Plastic Medium-Power Silicon PNP Transistor

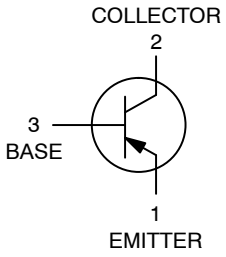
BD180G

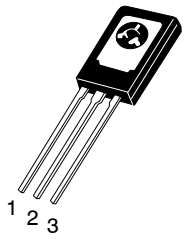
3.0 AMPERES
POWER TRANSISTORS
PNP SILICON
80 VOLTS, 30 WATTS

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*





TO−225
CASE 77
STYLE 1

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°C Derate above 25°C	P_D	 30 240	 W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +150	°C

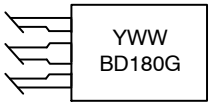
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	4.16	°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.

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

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

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

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

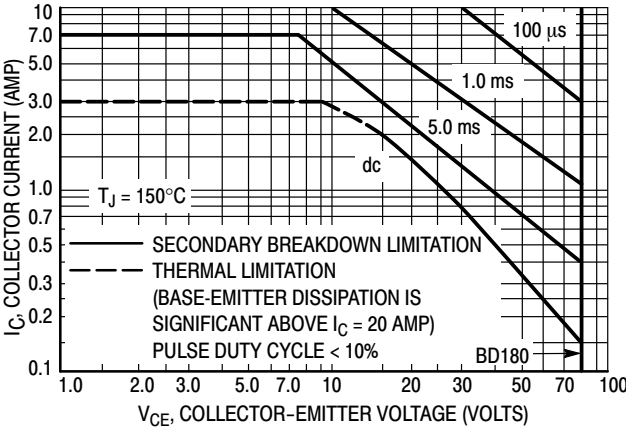


Figure 1. Active Region Safe Operating Area

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.

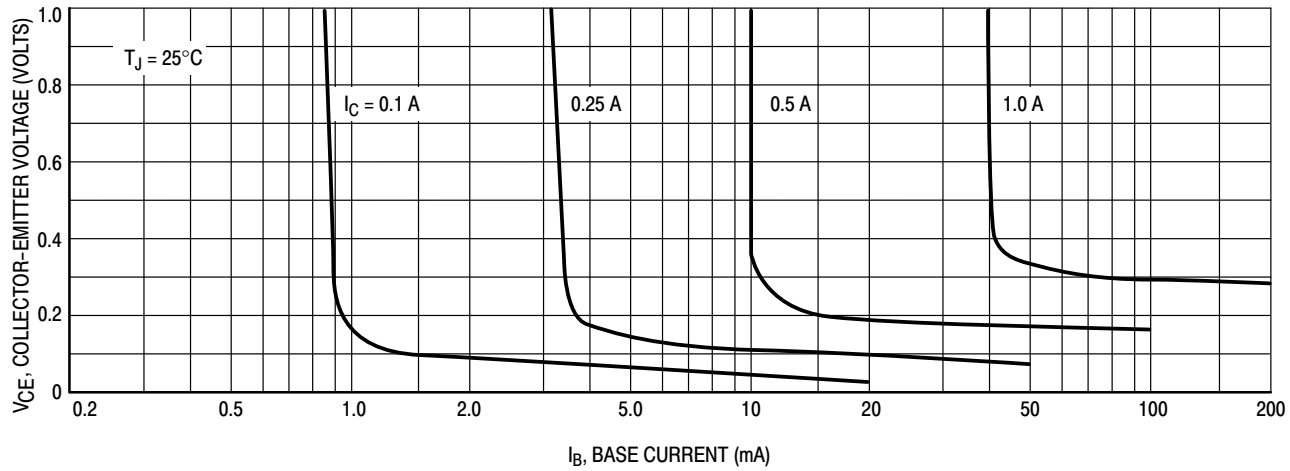


Figure 2. Collector Saturation Region

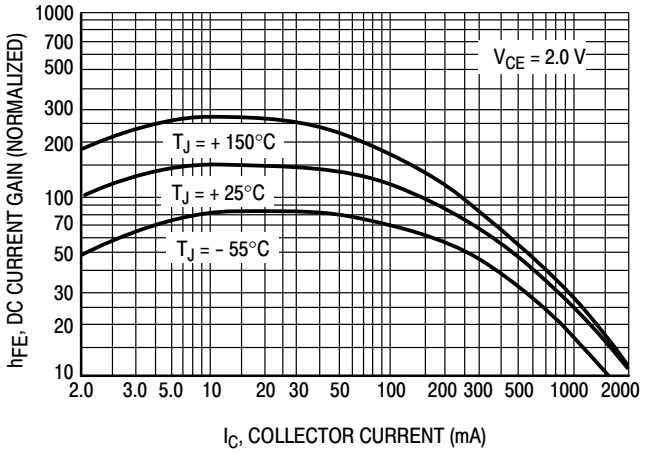


Figure 3. Current Gain

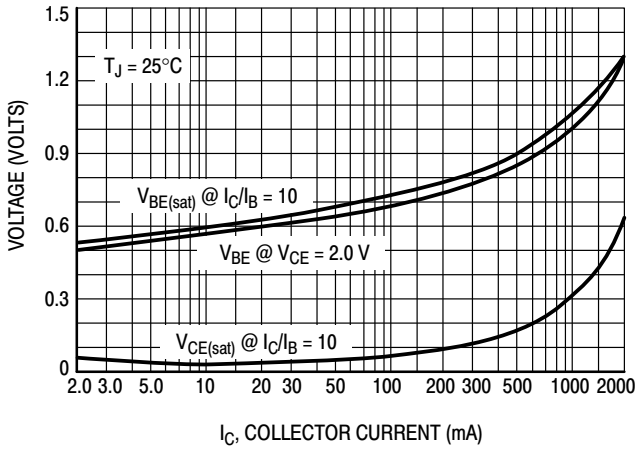


Figure 4. “On” Voltages

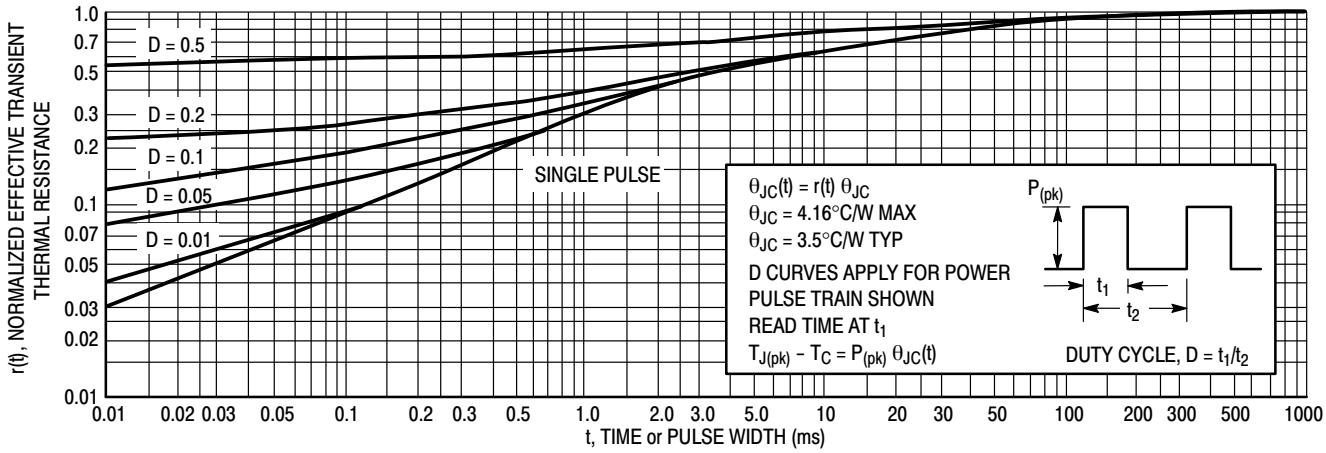
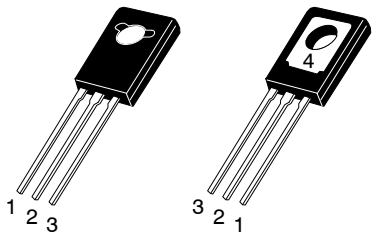


Figure 5. Thermal Response

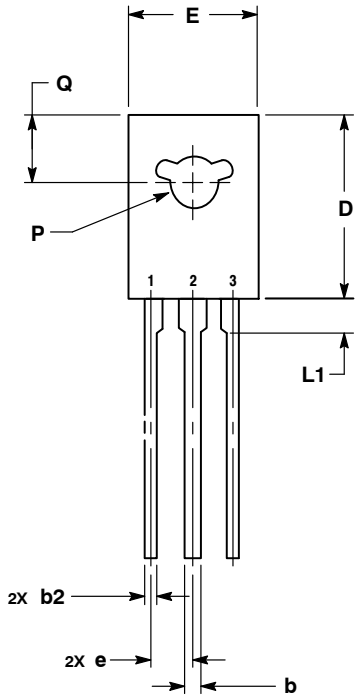


FRONT VIEW **BACK VIEW**

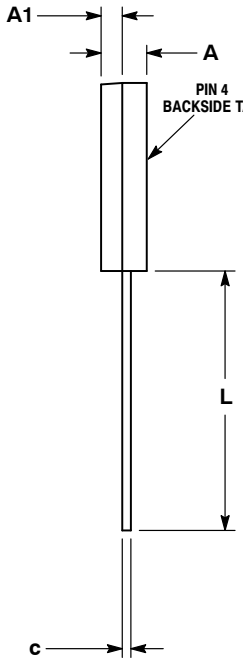
TO−225
CASE 77−09
ISSUE AD

DATE 25 MAR 2015

SCALE 1:1



FRONT VIEW

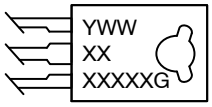


SIDE VIEW

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

	MILLIMETERS	
DIM	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
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XXXXX = Device Code
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*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. Some products may not follow the Generic Marking.

STYLE 1:
PIN 1. EMITTER
2., 4. COLLECTOR
3. BASE

STYLE 2:
PIN 1. CATHODE
2., 4. ANODE
3. GATE

STYLE 3:
PIN 1. BASE
2., 4. COLLECTOR
3. EMITTER

STYLE 4:
PIN 1. ANODE 1
2., 4. ANODE 2
3. GATE

STYLE 5:
PIN 1. MT 1
2., 4. MT 2
3. GATE

STYLE 6:
PIN 1. CATHODE
2., 4. GATE
3. ANODE

STYLE 7:
PIN 1. MT 1
2., 4. GATE
3. MT 2

STYLE 8:
PIN 1. SOURCE
2., 4. GATE
3. DRAIN

STYLE 9:
PIN 1. GATE
2., 4. DRAIN
3. SOURCE

STYLE 10:
PIN 1. SOURCE
2., 4. DRAIN
3. GATE

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