

MSB709-RT1

Preferred Device

PNP General Purpose Amplifier Transistor Surface Mount

Features

- Pb-Free Package is Available

MAXIMUM RATINGS (T_A = 25°C)

| Rating | Symbol | Value | Unit |
|--------------------------------|----------------------|-------|------|
| Collector – Base Voltage | V _{(BR)CBO} | -60 | Vdc |
| Collector – Emitter Voltage | V _{(BR)CEO} | -45 | Vdc |
| Emitter – Base Voltage | V _{(BR)EBO} | -7.0 | Vdc |
| Collector Current – Continuous | I _C | -100 | mAdc |
| Collector Current – Peak | I _{C(P)} | -200 | mAdc |

THERMAL CHARACTERISTICS

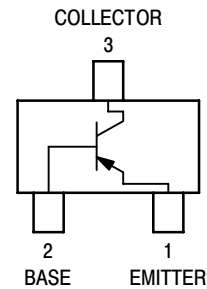
| Characteristic | Symbol | Max | Unit |
|----------------------|------------------|------------|------|
| Power Dissipation | P _D | 200 | mW |
| Junction Temperature | T _J | 150 | °C |
| Storage Temperature | T _{stg} | -55 ~ +150 | °C |

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.



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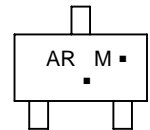
<http://onsemi.com>



MARKING DIAGRAM



SC-59
CASE 318D



AR = Specific Device Code
M = Date Code
▪ = Pb-Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

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

Preferred devices are recommended choices for future use and best overall value.

MSB709-RT1

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

| Characteristic | Symbol | Min | Max | Unit |
|--|---------------|------|------|-----------------|
| Collector – Emitter Breakdown Voltage ($I_C = 2.0 \text{ mAdc}$, $I_B = 0$) | $V_{(BR)CEO}$ | -45 | - | Vdc |
| Collector – Base Breakdown Voltage ($I_C = 10 \text{ }\mu\text{Adc}$, $I_E = 0$) | $V_{(BR)CBO}$ | -60 | - | Vdc |
| Emitter – Base Breakdown Voltage ($I_E = 10 \text{ }\mu\text{Adc}$, $I_E = 0$) | $V_{(BR)EBO}$ | -7.0 | - | Vdc |
| Collector – Base Cutoff Current ($V_{CB} = 45 \text{ Vdc}$, $I_E = 0$) | I_{CBO} | - | -0.1 | μAdc |
| Collector – Emitter Cutoff Current ($V_{CE} = 10 \text{ Vdc}$, $I_B = 0$) | I_{CEO} | - | -100 | nAdc |
| DC Current Gain (Note 1) ($V_{CE} = 10 \text{ Vdc}$, $I_C = 2.0 \text{ mAdc}$) | h_{FE1} | 210 | 340 | - |
| Collector – Emitter Saturation Voltage ($I_C = 100 \text{ mAdc}$, $I_B = 10 \text{ mAdc}$) | $V_{CE(sat)}$ | - | -0.5 | Vdc |

1. Pulse Test: Pulse Width $\leq 300 \text{ }\mu\text{s}$, D.C. $\leq 2\%$.

ORDERING INFORMATION

| Device | Package | Shipping [†] |
|-------------|--------------------|-----------------------|
| MSB-709RT1 | SC-59 | 3000 Units / Reel |
| MSB-709RT1G | SC-59 (Pb-Free) | 3000 Units / 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.

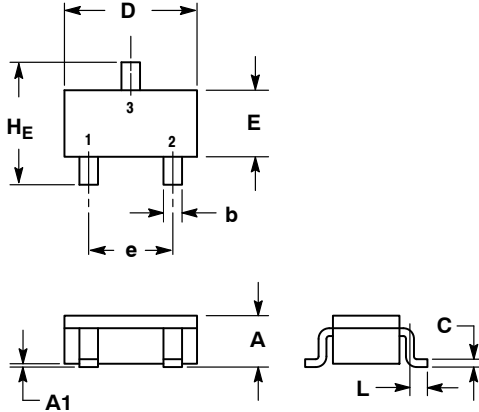
MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



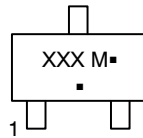
SCALE 2:1

SC-59
CASE 318D-04
ISSUE H

DATE 28 JUN 2012



GENERIC MARKING DIAGRAM*



XXX = Specific Device Code
M = Date Code
▪ = Pb-Free Package*

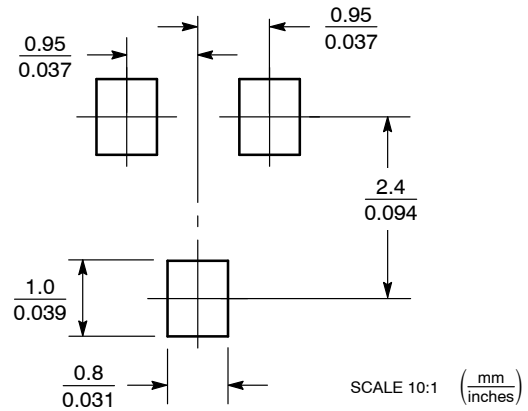
(*Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|--------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 1.00 | 1.15 | 1.30 | 0.039 | 0.045 | 0.051 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| b | 0.35 | 0.43 | 0.50 | 0.014 | 0.017 | 0.020 |
| c | 0.09 | 0.14 | 0.18 | 0.003 | 0.005 | 0.007 |
| D | 2.70 | 2.90 | 3.10 | 0.106 | 0.114 | 0.122 |
| E | 1.30 | 1.50 | 1.70 | 0.051 | 0.059 | 0.067 |
| e | 1.70 | 1.90 | 2.10 | 0.067 | 0.075 | 0.083 |
| L | 0.20 | 0.40 | 0.60 | 0.008 | 0.016 | 0.024 |
| HE | 2.50 | 2.80 | 3.00 | 0.099 | 0.110 | 0.118 |

RECOMMENDED SOLDERING FOOTPRINT*



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

- | | | |
|---|--|--|
| <p>STYLE 1: PIN 1. BASE 2. EMITTER 3. COLLECTOR</p> | <p>STYLE 2: PIN 1. ANODE 2. N.C. 3. CATHODE</p> | <p>STYLE 3: PIN 1. ANODE 2. ANODE 3. CATHODE</p> |
| <p>STYLE 4: PIN 1. CATHODE 2. N.C. 3. ANODE</p> | <p>STYLE 5: PIN 1. CATHODE 2. CATHODE 3. ANODE</p> | <p>STYLE 6: PIN 1. ANODE 2. CATHODE 3. ANODE/CATHODE</p> |

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|------------------|-------------|---|
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| DESCRIPTION: | SC-59 | PAGE 1 OF 1 |

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