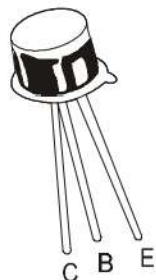


NPN SILICON PLANAR TRANSISTORS

**BC107/A/B/C
BC108/A/B/C
BC109/A/B/C**



**TO-18
Metal Can Package**

Low Noise General Purpose Audio Amplifiers

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	BC107	BC108	BC109	UNIT
Collector Emitter Voltage	V_{CEO}	45	25	25	V
Collector Base Voltage	V_{CBO}	50	30	30	V
Emitter Base Voltage	V_{EBO}	6.0	5.0	5.0	V
Collector Current Continuous	I_C	200			mA
Power Dissipation at $T_a=25^\circ\text{C}$ Derate above 25°C	P_D	300			mW
		1.72			mW/ $^\circ\text{C}$
Power Dissipation at $T_c=25^\circ\text{C}$ Derate above 25°C	P_D	750			mW
		4.29			mW/ $^\circ\text{C}$
Operating And Storage Junction Temperature Range	T_j, T_{stg}	- 65 to +200			$^\circ\text{C}$

THERMAL CHARACTERISTICS

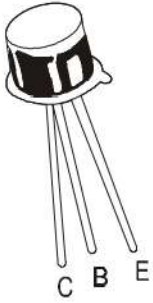
Junction to Ambient in free air	$R_{th(j-a)}$	583	$^\circ\text{C/W}$
Junction to Case	$R_{th(j-c)}$	233	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	BC107	BC108	BC109	UNIT
Collector Emitter Voltage	V_{CEO}	$I_C=2\text{mA}, I_B=0$	>45	>25	>25	V
Emitter Base Voltage	V_{EBO}	$I_E=10\mu\text{A}, I_C=0$	>6	>5	>5	V
Collector Cut Off Current	I_{CBO}	$V_{CB}=45\text{V}, I_E=0$	<15	<15	<15	nA
		$V_{CB}=25\text{V}, I_E=0$				nA
		$V_{CB}=45\text{V}, I_E=0, T_a=125^\circ\text{C}$	<4			μA
		$V_{CB}=25\text{V}, I_E=0, T_a=125^\circ\text{C}$		<4	<4	μA
DC Current Gain	h_{FE}	$I_C=10\mu\text{A}, V_{CE}=5\text{V}$ B Group C Group	>40 >100			
		$I_C=2\text{mA}, V_{CE}=5\text{V}$ BC107 BC108 BC109 A Group B Group C Group	110-450 110-800 200-800 110-220 200-450 420-800			

NPN SILICON PLANAR TRANSISTORS

BC107/A/B/C
BC108/A/B/C
BC109/A/B/C



TO-18
Metal Can Package

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$			0.25	V
		$I_C=100\text{mA}, I_B=5\text{mA}$			0.60	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$			0.83	V
		$I_C=100\text{mA}, I_B=5\text{mA}$			1.05	V
Base Emitter On Voltage	$V_{BE(on)}$	$I_C=2\text{mA}, V_{CE}=5\text{V}$	0.55		0.70	V
		$I_C=10\text{mA}, V_{CE}=5\text{V}$			0.77	V
Collector Knee Voltage	$V_{CE(K)}$	$I_C=10\text{mA}, I_B=\text{the value for which}$ $I_C=11\text{mA at } V_{CE}=1\text{V}$			0.60	V
Transition frequency	f_T	$I_C=10\text{mA}, V_{CE}=5\text{V}, f=100\text{MHz}$	150			MHz
Output Capacitance	C_{obo}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$			4.5	pF
Noise Figure	NF	$I_C=0.2\text{mA}, V_{CE}=5\text{V}, R_g=2\text{K}\Omega,$ $f=30\text{Hz to } 15\text{KHz}$			4.0	dB
					4.0	dB
					10	dB

SMALL SIGNAL CHARACTERISTICS

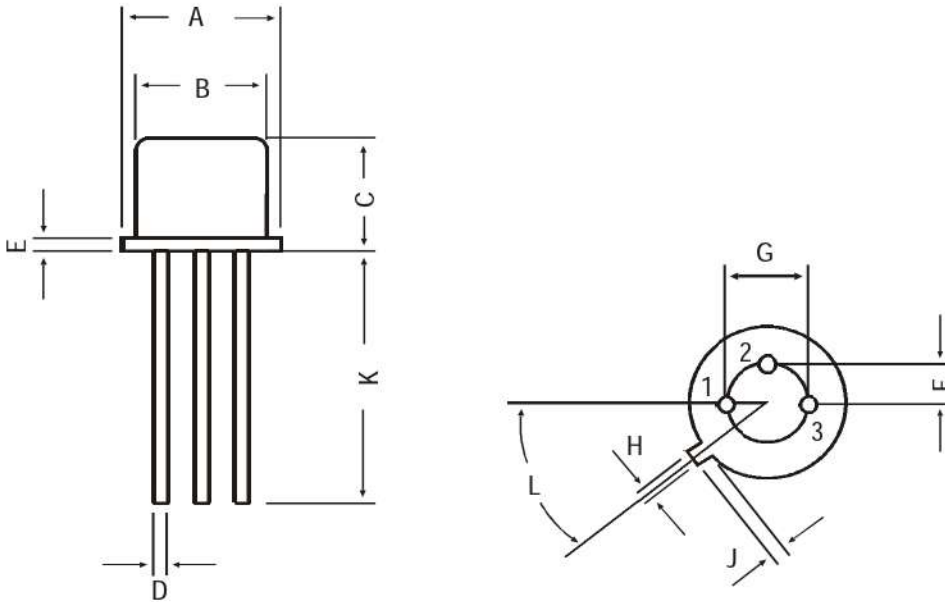
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT	
Small Signal Current Gain	h_{fe}	$I_C=2\text{mA}, V_{CE}=5\text{V}, f=1\text{KHz}$					
			BC107	125		500	
			BC108	125		900	
			BC109	240		900	
			A Group	125		260	
			B Group	240		500	
C Group	450		900				
Input Impedance	h_{ie}	$I_C=2\text{mA}, V_{CE}=5\text{V}, f=1\text{KHz}$					
			A Group	1.6		4.5	$\text{K}\Omega$
			B Group	3.2		8.5	$\text{K}\Omega$
C Group	6.0		15	$\text{K}\Omega$			
Output Admittance	h_{oe}	$I_C=2\text{mA}, V_{CE}=5\text{V}, f=1\text{KHz}$					
			A Group			30	μmhos
			B Group			60	μmhos
C Group			110	μmhos			

BC107_109Rev_3 231202E

BC107/A/B/C
 BC108/A/B/C
 BC109/A/B/C

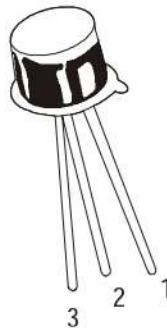
TO-18
 Metal Can Package

TO-18 Metal Can Package



All dimensions in mm.

DIM	MIN	MAX
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.40	0.53
E	—	0.76
F	—	1.27
G	—	2.97
H	0.91	1.17
J	0.71	1.21
K	12.70	—
L	45 DEG	



PIN CONFIGURATION

1. EMITTER
2. BASE
3. COLLECTOR

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-18	1K/polybag	350 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	34 kgs

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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