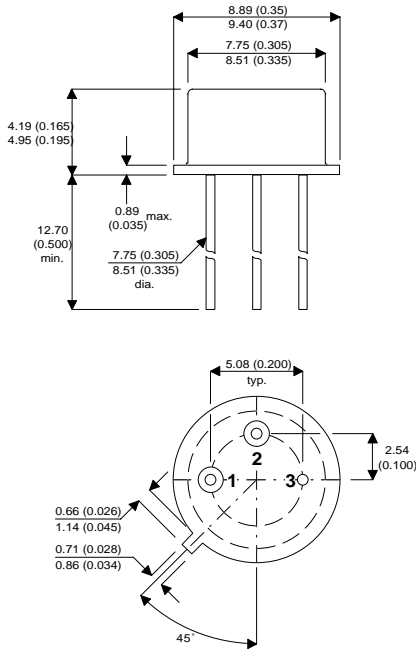


MECHANICAL DATA

Dimensions in mm (inches)

**MEDIUM POWER SILICON
NPN PLANAR TRANSISTOR**



FEATURES

- For Operation at Junction Temperature up to 200°C
- Planar Construction for Low Noise and Low Leakage
- Low Output Capacitance

TO39 PACKAGE

Underside View

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

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

V_{CBO}	Collector – Base Voltage	120V
V_{CEO}	Collector – Emitter Voltage	90V
V_{EBO}	Emitter – Base Voltage	7V
V_{CER}	Collector – Emitter Sustaining Voltage	140V
I_C	Collector Current	1A
P_T	Total Device Dissipation @ T_C up to 25°C	5W
	Free Air Temperatures up to 25°C	1W
T_{stg}, T_j	Storage and Operating Junction Temperature	-65 to 200°C
R_{jc}	Thermal Resistance Junction to Case	35°C / W
R_{ja}	Thermal Resistance Junction to Ambient	175°C / W

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
$V_{CEO(SUS)}$	Collector – Base Breakdown Voltage	$I_C = 30mA$	$I_B = 0$	90			V
		$I_C = 100mA$	$I_B = 0$	90			
$V_{CER(SUS)*}$	Emitter – Base Breakdown Voltage	$R_{BE} = 10\Omega$	$I_C = 100mA$	140			V
		$R_{BE} = 500\Omega$	$I_C = 100mA$	120			
$V_{(BR)CBO*}$	Collector – Base Breakdown Voltage	$I_C = 0.1mA$	$I_E = 0$	120			V
$V_{(BR)EBO*}$	Emitter – Base Breakdown Voltage	$I_E = 0.1mA$	$I_C = 0$	7			V
I_{CBO}	Collector Cut-off Current	$V_{CB} = 90V$	$I_E = 0$			0.01	μA
		$V_{CB} = 90V$	$I_E = 0$			10	
		$T_C = 150^{\circ}C$					
I_{EBO}	Emitter Cut-off Current	$V_{BE} = -5V$	$I_C = 0$			0.01	μA
$V_{CE(sat)}$	Collector – Emitter Saturation Voltage	$I_C = 150mA$	$I_B = 15mA$			0.5	V
		$I_C = 50mA$	$I_B = 5mA$			0.2	
$V_{BE(sat)}$	Base – Emitter Saturation Voltage	$I_C = 150mA$	$I_B = 15mA$			1.1	V
		$I_C = 50mA$	$I_B = 5mA$			0.9	
h_{FE*}	DC Current Gain	$I_C = 10mA$	$V_{CE} = 10V$	35			—
		$I_C = 150mA$	$V_{CE} = 10V$	60		200	
		$T_C = -55^{\circ}C$	$I_C = 10mA$	$V_{CE} = 10V$	20		

Pulse Duration = 300 μs max, Duty Factor $\leq 2\%$
DYNAMIC CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter		Test Conditions			Min.	Typ.	Max.	Unit
h_{fe}	Small Signal Current Gain	$V_{CE} = 5$	$I_C = 5mA$	$f = 1kHz$	50	275		—
		$V_{CE} = 10$	$I_C = 50mA$	$f = 20MHz$	6			
h_{ib}		$V_{CB} = 5V$	$I_C = 1mA$	$f = 1.KHz$	24	34		Ω
		$V_{CB} = 10V$	$I_C = 5mA$	$f = 1.KHz$	4	8		
h_{rb}		$V_{CB} = 5V$	$I_C = 1mA$	$f = 1.KHz$			3×10^{-4}	—
		$V_{CB} = 10V$	$I_C = 5mA$	$f = 1.KHz$			3×10^{-4}	
h_{ob}		$V_{CB} = 5V$	$I_C = 1mA$	$f = 1.KHz$			0.5	μmho
		$V_{CB} = 10V$	$I_C = 5mA$	$f = 1.KHz$			0.5	
C_{obo}	Output Capacitance	$V_{CB} = 10V$	$I_E = 0$			15	pF	
C_{ib}		$V_{BE} = -0.5V$	$I_C = 0$			80		