

### Features

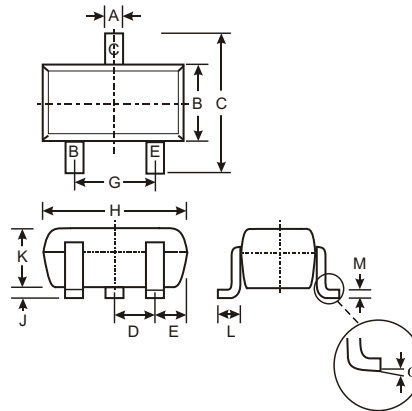
- Ideally Suited for Automatic Insertion
- Epitaxial Planar Die Construction
- For Switching, AF Driver and Amplifier Applications
- Complementary NPN Types Available (BC817-xxW)
- Lead Free By Design/RoHS Compliant (Note 1)**
- "Green" Device (Note 2)**

### Mechanical Data

Case: SOT-323  
 Case Material: Molded Plastic. "Green" Molding Compound.  
 UL Flammability Classification Rating 94V-0  
 Moisture Sensitivity: Level 1 per J-STD-020C  
 Terminals: Finish – Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208  
 Pin Connections: See Diagram

Marking:

P/N	Marking
BC807-16W	K5A
BC807-25W	K5B
BC807-40W	K5C



SOT-323		
Dim	Min	Max
A	0.25	0.40
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.18
	0	8
All Dimensions in mm		

Ordering & Date Code Information: See Page 3

Approximate Weight: 0.006 grams

### 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 3)	P <sub>d</sub>	200	mW
Thermal Resistance, Junction to Ambient Air (Note 3)	R <sub>JA</sub>	625	°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 4)	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	—	V <sub>CE</sub> = -1.0V, I <sub>C</sub> = -300mA
		60	—	—		
		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 -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:
- No purposefully added lead.
  - Diodes Inc's "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  - 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>.
  - Short duration pulse test used to minimize self-heating effect.

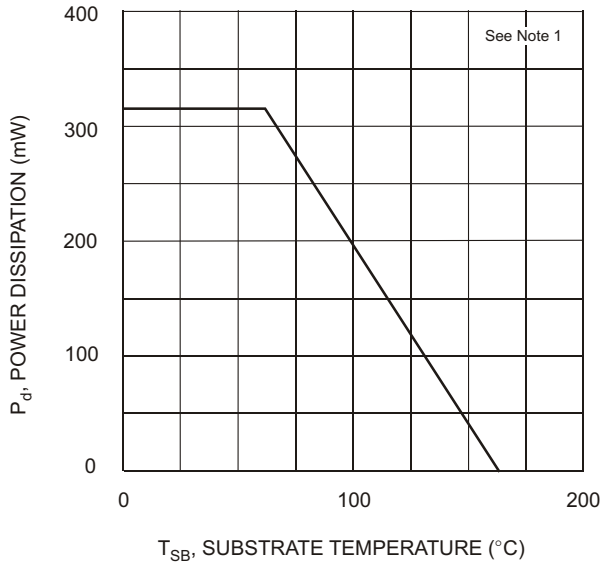


Fig. 1, Power Derating Curve

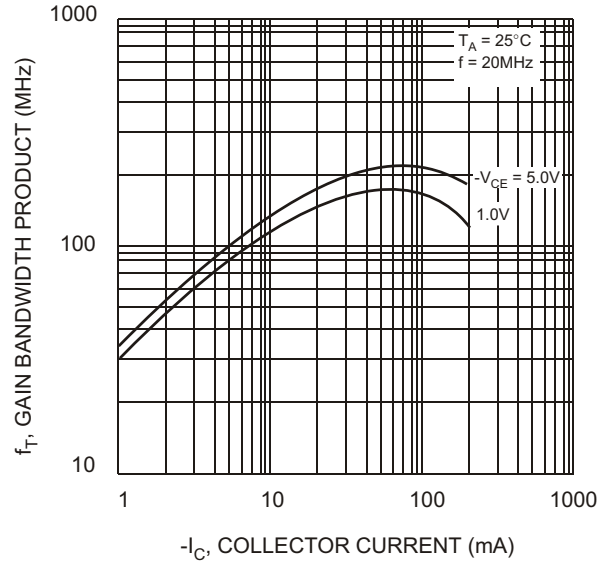


Fig. 2, Gain-Bandwidth Product vs Collector Current

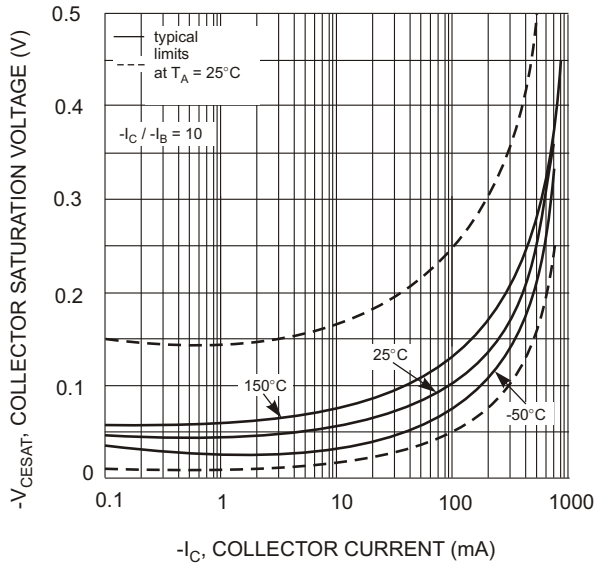


Fig. 3, Collector Sat. Voltage vs Collector Current

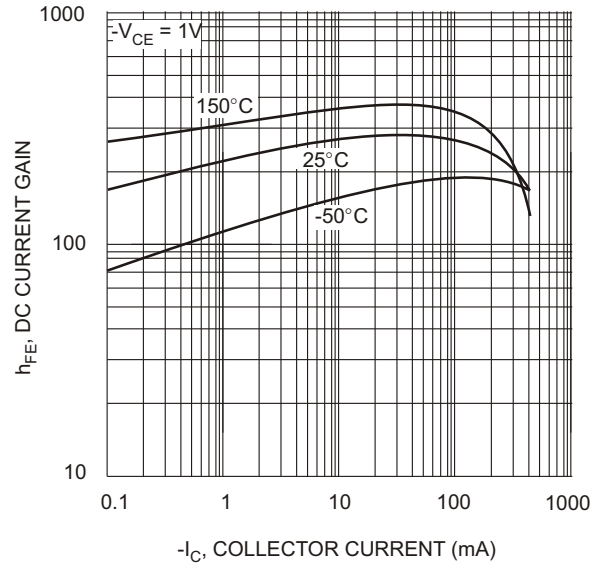


Fig. 4, DC Current Gain vs Collector Current

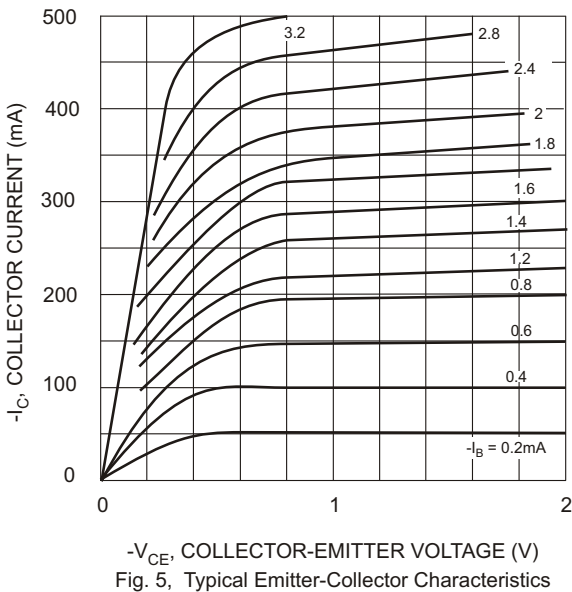


Fig. 5, Typical Emitter-Collector Characteristics

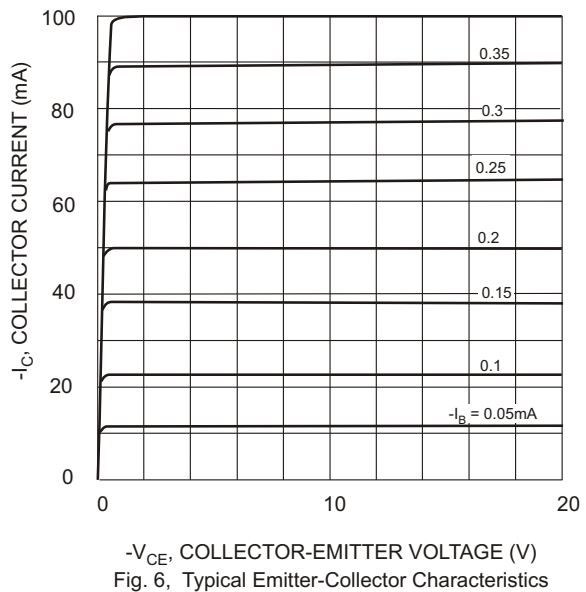


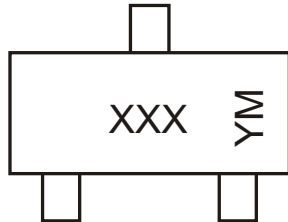
Fig. 6, Typical Emitter-Collector Characteristics

## Ordering Information (Note 5)

Device*	Packaging	Shipping
BC807-xxW-7	SOT-323	3000/Tape & Reel

Notes: 5. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.  
\* xx = gain group, e.g. BC807-16W-7.

## Marking Information



XXX = Product Type Marking Code (See Page 1), e.g. K5A = BC807-16  
YM = Date Code Marking  
Y = Year ex: S = 2005  
M = Month ex: 9 = September

Date Code Key

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	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

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