

# 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 $25^\circ\text{C}$	$P_D$	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	$^\circ\text{C/W}$

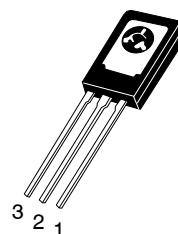
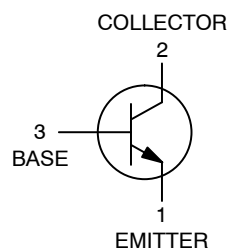
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



**ON Semiconductor®**

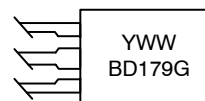
<http://onsemi.com>

**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

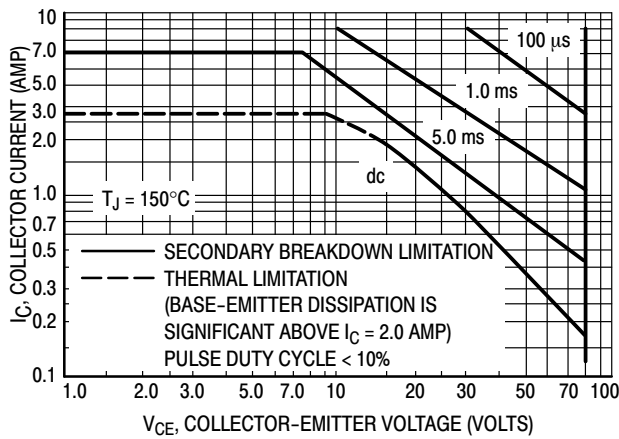
### ORDERING INFORMATION

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

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

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Sustaining Voltage (Note 1) ( $I_C = 0.1\text{ A}$ , $I_B = 0$ )	$V_{(BR)CEO}$	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) ( $I_C = 1.0\text{ A}$ , $I_B = 0.1\text{ A}$ )	$V_{CE(sat)}$	–	0.8	Vdc
Base-Emitter On Voltage (Note 1) ( $I_C = 1.0\text{ A}$ , $V_{CE} = 2.0\text{ Vdc}$ )	$V_{BE(on)}$	–	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.

# BD179G

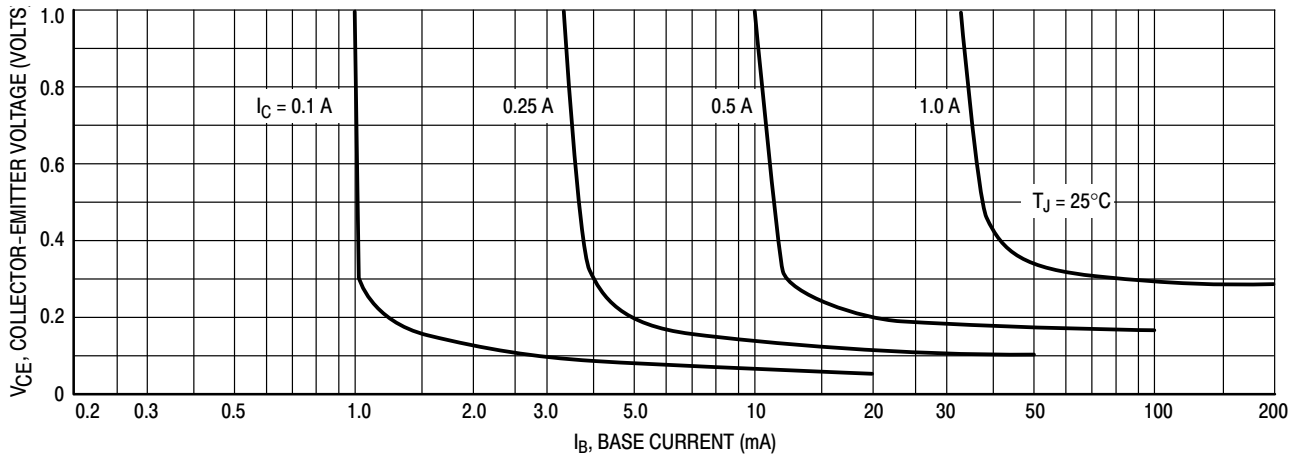


Figure 2. Collector Saturation Region

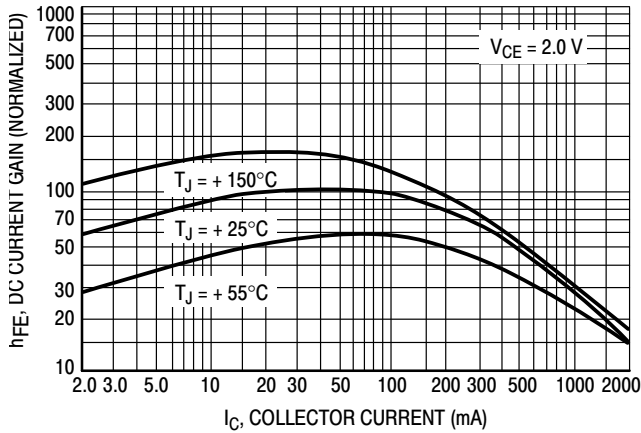


Figure 3. Current Gain

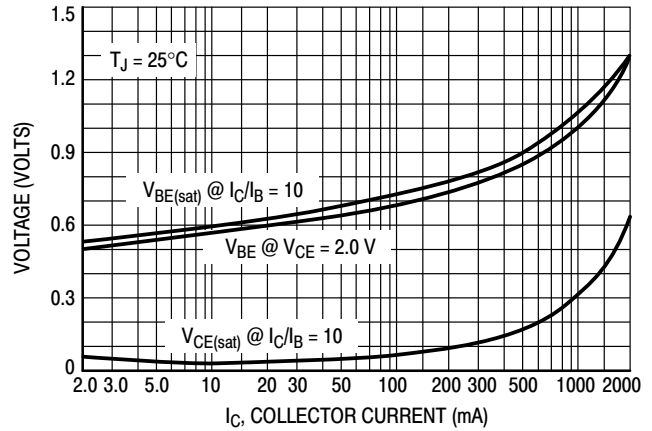


Figure 4. "On" Voltages

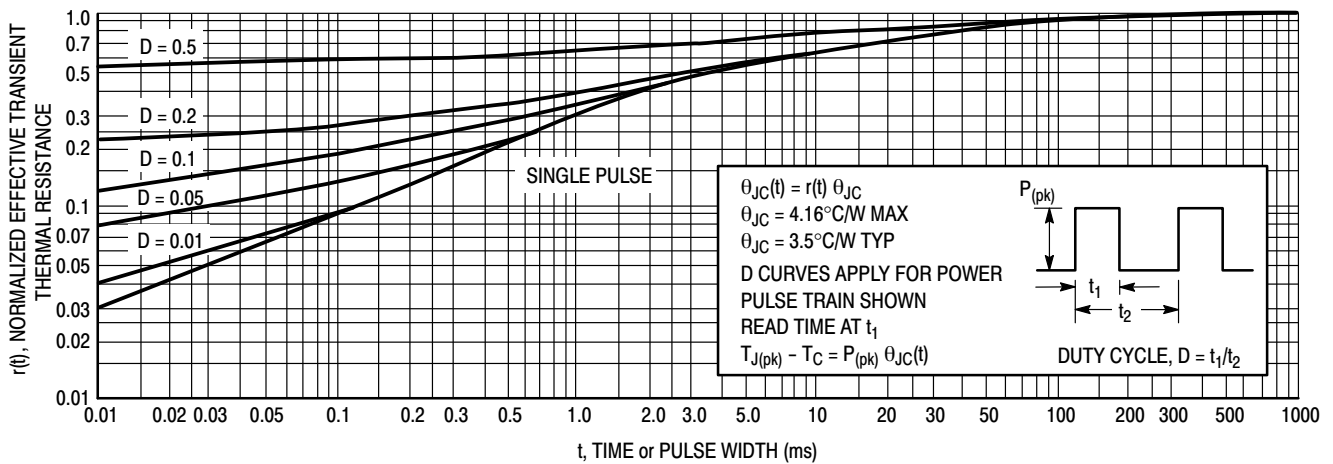
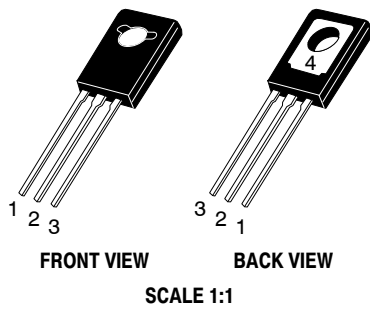
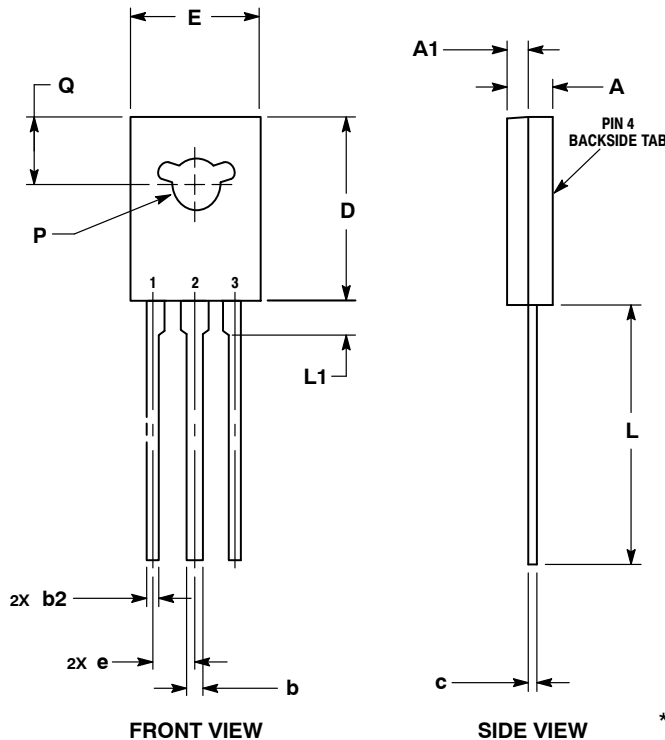


Figure 5. Thermal Response



TO-225  
CASE 77-09  
ISSUE AD

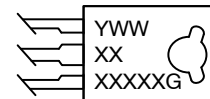
DATE 25 MAR 2015



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

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  
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. 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

DOCUMENT NUMBER:	98ASB42049B	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	TO-225	PAGE 1 OF 1

onsemi and onsemi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.

**onsemi**, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## ADDITIONAL INFORMATION

### TECHNICAL PUBLICATIONS:

Technical Library: [www.onsemi.com/design/resources/technical-documentation](http://www.onsemi.com/design/resources/technical-documentation)  
onsemi Website: [www.onsemi.com](http://www.onsemi.com)

### ONLINE SUPPORT: [www.onsemi.com/support](http://www.onsemi.com/support)

For additional information, please contact your local Sales Representative at  
[www.onsemi.com/support/sales](http://www.onsemi.com/support/sales)