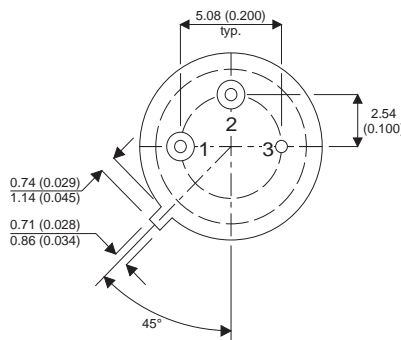
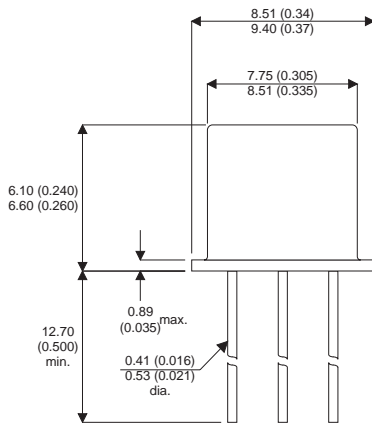


**MECHANICAL DATA**

Dimensions in mm (inches)

**PNP SILICON TRANSISTOR**



**TO-39 (TO-205AD) METAL PACKAGE**

**Underside View**

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

**FEATURES**

- High Voltage Switching
- Low Power Amplifier Applications
- Hermetic TO39 Package

**APPLICATIONS:**

- General Purpose
- High Speed Saturated Switching

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

$V_{CEO}$	Collector – Emitter Voltage	-175V
$V_{CBO}$	Collector – Base Voltage	-175V
$V_{EBO}$	Emitter – Base Voltage	-5V
$I_C$	Collector Current	-1A
$P_D$	Total Device Dissipation @ $T_A = 25^{\circ}C$	1W
	Derate above $25^{\circ}C$	5.71mW/ $^{\circ}C$
$P_D$	Total Device Dissipation @ $T_C = 25^{\circ}C$	5W
	Derate above $25^{\circ}C$	28.6mW / $^{\circ}C$
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-65 to +200 $^{\circ}C$

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** ( $T_A = 25^\circ\text{C}$  unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
<b>OFF CHARACTERISTICS</b>					
$BV_{CEO}$	Collector–Emitter Breakdown Voltage <sup>1</sup>	$I_C = -10\text{mA}$ $I_B = 0$	-175		V
$BV_{CBO}$	Collector – Base Breakdown Voltage	$I_C = -100\mu\text{A}$ $I_E = 0$	-175		
$BV_{EBO}$	Emitter – Base Breakdown Voltage	$I_C = 0$ $I_E = -10\mu\text{A}$	-5.0		
$I_{EBO}$	Emitter Cut-off Current	$V_{BE} = -3.0\text{V}$ $I_C = 0$		-50	nA
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = -100\text{V}$ $I_E = 0$		-100	
<b>ON CHARACTERISTICS</b>					
$h_{FE}$	DC Current Gain	$I_C = -0.1\text{mA}$ $V_{CE} = -10\text{V}$	80		-
		$I_C = -1.0\text{mA}$ $V_{CE} = -10\text{V}$	90		
		$I_C = -10\text{mA}$ $V_{CE} = -10\text{V}$	100		
		$I_C = -50\text{mA}$ $V_{CE} = -10\text{V}$	100	300	
		$I_C = -150\text{mA}$ $V_{CE} = -10\text{V}$	50		
$V_{CE(sat)}$	Collector – Emitter Saturation Voltage <sup>1</sup>	$I_C = -10\text{mA}$ $I_B = -1.0\text{mA}$		-0.3	V
		$I_C = -50\text{mA}$ $I_B = -5\text{mA}$		-0.5	
$V_{BE(sat)}$	Base – Emitter Saturation Voltage	$I_C = -10\text{mA}$ $I_B = -1.0\text{mA}$		-0.8	V
		$I_C = -50\text{mA}$ $I_B = -5\text{mA}$	-0.65	-0.9	
<b>SMALL SIGNAL CHARACTERISTICS</b>					
$f_t$	Current Gain Bandwidth Product	$V_{CE} = -30\text{V}$ $I_C = -30\text{mA}$ $f = 100\text{MHz}$	100		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = -20\text{V}$ $I_E = 0$ $f = 100\text{kHz}$		10	pF
$C_{ib}$	Input Capacitance	$V_{BE} = 1.0\text{V}$ $I_C = 0$ $f = 1.0\text{MHz}$		75	pF
$h_{ie}$	Input Impedance		200	1200	$\Omega$
$h_{re}$	Voltage Feedback Ratio	$V_{CE} = -10\text{V}$ $I_C = -10\text{mA}$		3.0	$\times 10^{-4}$
$h_{fe}$	Small Signal Current Gain	$f = 1.0\text{kHz}$	80	320	—
$h_{oe}$	Output Admittance			200	$\mu\text{mhos}$
NF	Noise Figure	$V_{CE} = -10\text{V}$ $I_C = -0.5\text{mA}$ $R_S = 1.0\text{K}\Omega$ $f = 1.0\text{kHz}$		3.0	dB
<b>SWITCHING CHARACTERISTICS</b>					
$t_{on}$	Turn–On Time	$V_{CC} = -100\text{V}$ $V_{BE} = 4.0\text{V}$		400	ns
$t_{off}$	Turn–Off Time	$I_C = -50\text{mA}$ $I_{B1} = I_{B2} = -5\text{mA}$		600	

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

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.