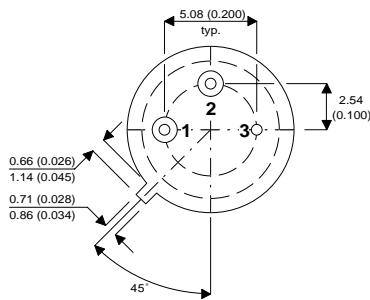
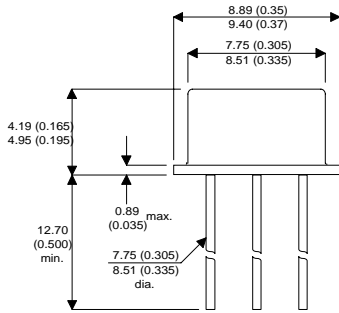


MECHANICAL DATA

Dimensions in mm (inches)



TO39 PACKAGE

Underside View

Pin 1 = Emitter Pin 2 = Base Pin 3 = Collector

NPN SILICON TRANSISTOR

FEATURES

- NPN High Voltage Planar Transistor
- Hermetic TO39 Package
- Full Screening Options Available

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

V_{CBO}	Collector – Base Voltage	140V
V_{CEO}	Collector – Emitter Voltage	80V
V_{EBO}	Emitter – Base Voltage	7V
I_C	Collector Current	1A
P_D	Total Device Dissipation @ $T_A = 25^{\circ}C$	0.8W
P_D	Derate above $25^{\circ}C$	4.6mW / $^{\circ}C$
P_D	Total Device Dissipation @ $T_C = 25^{\circ}C$	5W
P_D	Derate above $25^{\circ}C$	28.6mW / $^{\circ}C$
T_j	Max Junction Temperature	200 $^{\circ}C$
T_{stg}	Storage Temperature	-55 to 200 $^{\circ}C$
R_{jc}	Thermal Resistance Junction to Case	16.5 $^{\circ}C$ / W
R_{ja}	Thermal Resistance Junction to Ambient	89.5 $^{\circ}C$ / W

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CEO}$ Collector – Emitter Breakdown Voltage	$I_C = 30mA$ $I_B = 0$	80			V
$V_{(BR)CBO}^*$ Collector – Base Breakdown Voltage	$I_C = 100\mu A$ $I_E = 0$	140			V
$V_{(BR)EBO}^*$ Emitter – Base Breakdown Voltage	$I_E = 100\mu A$ $I_C = 0$	7			V
I_{CBO} Collector Cut-off Current	$V_{CB} = 90V$ $I_E = 0$			0.01	μA
	$V_{CB} = 90V$ $I_E = 0$			10	
	$T_{amb} = 150^{\circ}C$				
I_{EBO} Emitter Cut-off Current	$V_{BE} = 5V$ $I_C = 0$			0.010	μA
$V_{CE(sat)}$ Collector – Emitter Saturation Voltage	$I_C = 150mA$ $I_B = 15mA$			0.20	V
	$I_C = 500mA$ $I_B = 50mA$			0.50	
$V_{BE(sat)}$ Base – Emitter Saturation Voltage	$I_C = 150mA$ $I_B = 15mA$			1.1	V
h_{FE}^* DC Current Gain	$I_C = 0.1mA$ $V_{CE} = 10V$	50			—
	$I_C = 10mA$ $V_{CE} = 10V$	90			
	$I_C = 150mA$ $V_{CE} = 10V$	100		300	
	$I_C = 500mA$ $V_{CE} = 10V$	50			
	$I_C = 1A$ $V_{CE} = 10V$	15			
	$T_C = -55^{\circ}C$ $I_C = 150mA$ $V_{CE} = 0.5V$	40			

t^* Pulse test $t_p = 300\mu s$, $\delta \leq 1\%$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
f_T Transition Frequency	$I_C = 50mA$ $V_{CE} = 10V$ $f = 20MHz$	100		400	MHz
C_{obo} Output Capacitance	$V_{CB} = 10V$ $I_E = 0$ $f = 1.0MHz$			12	pF
C_{ibo} Input Capacitance	$V_{BE} = 0.5V$ $I_C = 0$ $f = 1.0MHz$			60	pF
h_{fe} Small Signal Current Gain	$I_C = 1mA$ $V_{CE} = 5V$ $f = 1kHz$		80	400	—
$rb \cdot C_c$ Collector Base Time Constant	$I_E = 10mA$ $V_{CB} = 10V$ $f = 79.8MHz$	15		400	ps
NF Noise Figure	$I_C = 100\mu A$ $V_{CE} = 10V$ $f = 1kHz$ $R_S = 1K\Omega$			4	db