



THE DATASHEET OF
BD180



Plastic Medium-Power Silicon PNP Transistor

BD180G

This device is designed for use in 5.0 to 10 Watt audio amplifiers and drivers utilizing complementary or quasi complementary circuits.

Features

- High DC Current Gain
- BD180 is complementary with BD179
- These Devices are Pb-Free and are RoHS Compliant*

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Collector-Base Voltage	V_{CBO}	80	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current	I_C	1.0	Adc
Base Current	I_B	2.0	Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	30 240	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

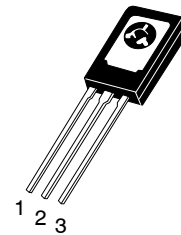
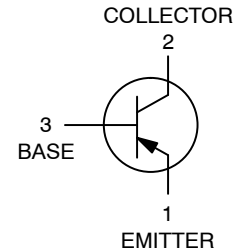
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	4.16	$^\circ\text{C/W}$

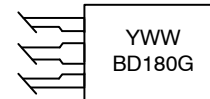
*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

3.0 AMPERES POWER TRANSISTORS PNP SILICON 80 VOLTS, 30 WATTS



TO-225
CASE 77
STYLE 1

MARKING DIAGRAM



Y = Year
 WW = Work Week
 BD180 = Device Code
 G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping
BD180G	TO-225 (Pb-Free)	500 Units/Box

BD180G

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

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Sustaining Voltage (Note 1) ($I_C = 0.1\text{ Adc}$, $I_B = 0$)	$V_{(BR)CEO}$	80	-	Vdc
Collector Cutoff Current ($V_{CB} = 80\text{ Vdc}$, $I_E = 0$)	I_{CBO}	-	1.0	mAdc
Emitter Cutoff Current ($V_{BE} = 5.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}	-	1.0	mAdc
DC Current Gain ($I_C = 0.15\text{ A}$, $V_{CE} = 2.0\text{ V}$) ($I_C = 1.0\text{ A}$, $V_{CE} = 2.0\text{ V}$)	h_{FE}	40 15	250 -	-
Collector-Emitter Saturation Voltage (Note 1) ($I_C = 1.0\text{ Adc}$, $I_B = 0.1\text{ Adc}$)	$V_{CE(sat)}$	-	0.8	Vdc
Base-Emitter On Voltage (Note 1) ($I_C = 1.0\text{ Adc}$, $V_{CE} = 2.0\text{ Vdc}$)	$V_{BE(on)}$	-	1.3	Vdc
Current-Gain - Bandwidth Product ($I_C = 250\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 1.0\text{ MHz}$)	f_T	3.0	-	MHz

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

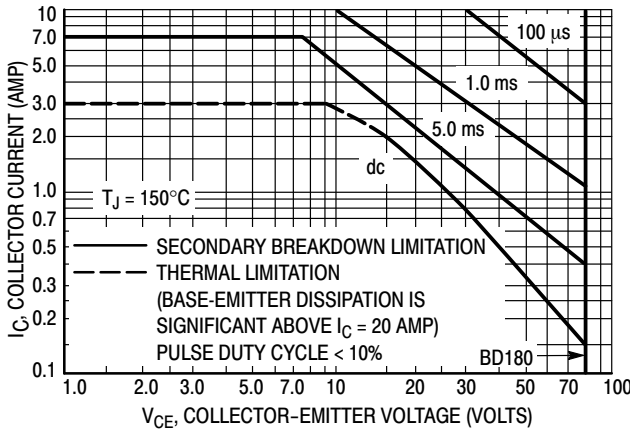


Figure 1. Active Region Safe Operating Area

The Safe Operating Area Curves indicate $I_C - V_{CE}$ limits below which the device will not enter secondary breakdown. Collector load lines for specific circuits must fall within the applicable Safe Area to avoid causing a catastrophic failure. To insure operation below the maximum T_J , power-temperature derating must be observed for both steady state and pulse power conditions.

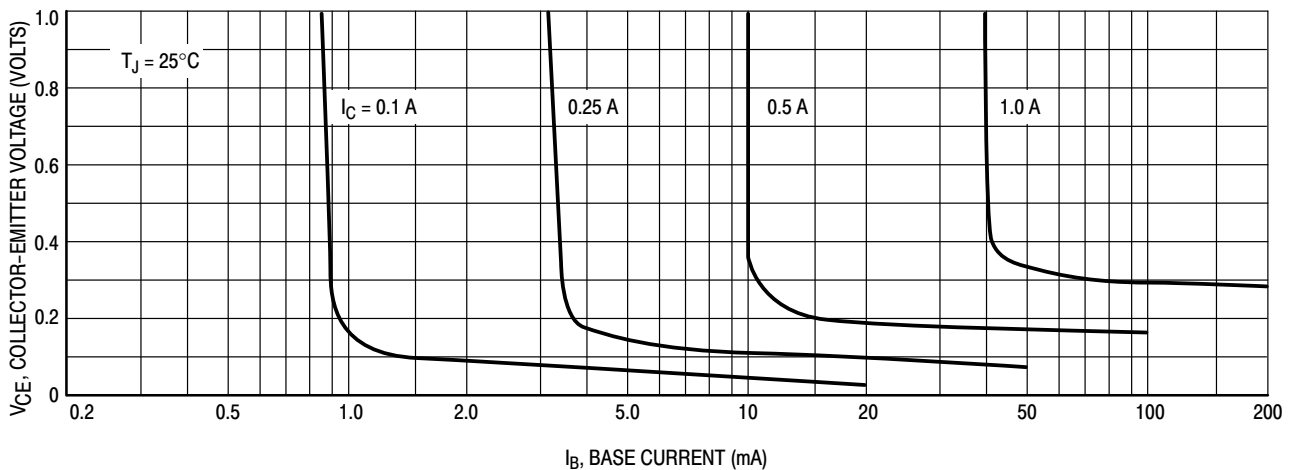


Figure 2. Collector Saturation Region

BD180G

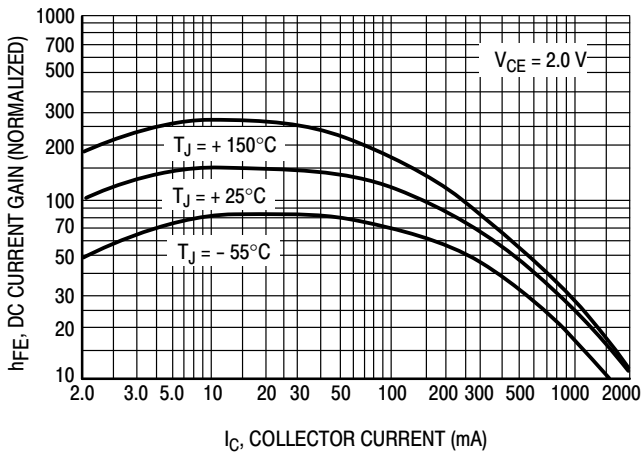


Figure 3. Current Gain

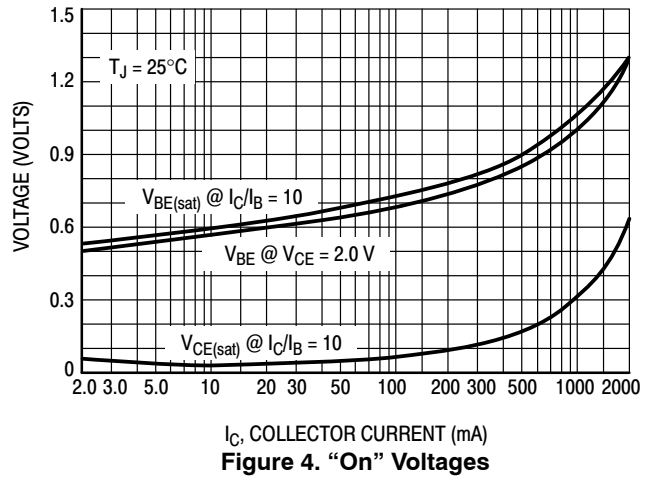


Figure 4. "On" Voltages

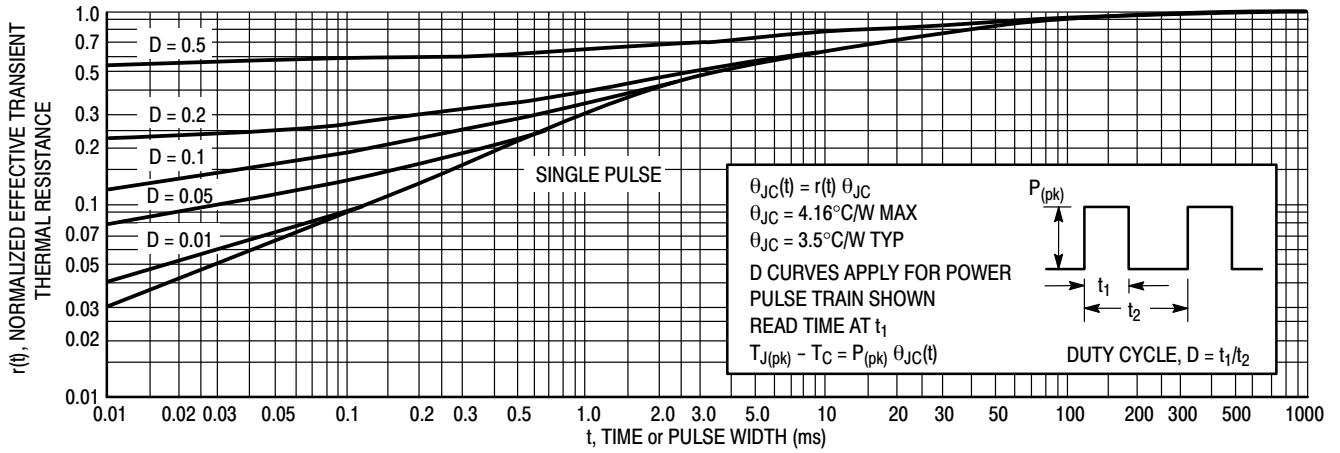
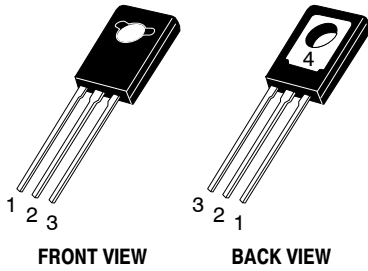


Figure 5. Thermal Response

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

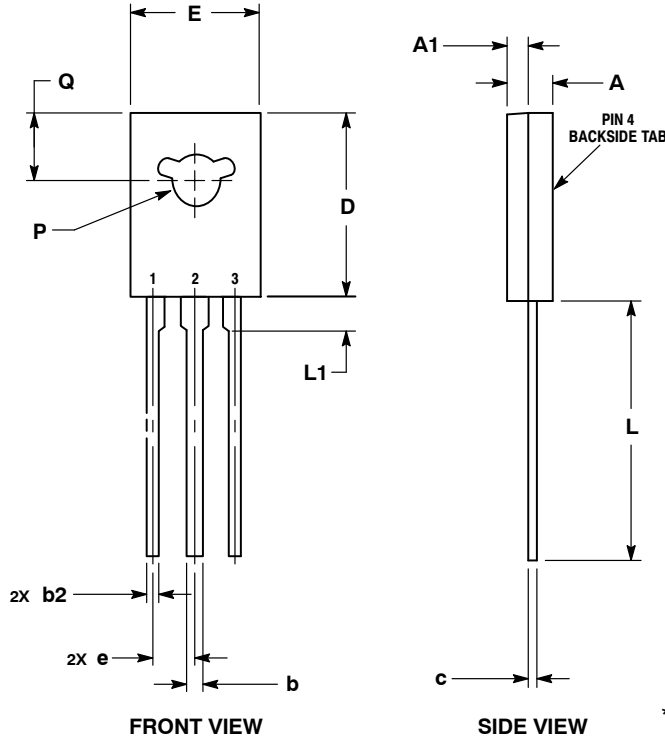
ON Semiconductor®



TO-225
CASE 77-09
ISSUE AD

DATE 25 MAR 2015

SCALE 1:1

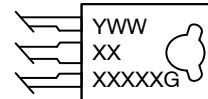


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. NUMBER AND SHAPE OF LUGS OPTIONAL.

DIM	MILLIMETERS	
	MIN	MAX
A	2.40	3.00
A1	1.00	1.50
b	0.60	0.90
b2	0.51	0.88
c	0.39	0.63
D	10.60	11.10
E	7.40	7.80
e	2.04	2.54
L	14.50	16.63
L1	1.27	2.54
P	2.90	3.30
Q	3.80	4.20

GENERIC MARKING DIAGRAM*



- Y = Year
- WW = Work Week
- XXXXX = Device Code
- G = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present.

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|---|---|---|---|---|
| <p>STYLE 1:
PIN 1. EMITTER
2., 4. COLLECTOR
3. BASE</p> | <p>STYLE 2:
PIN 1. CATHODE
2., 4. ANODE
3. GATE</p> | <p>STYLE 3:
PIN 1. BASE
2., 4. COLLECTOR
3. EMITTER</p> | <p>STYLE 4:
PIN 1. ANODE 1
2., 4. ANODE 2
3. GATE</p> | <p>STYLE 5:
PIN 1. MT 1
2., 4. MT 2
3. GATE</p> |
| <p>STYLE 6:
PIN 1. CATHODE
2., 4. GATE
3. ANODE</p> | <p>STYLE 7:
PIN 1. MT 1
2., 4. GATE
3. MT 2</p> | <p>STYLE 8:
PIN 1. SOURCE
2., 4. GATE
3. DRAIN</p> | <p>STYLE 9:
PIN 1. GATE
2., 4. DRAIN
3. SOURCE</p> | <p>STYLE 10:
PIN 1. SOURCE
2., 4. DRAIN
3. GATE</p> |

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