

BSS63LT1G, NSVBSS63LT1G

High Voltage Transistor

PNP Silicon

Features

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

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|-----------|-------|------|
| Collector-Emitter Voltage | V_{CEO} | -100 | Vdc |
| Collector-Emitter Voltage $R_{BE} = 10 \text{ k}\Omega$ | V_{CER} | -110 | Vdc |
| Collector Current - Continuous | I_C | -100 | mAdc |

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

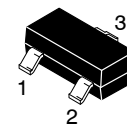
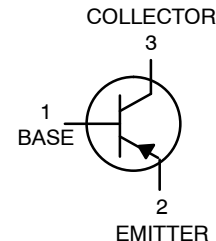
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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



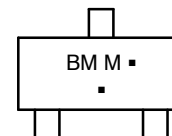
ON Semiconductor®

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SOT-23
CASE 318
STYLE 6

MARKING DIAGRAM



BM = Device Code
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

| Device | Package | Shipping† |
|--------------|---------------------|--------------------|
| BSS63LT1G | SOT-23 (Pb-free) | 3000 / Tape & Reel |
| NSVBSS63LT1G | 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.

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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 = -100 μAdc) | V _{(BR)CEO} | -100 | - | - | Vdc |
| Collector – Emitter Breakdown Voltage (I _C = -10 μAdc, I _E = 0, R _{BE} = 10 kΩ) | V _{(BR)CER} | -110 | - | - | Vdc |
| Collector – Base Breakdown Voltage (I _E = -10 μAdc, I _C = 0) | V _{(BR)CBO} | -110 | - | - | Vdc |
| Emitter – Base Breakdown Voltage (I _E = -10 μAdc) | V _{(BR)EBO} | -6.0 | - | - | Vdc |
| Collector Cutoff Current (V _{CB} = -90 Vdc, I _E = 0) | I _{CBO} | - | - | -100 | nAdc |
| Collector Cutoff Current (V _{CE} = -110 Vdc, R _{BE} = 10 kΩ) | I _{CER} | - | - | -10 | μAdc |
| Emitter Cutoff Current (V _{EB} = -6.0 Vdc, I _C = 0) | I _{EBO} | - | - | -200 | nAdc |
| ON CHARACTERISTICS | | | | | |
| DC Current Gain (I _C = -10 mAdc, V _{CE} = -1.0 Vdc) (I _C = -25 mAdc, V _{CE} = -1.0 Vdc) | h _{FE} | 30 30 | - - | - - | - |
| Collector – Emitter Saturation Voltage (I _C = -25 mAdc, I _B = -2.5 mAdc) | V _{CE(sat)} | - | - | -250 | mVdc |
| Base – Emitter Saturation Voltage (I _C = -25 mAdc, I _B = -2.5 mAdc) | V _{BE(sat)} | - | - | -900 | mVdc |
| SMALL-SIGNAL CHARACTERISTICS | | | | | |
| Current – Gain – Bandwidth Product (I _C = -25 mAdc, V _{CE} = -5.0 Vdc, f = 20 MHz) | f _T | 50 | 95 | - | MHz |
| Case Capacitance (I _E = I _C = 0, V _{CB} = -10 Vdc, f = 1.0 MHz) | C _C | - | - | 20 | pF |

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

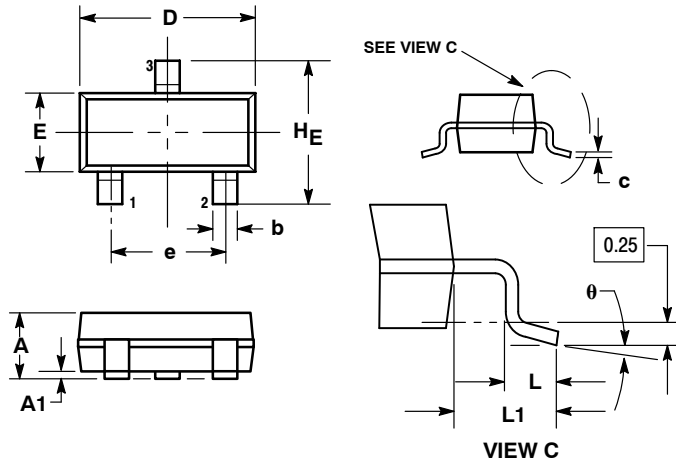
BSS63LT1G, NSVBSS63LT1G

PACKAGE DIMENSIONS

SOT-23 (TO-236)

CASE 318-08

ISSUE AP



NOTES:

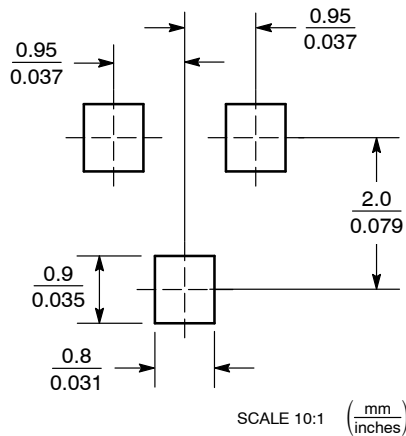
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|--------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.89 | 1.00 | 1.11 | 0.035 | 0.040 | 0.044 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| b | 0.37 | 0.44 | 0.50 | 0.015 | 0.018 | 0.020 |
| c | 0.09 | 0.13 | 0.18 | 0.003 | 0.005 | 0.007 |
| 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 | 0.081 |
| L | 0.10 | 0.20 | 0.30 | 0.004 | 0.008 | 0.012 |
| L1 | 0.35 | 0.54 | 0.69 | 0.014 | 0.021 | 0.029 |
| HE | 2.10 | 2.40 | 2.64 | 0.083 | 0.094 | 0.104 |
| θ | 0° | --- | 10° | 0° | --- | 10° |


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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