BC307B

Amplifier Transistors

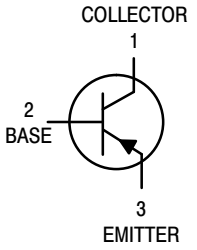
PNP Silicon

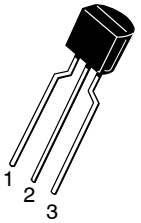
ON Semiconductor®

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Features

- This is a Pb−Free Device*





BENT LEAD
TAPE & REEL
AMMO PACK

TO−92
CASE 29
STYLE 17

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°C Derate above 25°C	P_D	350 2.8	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.0 8.0	W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

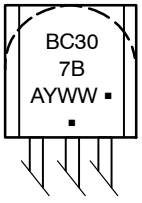
THERMAL CHARACTERISTICS

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

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
BC307BRL1G	TO−92 (Pb−Free)	2000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector – Emitter Breakdown Voltage (I_C = –2.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	–45	–	–	Vdc
Emitter – Base Breakdown Voltage (I_E = –100 μAdc, I_C = 0)	$V_{(BR)EBO}$	–5.0	–	–	Vdc
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	nAdc μA
ON CHARACTERISTICS					
DC Current Gain (I_C = –10 μAdc, V_{CE} = –5.0 Vdc) (I_C = –2.0 mAdc, V_{CE} = –5.0 Vdc) (I_C = –100 mAdc, V_{CE} = –5.0 Vdc)	h_{FE}	 – 200 –	 150 290 180	 – 460 –	–
Collector – Emitter Saturation Voltage (I_C = –10 mAdc, I_B = –0.5 mAdc) (I_C = –10 mAdc, I_B = see Note 1) (I_C = –100 mAdc, I_B = –5.0 mAdc)	$V_{CE(sat)}$	 – – –	 –0.10 –0.30 –0.25	 –0.3 –0.6 –	Vdc
Base – Emitter Saturation Voltage (I_C = –10 mAdc, I_B = –0.5 mAdc) (I_C = –100 mAdc, I_B = –5.0 mAdc)	$V_{BE(sat)}$	 – –	 –0.7 –1.0	 – –	Vdc
Base–Emitter On Voltage (I_C = –2.0 mAdc, V_{CE} = –5.0 Vdc)	$V_{BE(on)}$	–0.55	–0.62	–0.7	Vdc
DYNAMIC CHARACTERISTICS					
Current – Gain – Bandwidth Product (I_C = –10 mAdc, V_{CE} = –5.0 Vdc, f = 100 MHz)	f_T	–	280	–	MHz
Common Base Capacitance (V_{CB} = –10 Vdc, I_C = 0, f = 1.0 MHz)	C_{cbo}	–	–	6.0	pF
Noise Figure (I_C = –0.2 mAdc, V_{CE} = –5.0 Vdc, R_S = 2.0 kΩ, f = 1.0 kHz)	NF	–	2.0	10	dB

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

TYPICAL CHARACTERISTICS

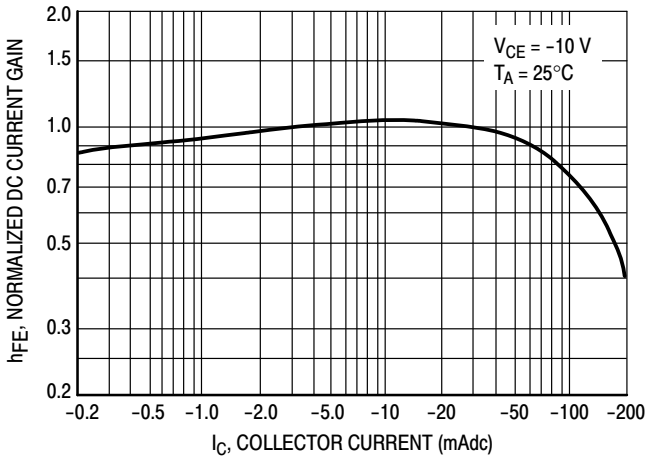


Figure 1. Normalized DC Current Gain

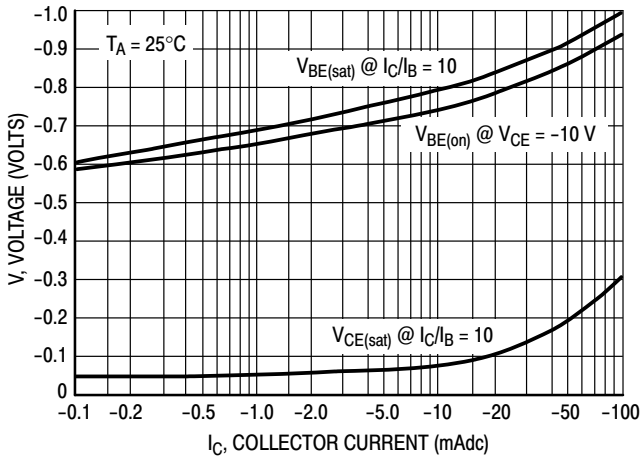


Figure 2. "Saturation" and "On" Voltages

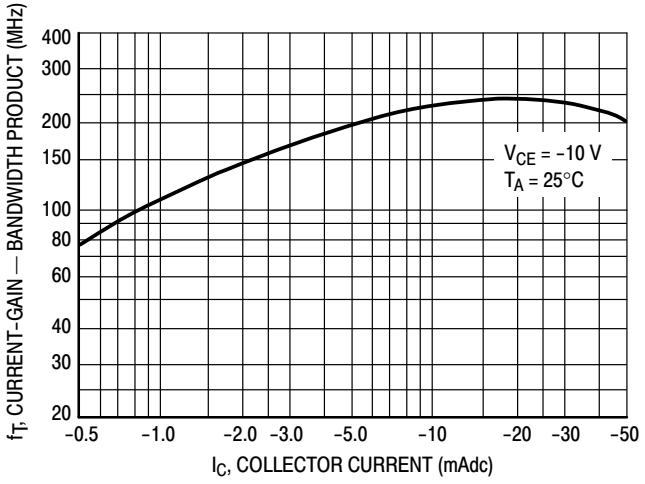


Figure 3. Current−Gain — Bandwidth Product

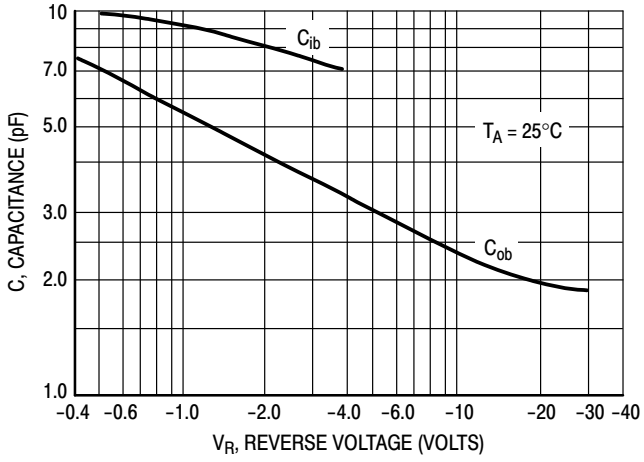


Figure 4. Capacitances

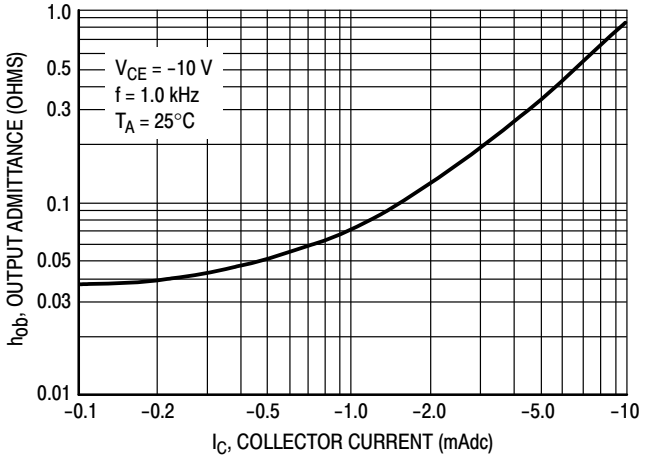


Figure 5. Output Admittance

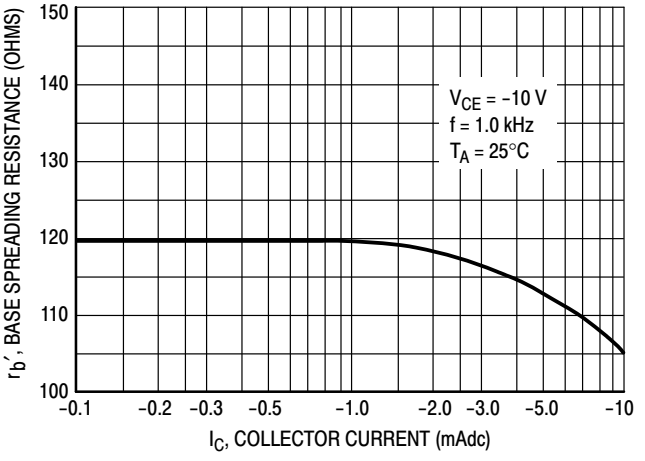
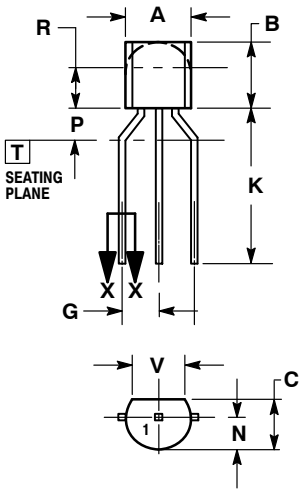
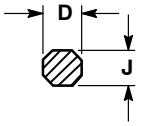


Figure 6. Base Spreading Resistance

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 29−11
ISSUE AM





SECTION X−X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	MILLIMETERS	
DIM	MIN	MAX
A	4.45	5.20
B	4.32	5.33
C	3.18	4.19
D	0.40	0.54
G	2.40	2.80
J	0.39	0.50
K	12.70	---
N	2.04	2.66
P	1.50	4.00
R	2.93	---
V	3.43	---

STYLE 17:
PIN 1. COLLECTOR
2. BASE
3. EMITTER

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