New Jersey Semi-Conductor Products, Inc.

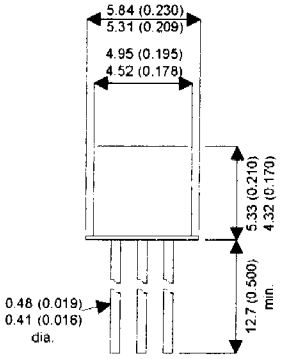
20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

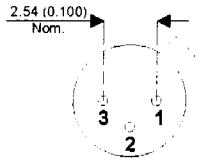
TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

BC107
BC108
BC109

GENERAL PURPOSE SMALL SIGNAL NPN BIPOLAR TRANSISTOR

MECHANICAL DATA
Dimensions in mm (inches)





TO–18 METAL PACKAGE

Underside View

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

FEATURES

- SILICON NPN
- HERMETICALLY SEALED TO18
- SCREENING OPTIONS AVAILABLE

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

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

BC107
BC108
BC109

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

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