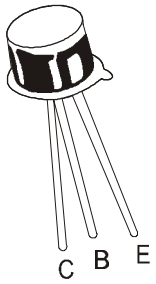
NPN SILICON PLANAR TRANSISTORS

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=25ºC	P_D	300			mW
Derate above 25ºC		1.72			mW/ ºC
Power Dissipation at T_c=25ºC	P_D	750			mW
Derate above 25ºC		4.29			mW/ ºC
Operating And Storage Junction Temperature Range	T_j, T_{stg}	- 65 to +200			ºC

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

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

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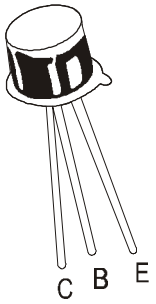
NPN SILICON PLANAR TRANSISTORS

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



TO-18
Metal Can Package

ELECTRICAL CHARACTERISTICS (T_a=25ºC 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=the value for which I_C=11mA 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, Rg=2KΩ,				
		f=30Hz to 15KHz **BC109**			4.0	dB
		f=1KHz, ΔF=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	
		C Group	450		900	
Input Impedance	h_{ie}	I_C=2mA, V_{CE}=5V, f=1KHz				
		A Group	1.6		4.5	KΩ
		B Group	3.2		8.5	KΩ
		C Group	6.0		15	KΩ
Output Admittance	h_{oe}	I_C=2mA, V_{CE}=5V, f=1KHz				
		A Group			30	μmhos
		B Group			60	μmhos
		C Group			110	μmhos

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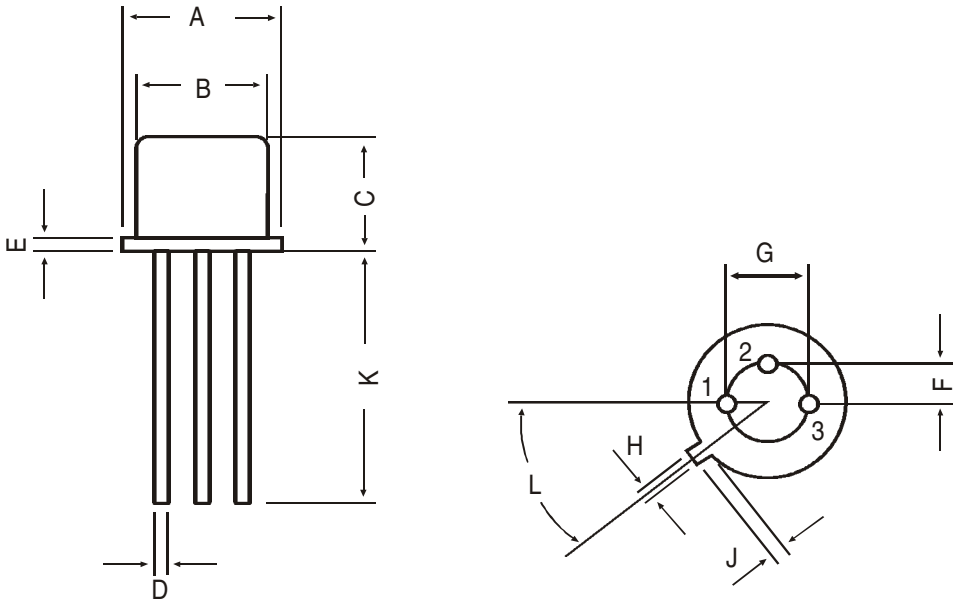
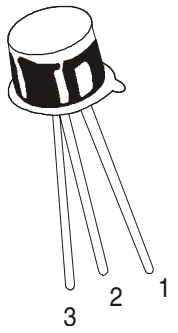
TO-18 Metal Can Package



All diminsions 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

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