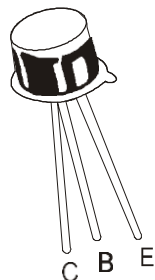


NPN SILICON PLANAR TRANSISTORS

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	$^\circ\text{C/W}$

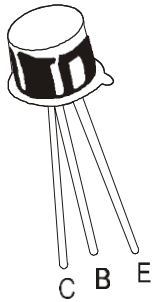
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

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



TO-18
Metal Can Package

ELECTRICAL CHARACTERISTICS (T_a=25°C unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=0.5mA$			0.25	V
		$I_C=100mA, I_B=5mA$			0.60	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=0.5mA$			0.83	V
		$I_C=100mA, I_B=5mA$			1.05	V
Base Emitter On Voltage	$V_{BE(on)}$	$I_C=2mA, V_{CE}=5V$	0.55		0.70	V
		$I_C=10mA, V_{CE}=5V$			0.77	V
Collector Knee Voltage	$V_{CE(K)}$	$I_C=10mA, I_B=\text{the value for which } I_C=11mA \text{ at } V_{CE}=1V$			0.60	V
Transition frequency	f_T	$I_C=10mA, V_{CE}=5V, f=100MHz$	150			MHZ
Output Capacitance	C_{obo}	$V_{CB}=10V, I_E=0, f=1MHz$			4.5	pF
Noise Figure	NF	$I_C=0.2mA, V_{CE}=5V, R_g=2K\Omega, f=30Hz \text{ to } 15KHz$ BC109			4.0	dB
		$f=1KHz, \Delta F=200Hz$ BC109			4.0	dB
		BC107/108			10	dB

SMALL SIGNAL CHARACTERISTICS

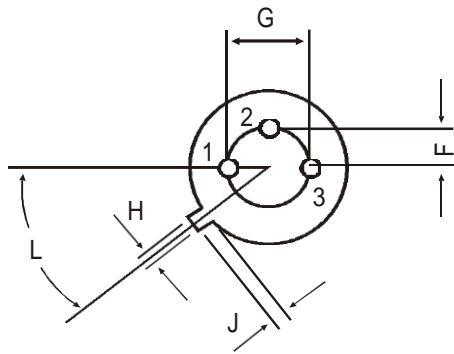
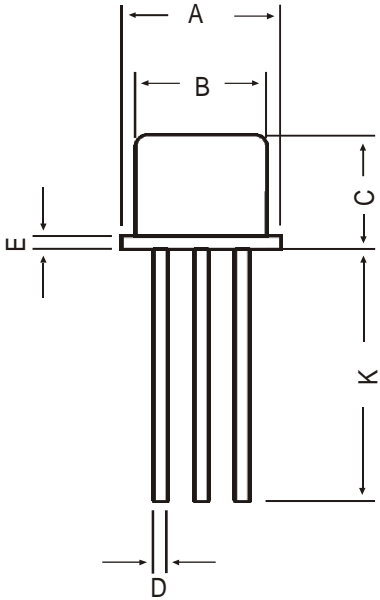
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Small Signal Current Gain	h_{fe}	$I_C=2mA, V_{CE}=5V, f=1KHz$				
		BC107	125		500	
		BC108	125		900	
		BC109	240		900	
		A Group	125		260	
		B Group	240		500	
Input Impedance	h_{ie}	$I_C=2mA, V_{CE}=5V, f=1KHz$				
		A Group	1.6		4.5	K Ω
		B Group	3.2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

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

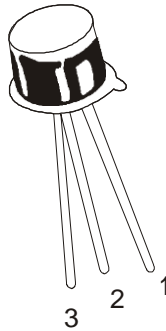
**TO-18
 Metal Can Package**

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	STANDARDPACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	NetWeight/Qty	Size	Qty	Size	Qty	GrWt
TO-18	1K/polybag	350gm/1Kpcs	3"x7.5"x7.5"	5K	17"x15"x13.5"	80K	34kgs

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).

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