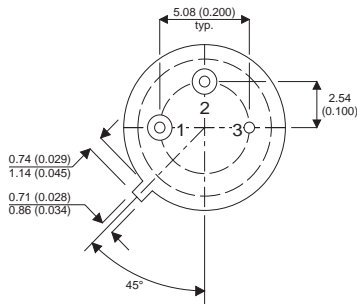
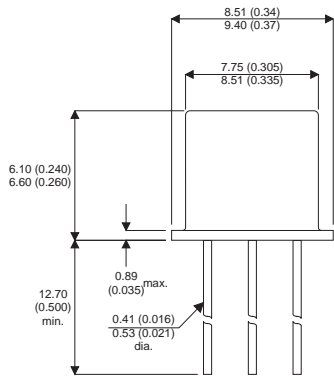


**MECHANICAL DATA**

Dimensions in mm(inches)



**TO39 (TO-205AD)**

Pin 1 = Emitter    Pin 2 = Base    Pin 3 = Collector

**NPN SILICON TRANSISTOR**

**FEATURES**

- FAST SWITCHING
- HIGH PULSE POWER

**APPLICATIONS**

- POWER SWITCHING CIRCUITS
- MOTOR CONTROL

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

$V_{CBO}$	Collector – Base Voltage	120V
$V_{CEO}$	Collector – Emitter Voltage	60V
$V_{EBO}$	Emitter – Base Voltage	6V
$I_C$	Maximum Collector Current	5A
$I_B$	Maximum Base Current	2A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^{\circ}C$	20W
$P_{tot}$	Total Power Dissipation at $T_{amb} \leq 25^{\circ}C$	0.87W
$R_{\theta JC}$	Thermal Resistance Junction to Case	7.5 $^{\circ}C/W$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	172.4 $^{\circ}C/W$
$T_j, T_{stg}$	Maximum Junction And Storage Temperature Range	-65 $^{\circ}C$ to +175 $^{\circ}C$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{CEO}$	Collector - Emitter Breakdown Voltage $I_C = 100mA$	60			V
$V_{CBO}$	Collector - Base Breakdown Voltage $I_C = 5mA$	120			
$V_{EBO}$	Emitter - Base Breakdown Voltage $I_E = 1.0mA$	6			
$I_{CES}$	Collector - Emitter Cut-Off Current $V_{CE} = 60V$			10	$\mu A$
$I_{CBO}$	Collector - Base Cut-Off Current $V_{CB} = 80V$			10	
$I_{EBO}$	Emitter - Base Cut-Off Current $V_{EB} = 4V$			10	
$V_{CE(sat)^*}$	Collector - Emitter Saturation Voltage $I_C = 5A$ $I_B = 0.5A$			1.0	V
$V_{BE(sat)^*}$	Base - Emitter Saturation Voltage $I_C = 5A$ $I_B = 0.5A$			1.6	
$h_{FE}$	DC Gain $V_{CE} = 2V$ $I_C = 2A$	40		150	—
$f_t$	Transition Frequency $V_{CE} = 5V$ $I_C = 0.5A$ $f = 20MHz$	70			MHz
$C_{obo}$	Output Capacitance $V_{CB} = 10V$ $f = 1MHz$			100	pF
$C_{ibo}$	Input Capacitance $V_{EB} = 0.5V$ $f = 1MHz$			400	
$t_{on}$	Turn On Time $I_C = 5A$ $I_{B1} = 0.5A$			0.6	$\mu s$
$t_{off}$	Turn Off Time $I_C = 5A$ $I_{B1} = I_{B2} = 0.5A$			1.2	

\*Pulsed  $t_p = 300\mu s$  @ < 1%