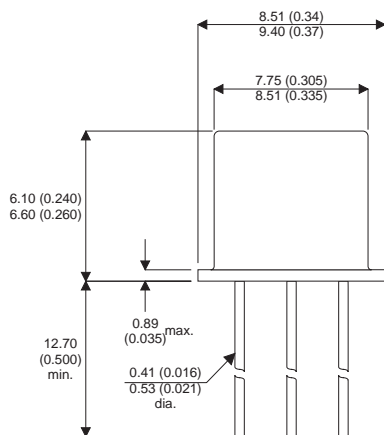


**MECHANICAL DATA**

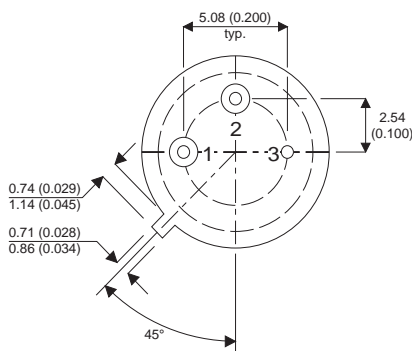
Dimensions in mm (inches)



**NPN SILICON EPITAXIAL SWITCHING TRANSISTOR**

**$V_{CEO} = 60V$**

**$I_C = 1A$**



**TO39 (TO-205AD)**

**Underside View**

PIN 1 – Emitter    PIN 2 – Base    PAD 3 – Collector

**APPLICATIONS**

- General Purpose Switching and Amplification
- Industrial Applications
- Hermetic Metal Package
- Hi-Rel Screening Options Available

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

$V_{CBO}$	Collector – Base Voltage	100V
$V_{CEO}$	Collector – Emitter Voltage	60V
$I_C$	Collector Current Continuous	1A
$P_{tot}$	Total Power Dissipation $T_{amb} < 25^{\circ}C$	800 mW
	$T_{case} < 25^{\circ}C$	5W
	$T_{case} < 25^{\circ}C < 100^{\circ}C$	2.86W
$T_{stg}$	Storage Temperature	-65 to 150°C
$T_j$	Operating Junction Temperature	175°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
$I_{EBO}$ Emitter Cut-off Current	$V_{EB} = 6V$ $I_C = 0$		10	500	nA
	$V_{EB} = 5V$ $I_C = 0$		2	50	
	$V_{EB} = 5V$ $I_C = 0$ $T_j = 100^\circ\text{C}$		0.1	2.5	$\mu\text{A}$
$I_{CBO}$ Collector Cut-off Current	$V_{CB} = 80V$ $I_E = 0$		2	50	nA
	$V_{CB} = 100V$ $I_E = 0$ $T_j = 100^\circ\text{C}$		0.1	2.5	$\mu\text{A}$
	$V_{CB} = 100V$ $I_E = 0$		10	500	nA
	$V_{CB} = 100V$ $I_E = 0$ $T_j = 100^\circ\text{C}$		0.5	30	$\mu\text{A}$
$h_{FE}$ DC Current Gain	$V_{CE} = 10V$ $I_C = 10\text{mA}$	50	90		---
	$V_{CE} = 10V$ $I_C = 150\text{mA}$	70	142		
	$V_{CE} = 10V$ $I_C = 500\text{mA}$	30	90		
	$V_{CE} = 10V$ $I_C = 1A$	15	50		
$V_{CE(sat)}$ Collector – Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 1\text{mA}$		150	200	mV
	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$		150	350	
	$I_C = 500\text{mA}$ $I_B = 50\text{mA}$		0.35	1	V
	$I_C = 1A$ $I_B = 100\text{mA}$		0.66	1.6	
$V_{BE(sat)}$ Base – Emitter Saturation Voltage	$I_C = 10\text{mA}$ $I_B = 1\text{mA}$		0.69	1.2	V
	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$		0.92	1.3	
	$I_C = 500\text{mA}$ $I_B = 50\text{mA}$		1.15	1.5	
	$I_C = 1A$ $I_B = 100\text{mA}$		1.4	2	
$C_{TC}$ Collector Capacitance	$V_{CB} = 10V$ $I_E = I_C = 0$ $f = 1\text{MHz}$		7	12	pF
$f_T$ Transition Frequency ( $f = 1\text{MHz}$ )	$V_{CE} = 10V$ $I_C = 50\text{mA}$	50	185		MHz
$t_{on}$ Turn-on time	$I_{Con} = 150\text{mA}; I_{Bon} = 15\text{mA}$ $I_{Boff} = -15\text{mA}$		55		ns
$t_d$ Delay Time			15		
$t_r$ Rise Time			40		
$t_{off}$ Turn-off Time			360		
$t_s$ Storage Time			300		
$t_f$ Fall Time			60		

**THERMAL CHARACTERISTICS**

$R_{\theta JA}$ Thermal Resistance Junction – Ambient			200	$^\circ\text{C/W}$
$R_{\theta JC}$ Thermal Resistance Junction – Case			35	$^\circ\text{C/W}$

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