

**MAXIMUM RATINGS**

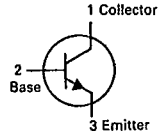
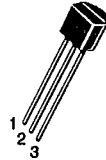
Rating	Symbol	BC 174A,B	BC 171A,B	BC 172A,B	Unit
Collector-Emitter Voltage	$V_{CEO}$	65	45	25	Vdc
Collector-Base Voltage	$V_{CBO}$	80	50	30	Vdc
Emitter-Base Voltage	$V_{EBO}$	6.0			Vdc
Collector Current — Continuous	$I_C$	100			mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$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

**THERMAL CHARACTERISTICS**

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

**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
<b>DYNAMIC CHARACTERISTICS, SMALL-SIGNAL CHARACTERISTICS</b>					
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	