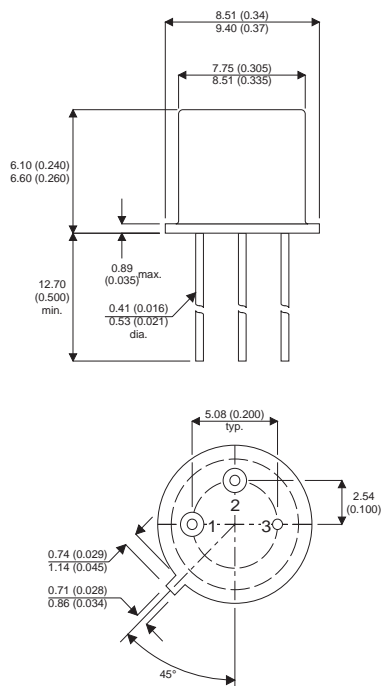


## MECHANICAL DATA

Dimensions in mm (inches)



### TO-39 (TO205AD)

#### Underside View

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

## PNP SILICON TRANSISTOR

## FEATURES

- High Current Gain Bandwidth Product
- Hermetic TO39 Package
- Full Screening Options Available

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

$V_{CBO}$	Collector – Base Voltage	-60V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0$ )	-60V
$V_{EBO}$	Emitter – Base Voltage ( $I_B = 0$ )	-4V
$I_C$	Collector Current	-1A
$I_{C(cont)}$	Collector Current Continuous	-3A
$P_D$	Total Device Dissipation $T_A = 25^{\circ}C$	1W
	Derate above $25^{\circ}C$	5.71mW / $^{\circ}C$
$P_D$	Total Device Dissipation $T_C = 25^{\circ}C$	6W
	Derate above $25^{\circ}C$	34.3mW / $^{\circ}C$
$T_{stg}$	Storage Temperature	-65 to $200^{\circ}C$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	175 $^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance Junction to Case	29 $^{\circ}C/W$

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
$V_{(BR)CEO}$ Collector – Emitter Breakdown Voltage	$I_C = -20mA$ $I_B = 0$	-60			V
$I_{CBO}$ Collector Cut-off Current	$V_{CB} = -60V$ $I_E = 0$			-10	$\mu A$
$I_{CEX}$ Collector Cut-off Current	$V_{CE} = -60V$ $V_{BE(off)} = -2V$			-10	$\mu A$
	$V_{CE} = -60V$ $V_{BE(off)} = -2V$			-1.0	mA
	$T_{amb} = 150^{\circ}C$				
$I_{EBO}$ Emitter Cut-off Current	$V_{BE} = -4V$ $I_C = 0$			-1.0	mA
$V_{CE(sat)}$ Collector – Emitter Saturation Voltage	$I_C = -1A$ , $I_B = -100mA$			-0.75	V
	$I_C = -3A$ , $I_B = -300mA$			-1.5	
$V_{BE(sat)}$ Base – Emitter Saturation Voltage	$I_C = -1A$ , $I_B = -100mA$			-1.5	V
	$I_C = -3A$ , $I_B = -300mA$			-2.3	
$h_{FE}$ DC Current Gain	$I_C = -500mA$ , $V_{CE} = -1.5V$	20			—
	$I_C = -1A$ , $V_{CE} = -1.5V$	25		180	
	$I_C = -1A$ , $V_{CE} = -1.5V$	15			
	$T_C = -40^{\circ}C$				

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$f_T$ Transition Frequency	$I_C = -500mA$ $V_{CE} = -10V$ $f = 30MHz$	60			MHz
$C_{obo}$ Output Capacitance	$V_{CB} = -10V$ $I_E = 0$ $f = 0.1MHz$			120	pF
$C_{ibo}$ Input Capacitance	$V_{EB} = 0.5V$ $I_C = 0$ $f = 0.1MHz$			1000	pF
$t_{on}$ Turn on Time	$V_{CC} = -12V$ , $V_{BE(off)} = 0V$ , $I_C = 1A$ , $I_{B1} = 0.1A$			100	ns
$t_{off}$ Turn off Time	$V_{CC} = -12V$ , $I_C = 1A$ , $I_{B1} = I_{B2} = 100mA$			400	ns

(1) Pulse test : Pulse Width < 300 $\mu s$  ,Duty Cycle < 2%