BD237G (NPN), BD234G, BD238G (PNP)

Plastic Medium Power Bipolar Transistors

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°C	P_D	 25	W
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°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

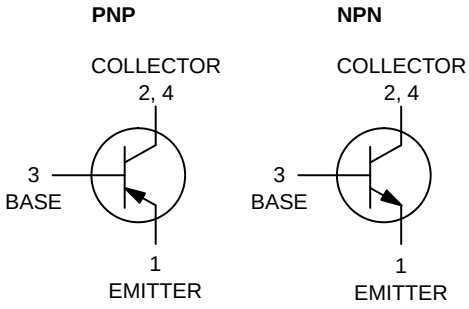
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	5.0	°C/W

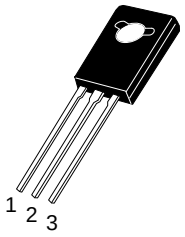
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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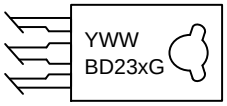
2.0 AMPERES POWER TRANSISTORS 25 WATTS





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.

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

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 ≤ 300 μs, Duty Cycle ≤ 2.0%.

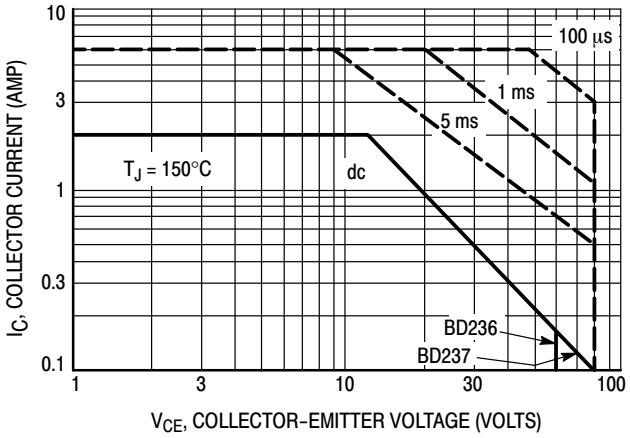


Figure 1. Active Region Safe Operating Area

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.

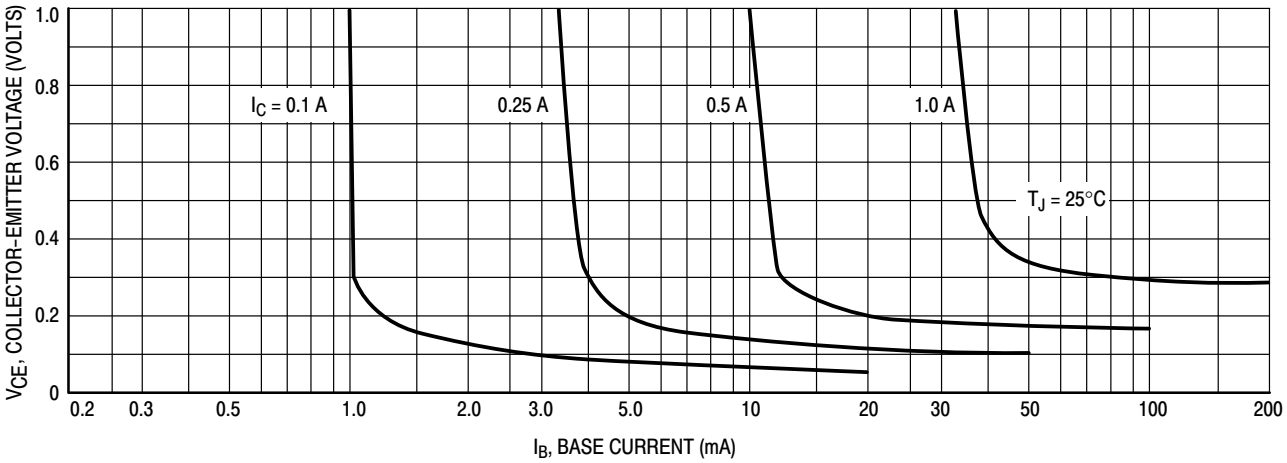


Figure 2. Collector Saturation Region

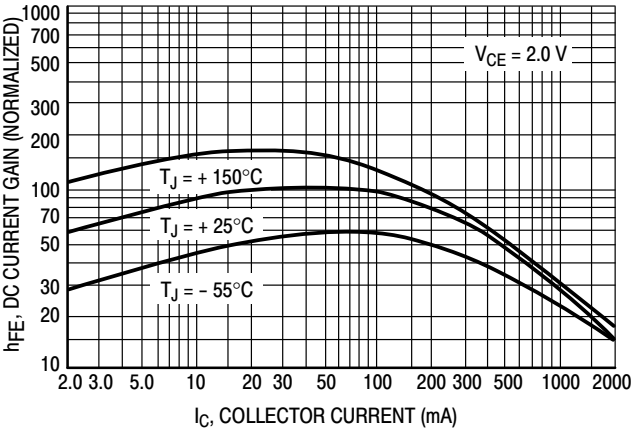


Figure 3. Current Gain

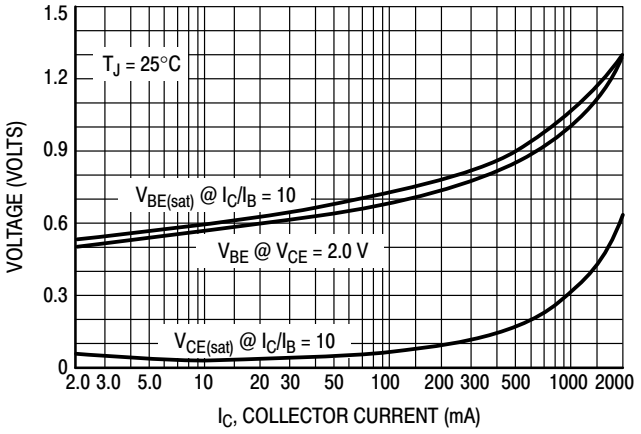


Figure 4. “On” Voltages

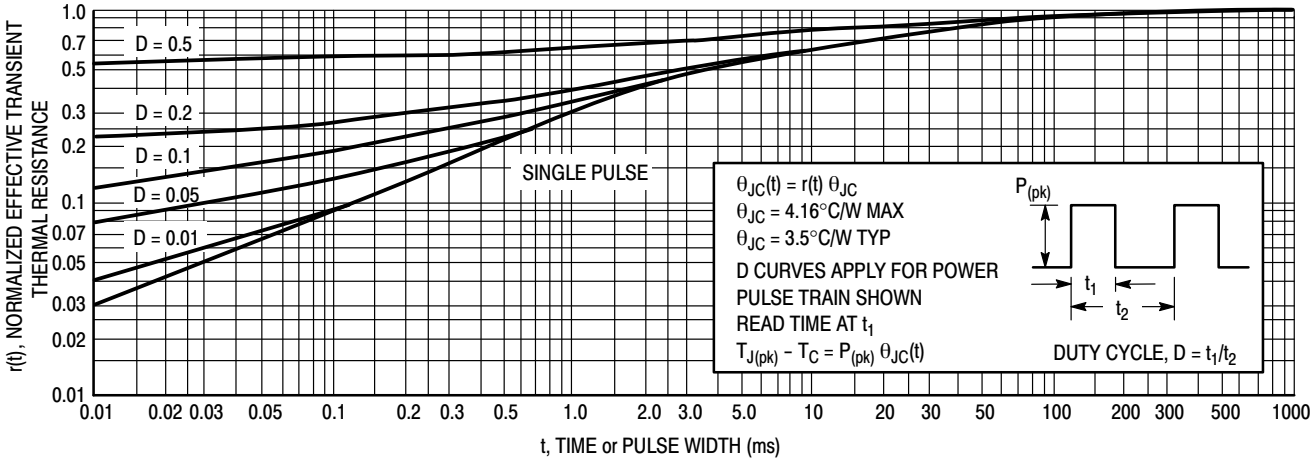
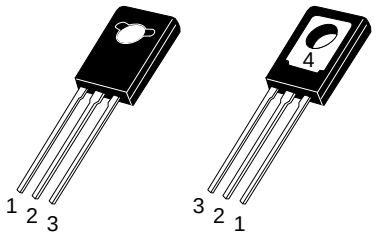


Figure 5. Thermal Response

ORDERING INFORMATION

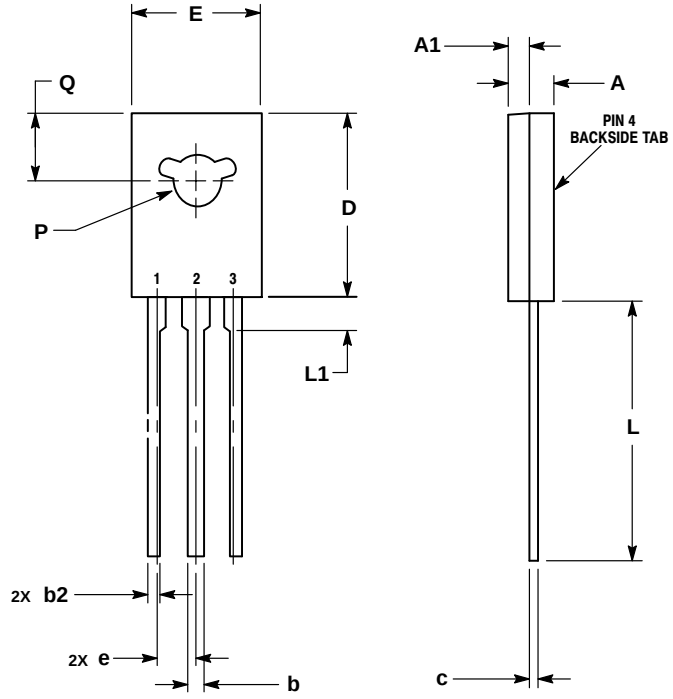
Device	Package	Shipping
BD234G	TO−225 (Pb−Free)	500 Units / Box
BD237G	TO−225 (Pb−Free)	500 Units / Box
BD238G	TO−225 (Pb−Free)	500 Units / Box

PACKAGE DIMENSIONS



FRONT VIEW BACK VIEW

TO−225
CASE 77−09
ISSUE AC



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

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

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