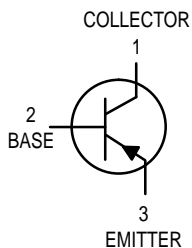
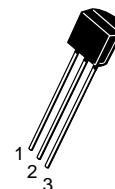


Amplifier Transistors

PNP Silicon



BC307
BC307B
BC307C
BC308C



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

MAXIMUM RATINGS

Rating	Symbol	BC307, B, C	BC308C	Unit
Collector–Emitter Voltage	V_{CEO}	-45	-25	Vdc
Collector–Base Voltage	V_{CBO}	-50	-30	Vdc
Emitter–Base Voltage	V_{EBO}	-5.0		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	Watts 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 Ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	$^\circ\text{C}/\text{W}$

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 ($I_C = -2.0$ mAdc, $I_B = 0$)	BC307,B,C BC308C	$V_{(BR)CEO}$	-45 -25	— —	— —	Vdc
Emitter–Base Breakdown Voltage ($I_E = -100$ μ Adc, $I_C = 0$)	BC307,B,C BC308C	$V_{(BR)EBO}$	-5.0 -5.0	— —	— —	Vdc
Collector–Emitter Leakage Current ($V_{CES} = -50$ V, $V_{BE} = 0$) ($V_{CES} = -30$ V, $V_{BE} = 0$) ($V_{CES} = -50$ V, $V_{BE} = 0$) $T_A = 125^\circ\text{C}$ ($V_{CES} = -30$ V, $V_{BE} = 0$) $T_A = 125^\circ\text{C}$	BC307,B,C BC308C BC307,B,C BC308C	I_{CES}	— — — —	-0.2 -0.2 -0.2 -0.2	-15 -15 -4.0 -4.0	nAdc μA

BC307 BC307B BC307C BC308C
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS					
DC Current Gain ($I_C = -10 \mu\text{Adc}$, $V_{CE} = -5.0 \text{ Vdc}$)	h_{FE}	—	150	—	—
	BC307B	—	270	—	—
	BC307C/308C	—	—	—	—
($I_C = -2.0 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$)	BC307	120	—	800	—
	BC307B/308B	200	290	460	—
	BC307C/308C	420	500	800	—
($I_C = -100 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$)	BC307B	—	180	—	—
	BC307C/308C	—	300	—	—
Collector–Emitter Saturation Voltage ($I_C = -10 \text{ mAdc}$, $I_B = -0.5 \text{ mAdc}$) ($I_C = -10 \text{ mAdc}$, $I_B = \text{see Note 1}$) ($I_C = -100 \text{ mAdc}$, $I_B = -5.0 \text{ mAdc}$)	$V_{CE(\text{sat})}$	—	-0.10	-0.3	Vdc
		—	-0.30	-0.6	
		—	-0.25	—	
Base–Emitter Saturation Voltage ($I_C = -10 \text{ mAdc}$, $I_B = -0.5 \text{ mAdc}$) ($I_C = -100 \text{ mAdc}$, $I_B = -5.0 \text{ mAdc}$)	$V_{BE(\text{sat})}$	—	-0.7	—	Vdc
		—	-1.0	—	
Base–Emitter On Voltage ($I_C = -2.0 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$)	$V_{BE(\text{on})}$	-0.55	-0.62	-0.7	Vdc

DYNAMIC CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = -10 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$, $f = 100 \text{ MHz}$)	f_T	—	280	—	MHz
	BC307,B,C	—	320	—	
	BC308C	—	—	—	
Common Base Capacitance ($V_{CB} = -10 \text{ Vdc}$, $I_C = 0$, $f = 1.0 \text{ MHz}$)	C_{cbo}	—	—	6.0	pF
Noise Figure ($I_C = -0.2 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$, $R_S = 2.0 \text{ k}\Omega$, $f = 1.0 \text{ kHz}$)	NF	—	2.0	10	dB
	BC307,B,C	—	—	—	
($I_C = -0.2 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$, $R_S = 2.0 \text{ k}\Omega$, $f = 1.0 \text{ kHz}$, $f = 200 \text{ Hz}$)	BC308C	—	2.0	10	

1. $I_C = -10 \text{ mAdc}$ on the constant base current characteristic, which yields the point $I_C = -11 \text{ mAdc}$, $V_{CE} = -1.0 \text{ V}$.

TYPICAL CHARACTERISTICS

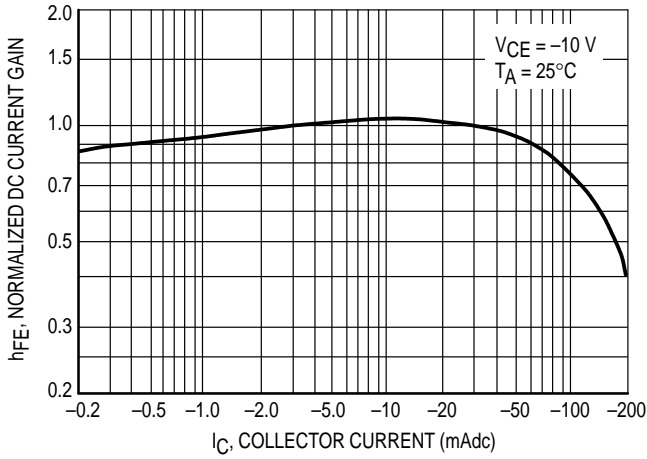


Figure 1. Normalized DC Current Gain

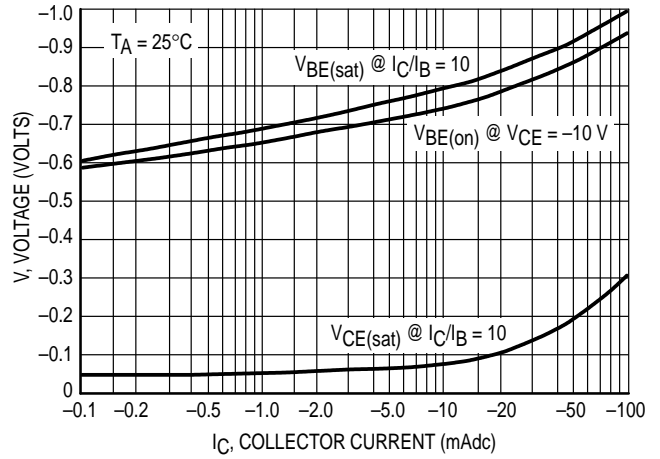


Figure 2. "Saturation" and "On" Voltages

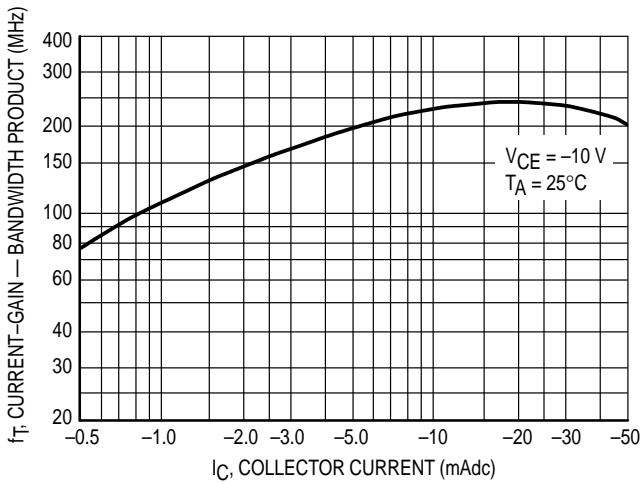


Figure 3. Current-Gain — Bandwidth Product

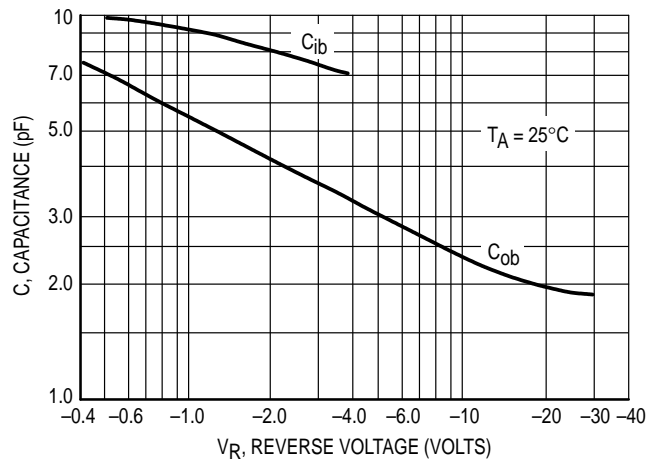


Figure 4. Capacitances

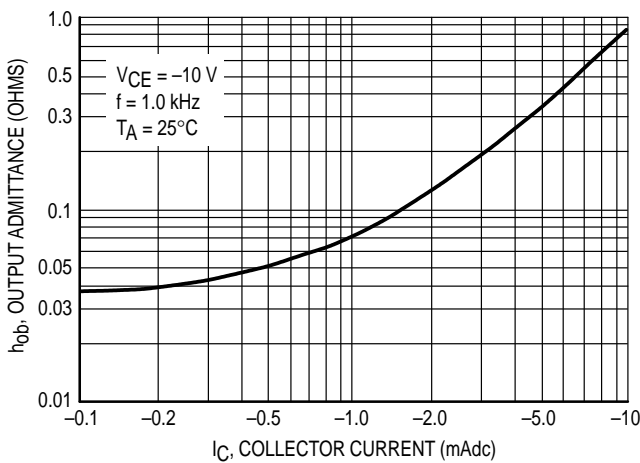


Figure 5. Output Admittance

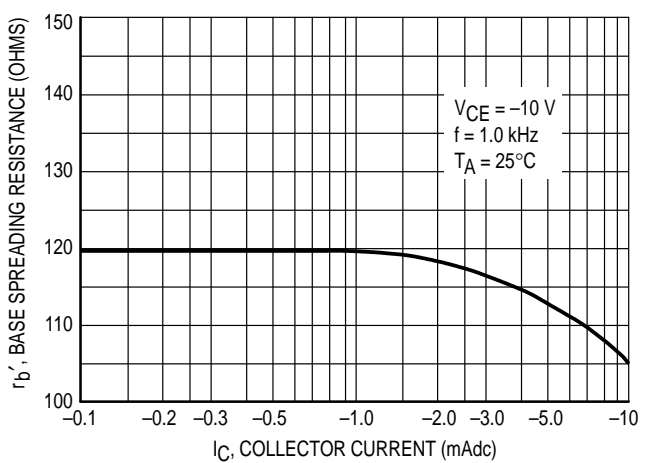
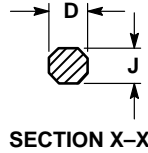
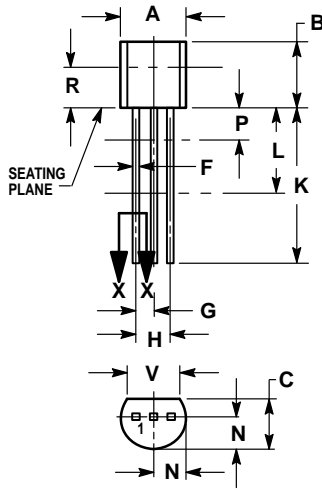


Figure 6. Base Spreading Resistance

PACKAGE DIMENSIONS



**CASE 029-04
(TO-226AA)
ISSUE AD**


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K. MINIMUM LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.022	0.41	0.55
F	0.016	0.019	0.41	0.48
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	—	12.70	—
L	0.250	—	6.35	—
N	0.080	0.105	2.04	2.66
P	—	0.100	—	2.54
R	0.115	—	2.93	—
V	0.135	—	3.43	—

STYLE 17:

- PIN 1. COLLECTOR
2. BASE
3. EMITTER

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