

# BSS64LT1G

## Driver Transistor

### NPN Silicon

#### Features

- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

#### MAXIMUM RATINGS

| Rating                         | Symbol    | Value | Unit |
|--------------------------------|-----------|-------|------|
| Collector – Emitter Voltage    | $V_{CEO}$ | 80    | Vdc  |
| Collector – Base Voltage       | $V_{CBO}$ | 120   | Vdc  |
| Emitter – Base Voltage         | $V_{EBO}$ | 5.0   | Vdc  |
| Collector Current – Continuous | $I_C$     | 100   | mAdc |

#### THERMAL CHARACTERISTICS

| Characteristic                                                                                                         | Symbol          | Max         | Unit                       |
|------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|----------------------------|
| Total Device Dissipation FR-5 Board,<br>(Note 1) $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$           | $P_D$           | 225<br>1.8  | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient                                                                                | $R_{\theta JA}$ | 556         | $^\circ\text{C/W}$         |
| Total Device Dissipation<br>Alumina Substrate, (Note 2)<br>$T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 300<br>2.4  | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient                                                                                | $R_{\theta JA}$ | 417         | $^\circ\text{C/W}$         |
| 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.

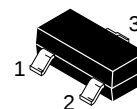
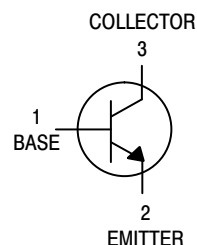
1. FR-5 = 1.0 x 0.75 x 0.062 in.

2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.



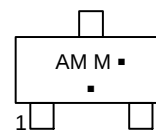
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SOT-23 (TO-236)  
CASE 318  
STYLE 6

#### MARKING DIAGRAM



AM = 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†           |
|-----------|---------------------|---------------------|
| BSS64LT1G | SOT-23<br>(Pb-Free) | 3,000 / 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.

# BSS64LT1G

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

| Characteristic                                                                                                                                                                                             | Symbol               | Min    | Max         | Unit             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|-------------|------------------|
| <b>OFF CHARACTERISTICS</b>                                                                                                                                                                                 |                      |        |             |                  |
| Collector–Emitter Breakdown Voltage<br>(I <sub>C</sub> = 4.0 mA <sub>dc</sub> )                                                                                                                            | V <sub>(BR)CEO</sub> | 80     | –           | V <sub>dc</sub>  |
| Collector–Base Breakdown Voltage<br>(I <sub>C</sub> = 100 µA <sub>dc</sub> )                                                                                                                               | V <sub>(BR)CBO</sub> | 120    | –           | V <sub>dc</sub>  |
| Emitter–Base Breakdown Voltage<br>(I <sub>E</sub> = 100 µA <sub>dc</sub> )                                                                                                                                 | V <sub>(BR)EBO</sub> | 5.0    | –           | V <sub>dc</sub>  |
| Collector Cutoff Current<br>(V <sub>CE</sub> = 90 V <sub>dc</sub> )<br>(T <sub>A</sub> = 150°C)                                                                                                            | I <sub>CBO</sub>     | –<br>– | 0.1<br>500  | µA <sub>dc</sub> |
| Emitter Cutoff Current<br>(V <sub>EB</sub> = 4.0 V <sub>dc</sub> )                                                                                                                                         | I <sub>EBO</sub>     | –      | 200         | nA <sub>dc</sub> |
| <b>ON CHARACTERISTICS</b>                                                                                                                                                                                  |                      |        |             |                  |
| DC Current Gain<br>(V <sub>CE</sub> = 1.0 V <sub>dc</sub> , I <sub>C</sub> = 10 mA <sub>dc</sub> )                                                                                                         | H <sub>FE</sub>      | 20     | –           | –                |
| Collector–Emitter Saturation Voltage<br>(I <sub>C</sub> = 4.0 mA <sub>dc</sub> , I <sub>B</sub> = 400 µA <sub>dc</sub> )<br>(I <sub>C</sub> = 50 mA <sub>dc</sub> , I <sub>B</sub> = 15 mA <sub>dc</sub> ) | V <sub>CE(sat)</sub> | –<br>– | 0.15<br>0.2 | V <sub>dc</sub>  |
| Forward Base–Emitter Voltage                                                                                                                                                                               | V <sub>BE(sat)</sub> | –      | –           | –                |
| <b>SMALL–SIGNAL CHARACTERISTICS</b>                                                                                                                                                                        |                      |        |             |                  |
| Current–Gain – Bandwidth Product<br>(I <sub>C</sub> = 4.0 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> , f = 20 MHz)                                                                            | f <sub>T</sub>       | 60     | –           | MHz              |
| Output Capacitance<br>(V <sub>CB</sub> = 10 V <sub>dc</sub> , f = 1.0 MHz)                                                                                                                                 | C <sub>ob</sub>      | –      | 20          | 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.

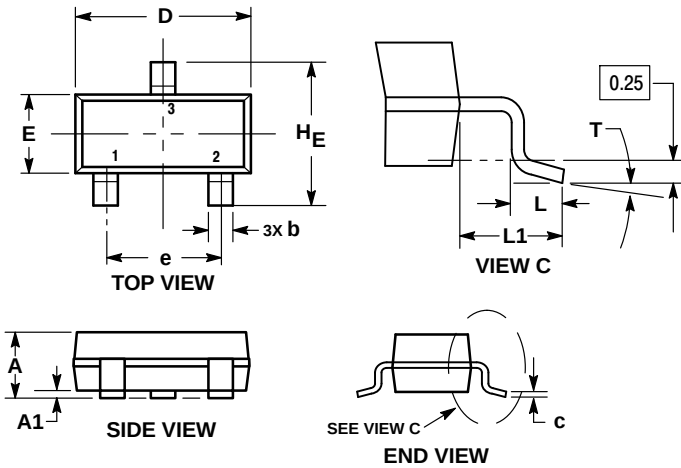
# BSS64LT1G

## PACKAGE DIMENSIONS

### SOT-23 (TO-236)

CASE 318-08

ISSUE AR



#### NOTES:

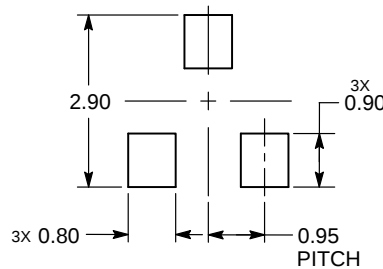
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| 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
- EMITTER
- 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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