PNP DUAL SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

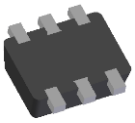
- Epitaxial Die Construction
- Complementary PNP Type Available (BC847BV)
- Ultra-Small Surface Mount Package
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

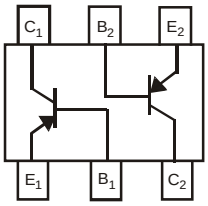
- Case: SOT-563
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe; Solderable per MIL-STD-202, Method 208
- Weight: 0.003 grams (Approximate)

SOT-563

Top View



Bottom View



Device Schematic
(Note 5)

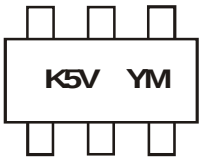
Ordering Information (Note 4)

Part Number	Case	Packaging
BC857BV-7	SOT-563	3,000/Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.
5. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).

Marking Information

SOT-563



K5V = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: T = 2006)
M = Month (ex: 9 = September)

Date Code Key

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	P	R	S	T	U	V	W	X	Y	Z	A	B	C

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@T_A = +25°C unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-45	V
Emitter-Base Voltage	V_{EBO}	-5.0	V
Collector Current	I_C	-100	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	150	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	833	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage (Note 7)	$V_{(BR)CBO}$	-50	—	—	V	I_C = 10µA, I_B = 0
Collector-Emitter Breakdown Voltage (Note 7)	$V_{(BR)CEO}$	-45	—	—	V	I_C = 10mA, I_B = 0
Emitter-Base Breakdown Voltage (Note 7)	$V_{(BR)EBO}$	-5	—	—	V	I_E = 1µA, I_C = 0
DC Current Gain (Note 7)	h_{FE}	220	290	475	—	V_{CE} = -5.0V, I_C = -2.0mA
Collector-Emitter Saturation Voltage (Note 7)	$V_{CE(SAT)}$	— —	— —	-100 -400	mV	I_C = -10mA, I_B = -0.5mA I_C = -100mA, I_B = -5.0mA
Base-Emitter Saturation Voltage (Note 7)	$V_{BE(SAT)}$	— —	-700 -900	— —	mV	I_C = -10mA, I_B = -0.5mA I_C = -100mA, I_B = -5.0mA
Base-Emitter Voltage (Note 7)	$V_{BE(ON)}$	-600 —	— —	-750 -820	mV	V_{CE} = -5.0V, I_C = -2.0mA V_{CE} = -5.0V, I_C = -10mA
Collector Cut-Off Current (Note 7)	I_{CBO}	— —	— —	-15 -4.0	nA µA	V_{CB} = -30V V_{CB} = -30V, T_A = +150°C
Gain Bandwidth Product	f_T	100	—	—	MHz	V_{CE} = -5.0V, I_C = -10mA, f = 100MHz
Output Capacitance	C_{OB}	—	—	4.5	pF	V_{CB} = -10V, f = 1.0MHz
Noise Figure	NF	—	—	10	dB	I_C = -0.2mA, V_{CE} = -5.0Vdc, R_S = 2.0KΩ, f = 1.0KHz, BW = 200Hz

Notes: 6. Device mounted on FR-4 PCB, 1-inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
7. Short duration pulse test used to minimize self-heating effect.

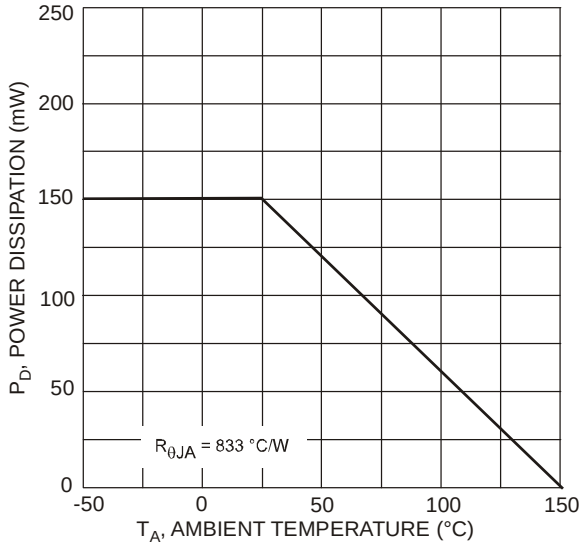


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 2)

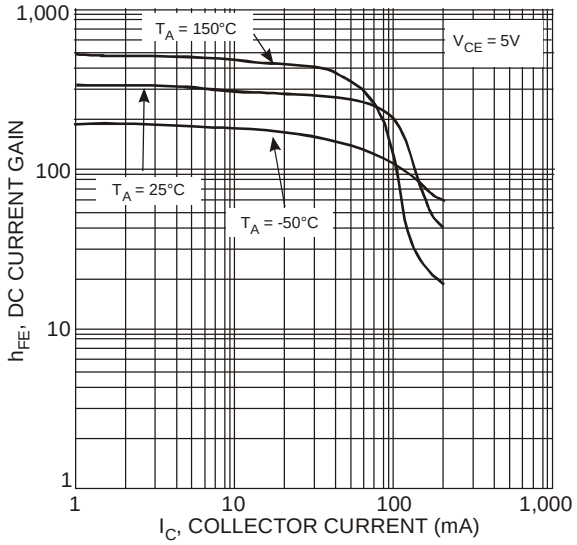


Fig. 2 Typical DC Current Gain vs. Collector Current

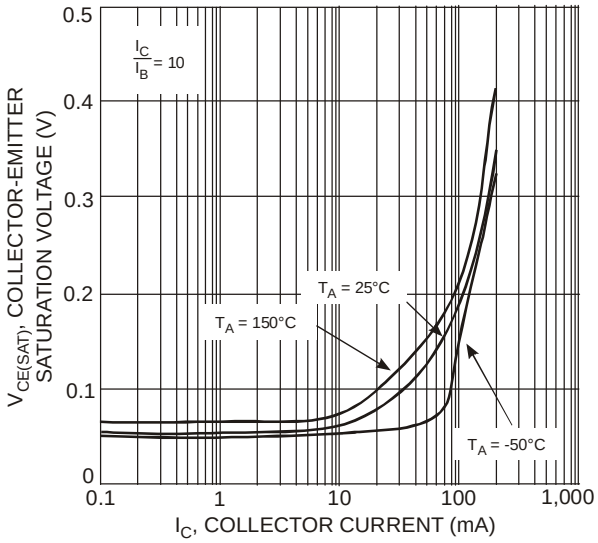


Fig. 3 Collector-Emitter Saturation Voltage vs. Collector Current

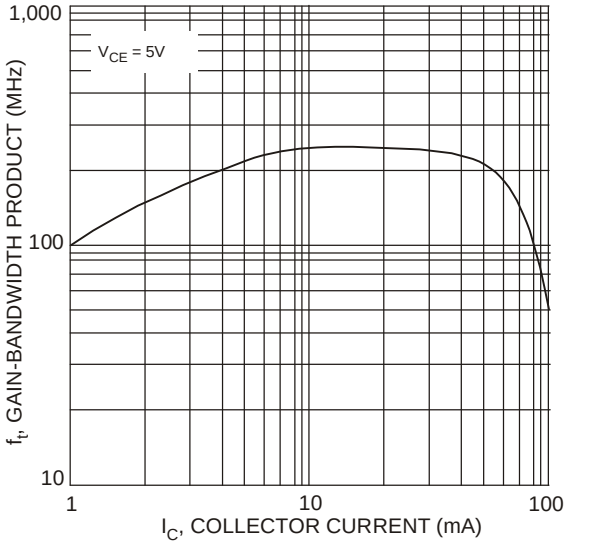
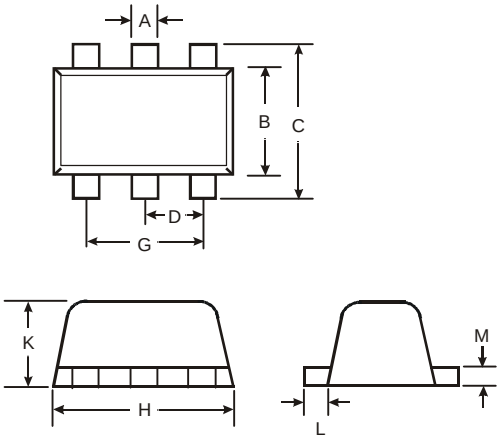


Fig. 4 Typical Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions

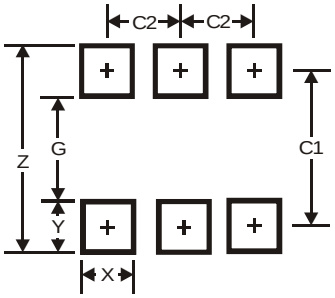
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SOT-563			
Dim	**Min**	**Max**	**Typ**
A	0.15	0.30	0.20
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	-	-	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5

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