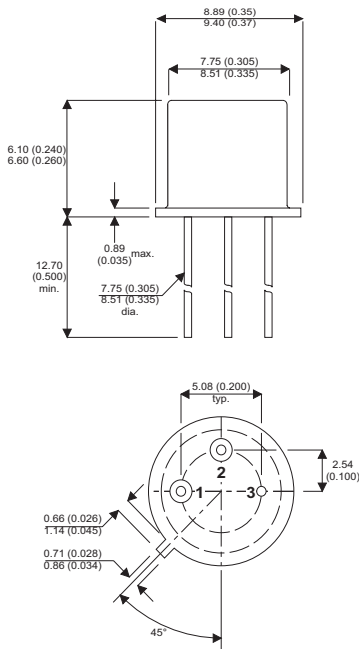


**MECHANICAL DATA**

Dimensions in mm (inches)



**TO-39 METAL PACKAGE**

**Underside View**

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

**GENERAL PURPOSE PNP TRANSISTOR**

**FEATURES**

- SILICON PLANAR EPITAXIAL PNP TRANSISTOR
- CECC SCREENING OPTIONS
- LOW NOISE AMPLIFIER

**APPLICATIONS:**

- GENERAL PURPOSE
- HIGH SPEED SATURATED SWITCHING

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

$V_{CEO}$	Collector – Emitter Voltage	40V
$V_{CBO}$	Collector – Base Voltage	60V
$V_{EBO}$	Emitter – Base Voltage	5V
$I_C$	Collector Current – Continuous	600mA
$P_D$	Total Device Dissipation @ $T_A = 25^{\circ}C$	600mW
	Derate above $25^{\circ}C$	3.43mW/ $^{\circ}C$
$P_D$	Total Device Dissipation @ $T_C = 25^{\circ}C$	3W
	Derate above $25^{\circ}C$	17.2mW / $^{\circ}C$
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-65 to +200 $^{\circ}C$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit		
<b>OFF CHARACTERISTICS</b>							
$V_{(BR)CEO}$	Collector–Emitter Breakdown Voltage <sup>1</sup>	$I_C = 10\text{mA}$	$I_B = 0$	40	V		
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	$I_C = 10\mu\text{A}$	$I_E = 0$	60			
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	$I_C = 0$	$I_E = 10\mu\text{A}$	5.0			
$I_{CEX}$	Collector Cut-off Current	$V_{CE} = 30\text{V}$	$V_{BE} = 0.5\text{V}$		50	nA	
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 50\text{V}$	$I_E = 0$		0.02	$\mu\text{A}$	
		$V_{CB} = 50\text{V}$	$I_E = 0$		20		
		$T_A = 150^\circ\text{C}$					
$I_B$	Base Current	$V_{CE} = 30\text{V}$	$V_{BE} = 0.5\text{V}$		50	nA	
<b>ON CHARACTERISTICS</b>							
$h_{FE}$	DC Current Gain	$I_C = 0.1\text{mA}$	$V_{CE} = 10\text{V}$		20	—	
		$I_C = 1\text{mA}$	$V_{CE} = 10\text{V}$		25		
		$I_C = 10\text{mA}$	$V_{CE} = 10\text{V}$		35		
		$I_C = 500\text{mA}$	$V_{CE} = 10\text{V}^1$		20		
<b>ELECTRICAL CHARACTERISTICS</b>							
$V_{CE(sat)}$	Collector – Emitter Saturation Voltage <sup>1</sup>	$I_C = 150\text{mA}$	$I_B = 15\text{mA}$		0.4	V	
		$I_C = 500\text{mA}$	$I_B = 50\text{mA}$		1.6		
$V_{BE(sat)}$	Base – Emitter Saturation Voltage	$I_C = 150\text{mA}$	$I_B = 15\text{mA}^1$		1.3	V	
		$I_C = 500\text{mA}$	$I_B = 50\text{mA}$		2.6		
<b>SMALL SIGNAL CHARACTERISTICS</b>							
$f_t$	Current Gain Bandwidth Product <sup>2</sup>	$V_{CE} = 20\text{V}$ $f = 100\text{MHz}$	$I_C = 50\text{mA}$	200		MHz	
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}$ $f = 100\text{kHz}$	$I_E = 0$		8.0	pF	
$C_{ibo}$	Input Capacitance	$V_{BE} = 2.0\text{V}$ $f = 100\text{kHz}$	$I_C = 0$		30		
<b>SWITCHING CHARACTERISTICS</b>							
$t_{on}$	Turn–On Time	$V_{CC} = 30\text{V}$ $I_{B1} = 15\text{mA}$	$I_C = 150\text{mA}$		26	45	ns
$t_d$	Delay Time				6.0	10	
$t_r$	RiseTime				20	40	
$t_{off}$	Turn–Off Time	$V_{CC} = 6\text{V}$ $I_{B1} = I_{B2} = 15\text{mA}$	$I_C = 150\text{mA}$		70	100	ns
$t_s$	Storage Time				50	80	
$t_f$	FallTime				20	30	

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

2)  $f_t$  is defined as the frequency at which  $|h_{fe}|$  extrapolates to unity.