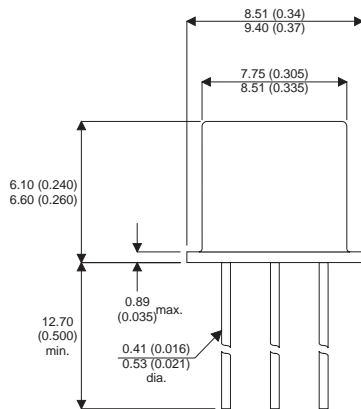


MECHANICAL DATA

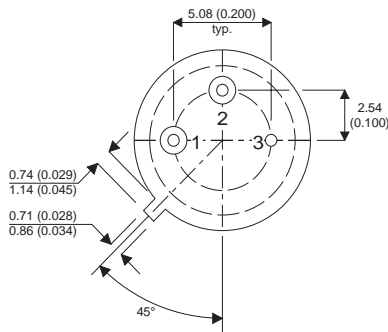
Dimensions in mm (inches)



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	μA
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	μA
	$V_{CB} = 100V$ $I_E = 0$		10	500	nA
	$V_{CB} = 100V$ $I_E = 0$ $T_j = 100^\circ\text{C}$		0.5	30	μA
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	μF
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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