

# 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

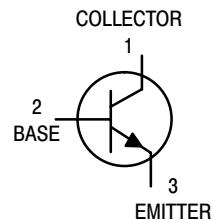
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	125	$^\circ\text{C/W}$

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.

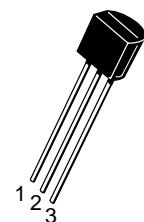


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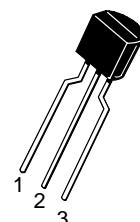
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TO-92  
CASE 29  
STYLE 17

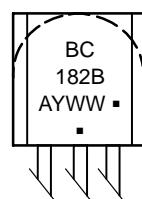


STRAIGHT LEAD  
BULK PACK



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 <sup>†</sup>
BC182G	TO-92 (Pb-Free)	5000 Units / Bulk
BC182BG	TO-92 (Pb-Free)	5000 Units / Bulk
BC182BRL1G	TO-92 (Pb-Free)	2000 / Tape & Reel

<sup>†</sup>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, SOLDERMM/D.

# BC182, BC182B

ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Emitter Breakdown Voltage ( $I_C = 2.0 \text{ mA}$ , $I_B = 0$ )	$V_{(\text{BR})\text{CEO}}$	50	—	—	V
Collector-Base Breakdown Voltage ( $I_C = 10 \mu\text{A}$ , $I_E = 0$ )	$V_{(\text{BR})\text{CBO}}$	60	—	—	V
Emitter-Base Breakdown Voltage ( $I_E = 100 \mu\text{A}$ , $I_C = 0$ )	$V_{(\text{BR})\text{EBO}}$	6.0	—	—	V
Collector Cutoff Current ( $V_{CB} = 50 \text{ V}$ , $V_{BE} = 0$ )	$I_{\text{CBO}}$	—	0.2	15	nA
Emitter-Base Leakage Current ( $V_{EB} = 4.0 \text{ V}$ , $I_C = 0$ )	$I_{\text{EBO}}$	—	—	15	nA
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 10 \mu\text{A}$ , $V_{CE} = 5.0 \text{ V}$ )	BC182 BC182B BC182	$h_{\text{FE}}$	40	—	—
( $I_C = 2.0 \text{ mA}$ , $V_{CE} = 5.0 \text{ V}$ )			120	—	500
( $I_C = 100 \text{ mA}$ , $V_{CE} = 5.0 \text{ V}$ )			180	—	500
			80	—	—
Collector-Emitter On Voltage ( $I_C = 10 \text{ mA}$ , $I_B = 0.5 \text{ mA}$ ) ( $I_C = 100 \text{ mA}$ , $I_B = 5.0 \text{ mA}$ ) (Note 1)	$V_{CE(\text{sat})}$	— —	0.07 0.2	0.25 0.6	V
Base-Emitter Saturation Voltage ( $I_C = 100 \text{ mA}$ , $I_B = 5.0 \text{ mA}$ ) (Note 1)	$V_{BE(\text{sat})}$	—	—	1.2	V
Base-Emitter On Voltage ( $I_C = 100 \mu\text{A}$ , $V_{CE} = 5.0 \text{ V}$ ) ( $I_C = 2.0 \text{ mA}$ , $V_{CE} = 5.0 \text{ V}$ ) ( $I_C = 100 \text{ mA}$ , $V_{CE} = 5.0 \text{ V}$ ) (Note 1)	$V_{BE(\text{on})}$	— 0.55 —	0.5 0.62 0.83	— 0.7 —	V

## DYNAMIC CHARACTERISTICS

Current-Gain — Bandwidth Product ( $I_C = 0.5 \text{ mA}$ , $V_{CE} = 3.0 \text{ V}$ , $f = 100 \text{ MHz}$ ) ( $I_C = 10 \text{ mA}$ , $V_{CE} = 5.0 \text{ V}$ , $f = 100 \text{ MHz}$ )	$f_T$	— 150	100 200	—	MHz
Common Base Output Capacitance ( $V_{CB} = 10 \text{ V}$ , $I_C = 0$ , $f = 1.0 \text{ MHz}$ )	$C_{ob}$	—	—	5.0	pF
Common Base Input Capacitance ( $V_{EB} = 0.5 \text{ V}$ , $I_C = 0$ , $f = 1.0 \text{ MHz}$ )	$C_{ib}$	—	8.0	—	pF
Small-Signal Current Gain ( $I_C = 2.0 \text{ mA}$ , $V_{CE} = 5.0 \text{ V}$ , $f = 1.0 \text{ kHz}$ )	BC182 BC182B	$h_{fe}$	125 240	— —	500 500
Noise Figure ( $I_C = 0.2 \text{ mA}$ , $V_{CE} = 5.0 \text{ V}$ , $R_S = 2.0 \text{ k}\Omega$ , $f = 1.0 \text{ kHz}$ )		NF	—	2.0	10

1. Pulse Test:  $T_p 300 \text{ s}$ , Duty Cycle 2.0%.

## BC182, BC182B

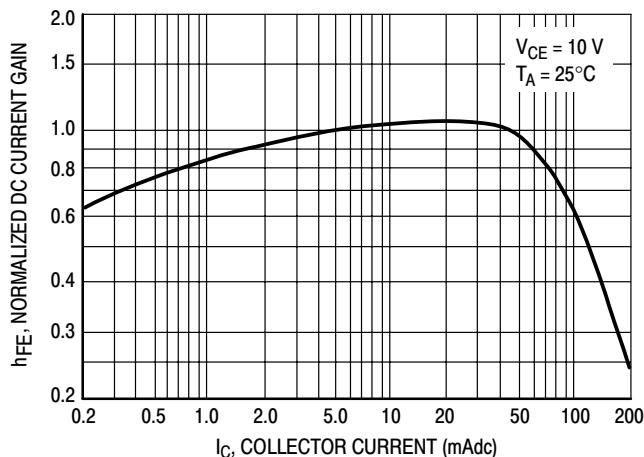


Figure 1. Normalized DC Current Gain

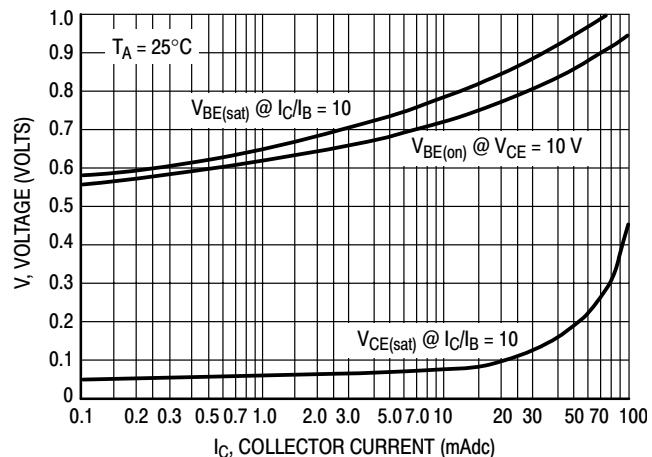


Figure 1. ‘Saturation’ and ‘On’ Voltages

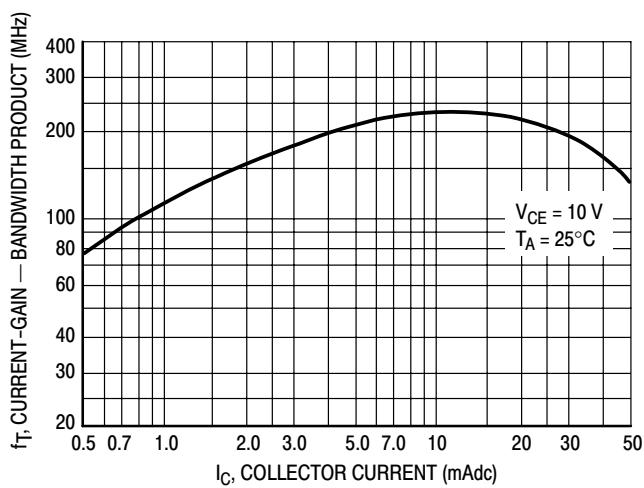


Figure 2. Current-Gain — Bandwidth Product

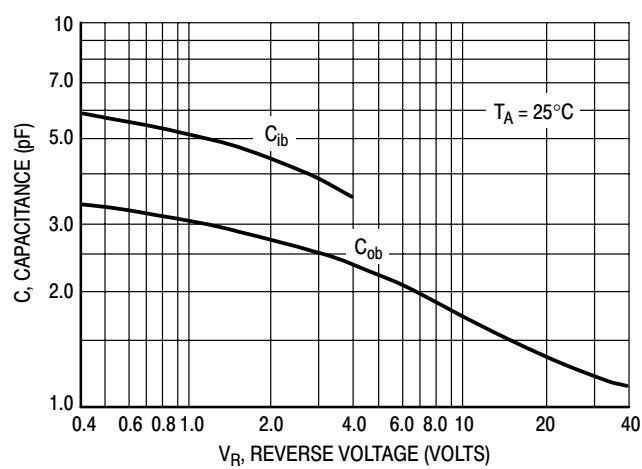


Figure 3. Capacitances

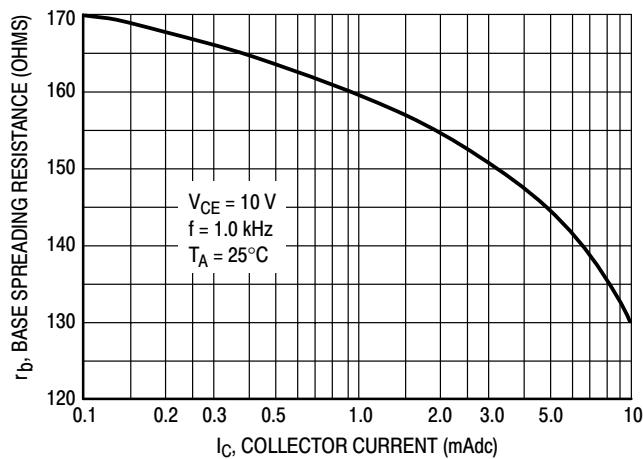
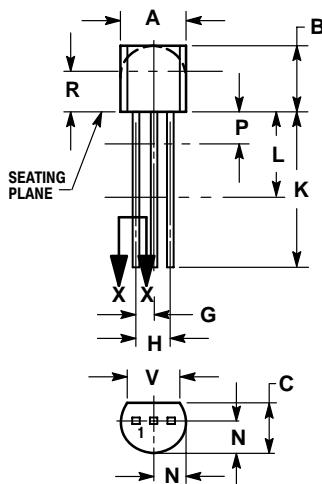


Figure 4. Base Spreading Resistance

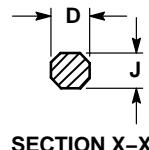
# BC182, BC182B

## PACKAGE DIMENSIONS

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



STRAIGHT LEAD  
BULK PACK

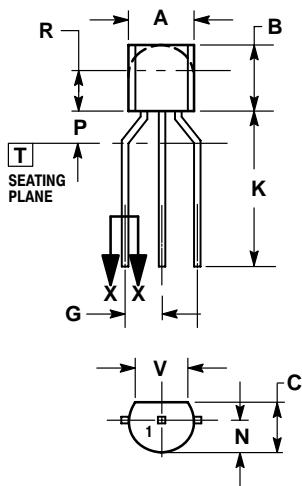


SECTION X-X

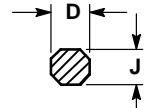
NOTES:

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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