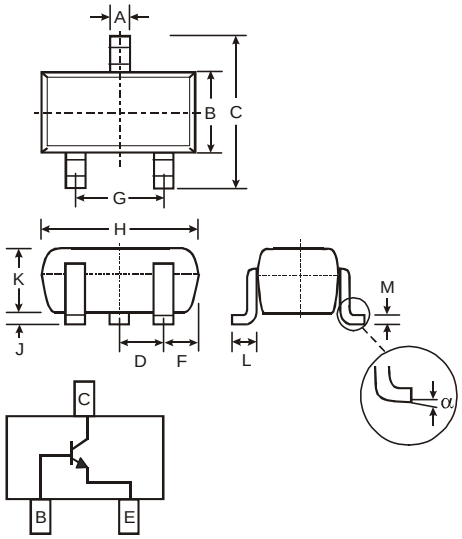
BC817-16 / -25 / -40

NPN SURFACE MOUNT SMALL SIGNAL TRANSISTOR

Please click here to visit our online spice models database.

Features

- Ideally Suited for Automated Insertion
- Epitaxial Planar Die Construction
- For Switching, AF Driver and Amplifier Applications
- Complementary PNP Types Available (BC807)
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 3 and 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**



SOT-23		
Dim	**Min**	**Max**
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
F	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Pin Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	800	mA
Peak Collector Current	I_{CM}	1000	mA
Peak Emitter Current	I_{EM}	1000	mA
Power Dissipation at T_{SB} = 50°C (Note 1)	P_D	310	mW
Thermal Resistance, Junction to Substrate Backside (Note 1)	$R_{\theta SB}$	320	°C/W
Thermal Resistance, Junction to Ambient Air (Note 1)	$R_{\theta JA}$	403	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic (Note 2)		Symbol	Min	Max	Unit	Test Condition
DC Current Gain	Current Gain Group -16	h_{FE}	100	250	—	V_{CE} = 1.0V, I_C = 100mA
	-25		160	400		
	-40		250	600		
	Current Gain Group -16		60	—		V_{CE} = 1.0V, I_C = 300mA
	-25		100	—		
	-40		170	—		
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	—	0.7	V	I_C = 500mA, I_B = 50mA
Base-Emitter Voltage		V_{BE}	—	1.2	V	V_{CE} = 1.0V, I_C = 300mA
Collector-Emitter Cutoff Current		I_{CES}	—	100	nA	V_{CE} = 45V
				5.0	μA	V_{CE} = 25V, T_j = 150°C
Emitter-Base Cutoff Current		I_{EBO}	—	100	nA	V_{EB} = 4.0V
Gain Bandwidth Product		f_T	100	—	MHz	V_{CE} = 5.0V, I_C = 10mA, f = 50MHz
Collector-Base Capacitance		C_{CBO}	—	12	pF	V_{CB} = 10V, f = 1.0MHz

Notes:
1. Device mounted on Ceramic Substrate 0.7mm; 2.5cm^2 area.
2. Short duration pulse test used to minimize self-heating effect.
3. No purposefully added lead. Halogen and Antimony Free.
4. Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or Sb_2O_3 Fire Retardants.

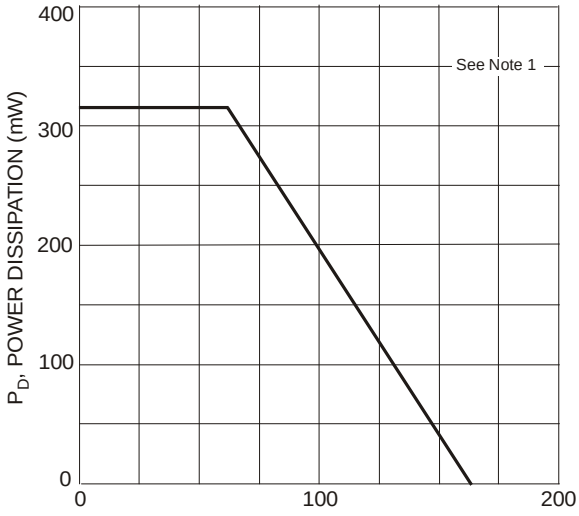


Fig. 1 Power Derating Curve

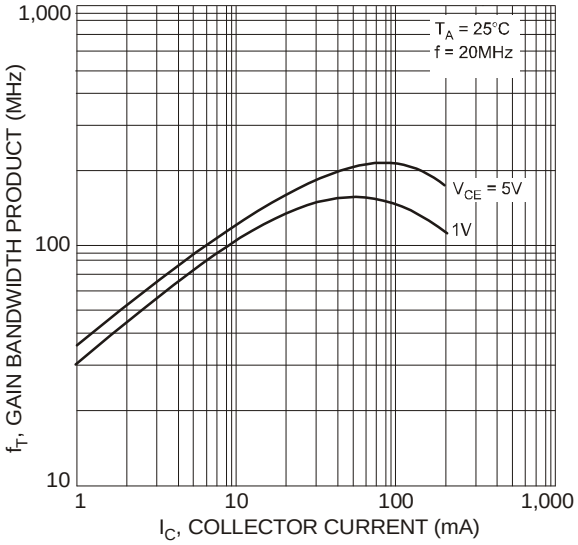


Fig. 2 Gain-Bandwidth Product vs. Collector Current

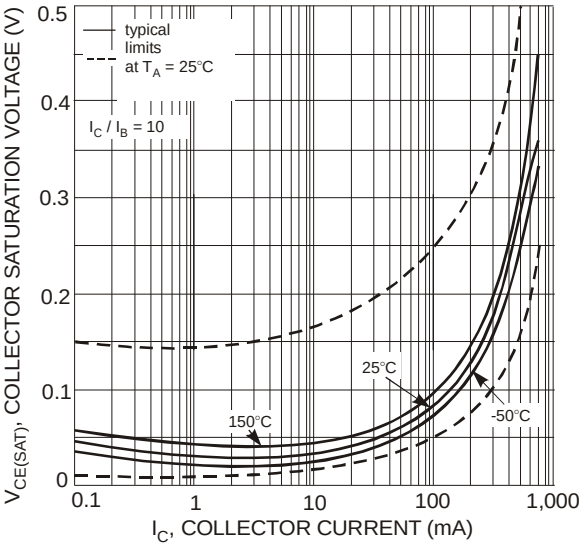


Fig. 3 Collector Saturation Voltage vs. Collector Current

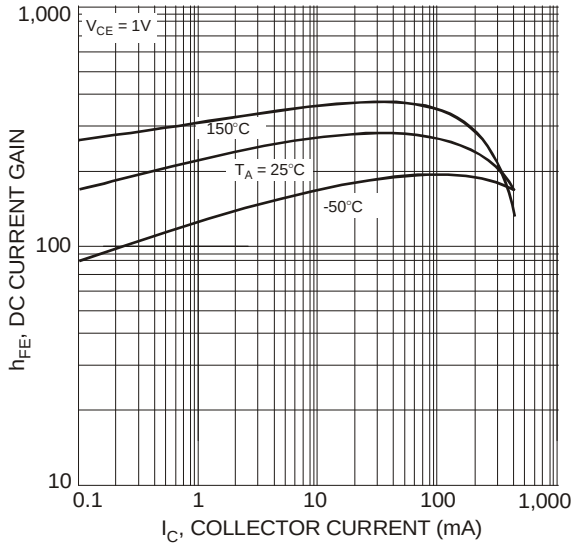


Fig. 4 DC Current Gain vs. Collector Current

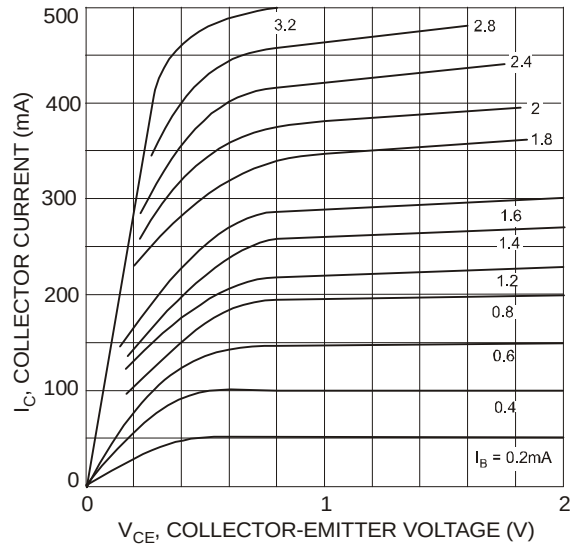


Fig. 5 Typical Emitter-Collector Characteristics

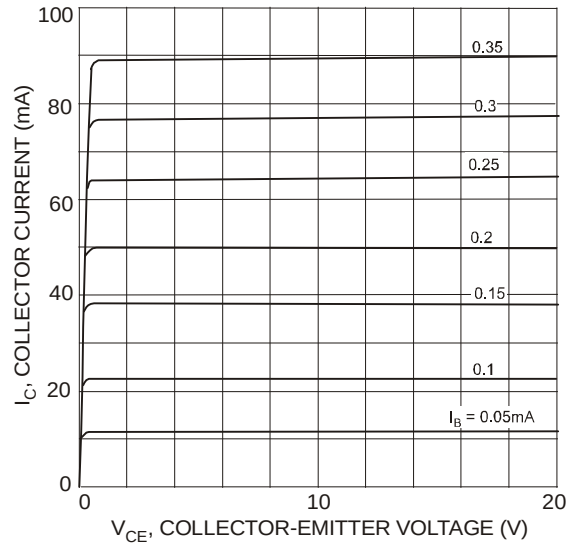


Fig. 6 Typical Emitter-Collector Characteristics

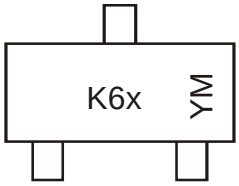
Ordering Information (Note 5)

Device*	Packaging	Shipping
BC817-xx-7-F	SOT-23	3000/Tape & Reel

*xx = gain group, e.g. BC817-16-7-F.

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



K6x = Product Type Marking Code:
K6A = BC817-16
K6B = BC817-25
K6C = BC817-40
YM = Date Code Marking
Y = Year ex: T = 2006
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	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D