

BD234
BD236
BD238

**SILICON
PNP POWER TRANSISTORS**



TO-126 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR BD234, BD236, and BD238 are silicon PNP power transistors designed for medium power amplifier and switching applications.

MARKING: FULL PART NUMBER

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

	SYMBOL	BD234	BD236	BD238	UNITS
Collector-Base Voltage	V_{CBO}	45	60	100	V
Collector-Emitter Voltage	V_{CER}	45	60	100	V
Collector-Emitter Voltage	V_{CEO}	45	60	80	V
Emitter-Base Voltage	V_{EBO}		5.0		V
Continuous Collector Current	I_C		2.0		A
Peak Collector Current	I_{CM}		6.0		A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D		25		W
Operating and Storage Junction Temperature	T_J, T_{stg}		-65 to +150		$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS: ($T_C=25^{\circ}\text{C}$)

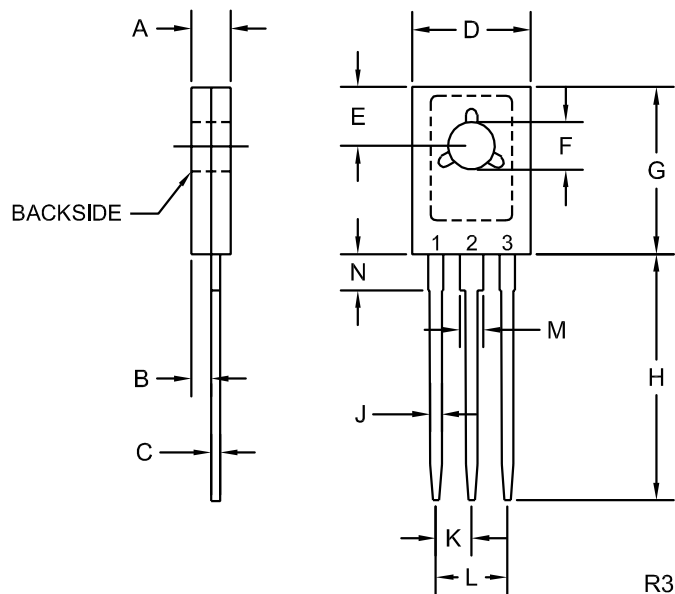
SYMBOL	TEST CONDITIONS	BD234		BD236		BD238		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=\text{Rated } V_{CBO}$	-	100	-	100	-	100	μA
I_{EBO}	$V_{EB}=5.0\text{V}$	-	1.0	-	1.0	-	1.0	mA
BV_{CEO}	$I_C=100\text{mA}$	45	-	60	-	80	-	V
$V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=100\text{mA}$	-	0.6	-	0.6	-	0.6	V
$V_{BE(ON)}$	$V_{CE}=2.0\text{V}, I_C=1.0\text{A}$	-	1.3	-	1.3	-	1.3	V
h_{FE}	$V_{CE}=2.0\text{V}, I_C=150\text{mA}$	40	-	40	-	40	-	
h_{FE}	$V_{CE}=2.0\text{V}, I_C=1.0\text{A}$	25	-	25	-	25	-	
f_T	$V_{CE}=10\text{V}, I_C=250\text{mA}$	3.0	-	3.0	-	3.0	-	MHz

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TO-126 CASE - MECHANICAL OUTLINE



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.094	0.110	2.40	2.80
B	0.050		1.27	
C	0.015	0.030	0.38	0.75
D	0.291	0.335	7.40	8.50
E	0.148		3.75	
F	0.118	0.134	3.00	3.40
G	0.413	0.472	10.50	12.00
H	0.618		15.70	
J	0.024	0.035	0.62	0.90
K	0.089		2.25	
L	0.177		4.50	
M	0.045	0.055	1.14	1.40
N	0.083		2.10	

TO-126 (REV:R3)

LEAD CODE:

- 1) Emitter
- 2) Collector
- 3) Base

MARKING: FULL PART NUMBER

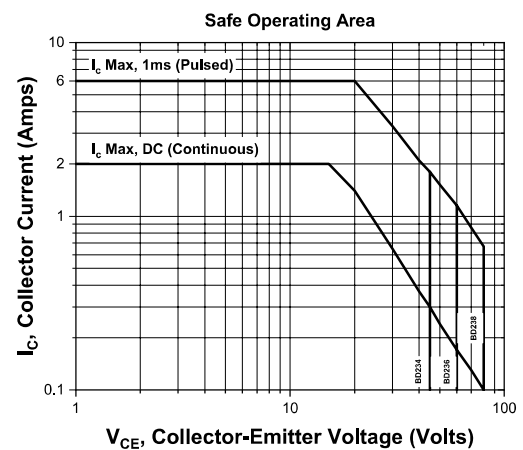
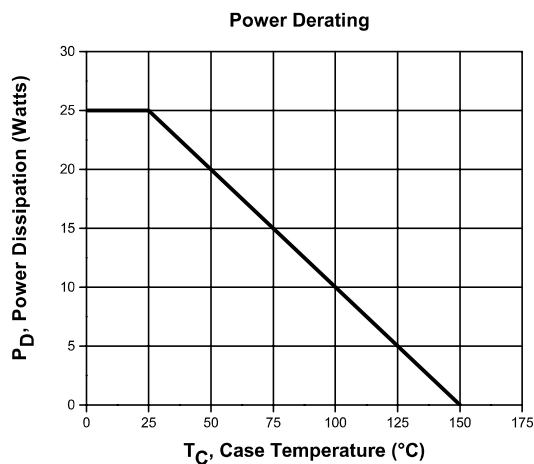
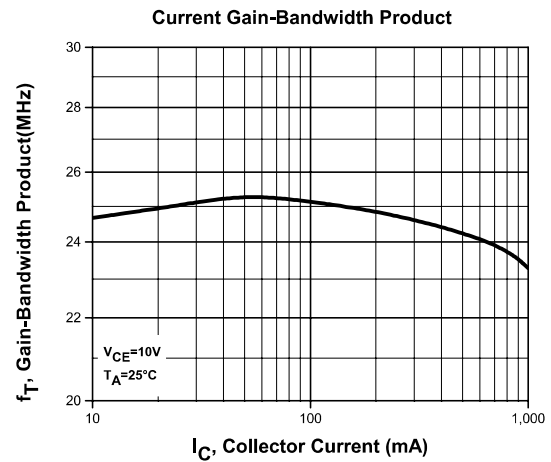
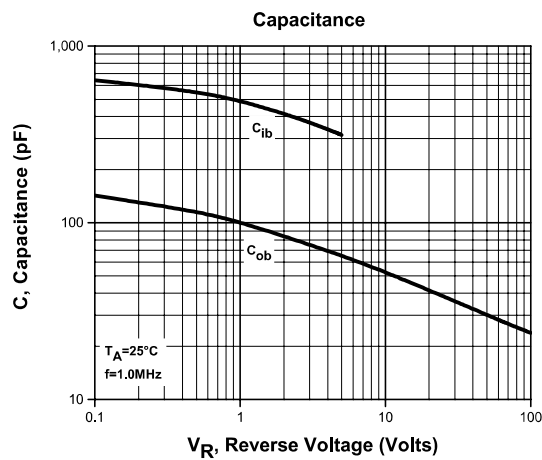
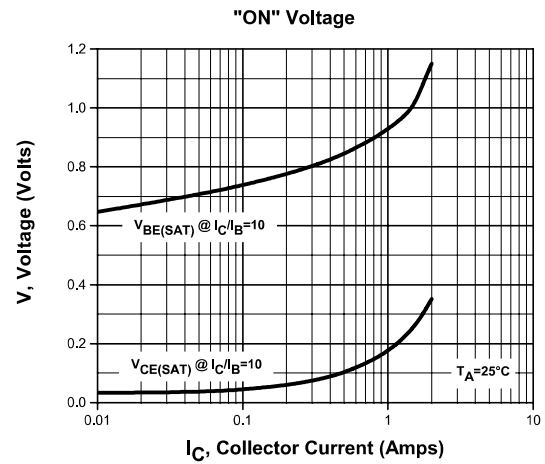
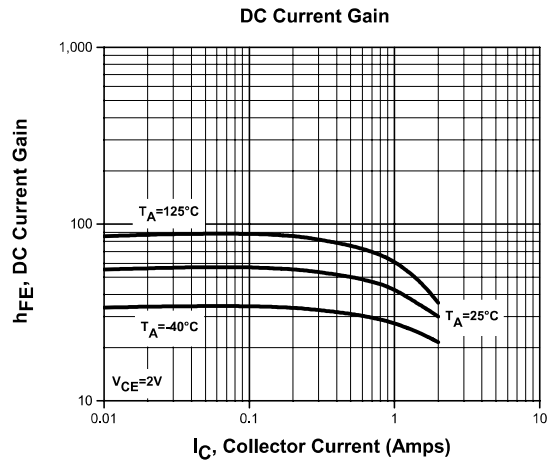
R1 (7-September 2022)

BD234
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SILICON
PNP POWER TRANSISTORS



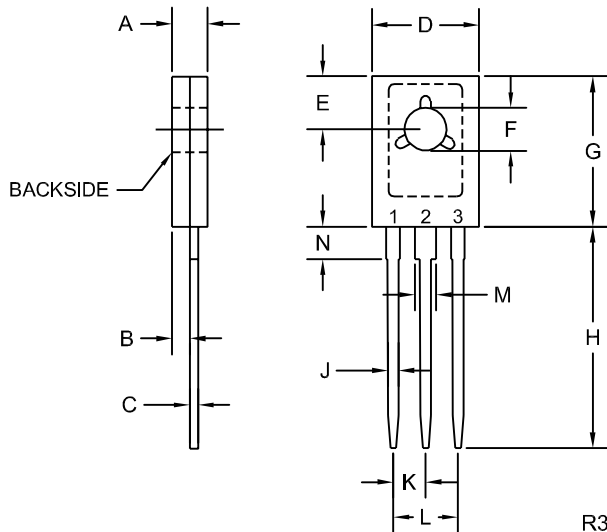
TYPICAL ELECTRICAL CHARACTERISTICS



R1 (7-September 2022)

Package Details - TO-126

Mechanical Drawing



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.094	0.110	2.40	2.80
B	0.050		1.27	
C	0.015	0.030	0.38	0.75
D	0.291	0.335	7.40	8.50
E	0.148		3.75	
F	0.118	0.134	3.00	3.40
G	0.413	0.472	10.50	12.00
H	0.618		15.70	
J	0.024	0.035	0.62	0.90
K	0.089		2.25	
L	0.177		4.50	
M	0.045	0.055	1.14	1.40
N	0.083		2.10	

TO-126 (REV:R3)

LEAD CODE:

TRIAC

- 1) MT1
- 2) MT2
- 3) GATE

SCR

- 1) CATHODE
- 2) ANODE
- 3) GATE

TRANSISTOR

- 1) EMITTER
- 2) COLLECTOR
- 3) BASE

Note: Mounting Plate Common to Pin 2

Packing Information

Standard: Bulk

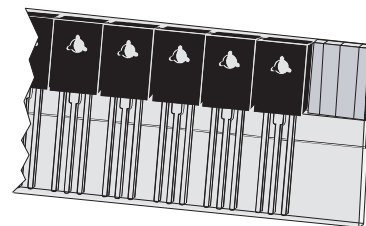
Devices are bulk packed in white corrugated box with black conductive coating (surface resistivity of $<10^5$ ohms per square).

Standard Packing Quantity: 1K

Optional Packing: Antistatic Sleeves

Devices may be packed in antistatic sleeves

Sleeve Packing Quantity: 50



TO-126 Antistatic Sleeve

Material Composition Specification

TO-126 Case



Device average mass 660.1 mg

Fluctuation margin +/-10%

Component	Material	Material		Substance	CAS No.	Substance		
		(%wt)	(mg)			(%wt)	(mg)	(ppm)
active device	doped Si	0.15%	1.01	Si	7440-21-3	0.15%	1.01	1,530
bond wire	copper	0.31%	2.03	Cu	7440-50-8	0.31%	2.03	3,075
leadframe	Cu alloy w/ silver plating	45.90%	303	Cu	7440-50-8	45.1%	297.70	450,992
				Fe	7439-89-6	0.05%	0.31	470
				Ag	7440-22-4	0.76%	5.0	7,575
die attach	silver epoxy	0.30%	2.00	Pb	7439-92-1	0.28%	1.87	2,833
				Sn	7440-31-5	0.02%	0.10	151
				Ag	7440-22-4	0%	0.03	45
encapsulation	EMC	52.72%	348	silica	7631-86-9	36.91%	243.62	369,065
				epoxy resin	Proprietary	14.23%	93.94	142,312
				Sb ₂ O ₃	1309-64-4	0.79%	5.22	7,908
				TBBA	79-94-7	0.79%	5.22	7,908
plating*	tin/lead process	0.61%	4.05	Sn	7440-31-5	0.49%	3.25	4,923
				Pb	7439-92-1	0.12%	0.80	1,212
	matte tin	0.61%	4.05	Sn	7440-31-5	0.61%	4.05	6,135

*For Lead Free plating, add suffix "PB FREE" to part number.

For Tin/Lead plating, add suffix "TIN/LEAD" to part number.

No suffix designation allows for the supply of either lead-free or tin/lead plated product depending on availability.

Disclaimer

The information provided in this Material Composition data sheet is, to the best of our knowledge, correct. However, there is no guarantee to completeness or accuracy, as some information is derived from data sources outside the company.

R2 (16-July 2018)

Material Composition Specification

TO-126 Case



Device average mass 660.1 mg

Fluctuation margin +/-10%

Component	Material	Material		Substance	CAS No.	Substance		
		(%wt)	(mg)			(%wt)	(mg)	(ppm)
active device	doped Si	0.15%	1.01	Si	7440-21-3	0.15%	1.01	1,530
bond wire	copper	0.31%	2.03	Cu	7440-50-8	0.31%	2.03	3,075
leadframe	Cu alloy w/ silver plating	45.90%	303	Cu	7440-50-8	45.1%	297.70	450,992
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				Sn	7440-31-5	0.02%	0.10	151
				Ag	7440-22-4	0%	0.03	45
encapsulation	EMC	52.72%	348	silica	7631-86-9	36.91%	243.62	369,065
				epoxy resin	Proprietary	14.23%	93.94	142,312
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				TBBA	79-94-7	0.79%	5.22	7,908
plating*	tin/lead process	0.61%	4.05	Sn	7440-31-5	0.49%	3.25	4,923
				Pb	7439-92-1	0.12%	0.80	1,212
	matte tin	0.61%	4.05	Sn	7440-31-5	0.61%	4.05	6,135

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