



# BC857BV

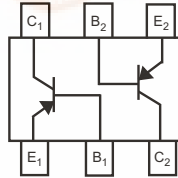
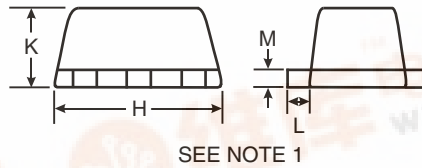
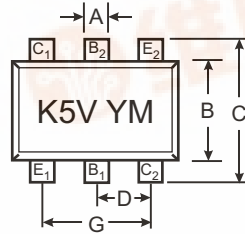
## PNP DUAL SMALL SIGNAL SURFACE MOUNT TRANSISTOR

### Features

- Epitaxial Die Construction
- Complementary NPN Types Available (BC847BV)
- Ultra-Small Surface Mount Package
- Lead Free By Design/RoHS Compliant (Note 3)

### Mechanical Data

- Case: SOT-563
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Marking (See Page 2): K5V
- Ordering & Date Code Information: See Page 2
- Weight: 0.003 grams (approximate)



SOT-563			
Dim	Min	Max	Typ
A	0.15	0.30	0.25
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	0.56	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

### Maximum Ratings @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-50	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-45	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5.0	V
Collector Current	I <sub>C</sub>	-100	mA
Power Dissipation (Note 2)	P <sub>d</sub>	150	mW
Thermal Resistance, Junction to Ambient (Note 2)	R <sub>JA</sub>	833	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

- Notes:
- Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).
  - 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>.
  - No purposefully added lead.



## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

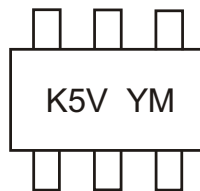
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage (Note 4)	$V_{(BR)CBO}$	-50	—	—	V	$I_C = 10\text{ A}, I_B = 0$
Collector-Emitter Breakdown Voltage (Note 4)	$V_{(BR)CEO}$	-45	—	—	V	$I_C = 10\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage (Note 4)	$V_{(BR)EBO}$	-5	—	—	V	$I_E = 1\text{ A}, I_C = 0$
DC Current Gain (Note 4)	$h_{FE}$	220	290	475	—	$V_{CE} = -5.0\text{V}, I_C = -2.0\text{mA}$
Collector-Emitter Saturation Voltage (Note 4)	$V_{CE(SAT)}$	—	—	-100 -400	mV	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$ $I_C = -100\text{mA}, I_B = -5.0\text{mA}$
Base-Emitter Saturation Voltage (Note 4)	$V_{BE(SAT)}$	—	-700 -900	—	mV	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$ $I_C = -100\text{mA}, I_B = -5.0\text{mA}$
Base-Emitter Voltage (Note 4)	$V_{BE(ON)}$	-600 —	—	-750 -820	mV	$V_{CE} = -5.0\text{V}, I_C = -2.0\text{mA}$ $V_{CE} = -5.0\text{V}, I_C = -10\text{mA}$
Collector-Cutoff Current (Note 4)	$I_{CBO}$	—	—	-15 -4.0	nA $\mu\text{A}$	$V_{CB} = -30\text{V}$ $V_{CB} = -30\text{V}, T_A = 150^\circ\text{C}$
Gain Bandwidth Product	$f_T$	100	—	—	MHz	$V_{CE} = -5.0\text{V}, I_C = -10\text{mA}$ , $f = 100\text{MHz}$
Output Capacitance	$C_{OB}$	—	—	4.5	pF	$V_{CB} = -10\text{V}, f = 1.0\text{MHz}$
Noise Figure	NF	—	—	10	dB	$I_C = -0.2\text{mA}, V_{CE} = -5.0\text{Vdc}$ , $R_S = 2.0\text{K}\Omega, f = 1.0\text{KHz}$ , $BW = 200\text{Hz}$

## Ordering Information (Note 5)

Device	Packaging	Shipping
BC857BV-7	SOT-563	3000/Tape & Reel

- Notes:
4. Short duration pulse test used to minimize self-heating effect.
  5. For Packaging Details: go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



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
Code	P	R	S	T	U	V	W	X	Y	Z

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

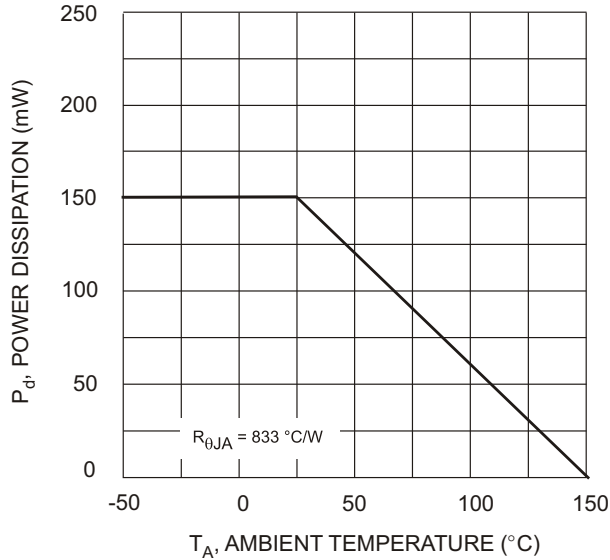


Fig. 1 Derating Curve - Total

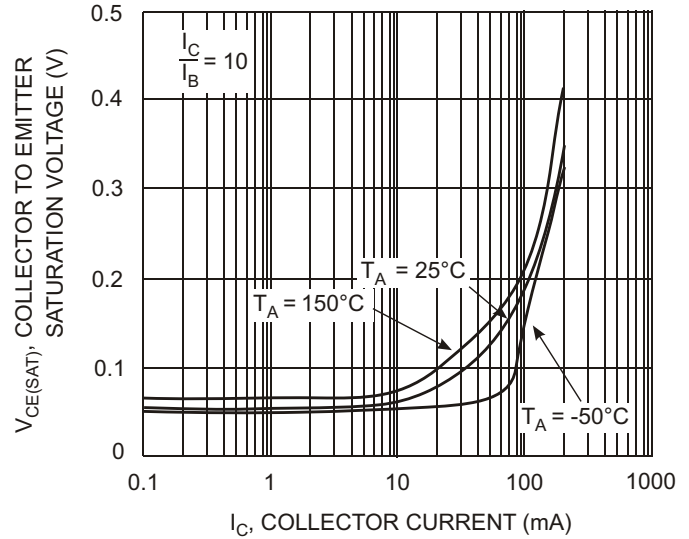


Fig. 2 Collector Emitter Saturation Voltage vs. Collector Current

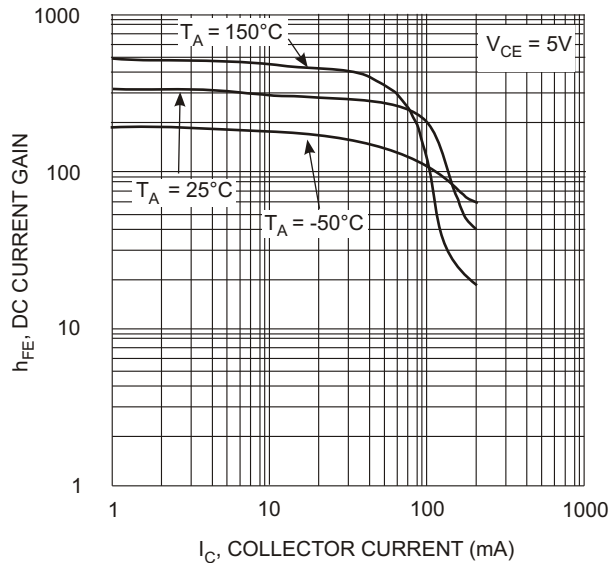


Fig. 3, DC Current Gain vs. Collector Current

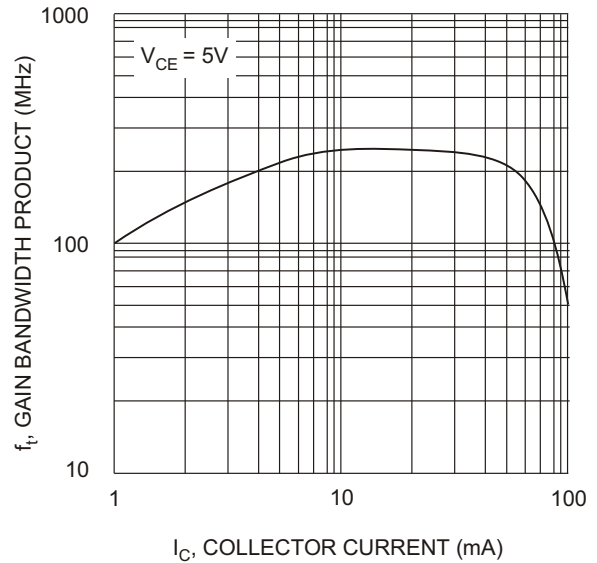


Fig. 4, Gain Bandwidth Product vs Collector Current

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