BC212B

Amplifier Transistors

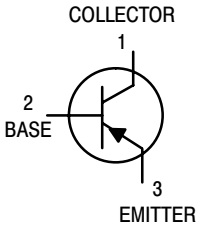
PNP Silicon

ON Semiconductor®

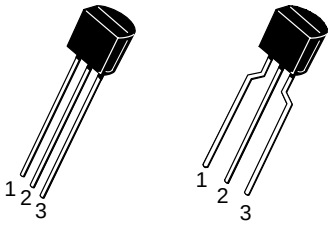
http://onsemi.com

Features

- These are Pb−Free Devices*



TO−92
CASE 29
STYLE 17



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	−50	Vdc
Collector-Base Voltage	V_{CBO}	−60	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

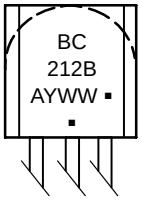
THERMAL CHARACTERISTICS

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†
BC212BG	TO−92 (Pb−Free)	5000 Units / Bulk
BC212BRL1G	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
Collector−Emitter Breakdown Voltage	$V_{(BR)CEO}$	−50	−	−	Vdc
Collector−Base Breakdown Voltage	$V_{(BR)CBO}$	−60	−	−	Vdc
Emitter−Base Breakdown Voltage	$V_{(BR)EBO}$	−5	−	−	Vdc
Collector−Emitter Leakage Current	I_{CBO}	−	−	−15	nAdc
Emitter−Base Leakage Current	I_{EBO}	−	−	−15	nAdc
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) (Note 1)	h_{FE}	 40 60 −	 − − 120	 − − −	−
Collector−Emitter Saturation Voltage (I_C = −10 mAdc, I_B = −0.5 mAdc) (I_C = −100 mAdc, I_B = −5.0 mAdc) (Note 1)	$V_{CE(sat)}$	 − −	 −0.10 −0.25	 − −0.6	Vdc
Base−Emitter Saturation Voltage (I_C = −100 mAdc, I_B = −5.0 mAdc)	$V_{BE(sat)}$	−	−1.0	−1.4	Vdc
Base−Emitter On Voltage (I_C = −2.0 mAdc, V_{CE} = −5.0 Vdc)	$V_{BE(on)}$	−0.6	−0.62	−0.72	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 Output Capacitance (V_{CB} = −10 Vdc, I_C = 0, f = 1.0 mHz)	C_{ob}	−	−	6.0	pF
Noise Figure (I_C = −0.2 mAdc, V_{CE} = −5.0 Vdc, R_S = 2.0 kΩ, f = 1.0 kHz, f = 200 Hz)	NF	−	−	10	dB
Small−Signal Current Gain (I_C = −2.0 mAdc, V_{CE} = −5.0 Vdc, f = 1.0 kHz)	h_{fe}	200	−	400	−

1. Pulse Test: Tp 300 s, Duty Cycle 2.0%.

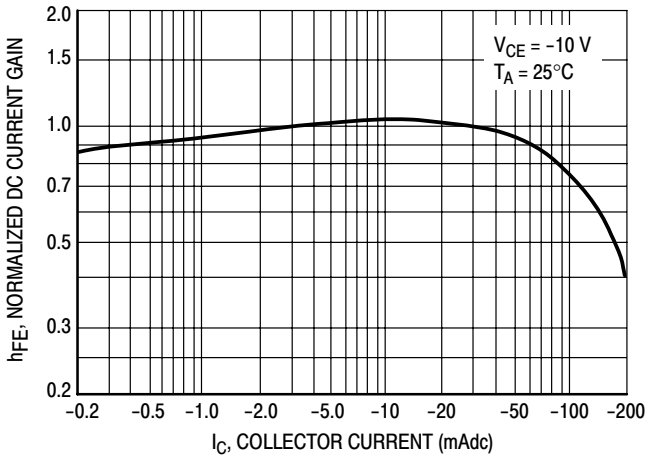


Figure 1. Normalized DC Current Gain

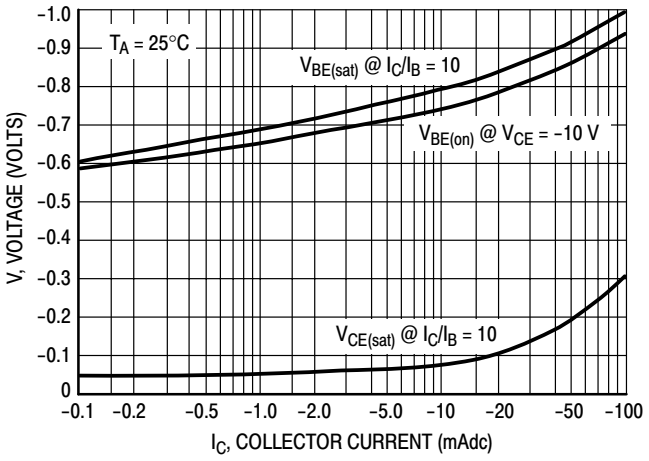


Figure 2. “Saturation” and “On” Voltages

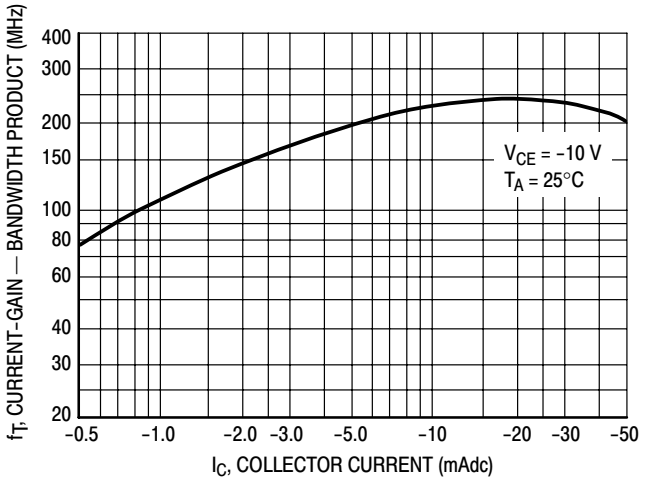


Figure 3. Current−Gain − Bandwidth Product

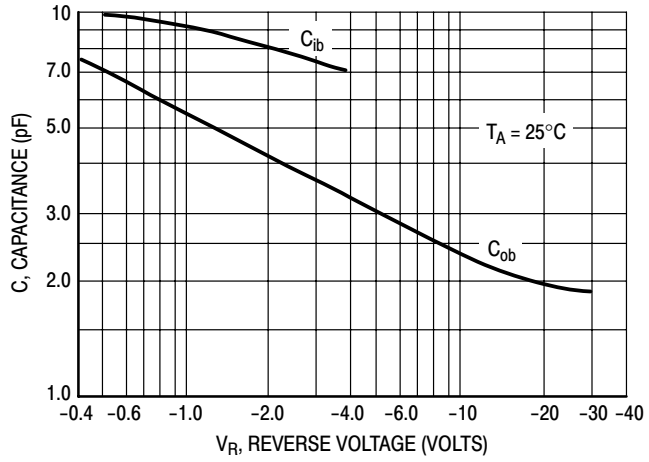


Figure 4. Capacitances

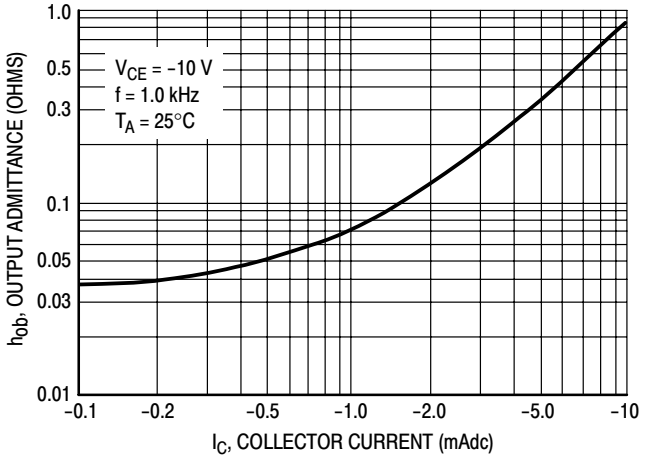


Figure 5. Output Admittance

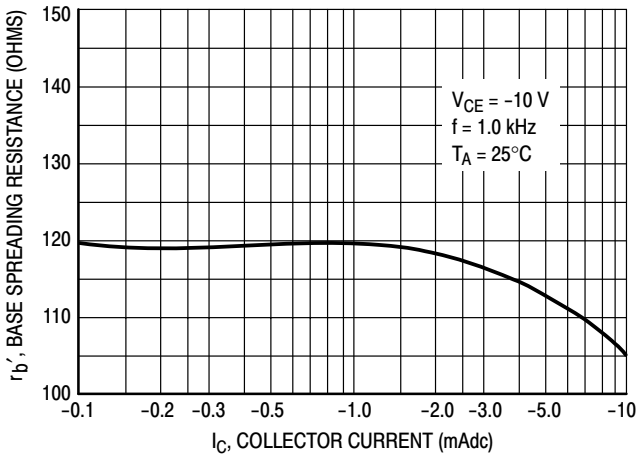
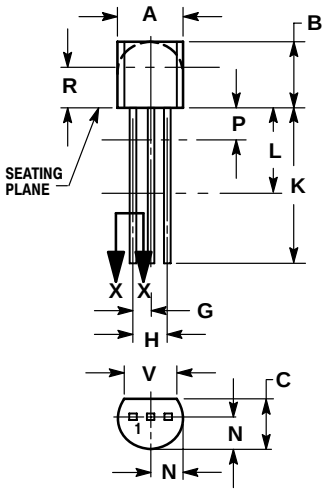


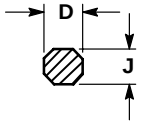
Figure 6. Base Spreading Resistance

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 29−11
ISSUE AM



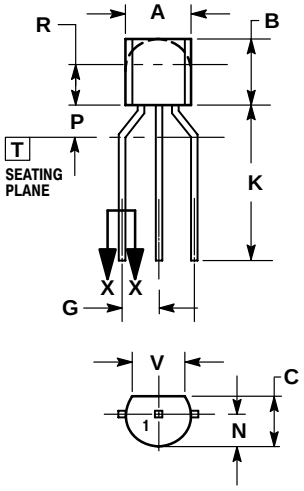
STRAIGHT LEAD
BULK PACK



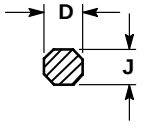
SECTION X−X

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	---



BENT LEAD
TAPE & REEL
AMMO PACK



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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