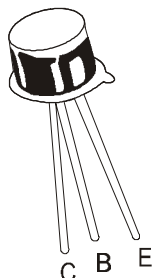


NPN SILICON PLANAR TRANSISTORS



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 @ $T_a=25^\circ\text{C}$ Derate above 25°C	P_D	300 1.72			mW mW/ $^\circ\text{C}$
Power Dissipation @ $T_c=25^\circ\text{C}$ Derate above 25°C	P_D	750 4.29			mW mW/ $^\circ\text{C}$
Operating And Storage Junction Temperature Range	T_j, T_{stg}	- 65 to +200			$^\circ\text{C}$

THERMAL CHARACTERISTICS

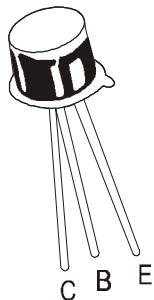
Junction to Ambient in free air	$R_{th(j-a)}$	583	$^\circ\text{C/W}$
Junction to Case	$R_{th(j-c)}$	233	$^\circ\text{C/W}$

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			nA
		$V_{CB}=25\text{V}, I_E=0$		<15	<15	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			

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NPN SILICON PLANAR TRANSISTORS



BC107/A/B/C
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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	$V_{CE(K)}$	$I_C=10\text{mA}$, $I_B=\text{the value for which}$ $I_C=11\text{mA @ } V_{CE}=1\text{V}$			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	$I_C=0.2\text{mA}$, $V_{CE}=5\text{V}$, $R_g=2\text{K}\Omega$, $f=30\text{Hz to } 15\text{KHz}$ BC109			4.0	dB
		$f=1\text{KHz}$, $\Delta F=200\text{Hz}$, BC109			4.0	dB
		BC107/108			10	dB

SMALL SIGNAL CHARACTERISTICS

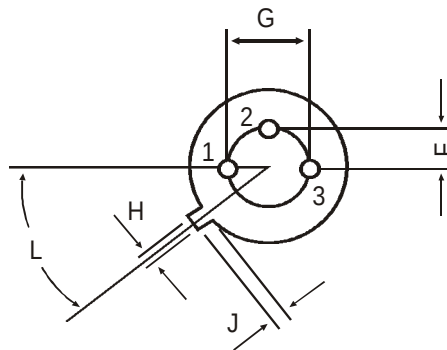
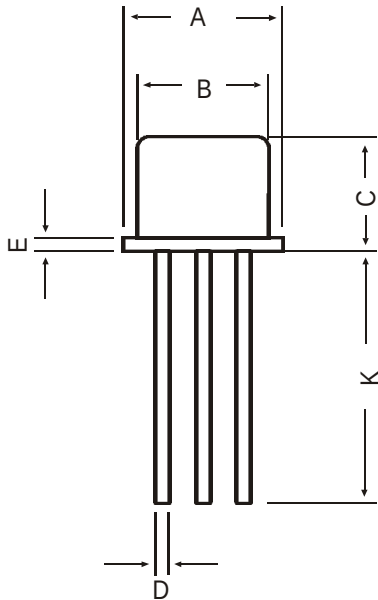
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Small Signal Current Gain	h_{fe}	$I_C=2\text{mA}$, $V_{CE}=5\text{V}$, $f=1\text{KHz}$				
		BC107	125		500	
		BC108	125		900	
		BC109	240		900	
		A Group	125		260	
		B Group	240		500	
Input Impedance	h_{ie}	$I_C=2\text{mA}$, $V_{CE}=5\text{V}$, $f=1\text{KHz}$				
		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

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

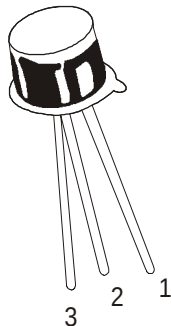
TO-18
Metal Can Package

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

Disclaimer

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