

BD179G

Plastic Medium-Power Silicon NPN Transistor

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
- BD179 is complementary with BD180
- 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 | 3.0 | Adc |
| Base Current | I_B | 1.0 | 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 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.

THERMAL CHARACTERISTICS

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

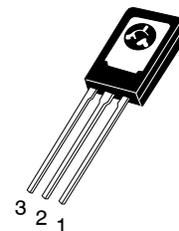
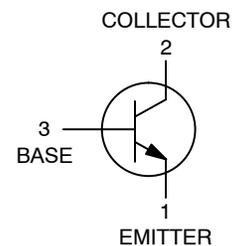
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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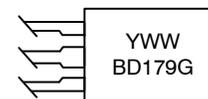
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**3.0 AMPERES
POWER TRANSISTORS
NPN SILICON
80 VOLTS, 30 WATTS**



TO-225
CASE 77
STYLE 1

MARKING DIAGRAM



Y = Year
WW = Work Week
BD179 = Device Code
G = Pb-Free Package

ORDERING INFORMATION

| Device | Package | Shipping |
|--------|---------------------|---------------|
| BD179G | TO-225 (Pb-Free) | 500 Units/Box |

BD179G

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} | - | 0.1 | 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} | 63 15 | 160 - | - |
| 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 $\leq 300\text{ As}$, Duty Cycle $\leq 2.0\%$.

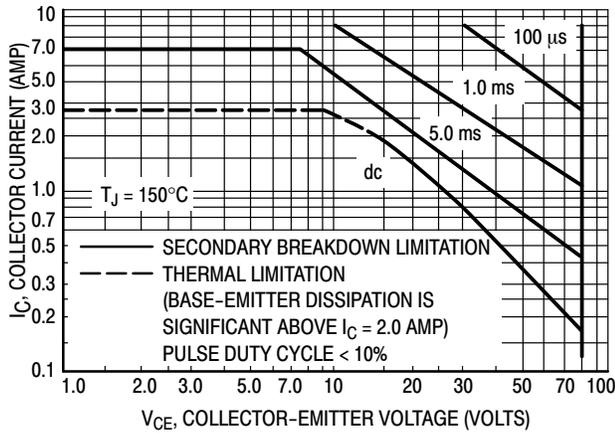


Figure 1. Active Region Safe Operating Area

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.

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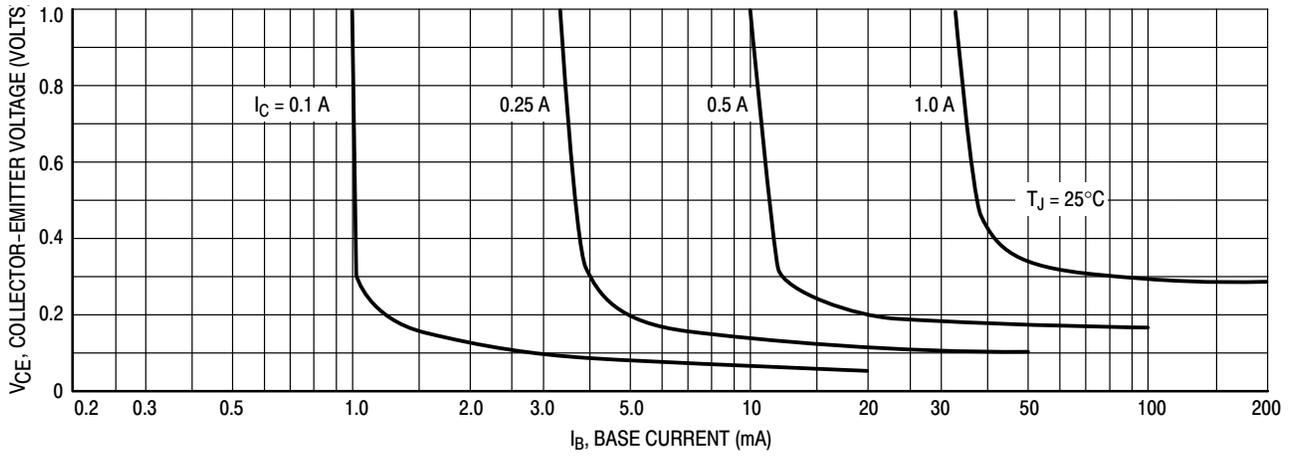


Figure 2. Collector Saturation Region

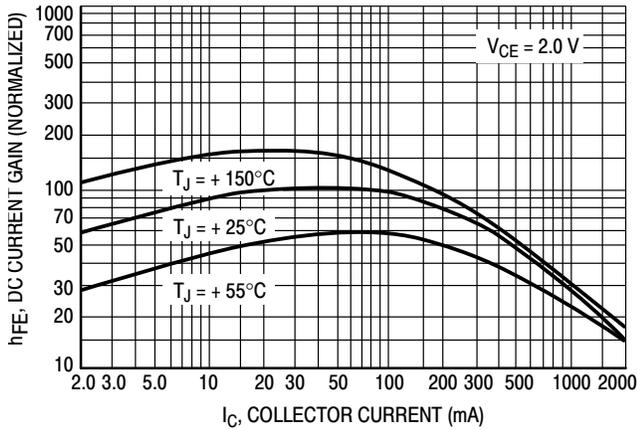


Figure 3. Current Gain

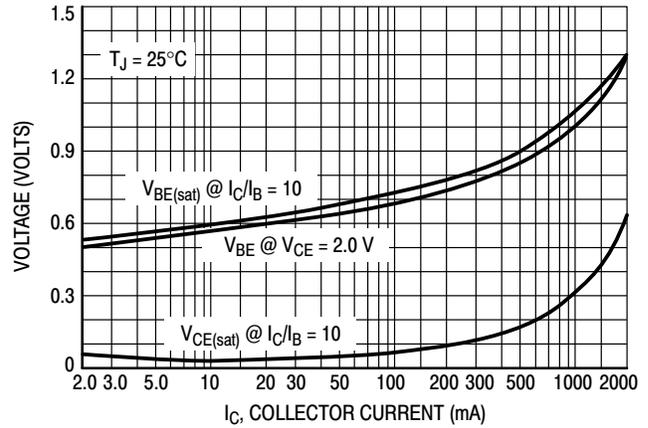


Figure 4. "On" Voltages

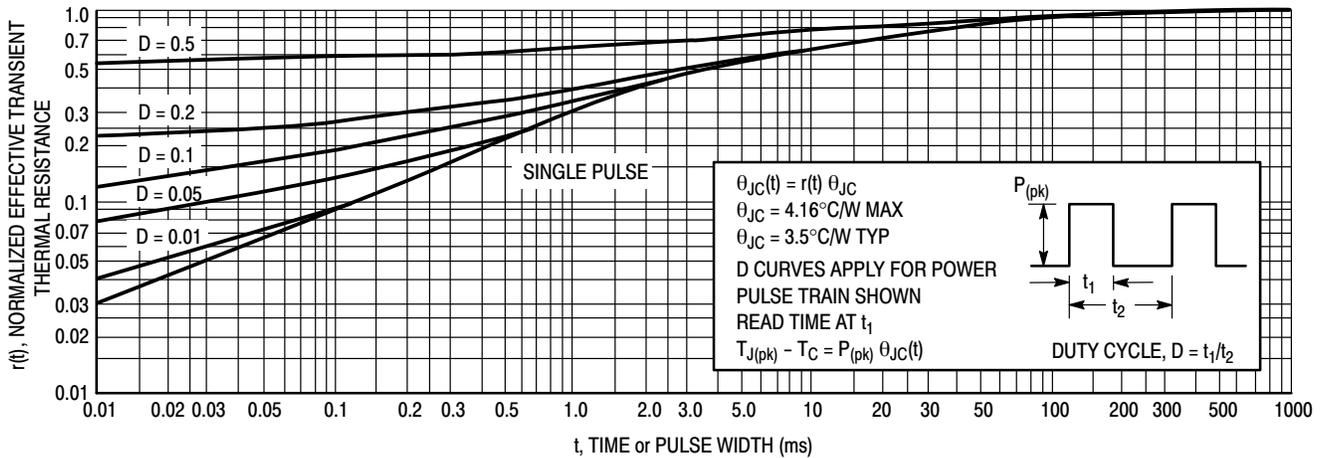
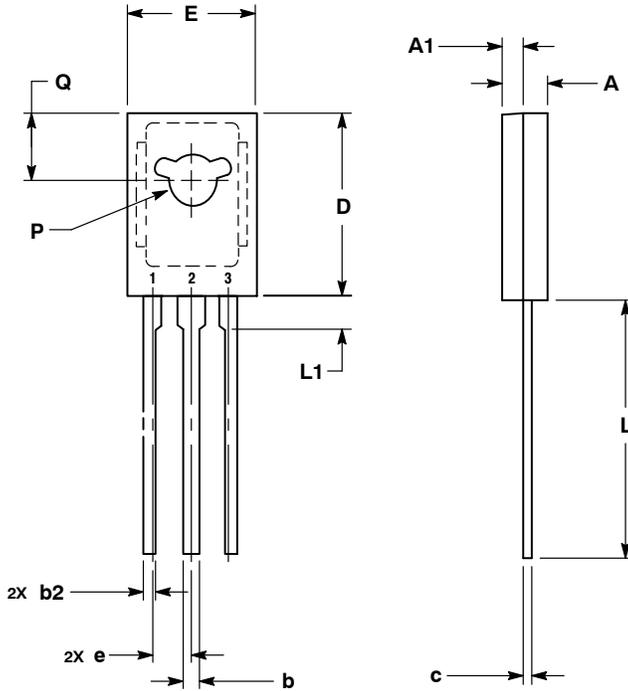


Figure 5. Thermal Response

BD179G

PACKAGE DIMENSIONS

TO-225
CASE 77-09
ISSUE AB



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 |

STYLE 1:

- PIN 1. EMITTER
- COLLECTOR
- BASE

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