

# BC212B

## Amplifier Transistors

### PNP Silicon

#### Features

- These are Pb-Free Devices\*

#### 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	mA <sub>dc</sub>
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	350 2.8	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.0 8.0	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

#### THERMAL CHARACTERISTICS

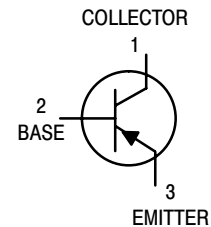
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	125	$^\circ\text{C}/\text{W}$

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.

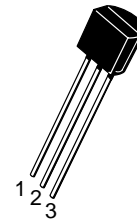


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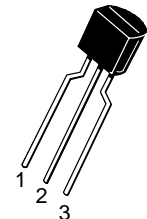
<http://onsemi.com>



TO-92  
CASE 29  
STYLE 17

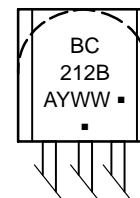


STRAIGHT LEAD  
BULK PACK



BENT LEAD  
TAPE & REEL  
AMMO PACK

#### 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.

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

# BC212B

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	-50	-	-	Vdc
Collector–Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-60	-	-	Vdc
Emitter–Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-5	-	-	Vdc
Collector–Emitter Leakage Current	I <sub>CBO</sub>	-	-	-15	nAdc
Emitter–Base Leakage Current	I <sub>EBO</sub>	-	-	-15	nAdc

## ON CHARACTERISTICS

DC Current Gain (I <sub>C</sub> = -10 μAdc, V <sub>CE</sub> = -5.0 Vdc)  (I <sub>C</sub> = -2.0 mAdc, V <sub>CE</sub> = -5.0 Vdc)  (I <sub>C</sub> = -100 mAdc, V <sub>CE</sub> = -5.0 Vdc) (Note 1)	h <sub>FE</sub>	40 60 -	- - 120	- - -	-
Collector–Emitter Saturation Voltage (I <sub>C</sub> = -10 mAdc, I <sub>B</sub> = -0.5 mAdc) (I <sub>C</sub> = -100 mAdc, I <sub>B</sub> = -5.0 mAdc) (Note 1)	V <sub>CE(sat)</sub>	- -	-0.10 -0.25	- -0.6	Vdc
Base–Emitter Saturation Voltage (I <sub>C</sub> = -100 mAdc, I <sub>B</sub> = -5.0 mAdc)	V <sub>BE(sat)</sub>	-	-1.0	-1.4	Vdc
Base–Emitter On Voltage (I <sub>C</sub> = -2.0 mAdc, V <sub>CE</sub> = -5.0 Vdc)	V <sub>BE(on)</sub>	-0.6	-0.62	-0.72	Vdc

## DYNAMIC CHARACTERISTICS

Current–Gain – Bandwidth Product (I <sub>C</sub> = -10 mAdc, V <sub>CE</sub> = -5.0 Vdc, f = 100 mHz)	f <sub>T</sub>	-	280	-	MHz
Common–Base Output Capacitance (V <sub>CB</sub> = -10 Vdc, I <sub>C</sub> = 0, f = 1.0 mHz)	C <sub>ob</sub>	-	-	6.0	pF
Noise Figure (I <sub>C</sub> = -0.2 mAdc, V <sub>CE</sub> = -5.0 Vdc, R <sub>S</sub> = 2.0 kΩ, f = 1.0 kHz, f = 200 Hz)	NF	-	-	10	dB
Small–Signal Current Gain (I <sub>C</sub> = -2.0 mAdc, V <sub>CE</sub> = -5.0 Vdc, f = 1.0 kHz)	h <sub>fe</sub>	200	-	400	-

1. Pulse Test: T<sub>p</sub> 300 s, Duty Cycle 2.0%.

# BC212B

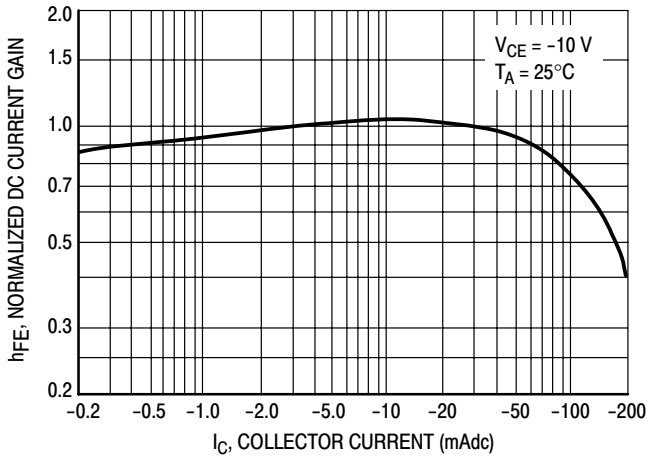


Figure 1. Normalized DC Current Gain

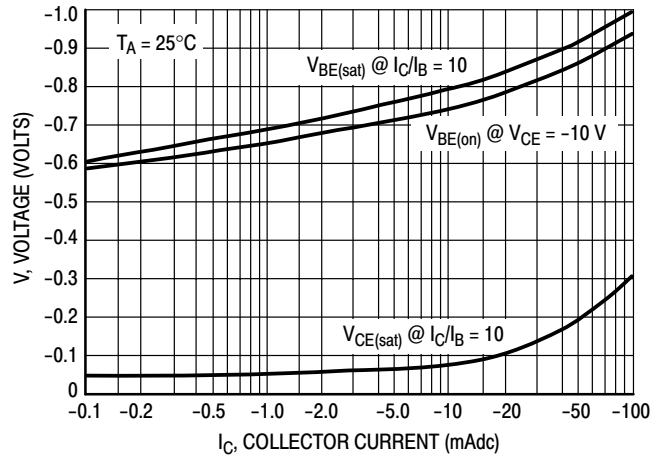


Figure 2. "Saturation" and "On" Voltages

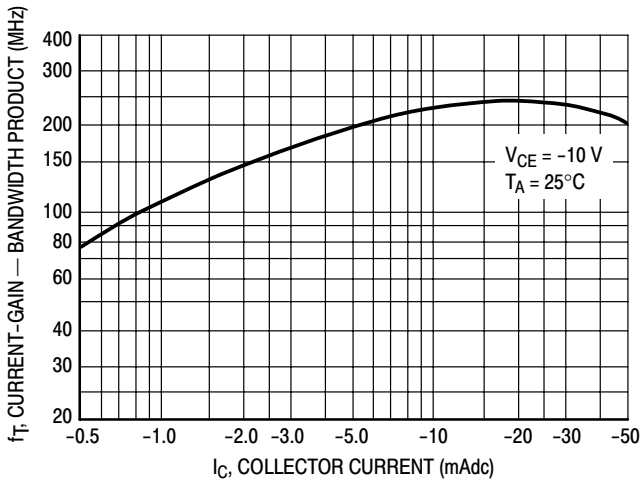


Figure 3. Current-Gain - Bandwidth Product

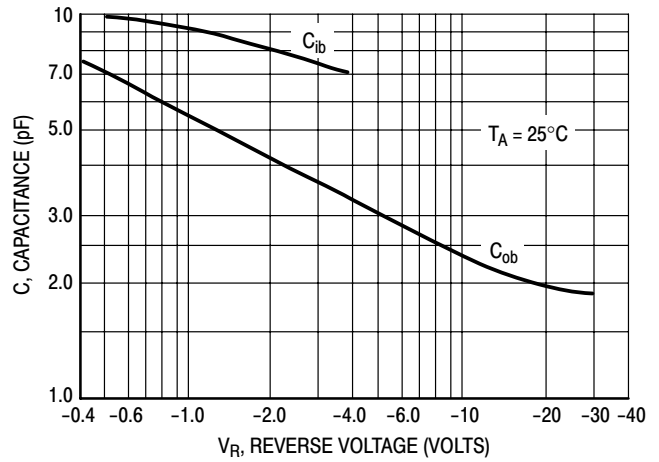


Figure 4. Capacitances

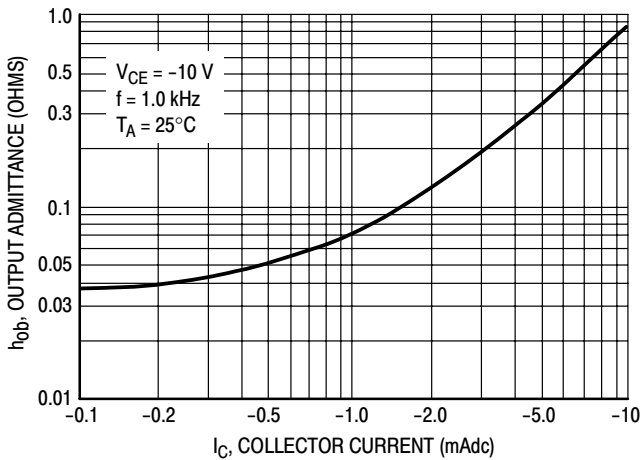


Figure 5. Output Admittance

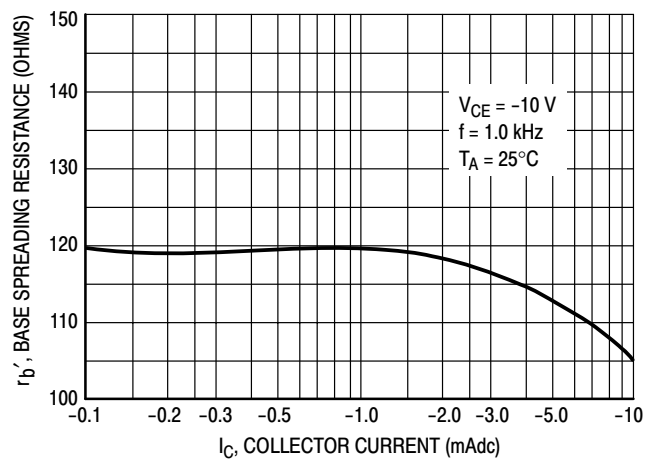
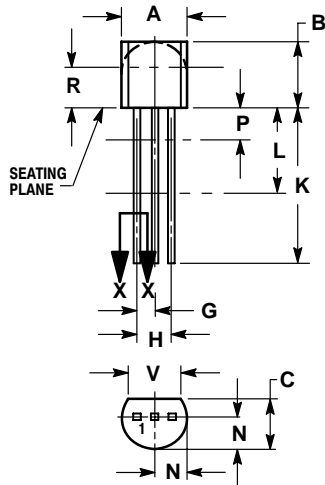


Figure 6. Base Spreading Resistance

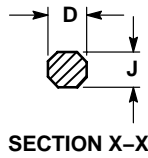
# BC212B

## PACKAGE DIMENSIONS

TO-92 (TO-226)  
CASE 29-11  
ISSUE AM



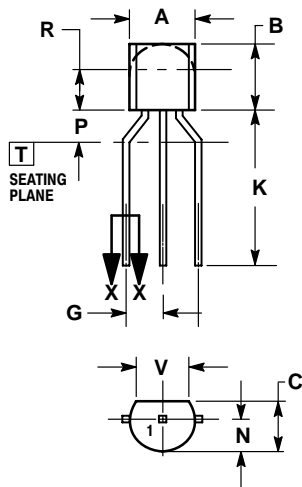
STRAIGHT LEAD  
BULK PACK



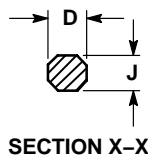
NOTES:

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
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



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.

DIM	MILLIMETERS	
	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:

1. COLLECTOR
2. BASE
3. EMITTER

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