

BC808-25LT1G, BC808-40LT1G

General Purpose Transistors

PNP Silicon

Features

- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--------------------------------|-----------|-------|------------------|
| Collector – Emitter Voltage | V_{CEO} | -25 | V |
| Collector – Base Voltage | V_{CBO} | -30 | V |
| Emitter – Base Voltage | V_{EBO} | -5.0 | V |
| Collector Current – Continuous | I_C | -500 | mA _{dc} |

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 | $^\circ\text{C}$ |

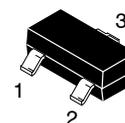
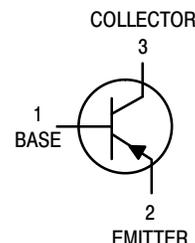
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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



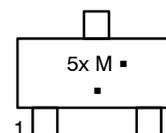
ON Semiconductor®

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SOT-23
CASE 318
STYLE 6

MARKING DIAGRAM



- 5x = Device Code
- x = F or G
- M = Date Code*
- = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

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

BC808–25LT1G, BC808–40LT1G

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|--|------------------|-------------|-----------------|---------------------|
| OFF CHARACTERISTICS | | | | | |
| Collector – Emitter Breakdown Voltage ($I_C = -10\text{ mA}$) | $V_{(BR)CEO}$ | -25 | – | – | V |
| Collector – Emitter Breakdown Voltage ($V_{EB} = 0, I_C = -10\ \mu\text{A}$) | $V_{(BR)CES}$ | -30 | – | – | V |
| Emitter – Base Breakdown Voltage ($I_E = -1.0\ \mu\text{A}$) | $V_{(BR)EBO}$ | -5.0 | – | – | V |
| Collector Cutoff Current ($V_{CB} = -20\text{ V}$) ($V_{CB} = -20\text{ V}, T_J = 150^\circ\text{C}$) | I_{CBO} | – | – | -100 -5.0 | nA μA |
| ON CHARACTERISTICS | | | | | |
| DC Current Gain ($I_C = -100\text{ mA}, V_{CE} = -1.0\text{ V}$) ($I_C = -500\text{ mA}, V_{CE} = -1.0\text{ V}$) | h_{FE} BC808–25LT1G BC808–40LT1G | 160 250 40 | – – – | 400 600 – | – |
| Collector – Emitter Saturation Voltage ($I_C = -500\text{ mA}, I_B = -50\text{ mA}$) | $V_{CE(sat)}$ | – | – | -0.7 | V |
| Base – Emitter On Voltage ($I_C = -500\text{ mA}, I_B = -1.0\text{ V}$) | $V_{BE(on)}$ | – | – | -1.2 | V |
| SMALL-SIGNAL CHARACTERISTICS | | | | | |
| Current – Gain – Bandwidth Product ($I_C = -10\text{ mA}, V_{CE} = -5.0\text{ Vdc}, f = 100\text{ MHz}$) | f_T | 100 | – | – | MHz |
| Output Capacitance ($V_{CB} = -10\text{ V}, f = 1.0\text{ MHz}$) | C_{obo} | – | 10 | – | pF |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

ORDERING INFORMATION

| Device | Specific Marking | Package | Shipping† |
|---------------|------------------|---------------------|--------------------|
| BC808–25LT1G | 5F | SOT–23 (Pb–Free) | 3000 / Tape & Reel |
| SBC808–25LT1G | | | |
| BC808–40LT1G | 5G | SOT–23 (Pb–Free) | 3000 / Tape & Reel |

†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.

BC808-25LT1G, BC808-40LT1G

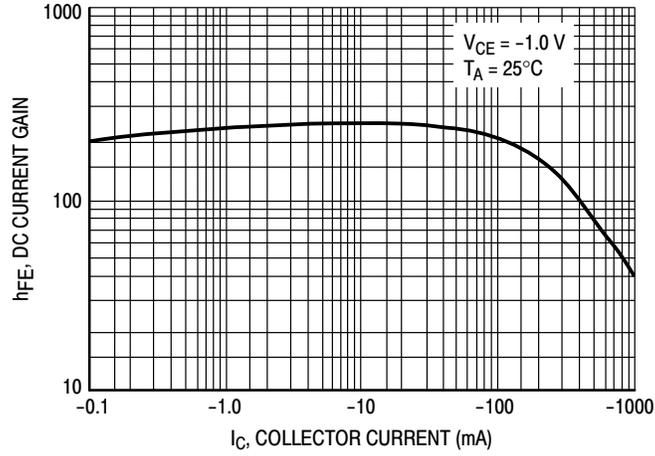


Figure 1. DC Current Gain

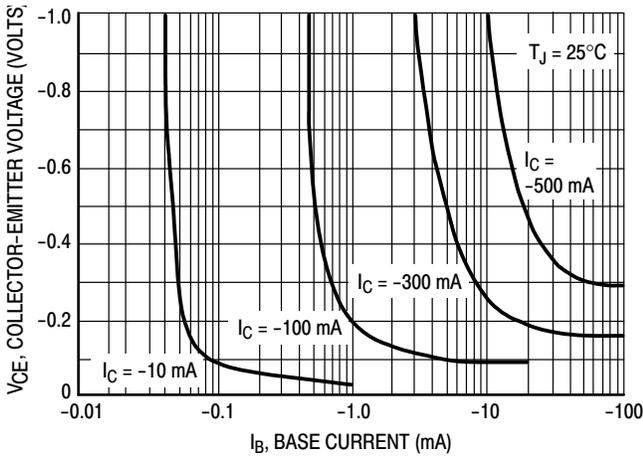


Figure 2. Saturation Region

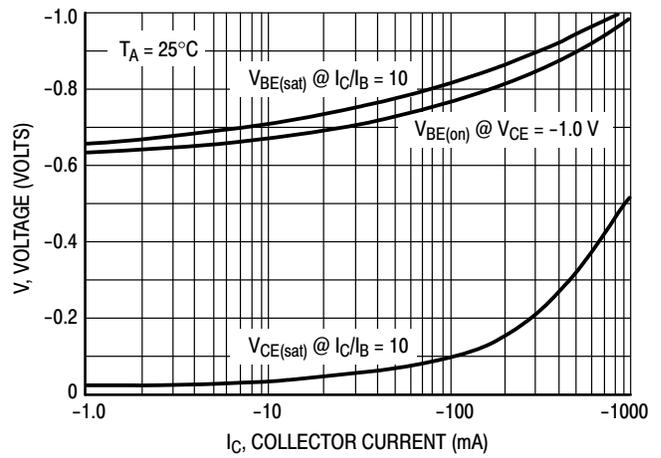


Figure 3. "On" Voltages

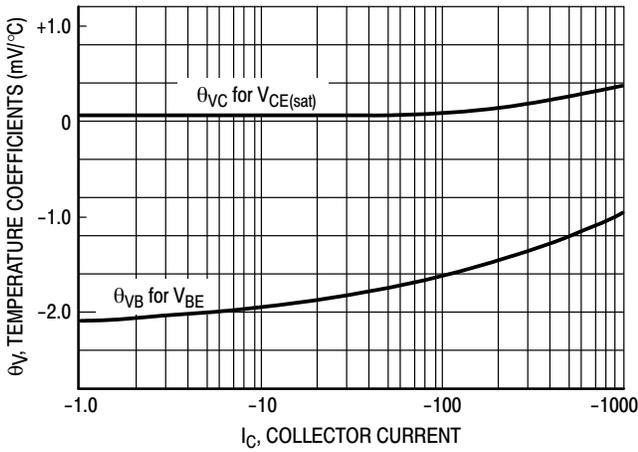


Figure 4. Temperature Coefficients

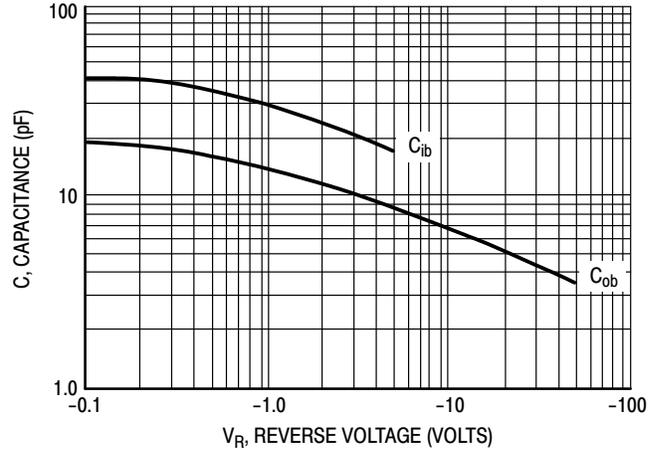
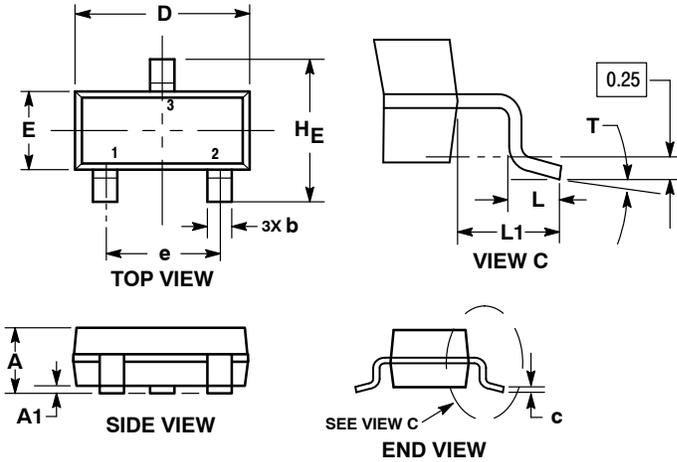


Figure 5. Capacitances

BC808–25LT1G, BC808–40LT1G

PACKAGE DIMENSIONS

SOT-23 (TO-236)
CASE 318-08
ISSUE AR



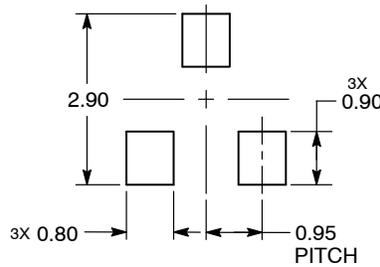
NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|--------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.89 | 1.00 | 1.11 | 0.035 | 0.039 | 0.044 |
| A1 | 0.01 | 0.06 | 0.10 | 0.000 | 0.002 | 0.004 |
| b | 0.37 | 0.44 | 0.50 | 0.015 | 0.017 | 0.020 |
| c | 0.08 | 0.14 | 0.20 | 0.003 | 0.006 | 0.008 |
| D | 2.80 | 2.90 | 3.04 | 0.110 | 0.114 | 0.120 |
| E | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| e | 1.78 | 1.90 | 2.04 | 0.070 | 0.075 | 0.080 |
| L | 0.30 | 0.43 | 0.55 | 0.012 | 0.017 | 0.022 |
| L1 | 0.35 | 0.54 | 0.69 | 0.014 | 0.021 | 0.027 |
| HE | 2.10 | 2.40 | 2.64 | 0.083 | 0.094 | 0.104 |
| T | 0° | --- | 10° | 0° | --- | 10° |

STYLE 6:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*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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