

Plastic Medium Power Bipolar Transistors

BD237G (NPN), BD234G (PNP)

Designed for use in 5.0 to 10 W audio amplifiers and drivers utilizing complementary or quasi complementary circuits.

Features

- High DC Current Gain
- Epoxy Meets UL 94 V0 @ 0.125 in
- These Devices are Pb-Free and are RoHS Compliant*

MAXIMUM RATINGS

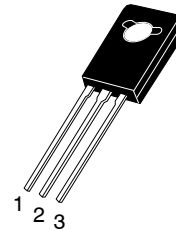
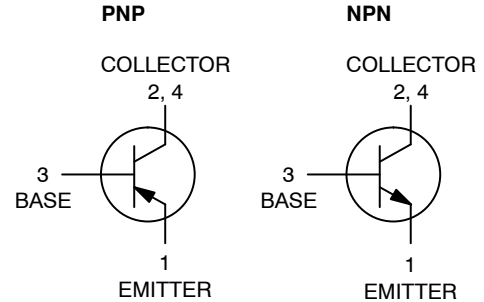
Rating	Symbol	Value	Unit
Collector-Emitter Voltage BD234G DB237G, BD238G	V_{CEO}	45 80	Vdc
Collector-Base Voltage BD234G DB237G, BD238G	V_{CBO}	60 100	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current	I_C	2.0	Adc
Base Current	I_B	1.0	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$	P_D	25	W
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$
ESD - Human Body Model	HBM	3B	V
ESD - Machine Model	MM	C	V

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

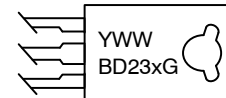
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	5.0	$^\circ\text{C}/\text{W}$

2.0 AMPERES POWER TRANSISTORS 25 WATTS



TO-225
CASE 77-09
STYLE 1

MARKING DIAGRAM



- Y = Year
- WW = Work Week
- BD23x = Device Code
x = 4, 7 or 8
- G = Pb-Free Package

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 4 of this data sheet.

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

BD237G (NPN), BD234G (PNP)

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

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Sustaining Voltage (Note 1) ($I_C = 0.1 \text{ Adc}$, $I_B = 0$) BD237G, BD238G BD234G	$V_{(BR)CEO}$	80 45	- -	Vdc
Collector Cutoff Current ($V_{CB} = 100 \text{ Vdc}$, $I_E = 0$) BD237G, BD238G ($V_{CB} = 60 \text{ Vdc}$, $I_E = 0$) BD234G	I_{CBO}	- -	0.1 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_{FE1} h_{FE2}	40 25	- -	-
Collector-Emitter Saturation Voltage (Note 1) ($I_C = 1.0 \text{ Adc}$, $I_B = 0.1 \text{ Adc}$)	$V_{CE(sat)}$	-	0.6	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

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

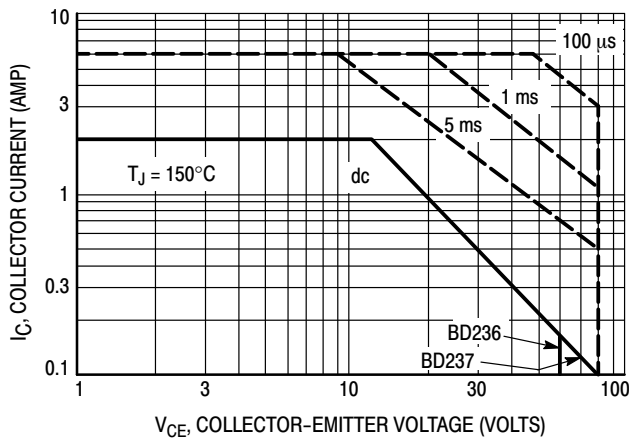


Figure 1. Active Region Safe Operating Area

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.

BD237G (NPN), BD234G (PNP)

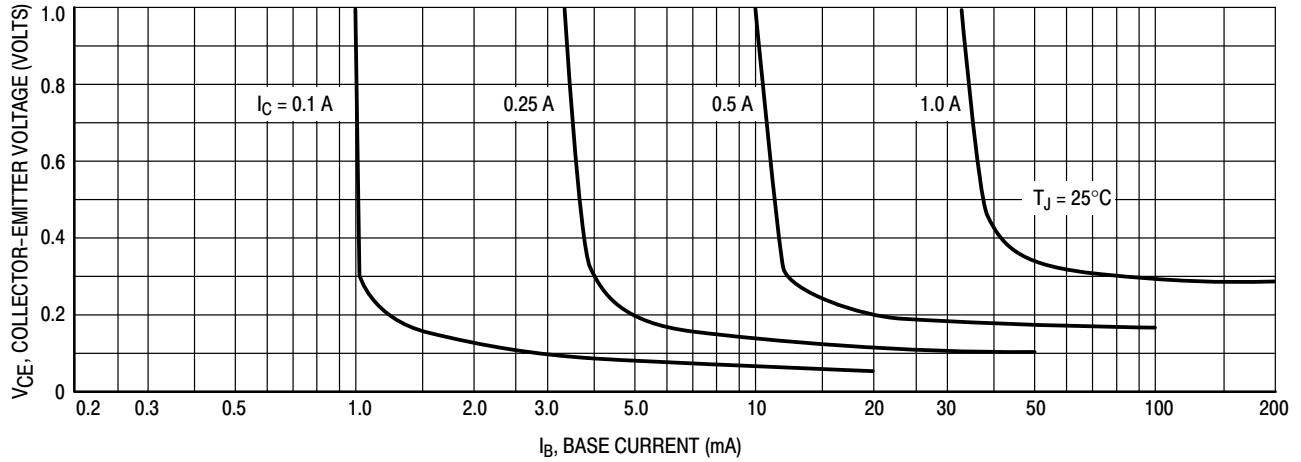


Figure 2. Collector Saturation Region

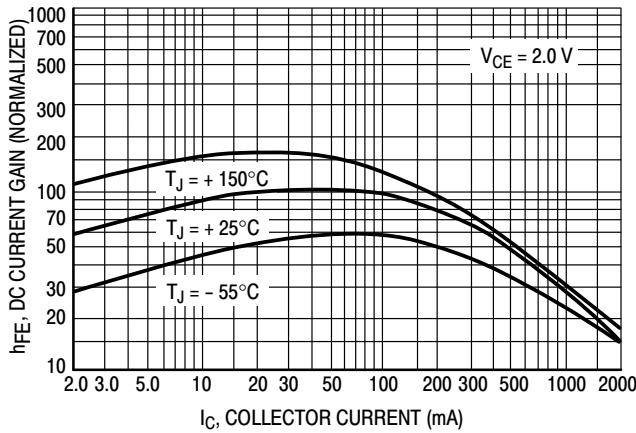


Figure 3. Current Gain

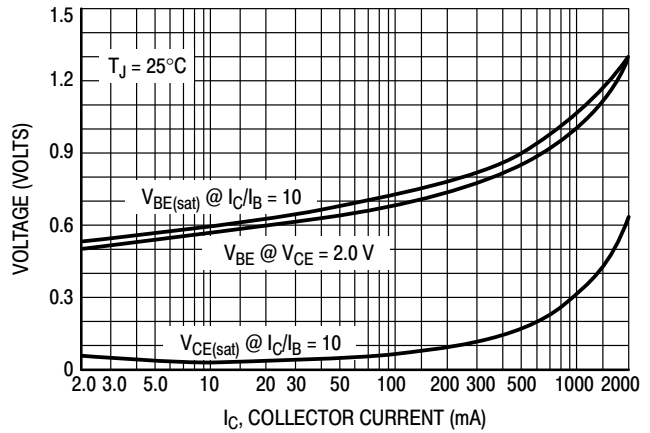


Figure 4. "On" Voltages

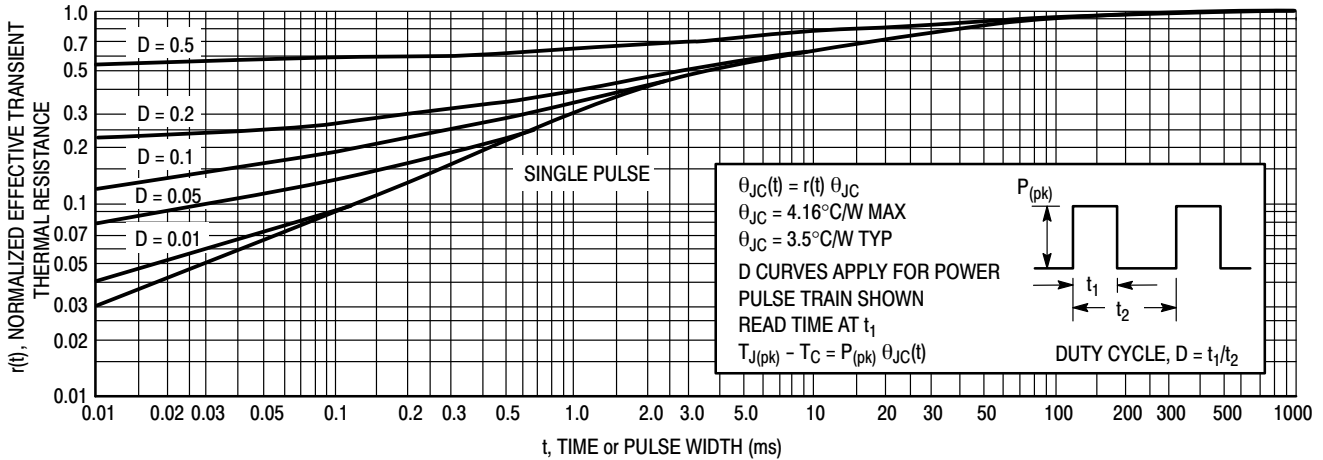


Figure 5. Thermal Response

BD237G (NPN), BD234G (PNP)

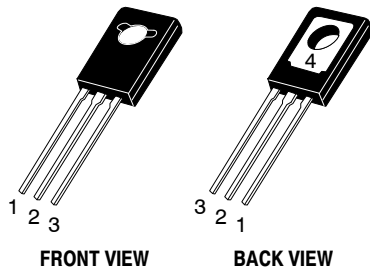
ORDERING INFORMATION

Device	Package	Shipping
BD234G	TO-225 (Pb-Free)	500 Units / Box
BD237G	TO-225 (Pb-Free)	500 Units / Box

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

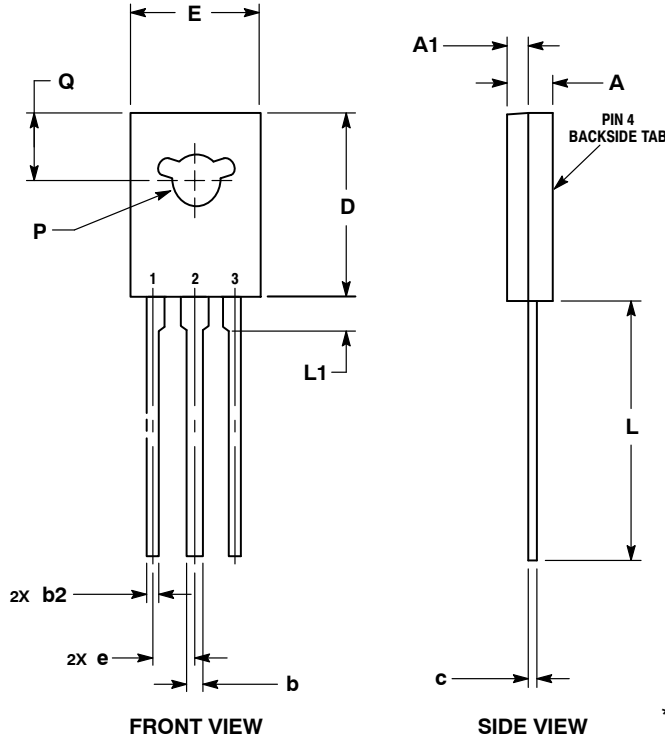
ON Semiconductor®



TO-225
CASE 77-09
ISSUE AD

DATE 25 MAR 2015

SCALE 1:1

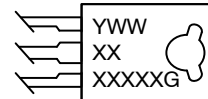


NOTES:

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 "µ", may or may not be present.

- | | | | | |
|---------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|
| <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> |

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

ON Semiconductor and are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor 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. ON Semiconductor 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. **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
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales