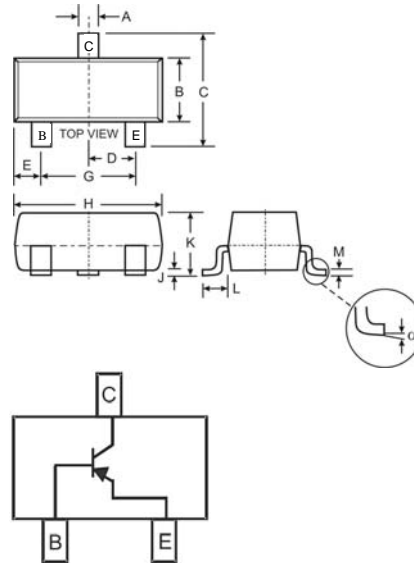


Features

- 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 |
| α | 0° | 8° |
| All Dimensions in mm | | |

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 | -500 | 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 _{θJSB} | 320 | °C/W |
| Thermal Resistance, Junction to Ambient Air (Note 1) | R _{θJA} | 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 | Typ | Max | Unit | Test Condition |
|---|----------------------|-----|-----|--------------|----------|--|
| DC Current Gain Current Gain Group -16 -25 -40 Current Gain Group -16 -25 -40 | h _{FE} | 100 | — | 250 | — | V _{CE} = 1.0V, I _C = 100mA |
| | | 160 | | 400 | | V _{CE} = 1.0V, I _C = 300mA |
| | | 250 | | 600 | | |
| | | 60 | | — | | |
| 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 -5.0 | nA μA | V _{CE} = 45V 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 _{CB0} | — | — | 12 | pF | V _{CB} = 10V, f = 1.0MHz |

- Notes:
1. Device mounted on ceramic substrate 0.7mm; 2.5cm² area.
 2. Short duration pulse test used to minimize self-heating effect.
 3. No purposefully added lead.

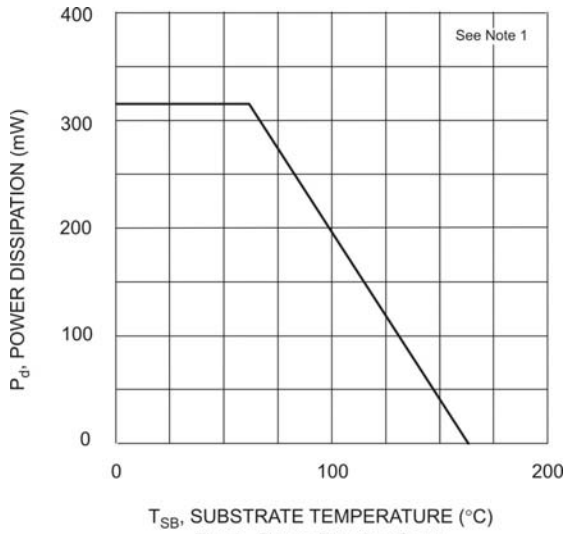


Fig. 1, Power Derating Curve

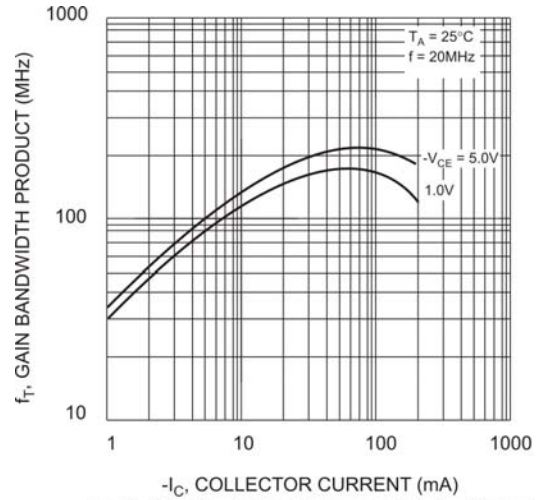


Fig. 2, Gain-Bandwidth Product vs Collector Current

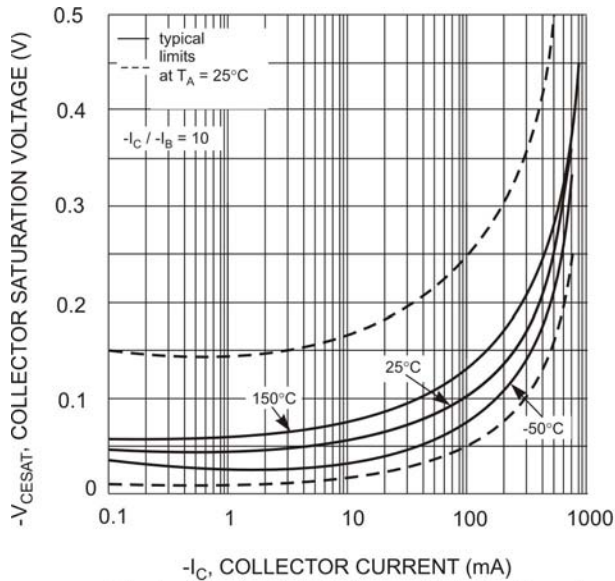


Fig. 3, Collector Sat. Voltage vs Collector Current

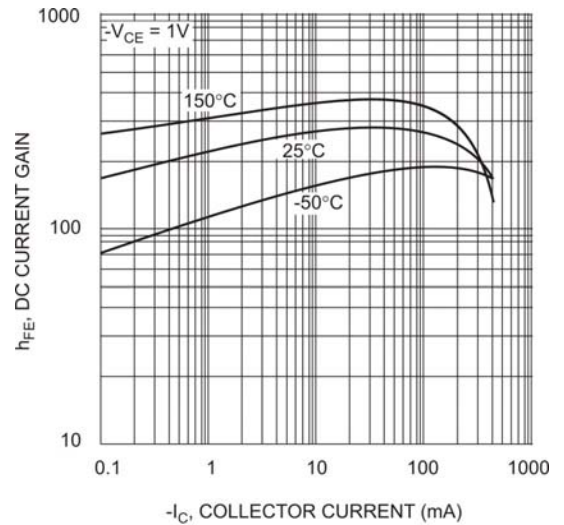


Fig. 4, DC Current Gain vs Collector Current

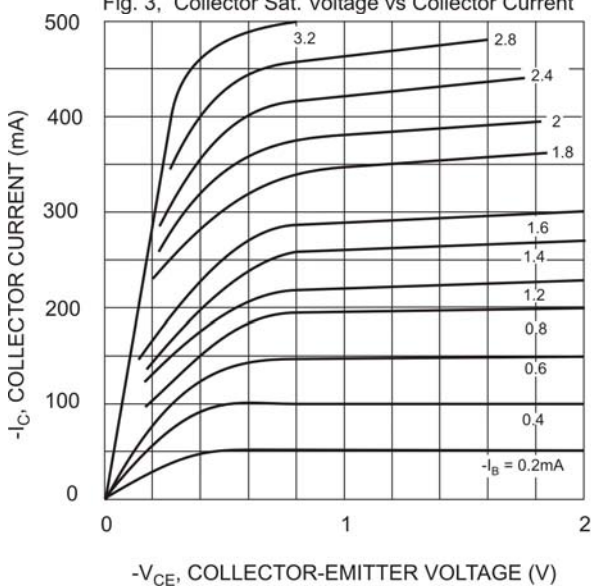


Fig. 5, Typical Emitter-Collector Characteristics

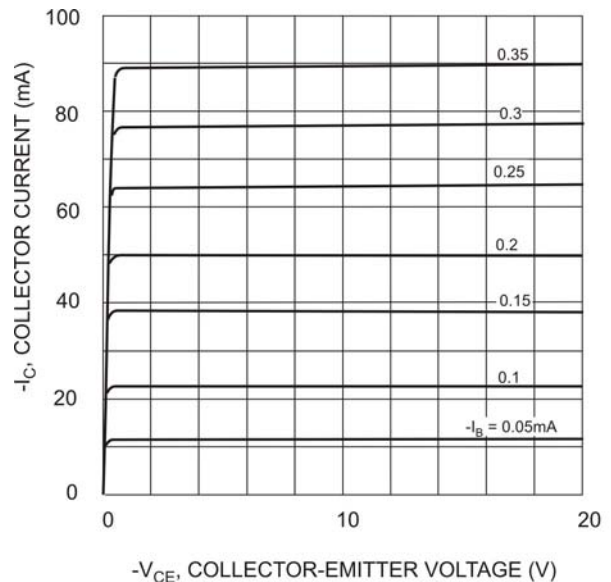


Fig. 6, Typical Emitter-Collector Characteristics

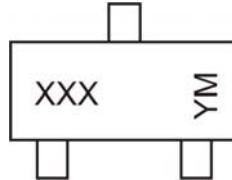
Ordering Information (Note 4)

| 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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