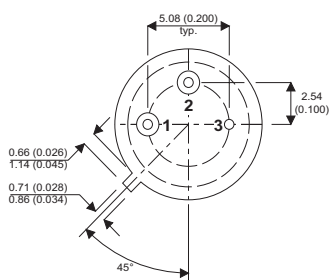
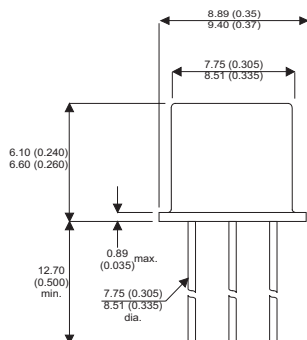


MECHANICAL DATA

Dimensions in mm (inches)



TO39 PACKAGE

**SILICON EPITAXIAL
NPN TRANSISTOR**

FEATURES

General purpose power transistor for switching and linear applications in a hermetic TO-39 package.

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

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

V_{CBO}	Collector – Base Voltage	45V
$V_{CER(sus)}$	Collector – Emitter Sustaining Voltage $R_{BE} = 100\Omega$	45V
$V_{CEO(sus)}$	Collector – Emitter Sustaining Voltage	40V
V_{EBO}	Emitter – Base Voltage	3.5V
I_C	Continuous Collector Current	3.5A
I_B	Continuous Collector Current	1A
P_D	Total Device Dissipation $T_A = 25^\circ\text{C}$	10W
	Derate above 25°C	0.057W/ $^\circ\text{C}$
P_D	Total Device Dissipation $T_C = 25^\circ\text{C}$	1W
	Derate above 25°C	0.0057W/ $^\circ\text{C}$
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-65 to +200 $^\circ\text{C}$
T_L	Lead temperature, $\geq 1/32''$ (0.8mm) from seating plane for 10 s max.	230 $^\circ\text{C}$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER} Collector Cut-off Current	$V_{CE} = 40\text{V}$			10	μA
	$R_{BE} = 100\Omega$ $T_C = 150^\circ\text{C}$			1	mA
I_{CEX} Collector Cut-off Current	$V_{CE} = 45\text{V}$ $V_{BE} = -1.5\text{V}$			10	μA
	$R_{BE} = 100\Omega$ $T_C = 150^\circ\text{C}$			1	mA
I_{CEO} Collector Cut-off Current	$V_{CE} = 25\text{V}$ $I_B = 0$			100	μA
I_{EBO} Emitter Cut-off Current	$V_{BE} = -3.5\text{V}$ $I_C = 0$			10	μA
h_{FE}^* DC Current Gain	$V_{CE} = 2\text{V}$ $I_C = 1.6\text{A}$	20		100	—
	$V_{CE} = 2\text{V}$ $I_C = 3.2\text{A}$	4			
$V_{CEO(sus)}^*$ Collector – Emitter Sustaining Voltage ¹	$I_C = 0.1\text{A}$ $I_B = 0$	40			V
$V_{CER(sus)}^*$ Collector – Emitter Sustaining Voltage ¹	$I_C = 0.1\text{A}$ $R_{BE} = 100\Omega$	45			
V_{BE} Base – Emitter Voltage	$V_{CE} = 2\text{V}$ $I_C = 1.6\text{A}$			1.5	
$V_{CE(sat)}$ Collector – Emitter Saturation Voltage ²	$I_C = 1.6\text{A}$ $I_B = 0.16\text{mA}$			1	V
	$I_C = 3.2\text{A}$ $I_B = 0.8\text{mA}$			2	
$ h_{fe} $ Small Signal Common – Emitter Current Gain	$V_{CE} = -2\text{V}$ $I_C = 100\text{mA}$ $f = 200\text{kHz}$	5		20	—
h_{fe} Small Signal Common – Emitter Current Gain	$V_{CE} = 2\text{V}$ $I_C = 0.1\text{mA}$ $f = 1\text{kHz}$	25			—
t_{ON} Turn-on Time	$V_{CC} = 30\text{V}$ $I_C = 1\text{A}$			5	μs
t_{OFF} Turn-off Time	$I_{B1} = I_{B2}$			15	
$R_{\theta JC}$ Thermal Resistance Junction – Case				17.5	$^\circ\text{C/W}$
$R_{\theta JA}$ Thermal Resistance Junction – Ambient				175	

NOTES

* Pulse Test: $t_p = 300\mu\text{s}$, $\delta = 1.8\%$.

- 1) These tests **MUST NOT** be measured on a curve tracer.
- 2) Measured $\frac{1}{4}$ " (6.35 mm) from case. Lead resistance is critical in this test.
- 3) Measured at a frequency where $|h_{fe}|$ is decreasing at approximately 6dB per octave.