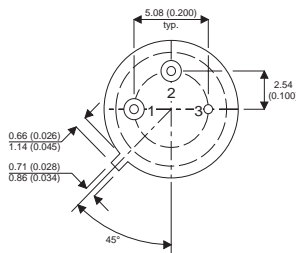
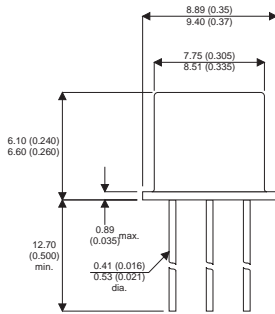


MECHANICAL DATA

Dimensions in mm (inches)

NPN SILICON TRANSISTOR



TO39 PACKAGE

Underside View

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

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

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 ($T_{case} = 25^{\circ}C$ 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			

* 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

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