = 0.40\Omega$

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

**Underside View**

PIN 1 – Source    PIN 2 – Gate    PIN 3 – Drain

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

$V_{DS}$	Drain–Source Voltage	200V
$V_{GS}$	Gate–Source Voltage	$\pm 20V$
$I_D$	Drain Current Continuous $T_{Case} = 25^{\circ}C$ $T_{Case} = 100^{\circ}C$	5.5A 3.5A
$I_{DM}$	Drain Current Pulsed	22A
$P_D$	Total Device Dissipation @ $T_{Case} = 25^{\circ}C$ $T_{Case} = 100^{\circ}C$	25W 10W
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	$-55$ to $+150^{\circ}C$
<b>THERMAL CHARACTERISTICS</b>		
$R_{\theta JC}$	Thermal Resistance Junction to Case	$5.0^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	$175^{\circ}C/W$
$T_L$	Maximum Lead Temperature 1.6mm 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** ( $T_j = 25^\circ\text{C}$  unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit		
$V_{(BR)DSS}$	Drain–Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 1\text{mA}$	200	V		
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 250\mu\text{A}$	2.0		4.0	
$I_{GSS}$	Gate–Body Leakage	$V_{DS} = 0$	$V_{GS} = \pm 20\text{V}$		$\pm 100$	nA	
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 0.8 \times V_{(BR)DSS}$			25	$\mu\text{A}$	
		$V_{GS} = 0$	$T_j = 125^\circ\text{C}$		250		
$r_{DS(on)}$	Drain–Source On–Resistance <sup>1</sup>	$V_{GS} = 10\text{V}$	$I_D = 3.5\text{A}$		0.25	0.4	$\Omega$
$g_{fs}$	Forward Transconductance <sup>1</sup>	$V_{DS} = 15\text{V}$	$I_D = 3.5\text{A}$	2.5	3.0		$\text{s}(\bar{\sigma})$
$C_{iss}$	Input Capacitance	$V_{DS} = 25\text{V}$	$V_{GS} = 0$		600		pF
$C_{oss}$	Output capacitance				250		
$C_{rss}$	Reverse Transfer Capacitance			$f = 1.0\text{MHz}$	80		
$t_{don}$	Turn–On Delay Time	$V_{DD} = 77\text{V}$	$R_L = 22\Omega$		8	30	ns
$t_r$	RiseTime	$I_D = 3.5\text{A}$	$V_{GEN} = 10\text{V}$		42	50	
$t_{d(of)}$	Turn off Delay Time		$R_G = 7.5\text{ ohms}$		12	50	
$t_f$	FallTime				30	40	
<b>SOURCE DRAIN DIODE RATING CHARACTERISTICS</b>							
$V_{SD}$	Diode Forward Voltage <sup>1</sup>	$I_F = 5.5\text{A}$	$V_{GS} = 0$			1.4	V
$I_S$	Continues Current					5.5	A
$I_{SM}$	Pulsed Current <sup>2</sup>					22	
$t_{rr}$	Reverse Recovery Time	$I_F = 5.5\text{A}$	$V_{DD} = 50\text{V}$		150	500	ns
$Q_{rr}$	Reverse Recovered Charge	$dI_F/DT = 100\text{A}/\mu\text{S}$				6	$\mu\text{C}$

- 1) Pulse test : Pulse Width < 300 $\mu\text{s}$  ,Duty Cycle < 2%
- 2) Pulse width limited by maximum junction temperature