

BC307B, BC307C

Amplifier Transistors

PNP Silicon



ON Semiconductor

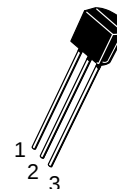
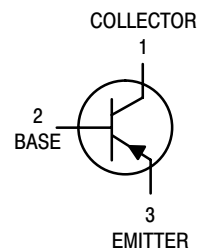
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MAXIMUM RATINGS

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

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

ON CHARACTERISTICS

DC Current Gain ($I_C = -10\text{ }\mu\text{A}$, $V_{CE} = -5.0\text{ Vdc}$)	BC307B BC307C	h_{FE}	— —	150 270	— —	—
($I_C = -2.0\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)	BC307 BC307B BC307C		120 200 420	— 290 500	800 460 800	
($I_C = -100\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)	BC307B BC307C		— —	180 300	— —	
Collector–Emitter Saturation Voltage ($I_C = -10\text{ mA}$, $I_B = -0.5\text{ mA}$) ($I_C = -10\text{ mA}$, $I_B = \text{see Note 1}$) ($I_C = -100\text{ mA}$, $I_B = -5.0\text{ mA}$)		$V_{CE(sat)}$	— — —	-0.10 -0.30 -0.25	-0.3 -0.6 —	Vdc
Base–Emitter Saturation Voltage ($I_C = -10\text{ mA}$, $I_B = -0.5\text{ mA}$) ($I_C = -100\text{ mA}$, $I_B = -5.0\text{ mA}$)		$V_{BE(sat)}$	— —	-0.7 -1.0	— —	Vdc
Base–Emitter On Voltage ($I_C = -2.0\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)		$V_{BE(on)}$	-0.55	-0.62	-0.7	Vdc

DYNAMIC CHARACTERISTICS

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

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

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TYPICAL CHARACTERISTICS

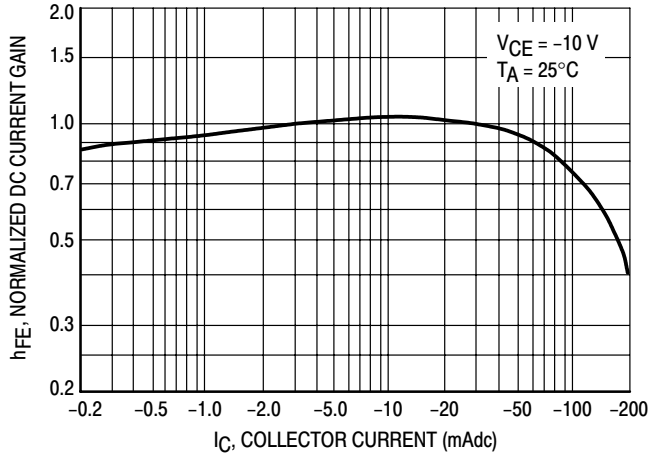


Figure 1. Normalized DC Current Gain

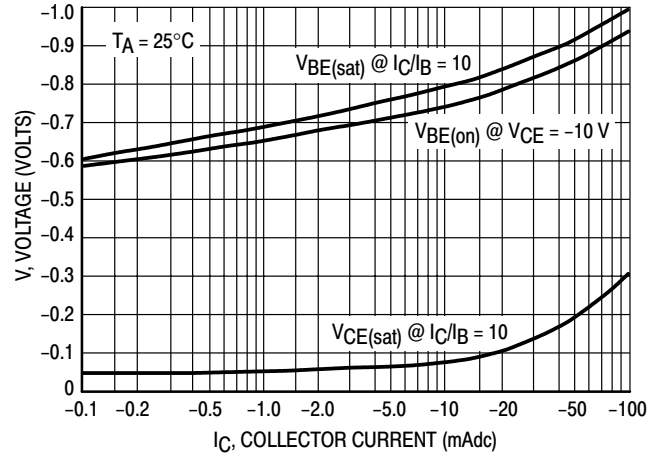


Figure 2. "Saturation" and "On" Voltages

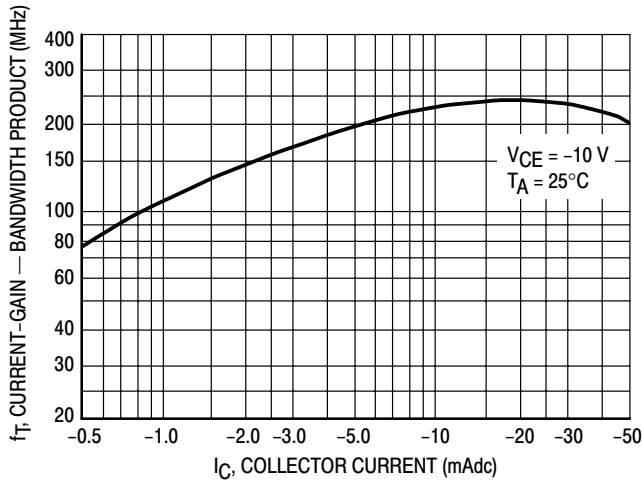


Figure 3. Current-Gain — Bandwidth Product

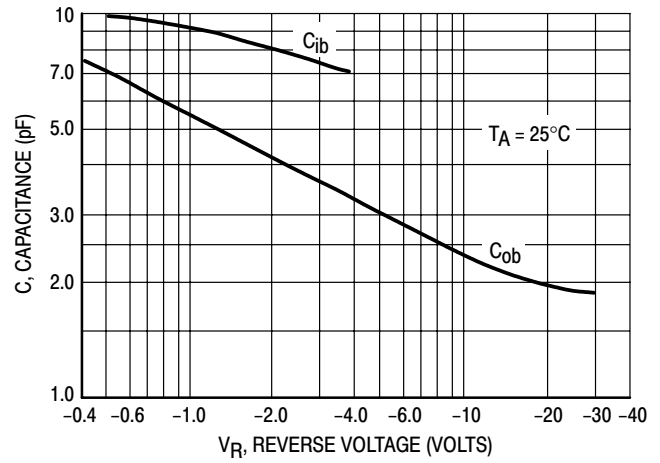


Figure 4. Capacitances

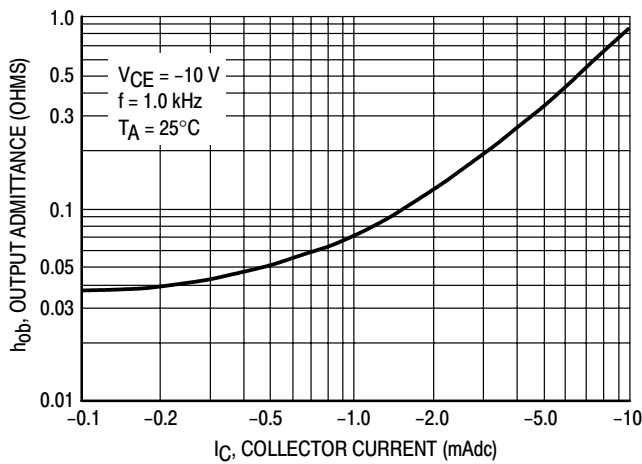


Figure 5. Output Admittance

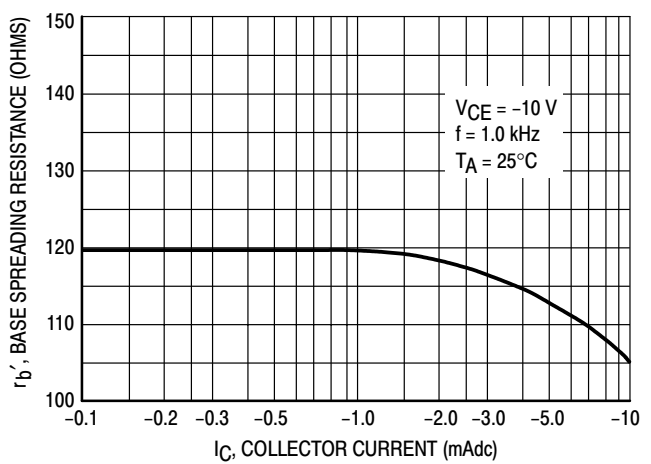
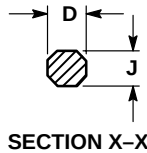
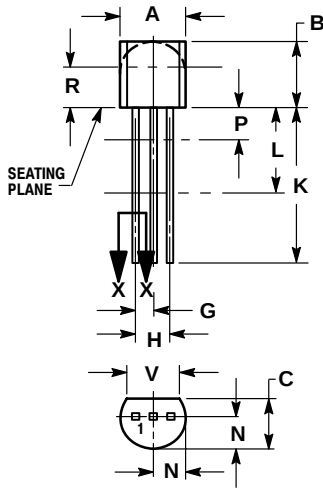


Figure 6. Base Spreading Resistance

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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:

1. COLLECTOR
2. BASE
3. EMITTER

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