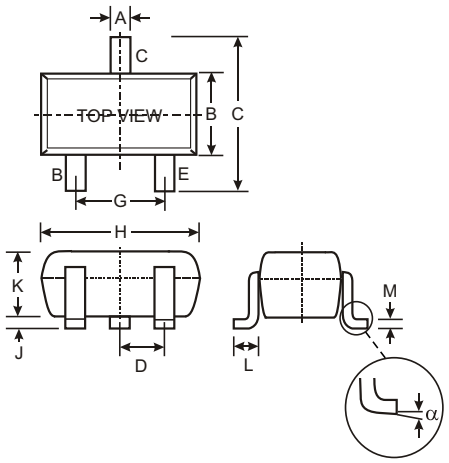
BC857AT, BT, CT

PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Die Construction
- Complementary NPN Types Available (BC847AT, BT, CT)
- Ultra-Small Surface Mount Package
- **Lead Free/RoHS Compliant (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**



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
	0	8	
All Dimensions in mm			

Mechanical Data

- Case: SOT-523
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking Codes (See Table Below & Diagrams on Page 2)
- Ordering & Date Code Information: See Page 2
- Weight: 0.002 grams (approximate)

Type	Marking
BC857AT	3V
BC857BT	3W
BC857CT	3G

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
Power Dissipation (Note 1)	P_d	150	mW
Thermal Resistance, Junction to Ambient (Note 1)	R_{JA}	833	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	°C

Notes:
1. 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.
2. No purposefully added lead.

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage (Note 3)	$V_{(BR)CBO}$	-50	—	—	V	I_C = 10 A, I_B = 0
Collector-Emitter Breakdown Voltage (Note 3)	$V_{(BR)CEO}$	-45	—	—	V	I_C = 10mA, I_B = 0
Emitter-Base Breakdown Voltage (Note 3)	$V_{(BR)EBO}$	-5	—	—	V	I_E = 1 A, I_C = 0
DC Current Gain (Note 3) Current Gain A B C	h_{FE}	125 220 420	— 290 520	250 475 800	—	V_{CE} = -5.0V, I_C = -2.0mA
Collector-Emitter Saturation Voltage (Note 3)	$V_{CE(SAT)}$	— —	— —	-300 -650	mV	I_C = -10mA, I_B = -0.5mA I_C = -100mA, I_B = -5.0mA
Base-Emitter Saturation Voltage (Note 3)	$V_{BE(SAT)}$	— —	-700 -900	— —	mV	I_C = -10mA, I_B = -0.5mA I_C = -100mA, I_B = -5.0mA
Base-Emitter Voltage (Note 3)	$V_{BE(ON)}$	-600 —	— —	-750 -820	mV	V_{CE} = -5.0V, I_C = -2.0mA V_{CE} = -5.0V, I_C = -10mA
Collector-Cutoff Current (Note 3)	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 = 2.0K , f = 1.0KHz, BW = 200Hz

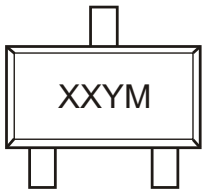
Notes: 3. Short duration pulse test used to minimize self-heating effect.

Ordering Information (Note 4)

Device	Packaging	Shipping
BC857AT-7-F	SOT-523	3000/Tape & Reel
BC857BT-7-F	SOT-523	3000/Tape & Reel
BC857CT-7-F	SOT-523	3000/Tape & Reel

Notes: 4. For Packaging Details: go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



XX = Product Type Marking Code (See Page 1), e.g. 3V = BC857AT
YM = Date Code Marking
Y = Year (ex: N = 2002)
M = Month (ex: 9 = September)

Date Code Key

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	J	K	L	M	N	P	R	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

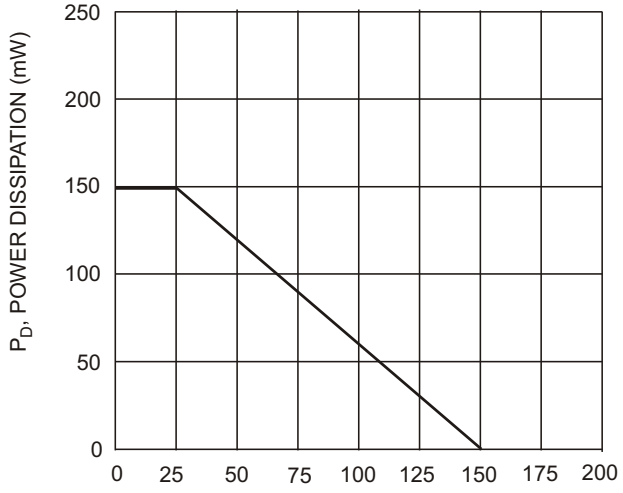


Fig. 1, Max Power Dissipation vs Ambient Temperature

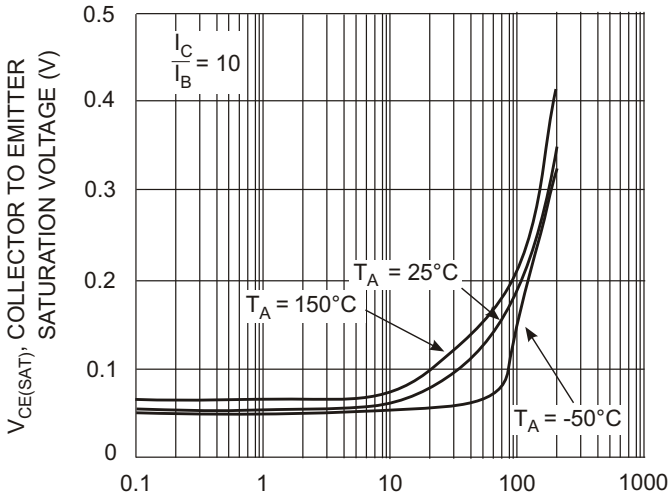


Fig. 2 Collector Emitter Saturation Voltage vs. Collector Current

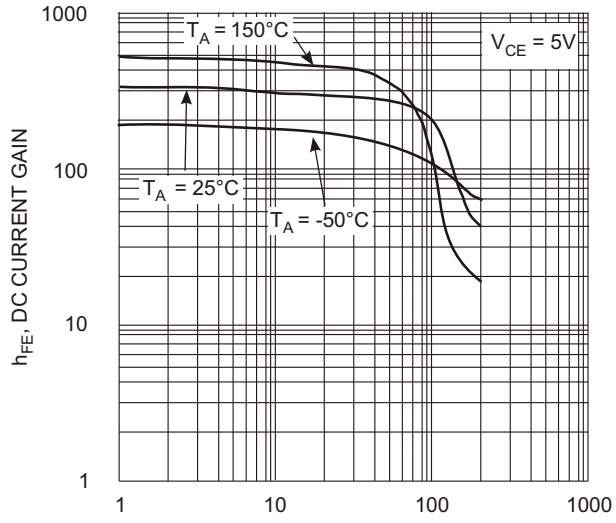


Fig. 3, DC Current Gain vs. Collector Current

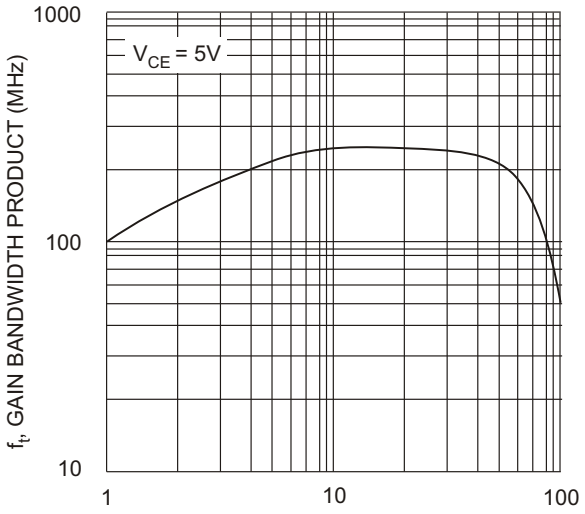


Fig. 4, Gain Bandwidth Product vs Collector Current