

BC307B, BC307C

Amplifier Transistors

PNP Silicon



ON Semiconductor

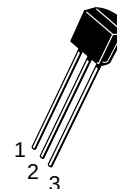
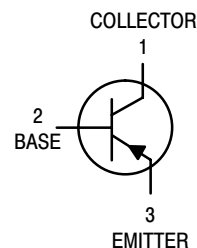
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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	-45	Vdc
Collector-Base Voltage	V_{CBO}	-50	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	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	$^\circ\text{C/W}$



CASE 29
TO-92
STYLE 17

ORDERING INFORMATION

Device	Package	Shipping
BC307B	TO-92	5000 Units/Box
BC307BRL1	TO-92	2000/Tape & Reel
BC307BZL1	TO-92	2000/Ammo Pack
BC307C	TO-92	5000 Units/Box

BC307B, BC307C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage (I _C = –2.0 mA _{dc} , I _B = 0)	V _{(BR)CEO}	–45	—	—	V _{dc}
Emitter–Base Breakdown Voltage (I _E = –100 μA _{dc} , I _C = 0)	V _{(BR)EBO}	–5.0	—	—	V _{dc}
Collector–Emitter Leakage Current (V _{CES} = –50 V, V _{BE} = 0) (V _{CES} = –50 V, V _{BE} = 0) T _A = 125°C	I _{CES}	— —	–0.2 –0.2	–15 –4.0	nA _{dc} μA

ON CHARACTERISTICS

DC Current Gain (I _C = –10 μA _{dc} , V _{CE} = –5.0 V _{dc})	BC307B BC307C	h _{FE}	— —	150 270	— —	—
(I _C = –2.0 mA _{dc} , V _{CE} = –5.0 V _{dc})	BC307 BC307B BC307C		120 200 420	— 290 500	800 460 800	
(I _C = –100 mA _{dc} , V _{CE} = –5.0 V _{dc})	BC307B BC307C		— —	180 300	— —	
Collector–Emitter Saturation Voltage (I _C = –10 mA _{dc} , I _B = –0.5 mA _{dc}) (I _C = –10 mA _{dc} , I _B = see Note 1) (I _C = –100 mA _{dc} , I _B = –5.0 mA _{dc})		V _{CE(sat)}	— — —	–0.10 –0.30 –0.25	–0.3 –0.6 —	V _{dc}
Base–Emitter Saturation Voltage (I _C = –10 mA _{dc} , I _B = –0.5 mA _{dc}) (I _C = –100 mA _{dc} , I _B = –5.0 mA _{dc})		V _{BE(sat)}	— —	–0.7 –1.0	— —	V _{dc}
Base–Emitter On Voltage (I _C = –2.0 mA _{dc} , V _{CE} = –5.0 V _{dc})		V _{BE(on)}	–0.55	–0.62	–0.7	V _{dc}

DYNAMIC CHARACTERISTICS

Current–Gain — Bandwidth Product (I _C = –10 mA _{dc} , V _{CE} = –5.0 V _{dc} , f = 100 MHz)	f _T	—	280	—	MHz
Common Base Capacitance (V _{CB} = –10 V _{dc} , I _C = 0, f = 1.0 MHz)	C _{cbo}	—	—	6.0	pF
Noise Figure (I _C = –0.2 mA _{dc} , V _{CE} = –5.0 V _{dc} , R _S = 2.0 kΩ, f = 1.0 kHz)	NF	—	2.0	10	dB

1. I_C = –10 mA_{dc} on the constant base current characteristic, which yields the point I_C = –11 mA_{dc}, V_{CE} = –1.0 V.

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TYPICAL CHARACTERISTICS

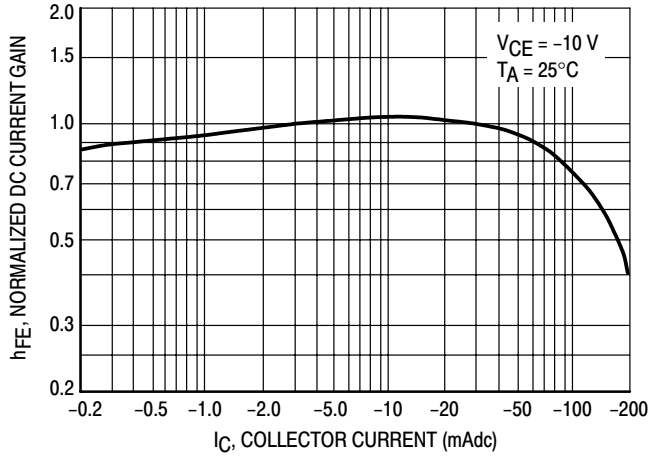


Figure 1. Normalized DC Current Gain

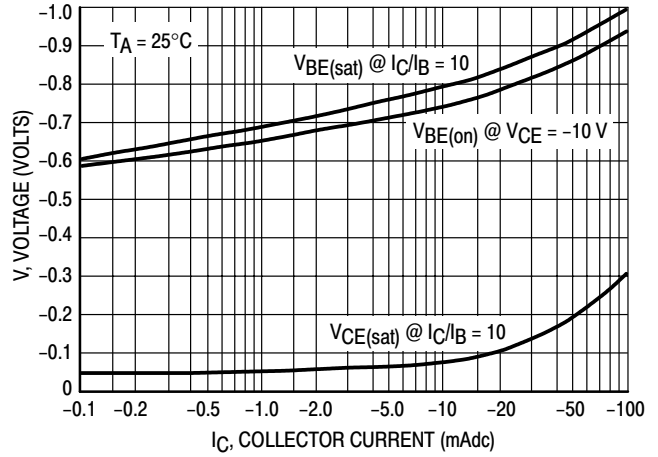


Figure 2. "Saturation" and "On" Voltages

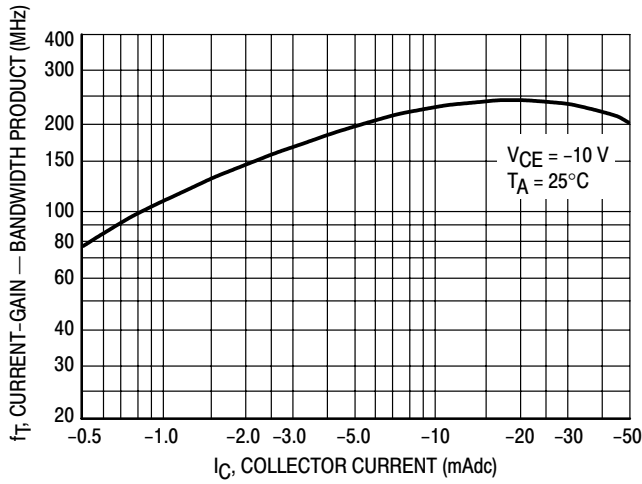


Figure 3. Current-Gain — Bandwidth Product

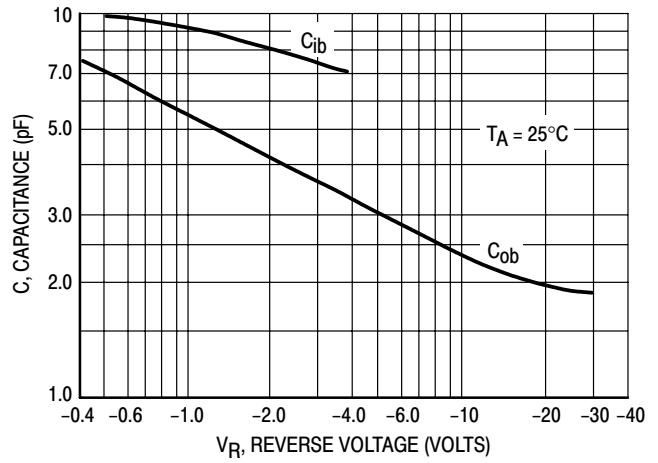


Figure 4. Capacitances

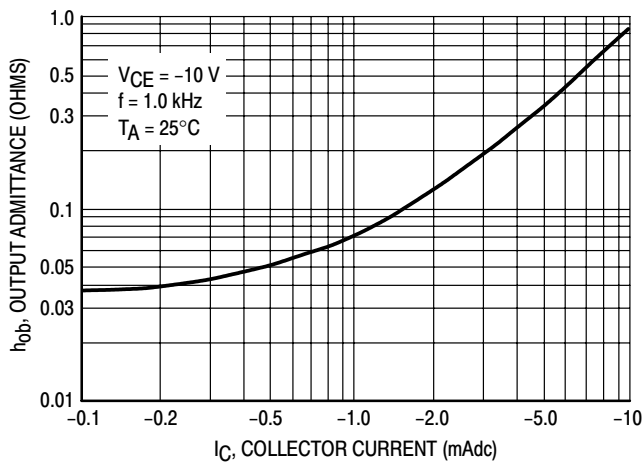


Figure 5. Output Admittance

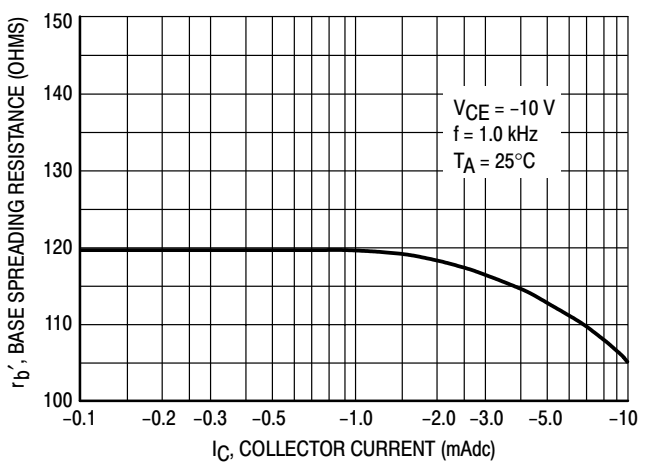
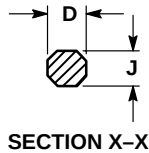
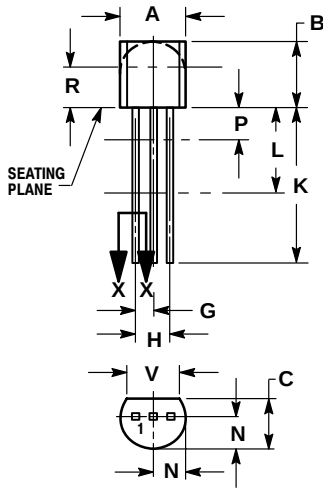


Figure 6. Base Spreading Resistance

BC307B, BC307C

PACKAGE DIMENSIONS

TO-92
(TO-226)
CASE 29-11
ISSUE AL



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. 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	0.021	0.407	0.533
E	0.045	0.055	1.15	1.39
F	0.095	0.105	2.42	2.66
G	0.015	0.020	0.39	0.50
H	0.500	---	12.70	---
I	0.250	---	6.35	---
J	0.080	0.105	2.04	2.66
K	---	0.100	---	2.54
L	0.115	---	2.93	---
M	0.135	---	3.43	---

STYLE 17:

- PIN 1. COLLECTOR
2. BASE
3. EMITTER

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