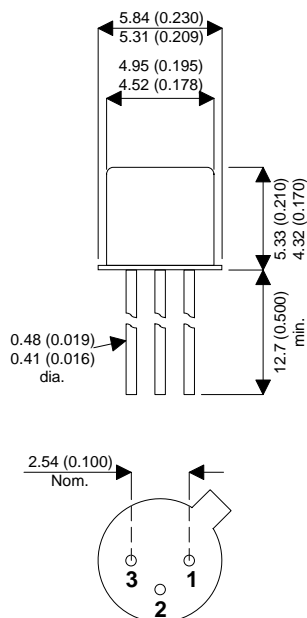


**MECHANICAL DATA**

Dimensions in mm (inches)



**TO-18 METAL PACKAGE**

**Underside View**

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

**GENERAL PURPOSE  
SMALL SIGNAL  
NPN BIPOLAR TRANSISTOR**

**FEATURES**

- SILICON NPN
- HERMETICALLY SEALED TO18
- SCREENING OPTIONS AVAILABLE

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

$V_{CBO}$	Collector – Base Continuous Voltage	<b>BC017</b>	50V
		<b>BC108, BC109</b>	30V
$V_{CEO}$	Collector – Emitter Continuous Voltage With Zero Base Current	<b>BC107</b>	45V
		<b>BC108, BC109</b>	20V
$V_{CES}$	Collector – Emitter Continuous Voltage With Base Shortcircuited to Emitter	<b>BC107</b>	50V
		<b>BC108, BC109</b>	30V
$V_{EBO}$	Emitter – Base Continuous Voltage Reverse Voltage	<b>BC107</b>	6V
		<b>BC108, BC109</b>	5V
$I_C$	Continuous Collector Current		100mA
$I_{CM}$	Peak Collector Current		200mA
$P_{tot}$	Power Dissipation @ $T_{amb} = 25^\circ\text{C}$		300mW
$T_{amb}$	Ambient Operating Temperature Range		-65 to +175°C
$T_{stg}$	Storage Temperature Range		-65 to +175°C

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO(1)}$ Collector-Base Leakage Current	$V_{CB} = 45\text{V}$ <b>BC107</b> $V_{CB} = 25\text{V}$ <b>BC108, BC109</b>			15 15	nA
$I_{CBO(1)}$ Collector-Emitter Leakage Current @ $T_{amb} = 125^\circ\text{C}$	$V_{CB} = 45\text{V}$ <b>BC107</b> $V_{CB} = 25\text{V}$ <b>BC108, BC109</b>			4 4	$\mu\text{A}$
$I_{EBO}$ Emitter Cut-off Current	$V_{EB} = 4\text{V}$ $I_C = 0$			1	$\mu\text{A}$
$h_{21E}$ Static Forward Current Transfer Ratio	$V_{CE} = 5\text{V}$ $I_C = 2\text{mA}$ <b>Group A BC107, BC108</b>	110		220	
	<b>Group B All Types</b>	180		460	
	<b>Group C BC108, BC109</b>	380		800	
	<b>BC107</b>	110		460	
	<b>BC108</b> <b>BC109</b>	110 180		800 800	
$V_{BE}$ Base – Emitter Breakdown	$V_{CE} = 5\text{V}$ $I_C = 2\text{mA}$			0.7	V
$V_{BE(sat)(1)}$ Base – Emitter Saturation Voltage	$I_B = 0.5\text{mA}$ $I_C = 10\text{mA}$			0.83	V
$V_{CE(sat)(1)}$ Collector – Emitter Saturation Voltage	$I_B = 0.5\text{mA}$ $I_C = 10\text{mA}$			0.25	V
$f_T$ Transition Frequency	$V_{CE} = 5\text{V}$ $I_C = 10\text{mA}$ $f = 100\text{MHz}$	150			MHz
F Noise Factor	$V_{CE} = 5\text{V}$ $I_C = 0.2\text{mA}$ $R = 2\text{k}\Omega$ $f = 1\text{kHz}$ $\Delta F = 200\text{Hz}$ <b>BC109</b>			4	dB
	<b>BC107, BC108</b>			10	
$h_{21e}$ Small Signal Forward Current Transfer Ratio	$V_{CE} = 5\text{V}$ $I_C = 2\text{mA}$ $f = 100\text{kHz}$ <b>Group A BC107, BC108</b>	125		260	
	<b>Group B All Types</b>	240		500	
	<b>Group C BC108, BC109</b>	450		900	
	<b>BC107</b>	125		500	
	<b>BC108</b> <b>BC109</b>	125 240		900 900	
$h_{11e}$ Common Emitter Input Impedance	$V_{CE} = 5\text{V}$ $I_C = 2\text{mA}$ $f = 1\text{kHz}$ <b>Group A BC107, BC108</b>	1.6		4.5	k $\Omega$
	<b>Group B All Types</b>	3.2		8.5	
	<b>Group C BC108, BC109</b>	6.0		15	
$h_{22e}$ Common Emitter Output Admittance	$V_{CE} = 5\text{V}$ $I_C = 2\text{mA}$ $f = 1\text{kHz}$ <b>Group A BC107, BC108</b>			30	$\mu\text{S}$
	<b>Group B All Types</b>			60	
	<b>Group C BC108, BC109</b>			110	
$C_{22b}$ Common Base Output Capacitance	$V_{CB} = 10\text{V}$ $f = 1\text{MHz}$			6	pF
$R_{th(j-amb)}$ Thermal Resistance: Junction to Ambient				500	$^\circ\text{C/W}$