

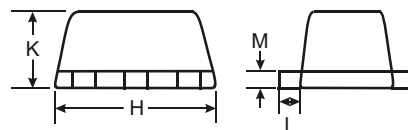
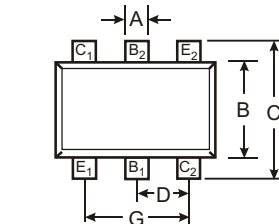
## NPN DUAL SMALL SIGNAL SURFACE MOUNT TRANSISTOR

### Features

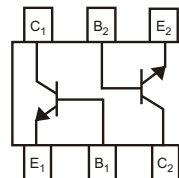
- Epitaxial Die Construction
- Ultra-Small Surface Mount Package
- Lead Free By Design/RoHS Compliant (Note 3)**
- "Green" Device (Note 4)**

### 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-020C
- Terminal Connections: See Diagram
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking (See Page 2): 4VK
- Ordering & Date Code Information: See Page 2
- Weight: 0.002 grams (approximate)



SEE NOTE 1



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	
All Dimensions in mm			

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	45	V
Emitter-Base Voltage	$V_{EBO}$	6.0	V
Collector Current	$I_C$	100	mA
Power Dissipation (Note 2)	$P_d$	150	mW
Thermal Resistance, Junction to Ambient (Note 2)	$R_{JA}$	833	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150	$^\circ\text{C}$

- 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.
  - Diodes Inc's "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php)

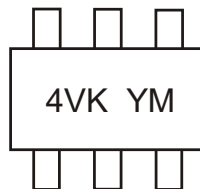
**Electrical Characteristics** @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage (Note 5)	V <sub>(BR)CBO</sub>	50	—	—	V	I <sub>C</sub> = 10 A, I <sub>B</sub> = 0
Collector-Emitter Breakdown Voltage (Note 5)	V <sub>(BR)CEO</sub>	45	—	—	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage (Note 5)	V <sub>(BR)EBO</sub>	6	—	—	V	I <sub>E</sub> = 1 A, I <sub>C</sub> = 0
DC Current Gain (Note 5)	h <sub>FE</sub>	200	290	450	—	V <sub>CE</sub> = 5.0V, I <sub>C</sub> = 2.0mA
Collector-Emitter Saturation Voltage (Note 5)	V <sub>CE(SAT)</sub>	—	—	100 300	mV	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0.5mA I <sub>C</sub> = 100mA, I <sub>B</sub> = 5.0mA
Base-Emitter Saturation Voltage (Note 5)	V <sub>BE(SAT)</sub>	—	700 900	—	mV	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0.5mA I <sub>C</sub> = 100mA, I <sub>B</sub> = 5.0mA
Base-Emitter Voltage (Note 5)	V <sub>BE</sub>	580 —	660 —	700 770	mV	V <sub>CE</sub> = 5.0V, I <sub>C</sub> = 2.0mA V <sub>CE</sub> = 5.0V, I <sub>C</sub> = 10mA
Collector-Emitter Cutoff Current (Note 5)	I <sub>CBO</sub> I <sub>CBO</sub>	—	—	15 5.0	nA μA	V <sub>CB</sub> = 30V V <sub>CB</sub> = 30V, T <sub>A</sub> = 150°C
Gain Bandwidth Product	f <sub>T</sub>	100	—	—	MHz	V <sub>CE</sub> = 5.0V, I <sub>C</sub> = 10mA, f = 100MHz
Output Capacitance	C <sub>OBO</sub>	—	—	4.5	pF	V <sub>CB</sub> = 10V, f = 1.0MHz
Noise Figure	NF	—	—	10	dB	V <sub>CE</sub> = 5V, R <sub>S</sub> = 2.0k f = 1.0kHz, BW = 200Hz

**Ordering Information** (Note 6)

Device	Packaging	Shipping
BC847BVC-7	SOT-563	3000/Tape & Reel

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

**Marking Information**


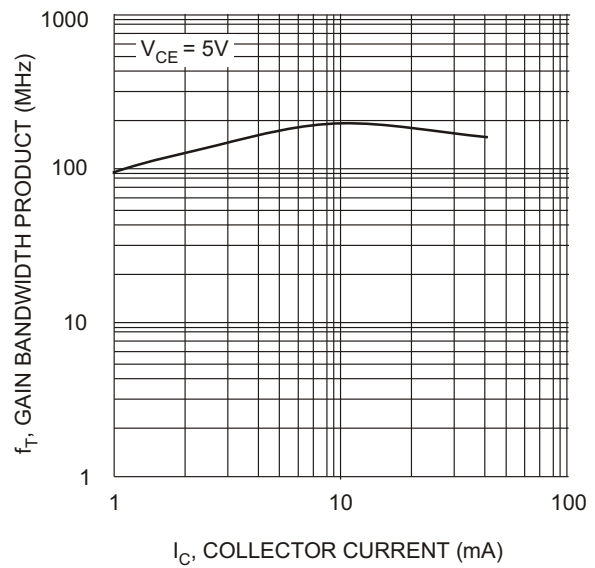
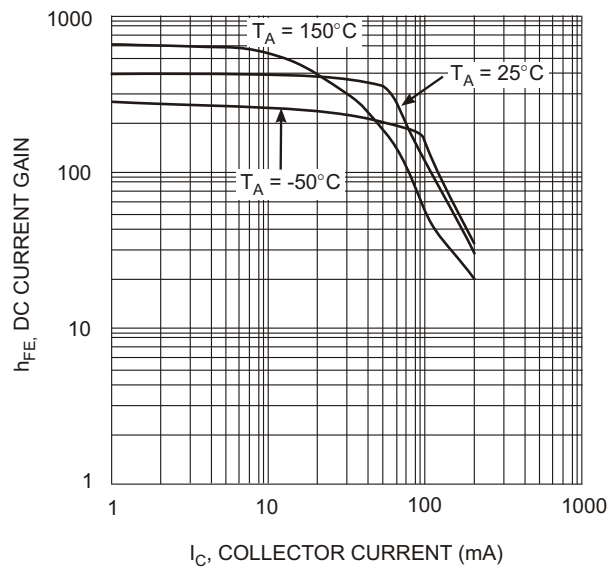
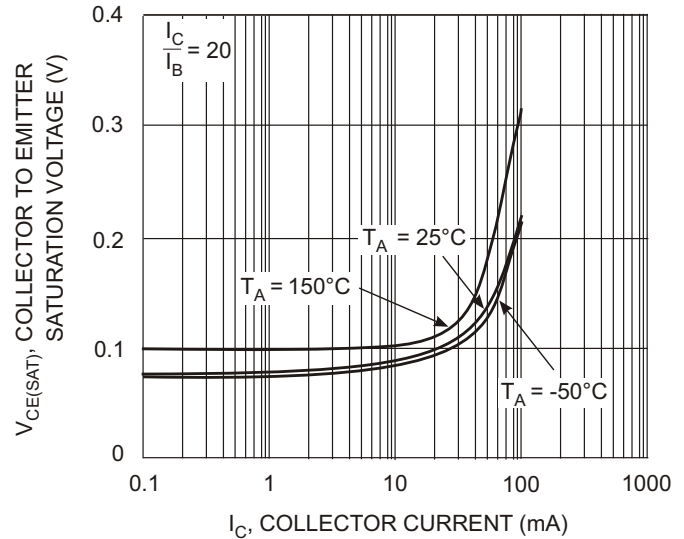
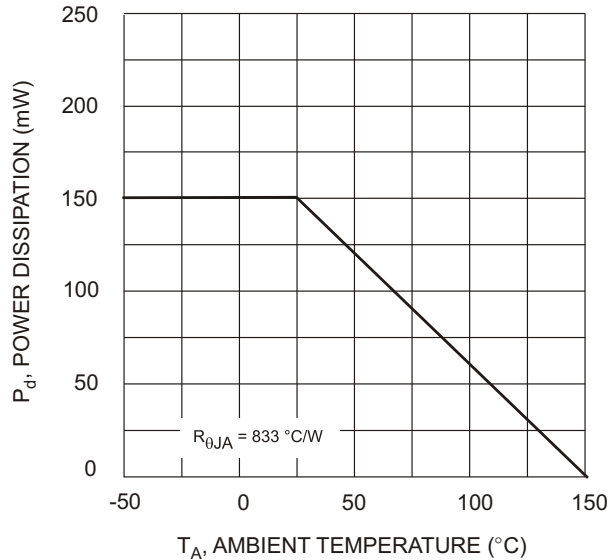
4VK = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: P = 2003)  
 M = Month (ex: 9 = September)

**Date Code Key**

Year	2005	2006	2007	2008	2009	2010	2011	2012
Code	S	T	U	V	W	X	Y	Z

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



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