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BC307B, BC307C

Amplifier Transistors

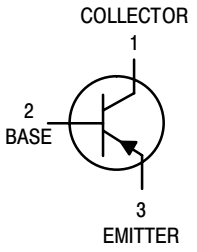
PNP Silicon

ON Semiconductor®

http://onsemi.com

Features

- Pb−Free Packages are Available*



MAXIMUM RATINGS

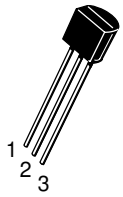
Rating	Symbol	Value	Unit
Collector – Emitter Voltage	V_{CEO}	−45	Vdc
Collector – Base Voltage	V_{CBO}	−50	Vdc
Emitter – Base Voltage	V_{EBO}	−5.0	Vdc
Collector Current – Continuous	I_C	−100	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	 350 2.8	 mW mW/°C
Total Device Dissipation @ 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

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

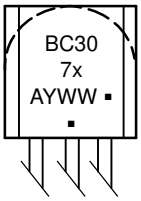
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	357	°C/W
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	125	°C/W

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



TO−92
CASE 29
STYLE 17

MARKING DIAGRAM



BC307x = Device Code
x = B or C
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
BC307B	TO−92	5000 Units / Box
BC307BG	TO−92 (Pb−Free)	5000 Units / Box
BC307BRL1	TO−92	2000 / Tape & Reel
BC307BRL1G	TO−92 (Pb−Free)	2000 / Tape & Reel
BC307BZL1	TO−92	2000 / Ammo Box
BC307BZL1G	TO−92 (Pb−Free)	2000 / Ammo Box
BC307C	TO−92	5000 Units / Box
BC307CG	TO−92 (Pb−Free)	5000 Units / Box

†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.

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		I_{CES}				
(V_{CES} = –50 V, V_{BE} = 0)			–	–0.2	–15	nAdc
(V_{CES} = –50 V, V_{BE} = 0) T_A = 125°C			–	–0.2	–4.0	μA
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				–
(I_C = –10 μAdc, V_{CE} = –5.0 Vdc)	BC307B		–	150	–	
	BC307C		–	270	–	
(I_C = –2.0 mAdc, V_{CE} = –5.0 Vdc)	BC307		120	–	800	
	BC307B		200	290	460	
	BC307C		420	500	800	
(I_C = –100 mAdc, V_{CE} = –5.0 Vdc)	BC307B		–	180	–	
	BC307C		–	300	–	
Collector – Emitter Saturation Voltage		$V_{CE(sat)}$				Vdc
(I_C = –10 mAdc, I_B = –0.5 mAdc)			–	–0.10	–0.3	
(I_C = –10 mAdc, I_B = see Note 1)			–	–0.30	–0.6	
(I_C = –100 mAdc, I_B = –5.0 mAdc)			–	–0.25	–	
Base – Emitter Saturation Voltage		$V_{BE(sat)}$				Vdc
(I_C = –10 mAdc, I_B = –0.5 mAdc)			–	–0.7	–	
(I_C = –100 mAdc, I_B = –5.0 mAdc)			–	–1.0	–	
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

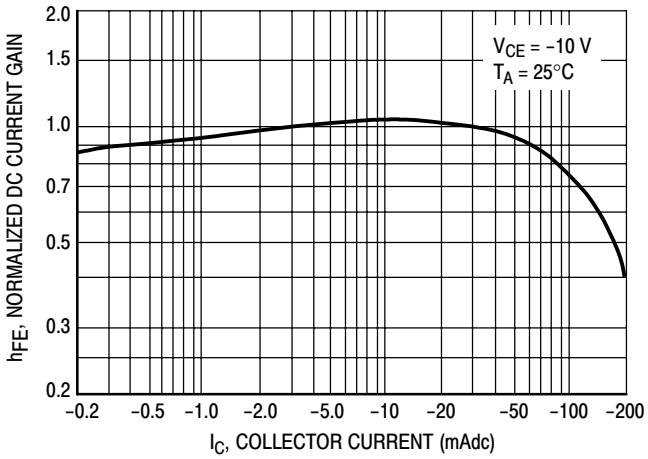


Figure 1. Normalized DC Current Gain

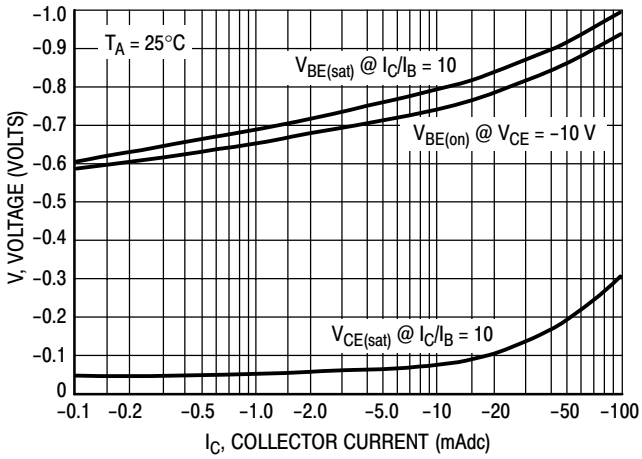


Figure 2. "Saturation" and "On" Voltages

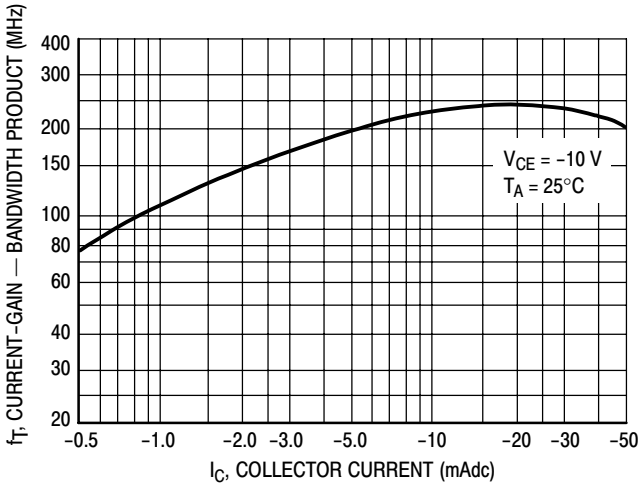


Figure 3. Current−Gain — Bandwidth Product

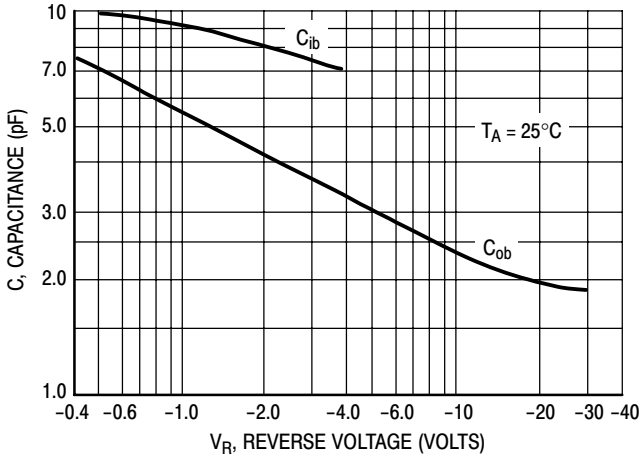


Figure 4. Capacitances

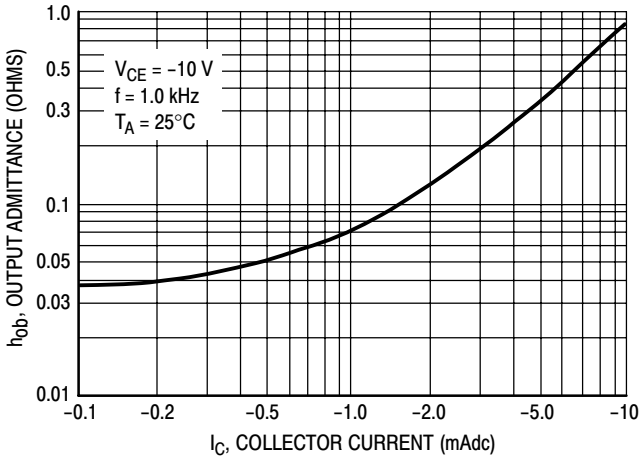


Figure 5. Output Admittance

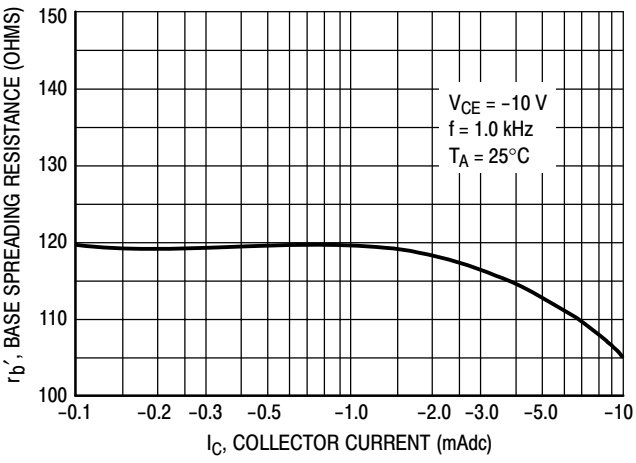
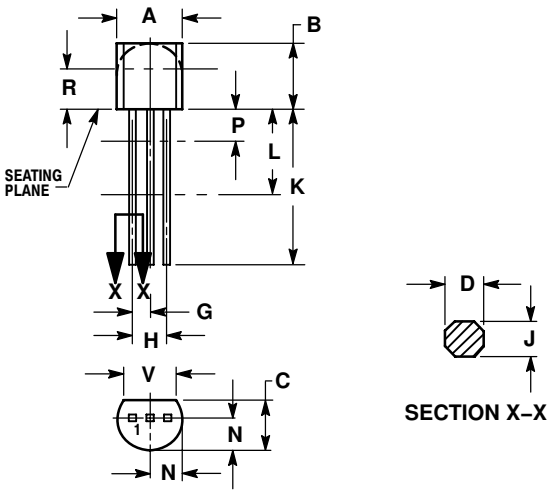


Figure 6. Base Spreading Resistance

PACKAGE DIMENSIONS

TO–92
(TO–226)
CASE 29–11
ISSUE 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.

	INCHES		MILLIMETERS	
DIM	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
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

PUBLICATION ORDERING INFORMATION

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