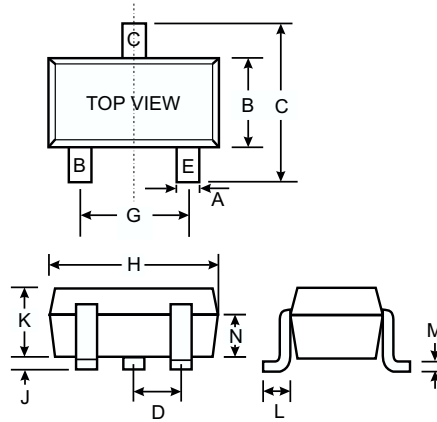


### Features

- Epitaxial Die Construction
- Complementary PNP Type Available (BC857AT,BT,CT)
- Ultra-Small Surface Mount Package

### Mechanical Data

- Case: SOT-523, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.002 grams (approx.)



SOT-523			
Dim	Min	Max	Typ
A	0.15	0.30	0.22
B	0.75	0.85	0.80
C	1.45	1.75	1.60
D	—	—	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
J	0.00	0.10	0.05
K	0.60	0.80	0.75
L	0.10	0.30	0.22
M	0.10	0.20	0.12
N	0.45	0.65	0.50
All Dimensions in mm			

Type	Marking
BC847A	1E
BC847B	1F
BC847C	1M

### 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 1)	$P_d$	150	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150	$^\circ\text{C}$

### Ordering Information (Note 2)

Device	Packaging	Shipping
BC847AT-7	SOT-523	3000/Tape & Reel
BC847BT-7	SOT-523	3000/Tape & Reel
BC847CT-7	SOT-523	3000/Tape & Reel

- Notes:
1. Device mounted on FR-4 PC board with recommended pad layout.
  2. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
DC Current Gain (Note 3)						
Current Gain A	$h_{FE}$	—	—	—	—	$V_{CE} = 5.0\text{V}, I_C = 2.0\text{mA}$
B		—	150	—		
C		—	270	—		
Current Gain A		110	—	220		
B		200	290	450		
C		420	520	800		
Collector-Emitter Saturation Voltage (Note 3)	$V_{CE(SAT)}$	—	—	250 600	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 3)	$V_{BE(SAT)}$	—	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 3)	$V_{BE}$	580 —	660 —	700 770	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-Emitter Cutoff Current (Note 3)	$I_{CBO}$ $I_{CBO}$	—	—	15 5.0	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	$C_{OBO}$	—	—	4.5	pF	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$
Noise Figure	BC847BT BC847CT	NF	—	10 4.0	dB	$V_{CE} = 5\text{V}, R_S = 2.0\text{k}\Omega$ , $f = 1.0\text{kHz}, \text{BW} = 200\text{Hz}$

Notes: 3. Short duration test pulse used to minimize self-heating effect.

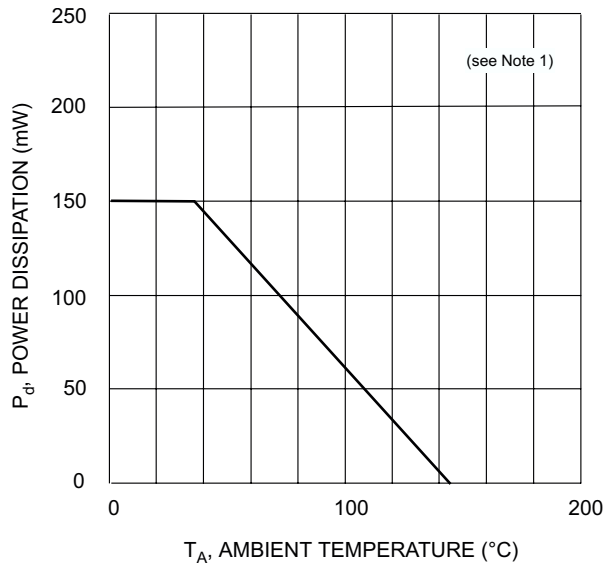


Fig. 1, Power Derating Curve

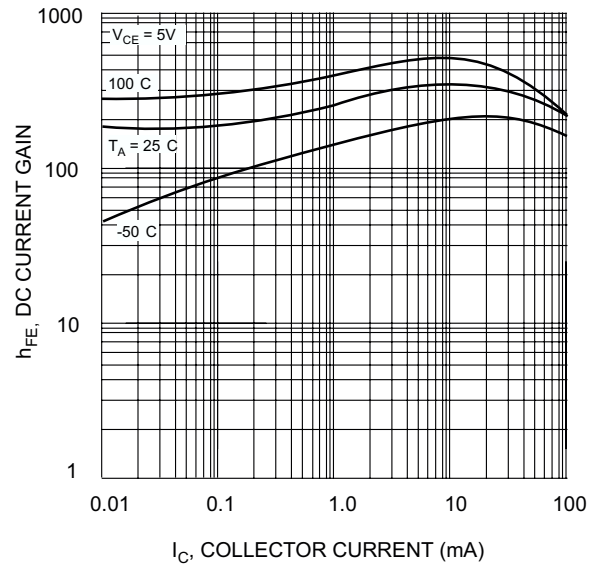


Fig. 2, DC Current Gain vs Collector Current

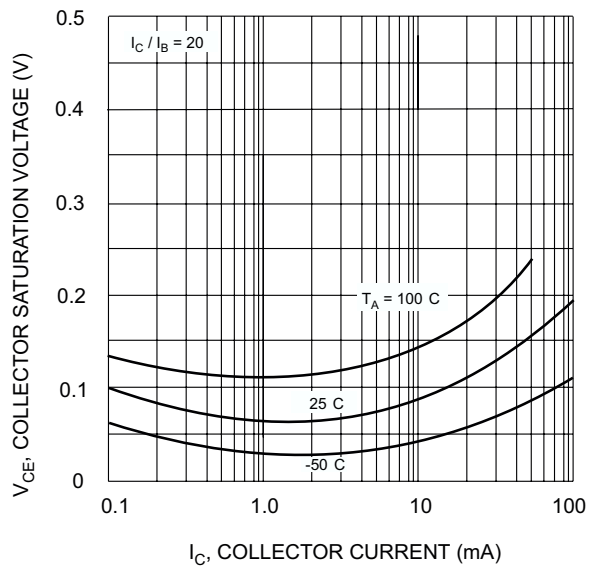


Fig. 3, Collector Saturation Voltage vs Collector Current

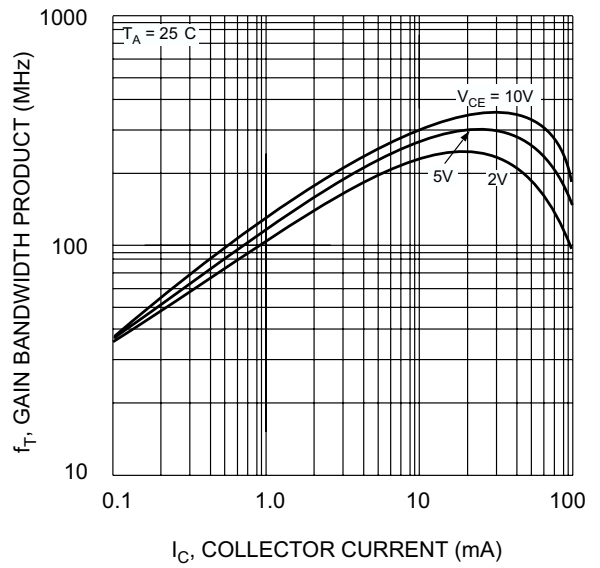


Fig. 4, Gain Bandwidth Product vs Collector Current

Notes: 1. Device mounted on FR-4 PC board with recommended pad layout.