

BC807-16LT1, BC807-25LT1, BC807-40LT1

General Purpose Transistors

PNP Silicon

Features

- Pb-Free Packages are Available

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--------------------------------|-----------|-------|------|
| Collector - Emitter Voltage | V_{CEO} | -45 | V |
| Collector - Base Voltage | V_{CBO} | -50 | V |
| Emitter - Base Voltage | V_{EBO} | -5.0 | V |
| Collector Current - Continuous | I_C | -500 | mAdc |

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

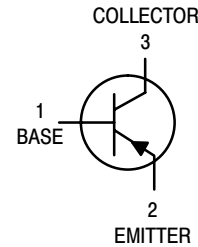
| Characteristic | Symbol | Max | Unit |
|---|-----------------|----------------|----------------------------|
| Total Device Dissipation FR-5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 225 1.8 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 556 | $^\circ\text{C}/\text{W}$ |
| Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 300 2.4 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 417 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |

- FR-5 = 1.0 x 0.75 x 0.062 in.
- Alumina = 0.4 x 0.3 x 0.024 in 99.5% alumina.

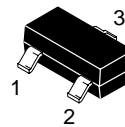


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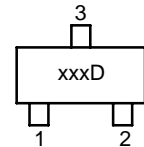
<http://onsemi.com>



MARKING DIAGRAM



SOT-23
CASE 318
STYLE 6



xxx = 5A (BC807-16LT1)
5B1 (BC807-25LT1)
5C (BC807-40LT1)
D = Date Code

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

OFF CHARACTERISTICS

| | | | | | |
|--|----------------------|------|---|--------------|----------|
| Collector–Emitter Breakdown Voltage (I _C = -10 mA) | V _{(BR)CEO} | -45 | - | - | V |
| Collector–Emitter Breakdown Voltage (V _{EB} = 0, I _C = -10 μA) | V _{(BR)CES} | -50 | - | - | V |
| Emitter–Base Breakdown Voltage (I _E = -1.0 μA) | V _{(BR)EBO} | -5.0 | - | - | V |
| Collector Cutoff Current (V _{CB} = -20 V) (V _{CB} = -20 V, T _J = 150°C) | I _{CBO} | - | - | -100 -5.0 | nA μA |

ON CHARACTERISTICS

| | | | | | |
|---|----------------------|-------------------------|---|------------------------|---|
| DC Current Gain (I _C = -100 mA, V _{CE} = -1.0 V) (I _C = -500 mA, V _{CE} = -1.0 V) | h _{FE} | 100 160 250 40 | - | 250 400 600 - | - |
| Collector–Emitter Saturation Voltage (I _C = -500 mA, I _B = -50 mA) | V _{CE(sat)} | - | - | -0.7 | V |
| Base–Emitter On Voltage (I _C = -500 mA, I _B = -1.0 V) | V _{BE(on)} | - | - | -1.2 | V |

SMALL-SIGNAL CHARACTERISTICS

| | | | | | |
|--|------------------|-----|----|------|-----|
| Current–Gain – Bandwidth Product (I _C = -10 mA, V _{CE} = -5.0 Vdc, f = 100 MHz) | f _T | 100 | - | - | MHz |
| Output Capacitance (V _{CB} = -10 V, f = 1.0 MHz) | C _{obo} | - | 10 | -0.7 | pF |

DEVICE ORDERING INFORMATION

| Device | Package | Shipping† |
|--------------|---------------------|--------------------|
| BC807-16LT1 | SOT-23 | 3,000 Tape & Reel |
| BC807-16LT3 | SOT-23 | 10,000 Tape & Reel |
| BC807-25LT1 | SOT-23 | 3,000 Tape & Reel |
| BC807-25LT1G | SOT-23 (Pb-Free) | |
| BC807-25LT3 | SOT-23 | 10,000 Tape & Reel |
| BC807-40LT1 | SOT-23 | 3,000 Tape & Reel |
| BC807-40LT1G | SOT-23 (Pb-Free) | |
| BC807-40LT3 | SOT-23 | 10,000 Tape & Reel |
| BC807-40LT3G | SOT-23 (Pb-Free) | |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

BC807-16LT1, BC807-25LT1, BC807-40LT1

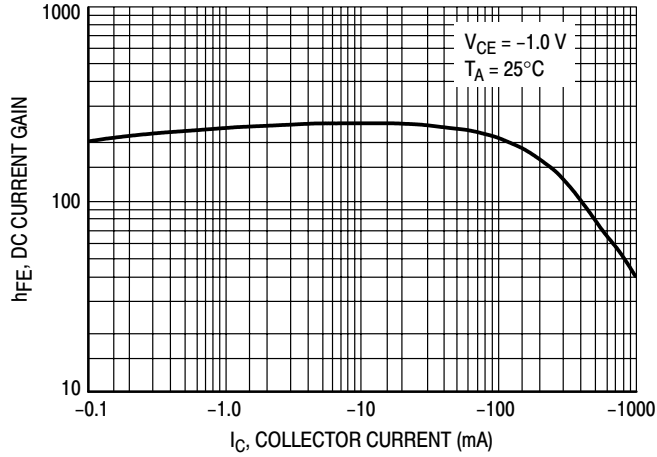


Figure 1. DC Current Gain

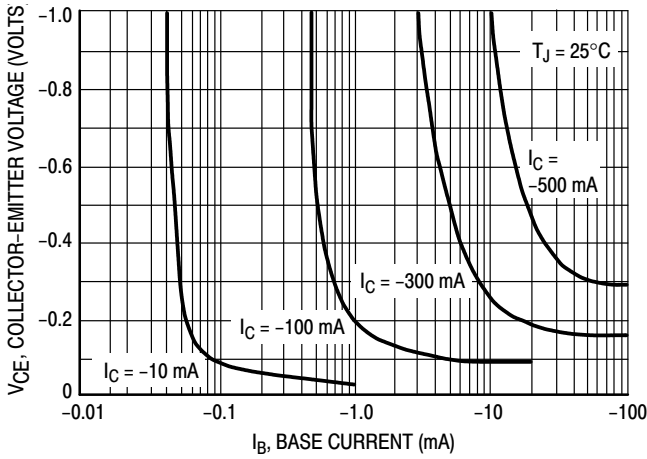


Figure 2. Saturation Region

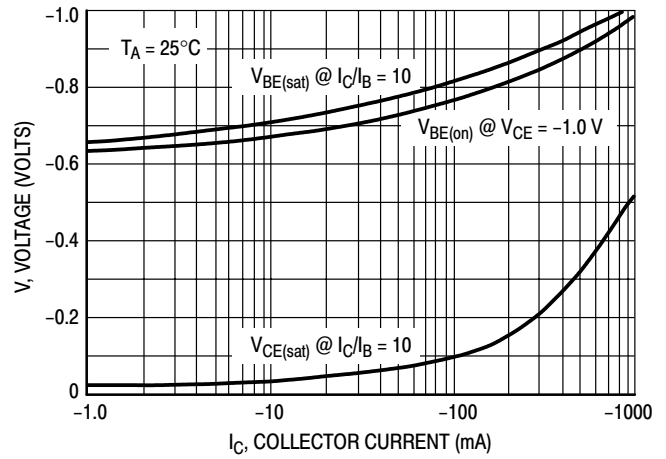


Figure 3. "On" Voltages

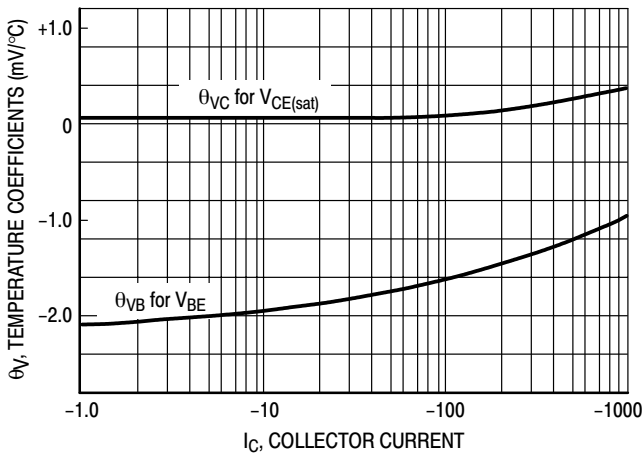


Figure 4. Temperature Coefficients

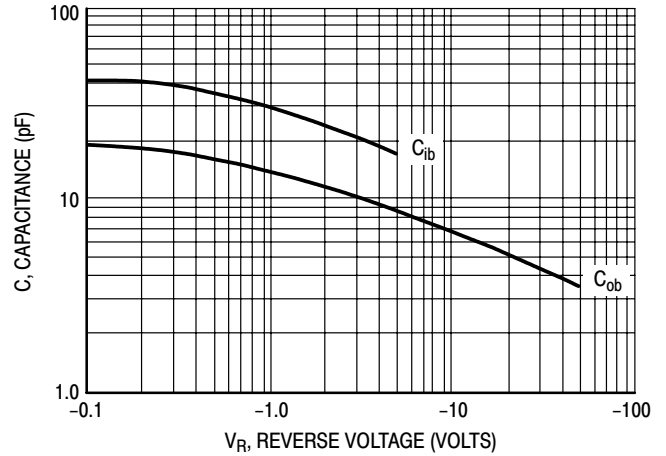
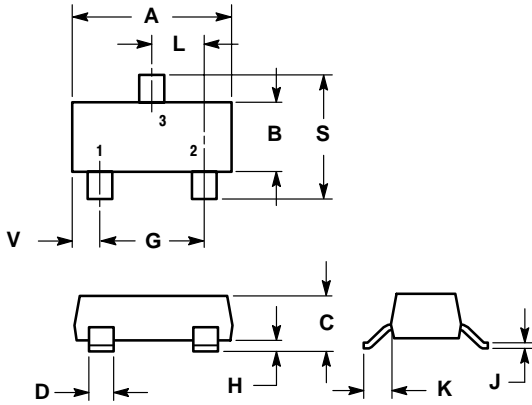


Figure 5. Capacitances

BC807-16LT1, BC807-25LT1, BC807-40LT1

PACKAGE DIMENSIONS

SOT-23 (TO-236)
CASE 318-09
ISSUE AI



NOTES:

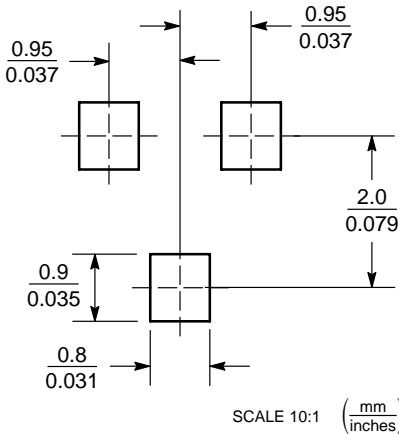
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-01, -02, AND -06 OBSOLETE, NEW STANDARD 318-09.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------|--------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.1102 | 0.1197 | 2.80 | 3.04 |
| B | 0.0472 | 0.0551 | 1.20 | 1.40 |
| C | 0.0385 | 0.0498 | 0.99 | 1.26 |
| D | 0.0140 | 0.0200 | 0.36 | 0.50 |
| G | 0.0670 | 0.0826 | 1.70 | 2.10 |
| H | 0.0040 | 0.0098 | 0.10 | 0.25 |
| J | 0.0034 | 0.0070 | 0.085 | 0.177 |
| K | 0.0180 | 0.0236 | 0.45 | 0.60 |
| L | 0.0350 | 0.0401 | 0.89 | 1.02 |
| S | 0.0830 | 0.0984 | 2.10 | 2.50 |
| V | 0.0177 | 0.0236 | 0.45 | 0.60 |


STYLE 6:

1. BASE
2. EMITTER
3. COLLECTOR

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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