

MAXIMUM RATINGS

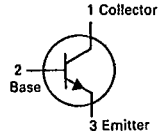
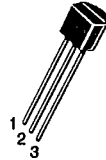
Rating	Symbol	BC 174A,B	BC 171A,B	BC 172A,B	Unit
Collector-Emitter Voltage	V_{CEO}	65	45	25	Vdc
Collector-Base Voltage	V_{CBO}	80	50	30	Vdc
Emitter-Base Voltage	V_{EBO}	6.0			Vdc
Collector Current — Continuous	I_C	100			mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	350 2.8			mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.0 8.0			Watt mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150			$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$

BC171A, B BC172A, B, C BC174A, B

CASE 29-04, STYLE 17
TO-92 (TO-226AA)


AMPLIFIER TRANSISTORS

NPN SILICON

Refer to BC546 for graphs.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 2.0\text{ mA}, I_B = 0$)	BC174A,B BC171A,B BC172A,B	$V_{(BR)CEO}$	65 45 25	— — —	— — —	V
Emitter-Base Breakdown Voltage ($I_E = 100\ \mu\text{A}, I_C = 0$)	BC171A,B BC172A,B BC174A,B	$V_{(BR)EBO}$	6.0 6.0 6.0	— — —	— — —	V
Collector Cutoff Current ($V_{CE} = 70\text{ V}, V_{BE} = 0$) ($V_{CE} = 50\text{ V}, V_{BE} = 0$) ($V_{CE} = 35\text{ V}, V_{BE} = 0$) ($V_{CE} = 30\text{ V}, V_{BE} = 0$) $T_A = 125^\circ\text{C}$	BC174A,B BC171A,B BC172A,B	I_{CES}	— — — —	0.2 0.2 0.2 —	15 15 15 4.0	nA μA

ON CHARACTERISTICS

DC Current Gain ($I_C = 10\ \mu\text{A}, V_{CE} = 5.0\text{ V}$)	BC171A/2A/4A BC171B/2B/4B BC172C	h_{FE}	— — —	90 150 270	— — —	—
($I_C = 2.0\text{ mA}, V_{CE} = 5.0\text{ V}$)	BC171A/2A/4A BC171B/2B/4B BC172C		120 180 380	180 290 520	220 460 800	
($I_C = 100\text{ mA}, V_{CE} = 5.0\text{ V}$)	BC171A/2A/4A BC171B/2B/4B BC172C		— — —	120 180 300	— — —	
Collector-Emitter Saturation Voltage ($I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$) ($I_C = 100\text{ mA}, I_B = 5.0\text{ mA}$)		$V_{CE(sat)}$	— —	0.09 0.2	0.25 0.6	V
Base-Emitter Saturation Voltage ($I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$)		$V_{BE(sat)}$	—	0.7	—	V
Base-Emitter On Voltage ($I_C = 2.0\text{ mA}, V_{CE} = 5.0\text{ V}$)		$V_{BE(on)}$	0.65	—	0.7	V

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ELECTRICAL CHARACTERISTICS (continued) ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
DYNAMIC CHARACTERISTICS, SMALL-SIGNAL CHARACTERISTICS					
Current-Gain Bandwidth Product ($I_C = 10\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $f = 100\text{ MHz}$)	f_T	150	300	—	MHz
BC171A,B		150	300	—	
BC172A,B		150	300	—	
BC174A,B		150	300	—	
Output Capacitance ($V_{CB} = 10\text{ V}$, $I_C = 0$, $f = 1.0\text{ MHz}$)	C_{obo}	—	1.7	4.5	pF
Input Capacitance ($V_{BE} = 0.5\text{ V}$, $I_C = 0$, $f = 1.0\text{ MHz}$)	C_{ibo}	—	10	—	pF
Small-Signal Current Gain ($I_C = 2.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $f = 1.0\text{ kHz}$)	h_{fe}	125	220	260	
BC171A/2A/4A		240	330	500	
BC171B/2B/4B		450	600	900	
BC172C					
Noise Figure ($I_C = 0.2\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $R_S = 2.0\text{ kohms}$, $f = 1.0\text{ kHz}$, $\Delta f = 200\text{ Hz}$)	NF	—	2.0	10	dB
BC171A,B		—	2.0	10	
BC172A,B		—	2.0	10	
BC174A,B		—	2.0	10	