

# BC182, BC182B

## Amplifier Transistors

### NPN 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	$V_{EBO}$	6.0	Vdc
Collector Current – Continuous	$I_C$	100	mAdc
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	$^\circ\text{C}/\text{W}$

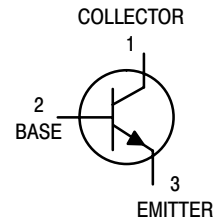
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

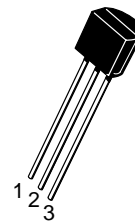


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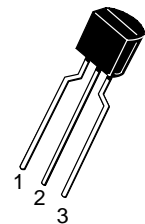
<http://onsemi.com>



TO-92  
CASE 29  
STYLE 17

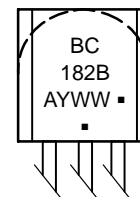


STRAIGHT LEAD  
BULK PACK



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†
BC182G	TO-92 (Pb-Free)	5000 Units / Bulk
BC182BG	TO-92 (Pb-Free)	5000 Units / Bulk
BC182BRL1G	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.

# BC182, BC182B

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector–Emitter Breakdown Voltage (I <sub>C</sub> = 2.0 mA, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	50	–	–	V
Collector–Base Breakdown Voltage (I <sub>C</sub> = 10 μA, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	60	–	–	V
Emitter–Base Breakdown Voltage (I <sub>E</sub> = 100 μA, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	6.0	–	–	V
Collector Cutoff Current (V <sub>CB</sub> = 50 V, V <sub>BE</sub> = 0)	I <sub>CBO</sub>	–	0.2	15	nA
Emitter–Base Leakage Current (V <sub>EB</sub> = 4.0 V, I <sub>C</sub> = 0)	I <sub>EBO</sub>	–	–	15	nA

## ON CHARACTERISTICS

DC Current Gain (I <sub>C</sub> = 10 μA, V <sub>CE</sub> = 5.0 V)	BC182	h <sub>FE</sub>	40	–	–	–
(I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V)	BC182		120	–	500	
(I <sub>C</sub> = 100 mA, V <sub>CE</sub> = 5.0 V)	BC182B		180	–	500	
	BC182		80	–	–	
Collector–Emitter On Voltage (I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA)		V <sub>CE(sat)</sub>	–	0.07	0.25	V
(I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5.0 mA) (Note 1)			–	0.2	0.6	
Base–Emitter Saturation Voltage (I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5.0 mA) (Note 1)		V <sub>BE(sat)</sub>	–	–	1.2	V
Base–Emitter On Voltage (I <sub>C</sub> = 100 μA, V <sub>CE</sub> = 5.0 V)		V <sub>BE(on)</sub>	–	0.5	–	V
(I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V)			0.55	0.62	0.7	
(I <sub>C</sub> = 100 mA, V <sub>CE</sub> = 5.0 V) (Note 1)			–	0.83	–	

## DYNAMIC CHARACTERISTICS

Current–Gain — Bandwidth Product (I <sub>C</sub> = 0.5 mA, V <sub>CE</sub> = 3.0 V, f = 100 MHz)		f <sub>T</sub>	–	100	–	MHz
(I <sub>C</sub> = 10 mA, V <sub>CE</sub> = 5.0 V, f = 100 MHz)			150	200	–	
Common Base Output Capacitance (V <sub>CB</sub> = 10 V, I <sub>C</sub> = 0, f = 1.0 MHz)		C <sub>ob</sub>	–	–	5.0	pF
Common Base Input Capacitance (V <sub>EB</sub> = 0.5 V, I <sub>C</sub> = 0, f = 1.0 MHz)		C <sub>ib</sub>	–	8.0	–	pF
Small–Signal Current Gain (I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V, f = 1.0 kHz)	BC182	h <sub>fe</sub>	125	–	500	–
	BC182B		240	–	500	
Noise Figure (I <sub>C</sub> = 0.2 mA, V <sub>CE</sub> = 5.0 V, R <sub>S</sub> = 2.0 kΩ, f = 1.0 kHz)		NF	–	2.0	10	dB

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

# BC182, BC182B

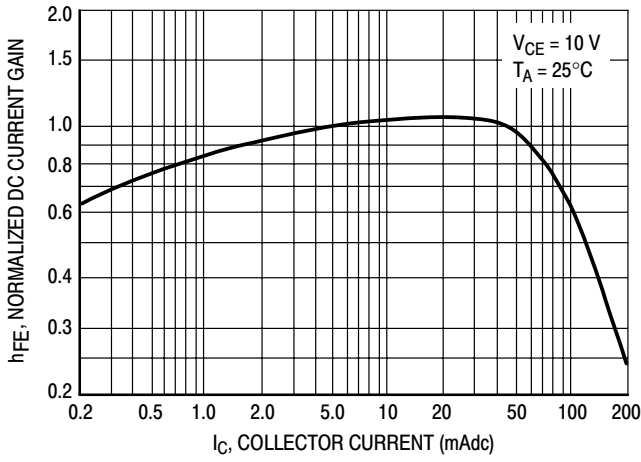


Figure 1. Normalized DC Current Gain

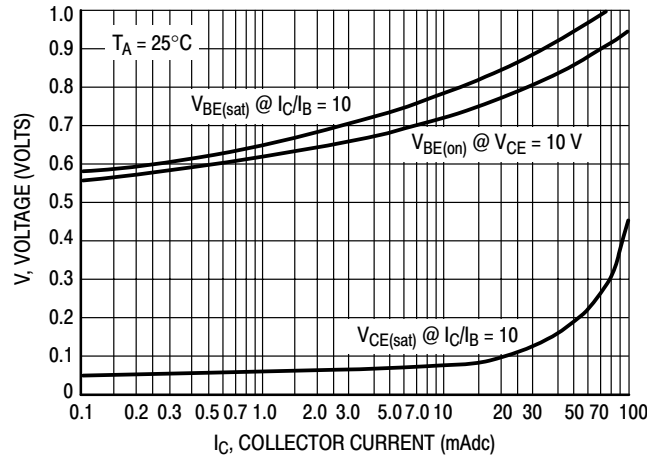


Figure 1. "Saturation" and "On" Voltages

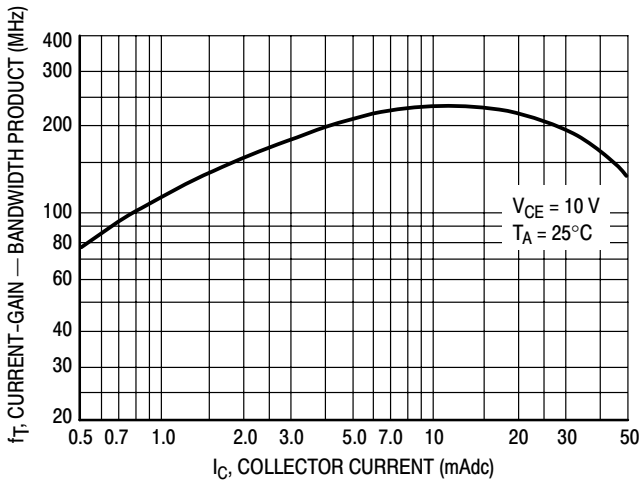


Figure 2. Current-Gain — Bandwidth Product

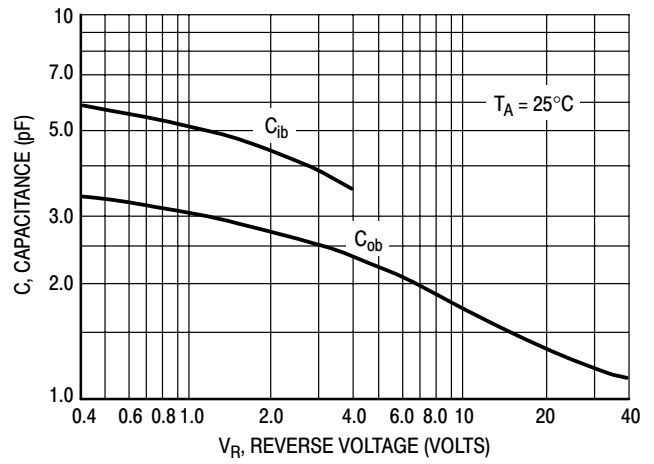


Figure 3. Capacitances

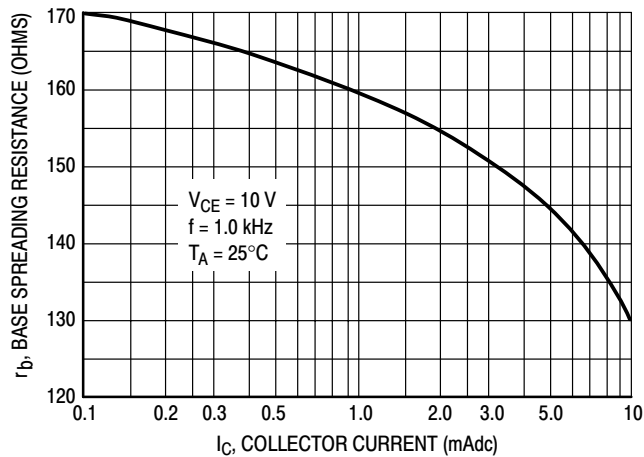
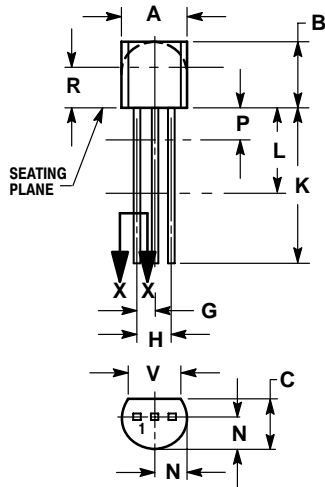


Figure 4. Base Spreading Resistance

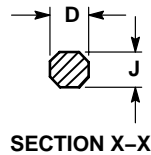
# BC182, BC182B

## PACKAGE DIMENSIONS

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



STRAIGHT LEAD  
BULK PACK

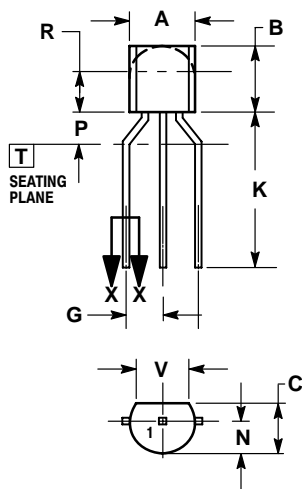


SECTION X-X

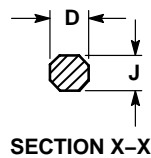
NOTES:

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.

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



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.

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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