

PNP BC177 – BC178 – BC179

LOW NOISE GENERAL PURPOSE AUDIO AMPLIFIERS

The BC177, BC178 and BC179 are silicon planar epitaxial PNP transistors mounted in TO-18 metal package.

They are suitable for use in drive audio stages, low-noise input audio stages and as low power, high gain general purpose transistors.

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol		BC177	BC178	BC179	Unit
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	-50	-30	-25	V
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	-45	-25	-20	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	-5			V
I_C	Collector Current	-100			mA
I_{CM}	Collector Peak Current	-200			mA
P_D	Total Power Dissipation @ $T_{amb} = 25^\circ$	300			mW
T_J	Junction Temperature	175			$^\circ\text{C}$
T_{Stg}	Storage Temperature range	-65 to +150			$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

$T_j = 25^\circ\text{C}$ unless otherwise specified

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
I_{CBO}	Collector Cutoff Current	$V_{CB} = -20\text{ V}$ $I_E = 0$	BC177	-	-1	-100	nA
			BC178				
			BC179				
		$V_{CB} = -20\text{ V}$ $I_E = 0\text{ V}$ $T_j = 150^\circ\text{C}$	BC177	-	-	-10	μA
			BC178				
			BC179				
V_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = -2\text{ mA}$ $I_B = 0$	BC177	-45	-	-	V
			BC178				
			BC179				
V_{CBO}	Collector-Base Breakdown Voltage	$I_C = -10\ \mu\text{A}$ $V_{BE} = 0$	BC177	-50	-	-	V
			BC178				
			BC179				
V_{EBO}	Emitter-Base Breakdown Voltage	$I_E = -10\ \mu\text{A}$ $I_C = 0$	BC177	-5			V
			BC178				
			BC179				

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ELECTRICAL CHARACTERISTICS

T_j=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage	$I_C = -10 \text{ mA}$ $I_B = -0.5 \text{ mA}$	BC177	-	-0.075	-0.25
			BC178			
			BC179			
		$I_C = -100 \text{ mA}$ $I_B = -5 \text{ mA}$	BC177	-	-0.2	-
			BC178			
			BC179			
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage	$I_C = -10 \text{ mA}$ $I_B = -0.5 \text{ mA}$	BC177	-	-0.72	-0.8
			BC178			
			BC179			
		$I_C = -100 \text{ mA}$ $I_B = -5 \text{ mA}$	BC177	-	-0.86	-
			BC178			
			BC179			
V_{BE}	Base-Emitter Voltage	$I_C = -2 \text{ mA}$ $V_{CE} = -5 \text{ V}$	BC177	-0.6	-0.65	-0.75
			BC178			
			BC179			
h_{FE}	DC Current Gain (*)	$I_C = -2 \text{ mA}$ $V_{CE} = 5 \text{ V}$	BC177A	125	-	260
			BC178A			
			BC179A			
			BC177B	240	-	500
			BC178B			
			BC179B			
f_T	Transition frequency	$I_C = -10 \text{ mA}$ $V_{CE} = -5 \text{ V}$ $f = 100 \text{ MHz}$	BC177	-	200	-
			BC178			
			BC179			
F	Noise figure	$I_C = -200 \mu\text{A}$ $V_{CE} = -5 \text{ V}$ $f = 1 \text{ kHz}$ $R_g = 2 \text{ k}\Omega$ $B = 200 \text{ Hz}$	BC177	-	-	10
			BC178			10
			BC179			4
C_C	Collector capacitance	$I_E = 0$ $V_{CB} = -10 \text{ V}$ $f = 1 \text{ MHz}$	BC177	-	5	-
			BC178			
			BC179			

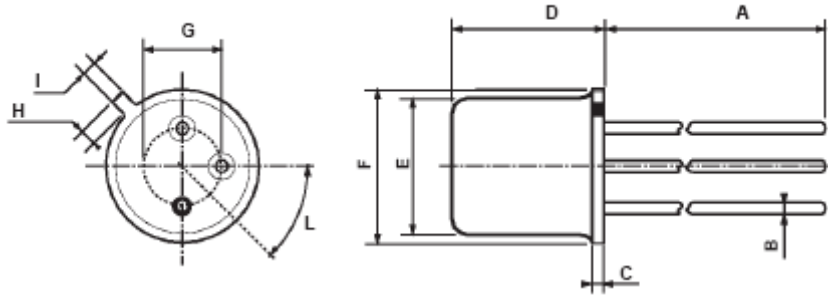
THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJ-a}	Thermal Resistance, Junction to mounting base	500	°C/W
R_{thJ-c}	Thermal Resistance, Junction to ambient in free air	200	°C/W

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ECHANICAL DATA CASE TO-18

DIMENSIONS (mm)		
	min	max
A	12.7	-
B	-	0.49
C	0.9	-
D	-	5.3
E	-	4.9
F	-	5.8
G	2.54	-
H	-	1.2
I	-	1.16
L	45°	-



Pin 1 :	emitter
Pin 2 :	base
Pin 3 :	Collector
Case :	Collector

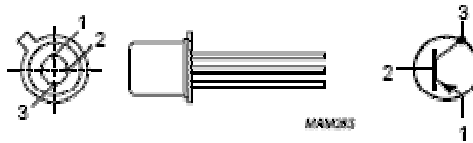


Fig.1 Simplified outline (TO-18) and symbol.

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