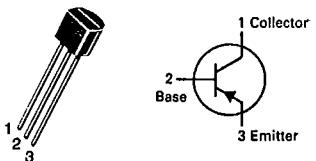


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**BC307, A, B, C**  
**thru**  
**BC309, A, B, C**
**CASE 29-04, STYLE 17**  
**TO-92 (TO-226AA)**


2

**AMPLIFIER TRANSISTORS**

PNP SILICON

**MAXIMUM RATINGS**

Rating	Symbol	BC 307	BC 308	BC 309	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	45	25	25	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	50	30	30	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>		5.0		Vdc
Collector Current - Continuous	I <sub>C</sub>		100		mA
Total Device Dissipation @ T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>		350 2.8		mW mW/W°C
Total Device Dissipation @ T <sub>C</sub> = 25°C Derate above 25°C	P <sub>D</sub>		1.0 8.0		Watt mW/W°C
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>Stg</sub>	-55	+150		°C

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	125	°C/W
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	357	°C/W

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)**

Characteristic	Type	Symbol	Min.	Typ.	Max.	Unit
<b>OFF CHARACTERISTICS</b>						
Collector-Emitter Breakdown Voltage (I <sub>C</sub> = 2.0 mA, I <sub>B</sub> = 0)	BC307 BC308 BC309	V(BR)CEO	45 25 25	— — —	— — —	Vdc
Emitter-Base Breakdown Voltage (I <sub>E</sub> = 100 μA, I <sub>C</sub> = 0)	BC307 BC308 BC309	V(BR)EBO	5 5 5	— — —	— — —	Vdc Vdc
Collector-Emitter Leakage Current (V <sub>CES</sub> = 50 V, V <sub>BE</sub> = 0) (V <sub>CES</sub> = 30 V, V <sub>BE</sub> = 0)  (V <sub>CES</sub> = 50 V, V <sub>BE</sub> = 0) T <sub>A</sub> = 125°C (V <sub>CES</sub> = 30 V, V <sub>BE</sub> = 0) T <sub>A</sub> = 125°C	BC307 BC308 BC309  BC307 BC308 BC309  BC307A/308A/309A BC307B/308B/309B BC307C/308C/309C	I <sub>CES</sub>		0.2 0.2 0.2 0.2 0.2 0.2	15 15 15 4.0 4.0 4.0	nA  μA
<b>ON CHARACTERISTICS</b>						
DC Current Gain (I <sub>C</sub> = 10 μA, V <sub>CE</sub> = 5 Vdc)  (I <sub>C</sub> = 2 mA, V <sub>CE</sub> = 5 Vdc)  (I <sub>C</sub> = 100 mA, V <sub>CE</sub> = 5 Vdc)	BC307A/308A/309A BC307B/308B/309B BC307C/308C/309C  BC307 BC308 BC309  BC307A/308A/309A BC307B/308B/309B BC307C/308C/309C  BC307A/308A/309A BC307B/308B/309B BC307C/308C/309C	h <sub>FE</sub>	— — — 120 120 120 120 200 420	90 150 270 — — — 170 290 500	— — — 800 800 800 220 460 800	
Collector-Emitter Saturation Voltage (I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA) (I <sub>C</sub> = 10 mA, I <sub>B</sub> = see Note 1) (I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA)		V <sub>CE(sat)</sub>	— — —	0.10 0.30 0.25	0.30 0.60 —	Vdc
Base-Emitter Saturation Voltage (I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA) (I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA)		V <sub>BE(sat)</sub>	— —	0.70 1.00	— —	Vdc
Base-Emitter on Voltage (I <sub>C</sub> = 2 mA, V <sub>CE</sub> = 5 Vdc)		V <sub>BE(on)</sub>	0.55	0.62	0.70	Vdc

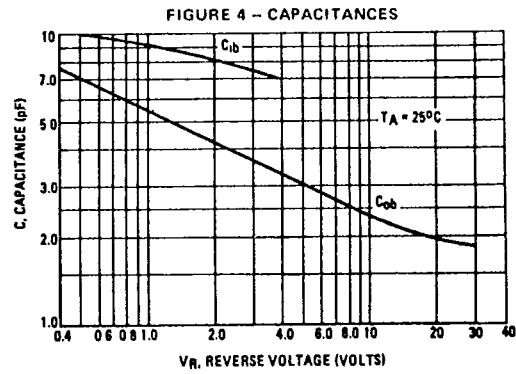
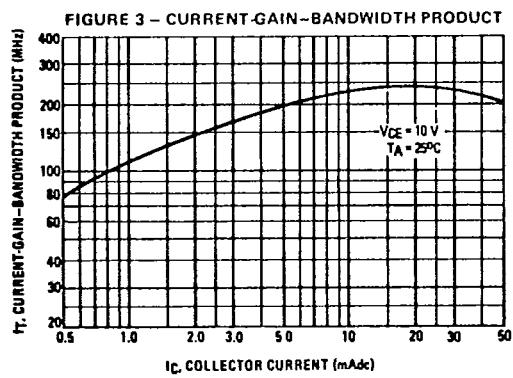
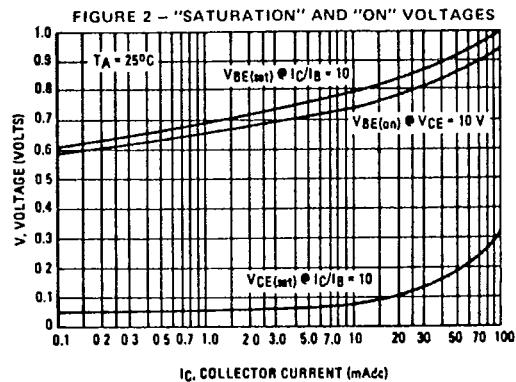
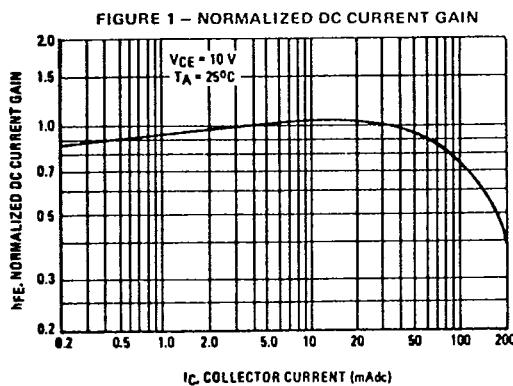
Note 1: I<sub>C</sub> = 10 mA on the constant base current characteristic, which yields the point I<sub>C</sub> = 11 mA, V<sub>CE</sub> = 1 V

BC307, A, B, C THRU BC309, A, B, C

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

Characteristic	Type	Symbol	Min.	Typ.	Max.	Unit
<b>DYNAMIC CHARACTERISTICS</b>						
Current-Gain Bandwidth Product ( $I_C = 10 \text{ mA}_\text{dc}$ , $V_{CE} = 5 \text{ Vdc}$ , $f = 50 \text{ MHz}$ )	BC307 BC308 BC309	$f_T$	— — —	280 320 360	— — —	MHz
Collector-Base Capacitance ( $V_{CB} = 10 \text{ Vdc}$ , $I_C = 0$ , $f = 1 \text{ MHz}$ )		$C_{Cbo}$	—	—	6.0	pF
Noise Figure ( $I_C = 0.2 \text{ mA}_\text{dc}$ , $V_{CE} = 5 \text{ Vdc}$ , $R_S = 2 \text{ Kohms}$ , $f = 30 \text{ Hz}$ to $15 \text{ KHz}$ ) ( $I_C = 0.2 \text{ mA}_\text{dc}$ , $V_{CE} = 5 \text{ Vdc}$ , $R_S = 2 \text{ Kohms}$ , $f = 1 \text{ KHz}$ , $f = 200 \text{ Hz}$ )	BC309 BC307 BC308 BC309	NF	— — — —	2 2 2 2	4 10 10 4	dB



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