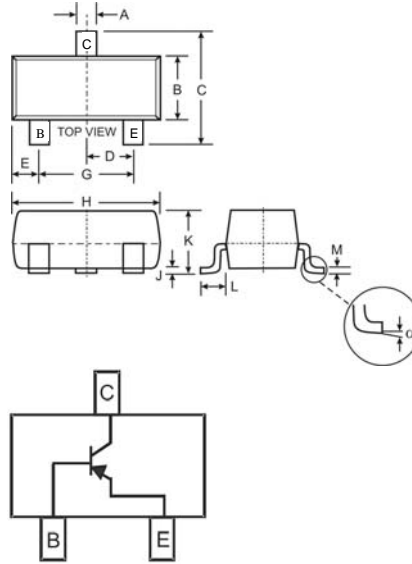


### Features

- Ideally Suited for Automatic Insertion
- Epitaxial Planar Die Construction
- For Switching, AF Driver and Amplifier Applications
- Complementary NPN Types Available (BC817)
- **Lead Free/RoHS Compliant (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### Mechanical Data

- Case: SOT-23
- 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)
- Pin Connections: See Diagram
- Ordering Information: See Page 3
- Marking Information: See Page 3
  - BC807-16 5A, K5A
  - BC807-25 5B, K5B
  - BC807-40 5C, K5C
- Weight: 0.008 grams (approximate)



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
E	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
$\alpha$	0°	8°
All Dimensions in mm		

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

Characteristic	Symbol	Value	Unit
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>	-500	mA
Peak Collector Current	I <sub>CM</sub>	-1000	mA
Peak Emitter Current	I <sub>EM</sub>	-1000	mA
Power Dissipation at T <sub>SB</sub> = 50°C (Note 1)	P <sub>d</sub>	310	mW
Thermal Resistance, Junction to Substrate Backside (Note 1)	R <sub>θJSB</sub>	320	°C/W
Thermal Resistance, Junction to Ambient Air (Note 1)	R <sub>θJA</sub>	403	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

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

Characteristic (Note 2)	Symbol	Min	Typ	Max	Unit	Test Condition
DC Current Gain Current Gain Group -16 -25 -40 Current Gain Group -16 -25 -40	h <sub>FE</sub>	100	—	250	—	V <sub>CE</sub> = 1.0V, I <sub>C</sub> = 100mA
		160		400		V <sub>CE</sub> = 1.0V, I <sub>C</sub> = 300mA
		250		600		
		60		—		
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	—	—	-0.7	V	I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA
Base-Emitter Voltage	V <sub>BE</sub>	—	—	-1.2	V	V <sub>CE</sub> = 1.0V, I <sub>C</sub> = 300mA
Collector-Emitter Cutoff Current	I <sub>CES</sub>	—	—	-100 -5.0	nA μA	V <sub>CE</sub> = 45V V <sub>CE</sub> = 25V, T <sub>J</sub> = 150°C
Emitter-Base Cutoff Current	I <sub>EBO</sub>	—	—	-100	nA	V <sub>EB</sub> = 4.0V
Gain Bandwidth Product	f <sub>T</sub>	100	—	—	MHz	V <sub>CE</sub> = 5.0V, I <sub>C</sub> = 10mA, f = 50MHz
Collector-Base Capacitance	C <sub>CB0</sub>	—	—	12	pF	V <sub>CB</sub> = 10V, f = 1.0MHz

- Notes:
1. Device mounted on ceramic substrate 0.7mm; 2.5cm<sup>2</sup> area.
  2. Short duration pulse test used to minimize self-heating effect.
  3. No purposefully added lead.

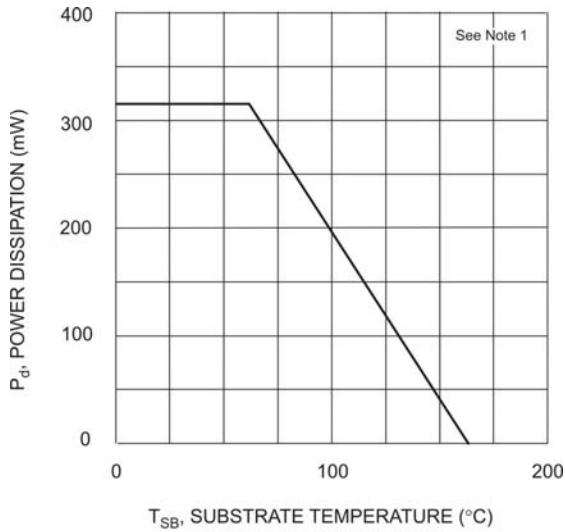


Fig. 1, Power Derating Curve

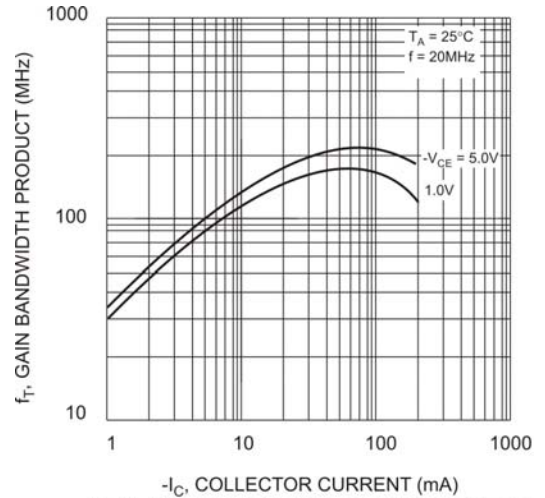


Fig. 2, Gain-Bandwidth Product vs Collector Current

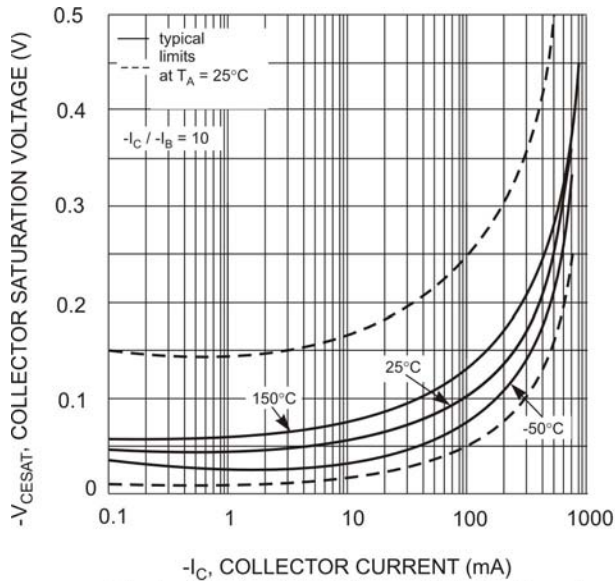


Fig. 3, Collector Sat. Voltage vs Collector Current

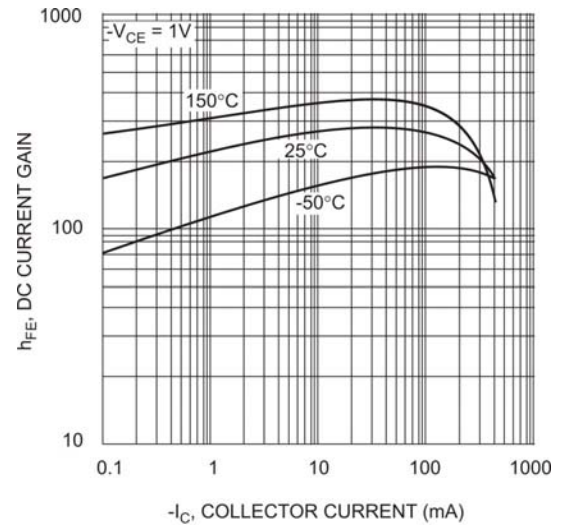


Fig. 4, DC Current Gain vs Collector Current

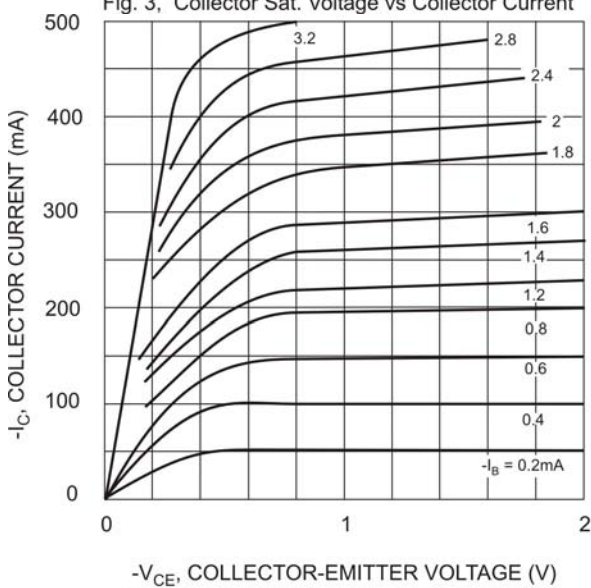


Fig. 5, Typical Emitter-Collector Characteristics

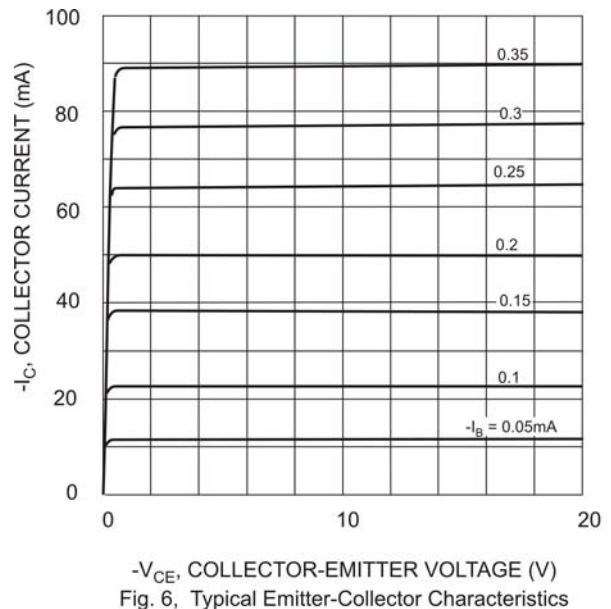


Fig. 6, Typical Emitter-Collector Characteristics

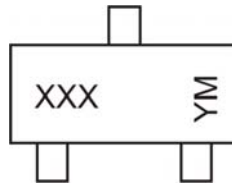
## Ordering Information (Note 4)

Device*	Packaging	Shipping
BC807-xx-7-F	SOT-23	3000/Tape & Reel

\* xx = gain group, eg. BC807-16-7-F.

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

## Marking Information



XXX = Product Type Marking Code (See Page 1): e.g. K5A = BC807-16  
 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

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