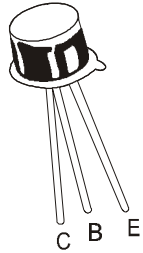


PNP SILICON PLANAR TRANSISTORS



BC177/A/B/C
BC178/A/B/C
BC179/A/B/C

TO-18
Metal Can Package

Low Noise General Purpose Audio Amplifiers

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	BC177	BC178	BC179	UNIT
Collector Emitter Voltage	V_{CEO}	45	25	20	V
Collector Emitter Voltage	V_{CES}	50	30	25	V
Collector Base Voltage	V_{CBO}	50	30	25	V
Emitter Base Voltage	V_{EBO}	5.0	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 1.72			mW mW/ $^\circ\text{C}$
Power Dissipation at $T_c=25^\circ\text{C}$ 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

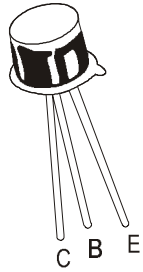
Junction to Ambient in free air	$R_{th(j-a)}$	583	$^\circ\text{C/W}$
Junction to Case	$R_{th(j-c)}$	233	$^\circ\text{C/W}$

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

DESCRIPTION	SYMBOL	TEST CONDITION	BC177	BC178	BC179	UNIT
Collector Base Voltage	V_{CBO}	$I_C=10\mu\text{A}, I_E=0$	>50	>30	>25	V
Collector Emitter Voltage	V_{CEO}	$I_C=2\text{mA}, I_B=0$	>45	>25	>20	V
Emitter Base Voltage	V_{EBO}	$I_E=10\mu\text{A}, I_C=0$	>5	>5	>5	V
Collector Cut off Current	I_{CES}	$V_{CE}=20\text{V}, I_E=0$ $V_{CE}=20\text{V}, I_E=0, T_a=125^\circ\text{C}$	<100 <4			nA μA
DC Current Gain	h_{FE}	$I_C=2\text{mA}, V_{CE}=5\text{V}$ BC177 BC178 BC179 A Group B Group C Group	120-460 120-800 180-800 120-220 180-460 380-800			

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NPN SILICON PLANAR TRANSISTORS



BC177/A/B/C

BC178/A/B/C

BC179/A/B/C

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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	$V_{CE(sat)}$	$I_C=10\text{mA}$, $I_B=0.5\text{mA}$			0.20	V
		$I_C=100\text{mA}$, $I_B=5\text{mA}$			0.60	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10\text{mA}$, $I_B=0.5\text{mA}$			0.80	V
		$I_C=100\text{mA}$, $I_B=5\text{mA}$		0.9		V
Base Emitter on Voltage	$V_{BE(on)}$	$I_C=2\text{mA}$, $V_{CE}=5\text{V}$	0.6		0.75	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	$I_C=10\text{mA}$, $V_{CE}=5\text{V}$, $f=50\text{MHz}$	200			MHz
Output Capacitance	C_{obo}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$			4.0	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 15KHz BC179			4.0	dB
		$f=1\text{KHz}$, $F=200\text{Hz}$, BC179			4.0	dB
		BC177/178			10	dB

SMALL SIGNAL CHARACTERISTICS

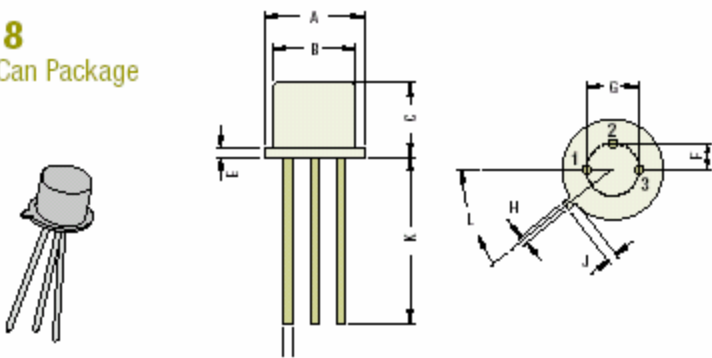
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Small Signal Current Gain	h_{fe}	$I_C=2\text{mA}$, $V_{CE}=5\text{V}$, $f=1\text{KHz}$				
		BC177	120		460	
		BC178	120		800	
		BC179	180		800	
		A Group	120		220	
		B Group	180		460	
Input Impedance	h_{ie}	$I_C=2\text{mA}$, $V_{CE}=5\text{V}$, $f=1\text{KHz}$				
		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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BC177/A/B/C
BC178/A/B/C
BC179/A/B/C

TO-18
Metal Can Package

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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

DIM	Min	Max
G	—	2.97
H	0.91	1.17
J	0.71	1.21
K	12.7	—
L	—	45°

Pin Configuration Pin 1: Emitter Pin 2: Base Pin 3: Collector

... Packaging Specifications

Package / Case Type	Packaging Type	Std. Packing	Inner Carton			Outer Carton		
		Qty	Qty	Size L x W x H	Gross Weight	Qty	Size L x W x H	Gross Weight
				(cm)	(Kg)		(cm)	(Kg)

Metal Can Packages

TO-18	Bulk	1,000	5K	19 x 19 x 8	1.7	50K	43 x 38 x 34	18.2
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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 Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or 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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