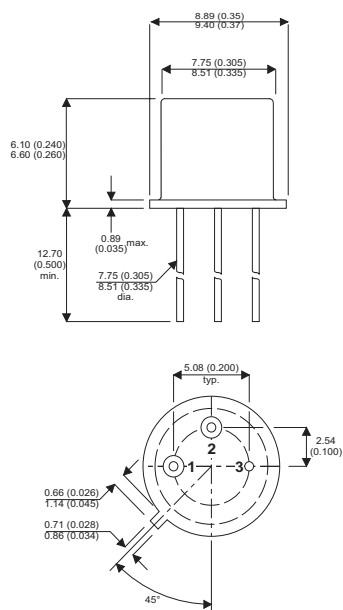


### MECHANICAL DATA

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
$V_{EBO}$	Emmitter – 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
OFF CHARACTERISTICS							
V <sub>(BR)CEO</sub>	Collector–Emitter Breakdown Voltage <sup>1</sup>	I <sub>C</sub> = 10mA	I <sub>B</sub> = 0	40			V
V <sub>(BR)CBO</sub>	Collector – Base Breakdown Voltage	I <sub>C</sub> = 10μA	I <sub>E</sub> = 0	60			
V <sub>(BR)EBO</sub>	Emitter – Base Breakdown Voltage	I <sub>C</sub> = 0	I <sub>E</sub> = 10μA0	5.0			
I <sub>CEX</sub>	Collector Cut-off Current	V <sub>CE</sub> = 30V	V <sub>BE</sub> = 0.5V			50	nA
I <sub>CBO</sub>	Collector Cut-off Current	V <sub>CB</sub> = 50V	I <sub>E</sub> = 0			0.02	μA
		V <sub>CB</sub> = 50V	I <sub>E</sub> = 0			20	
		T <sub>A</sub> = 150°C					
I <sub>B</sub>	Base Current	V <sub>CE</sub> = 30V	V <sub>BE</sub> = 0.5V			50	nA
ON CHARACTERISTICS							
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 0.1mA	V <sub>CE</sub> = 10V			20	—
		I <sub>C</sub> = 1mA	V <sub>CE</sub> = 10V			25	
		I <sub>C</sub> = 10mA	V <sub>CE</sub> = 10V			35	
		I <sub>C</sub> = 500mA	V <sub>CE</sub> = 10V <sup>1</sup>			20	
ELECTRICAL CHARACTERISTICS							
V <sub>CE(sat)</sub>	Collector – Emitter Saturation Voltage <sup>1</sup>	I <sub>C</sub> = 150mA	I <sub>B</sub> = 15mA			0.4	V
		I <sub>C</sub> = 500mA	I <sub>B</sub> = 50mA			1.6	
V <sub>BE(sat)</sub>	Base – Emitter Saturation Voltage	I <sub>C</sub> = 150mA	I <sub>B</sub> = 15mA <sup>1</sup>			1.3	V
		I <sub>C</sub> = 500mA	I <sub>B</sub> = 50mA			2.6	
SMALL SIGNAL CHARACTERISTICS							
f <sub>t</sub>	Current Gain Bandwidth Product <sup>2</sup>	V <sub>CE</sub> = 20V f = 100MHz	I <sub>C</sub> = 50mA	200			MHz
C <sub>obo</sub>	Output Capacitance	V <sub>CB</sub> = 10V f = 100kHz	I <sub>E</sub> = 0			8.0	pF
C <sub>ibo</sub>	Input Capacitance	V <sub>BE</sub> = 2..0V f = 100kHz	I <sub>C</sub> = 0			30	
SWITCHING CHARACTERISTICS							
t <sub>on</sub>	Turn–On Time	V <sub>CC</sub> = 30V I <sub>B1</sub> = 15mA	I <sub>C</sub> = 150mA		26	45	ns
t <sub>d</sub>	Delay Time				6.0	10	
t <sub>r</sub>	RiseTime				20	40	
t <sub>off</sub>	Turn–Off Time	V <sub>CC</sub> = 6V I <sub>B1</sub> = I <sub>B2</sub> =15mA	I <sub>C</sub> = 150mA		70	100	ns
t <sub>s</sub>	Sorage Time				50	80	
t <sub>f</sub>	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.