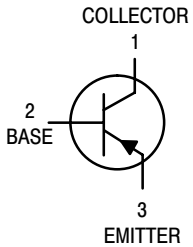
BC307B, BC307C

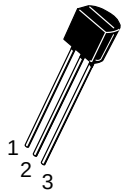
Amplifier Transistors

PNP Silicon

ON Semiconductor

http://onsemi.com





CASE 29
TO–92
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	 Watts 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

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

November, 2001 – Rev. 2
Publication Order Number:
BC307/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

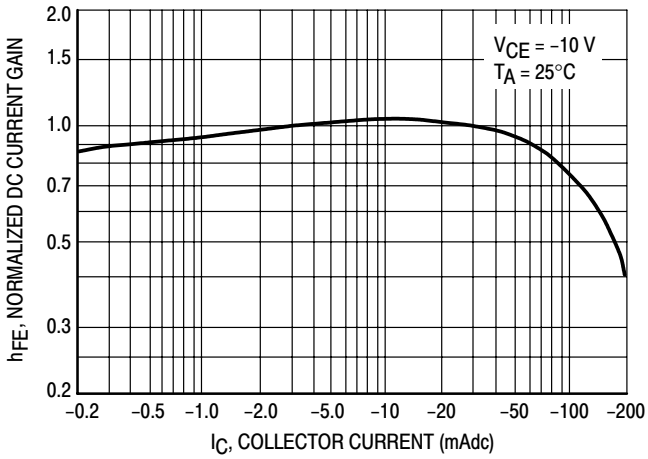


Figure 1. Normalized DC Current Gain

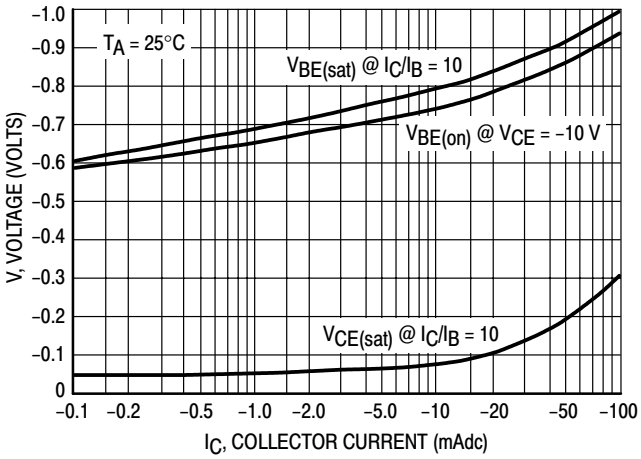


Figure 2. “Saturation” and “On” Voltages

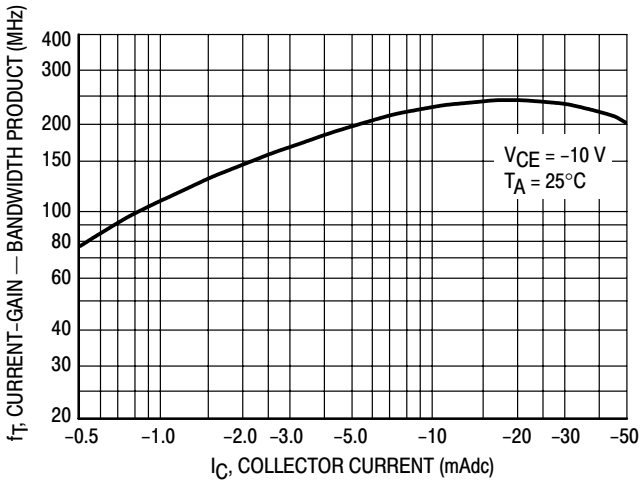


Figure 3. Current−Gain — Bandwidth Product

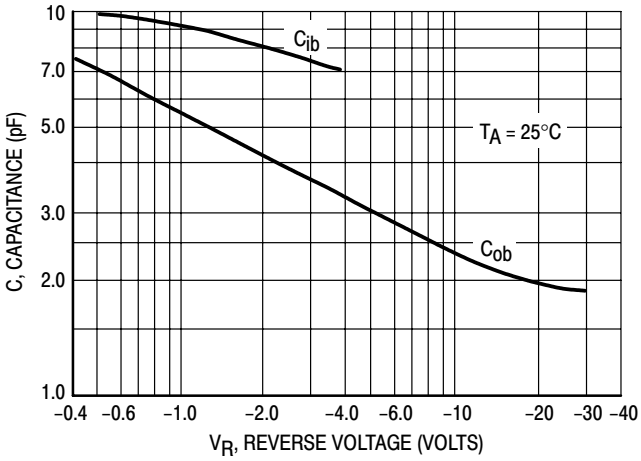


Figure 4. Capacitances

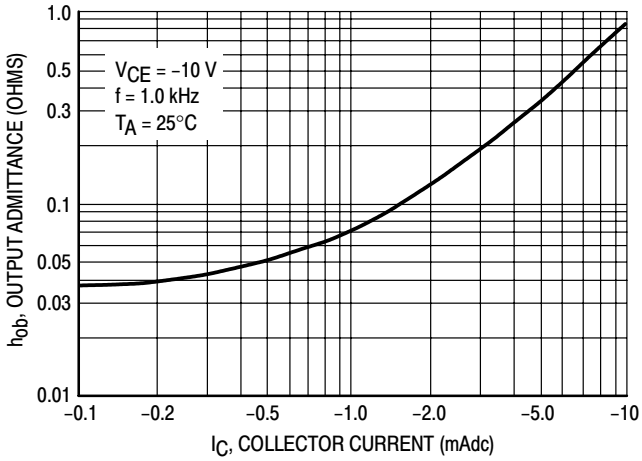


Figure 5. Output Admittance

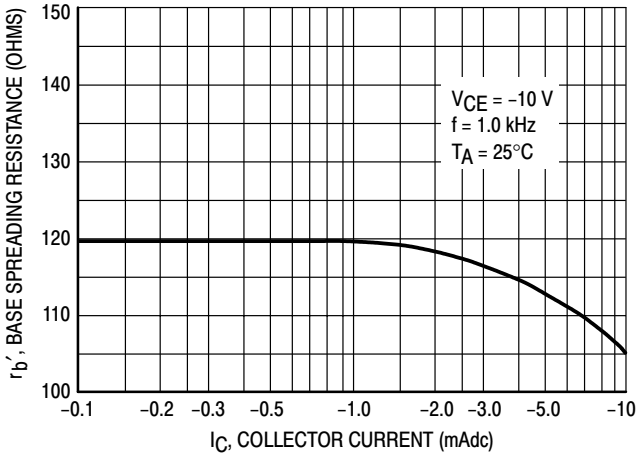
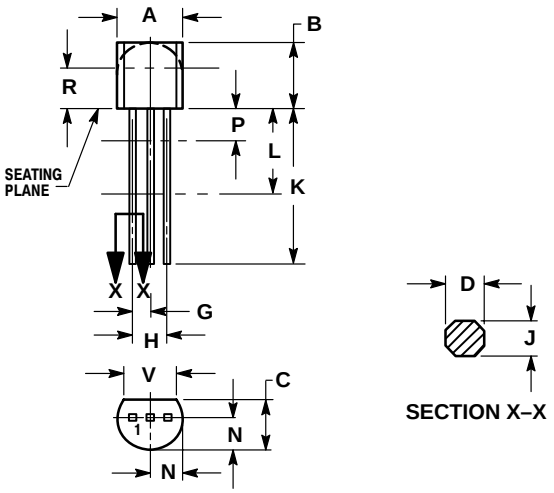


Figure 6. Base Spreading Resistance

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

Literature Fulfillment:
Literature Distribution Center for ON Semiconductor
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