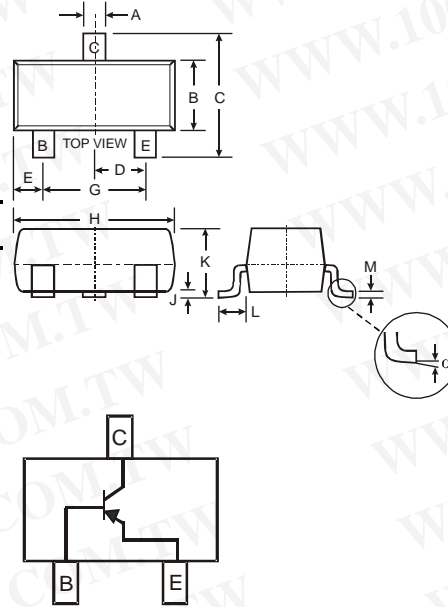


**Features**

- Ideally Suited for Automatic Insertion
- Epitaxial Planar Die Construction
- For Switching, AF Driver and Amplifier Applications
- Complementary NPN Types Available (BC817)
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 3 and 4)**
- **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	h <sub>FE</sub>	100	—	250	—	V <sub>CE</sub> = -1.0V, I <sub>C</sub> = -100mA
		160	—	400		
		250	—	600		
Current Gain Group -16	h <sub>FE</sub>	60	—	—	—	V <sub>CE</sub> = -1.0V, I <sub>C</sub> = -300mA
		100	—	—		
		170	—	—		
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	nA	V <sub>CE</sub> = -45V
Emitter-Base Cutoff Current	I <sub>EBO</sub>	—	—	-100	nA	V <sub>CE</sub> = -25V, T <sub>J</sub> = 150°C
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>CBO</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. 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<sub>2</sub>O<sub>3</sub> Fire Retardants.

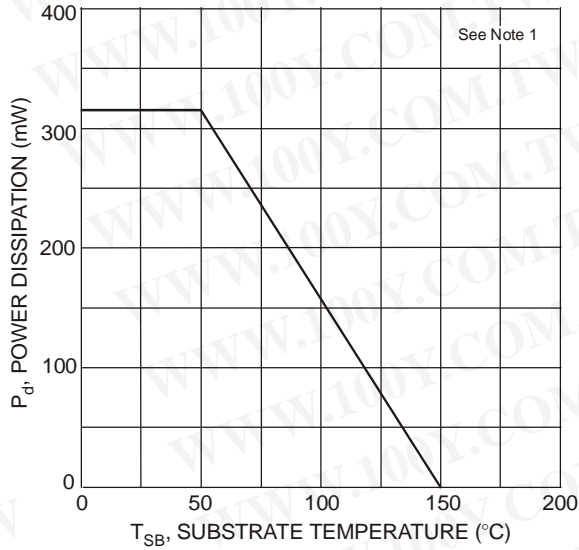


Fig. 1, Power Derating Curve

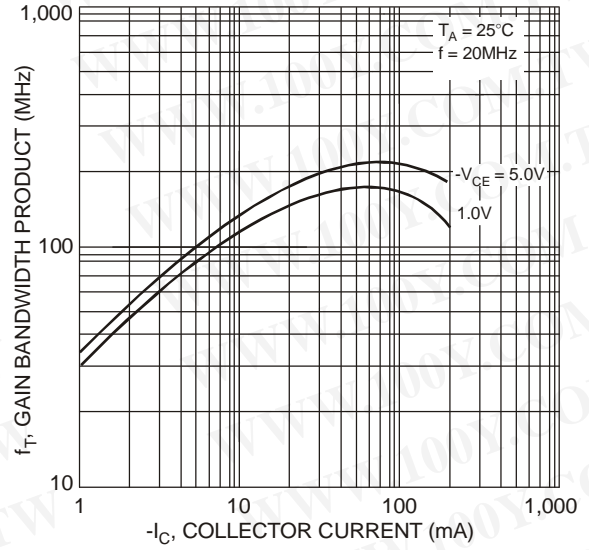


Fig. 2, Typical Gain-Bandwidth Product vs Collector Current

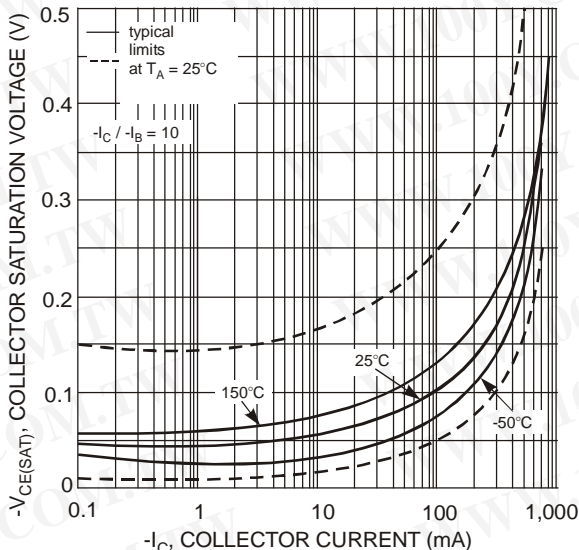


Fig. 3, Typical Collector Sat. Voltage vs Collector Current

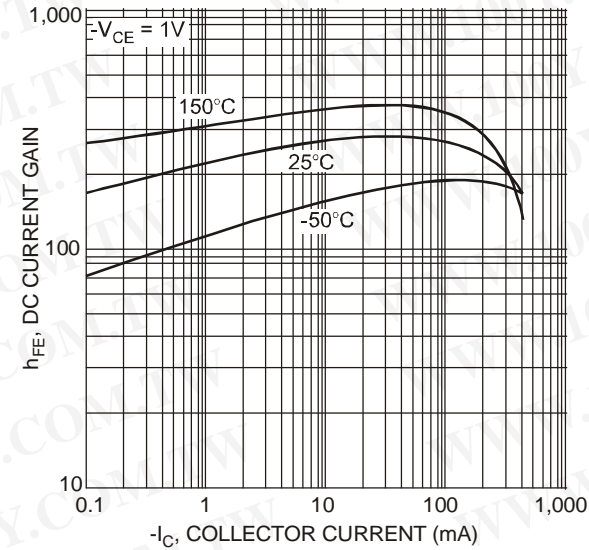


Fig. 4, Typical DC Current Gain vs Collector Current

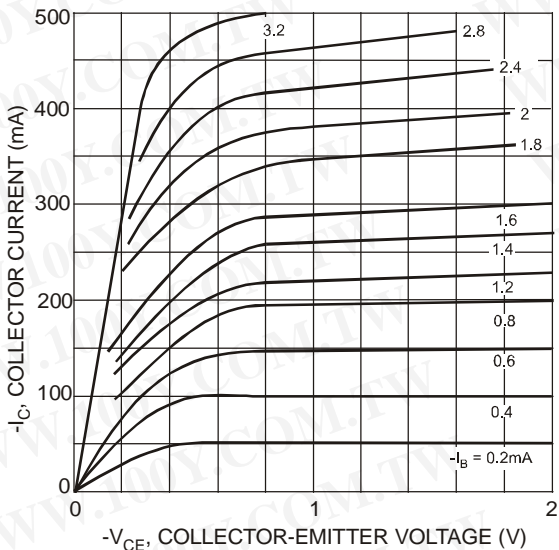


Fig. 5, Typical Emitter-Collector Characteristics

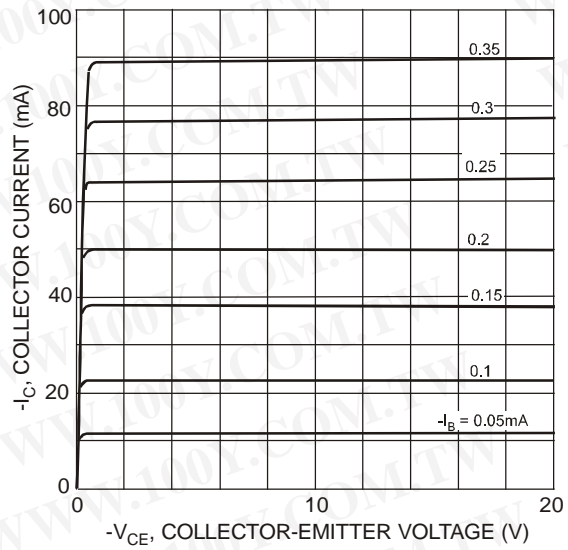


Fig. 6, Typical Emitter-Collector Characteristics

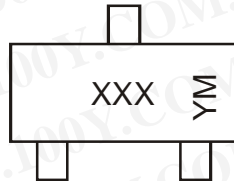
## Ordering Information (Note 5)

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

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

Notes: 5. 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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