

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	mA dc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	350 2.8	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°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

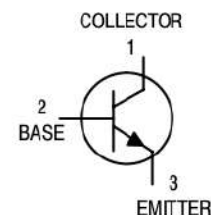
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	125	$^\circ\text{C/W}$

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.

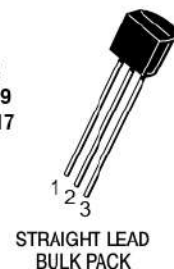


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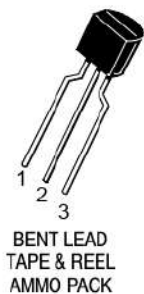
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TO-92
CASE 29
STYLE 17

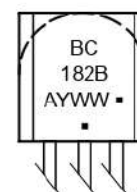


STRAIGHT LEAD
BULK PACK



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

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage ($I_C = 2.0\text{ mA}$, $I_B = 0$)	$V_{(BR)CEO}$	50	–	–	V
Collector-Base Breakdown Voltage ($I_C = 10\text{ }\mu\text{A}$, $I_E = 0$)	$V_{(BR)CBO}$	60	–	–	V
Emitter-Base Breakdown Voltage ($I_E = 100\text{ }\mu\text{A}$, $I_C = 0$)	$V_{(BR)EBO}$	6.0	–	–	V
Collector Cutoff Current ($V_{CB} = 50\text{ V}$, $V_{BE} = 0$)	I_{CBO}	–	0.2	15	nA
Emitter-Base Leakage Current ($V_{EB} = 4.0\text{ V}$, $I_C = 0$)	I_{EBO}	–	–	15	nA
ON CHARACTERISTICS					
DC Current Gain ($I_C = 10\text{ }\mu\text{A}$, $V_{CE} = 5.0\text{ V}$)	h_{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)	$V_{CE(sat)}$	– –	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)	$V_{BE(sat)}$	–	–	1.2	V
Base-Emitter On Voltage ($I_C = 100\text{ }\mu\text{A}$, $V_{CE} = 5.0\text{ V}$) ($I_C = 2.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$) ($I_C = 100\text{ mA}$, $V_{CE} = 5.0\text{ V}$) (Note 1)	$V_{BE(on)}$	– 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 ($I_C = 2.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$, $f = 1.0\text{ kHz}$)	h_{fe}	125	–	500	–
		240	–	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	dB

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

BC182, BC182B

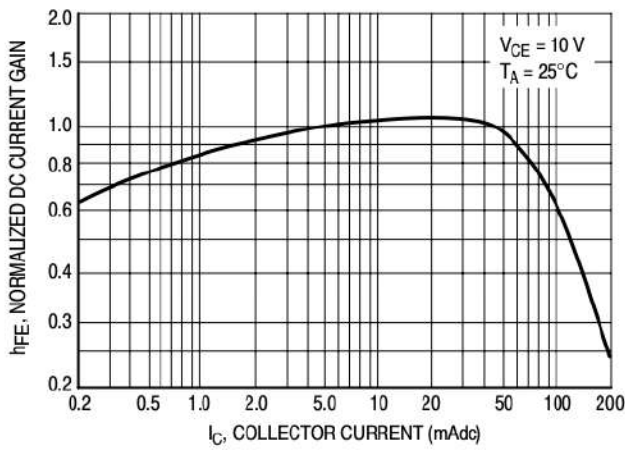


Figure 1. Normalized DC Current Gain

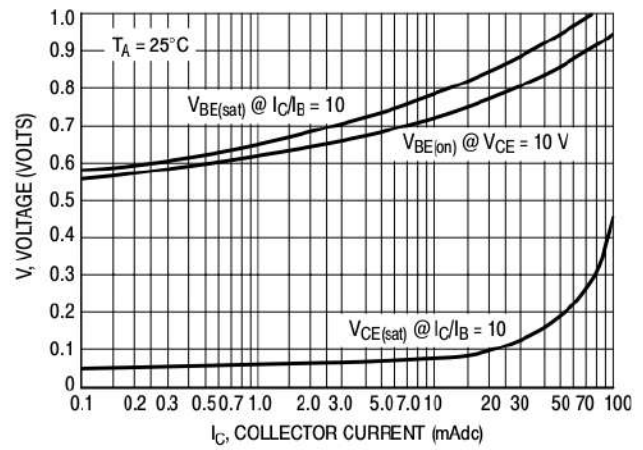


Figure 1. "Saturation" and "On" Voltages

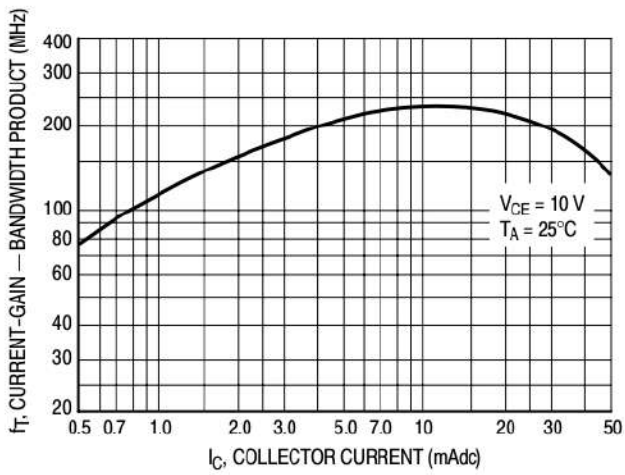


Figure 2. Current-Gain — Bandwidth Product

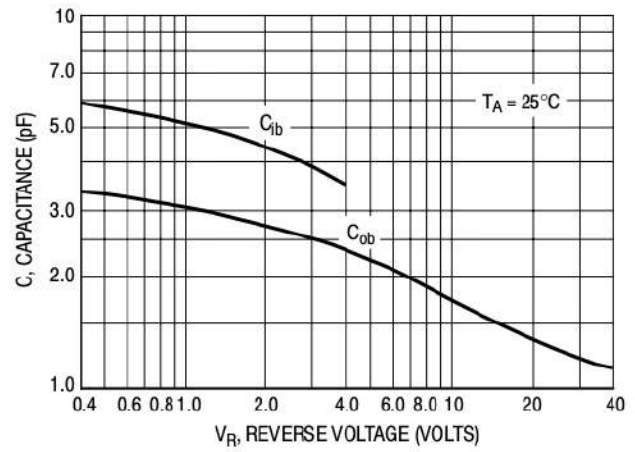


Figure 3. Capacitances

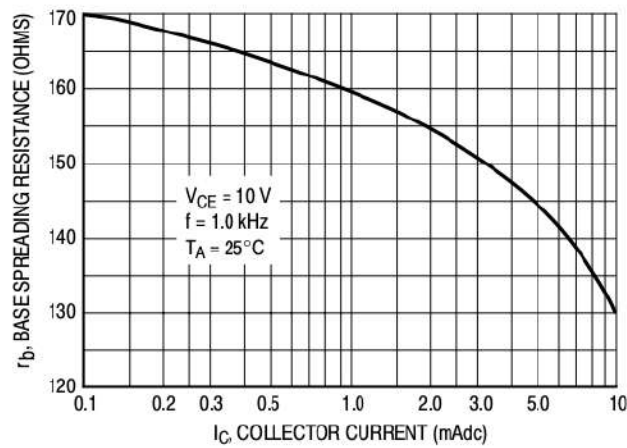
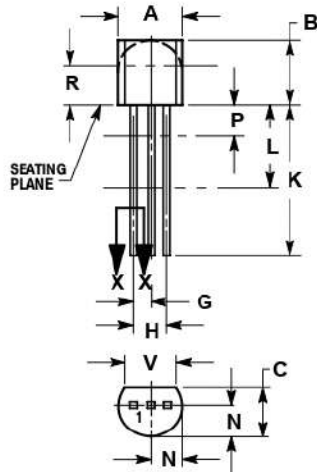


Figure 4. Base Spreading Resistance

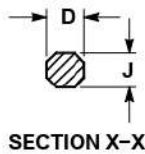
BC182, BC182B

PACKAGE DIMENSIONS

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



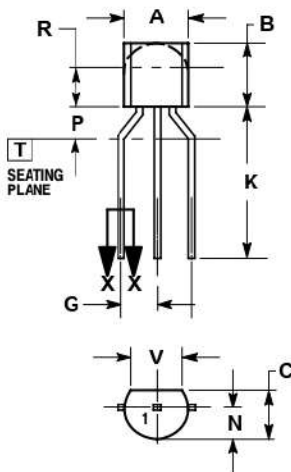
STRAIGHT LEAD
BULK PACK



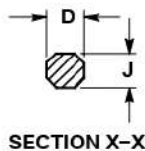
NOTES:

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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