

MSD601-RT1, MSD601-ST1

Preferred Device

NPN General Purpose Amplifier Transistors Surface Mount

Features

- Pb-Free Packages are 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} | 50 | 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

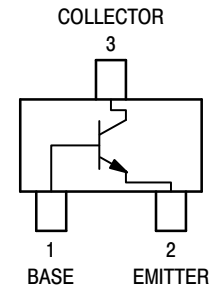
| Characteristic | Symbol | Max | Unit |
|----------------------|------------------|------------|------|
| Power Dissipation | P _D | 200 | mW |
| Junction Temperature | T _J | 150 | °C |
| Storage Temperature | T _{stg} | -55 ~ +150 | °C |

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.



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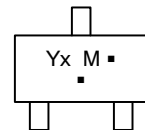
<http://onsemi.com>



MARKING DIAGRAM



SC-59
CASE 318D



- x = R for RT1
S for ST1
- 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.

MSD601-RT1, MSD601-ST1

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

| Characteristic | Symbol | Min | Max | Unit |
|---|--------------------------------------|------------------|-----------------|------------------|
| Collector – Emitter Breakdown Voltage (I _C = 2.0 mA _{dc} , I _B = 0) | V _{(BR)CEO} | 50 | – | V _{dc} |
| Collector – Base Breakdown Voltage (I _C = 10 μA _{dc} , I _E = 0) | V _{(BR)CBO} | 60 | – | V _{dc} |
| Emitter – Base Breakdown Voltage (I _E = 10 μA _{dc} , I _C = 0) | V _{(BR)EBO} | 7.0 | – | V _{dc} |
| Collector – Base Cutoff Current (V _{CB} = 45 V _{dc} , I _E = 0) | I _{CBO} | – | 0.1 | μA _{dc} |
| Collector – Emitter Cutoff Current (V _{CE} = 10 V _{dc} , I _B = 0) | I _{CEO} | – | 100 | nA _{dc} |
| DC Current Gain (Note 1) (V _{CE} = 10 V _{dc} , I _C = 2.0 mA _{dc}) MSD601-RT1 MSD601-ST1 (V _{CE} = 2.0 V _{dc} , I _C = 100 mA _{dc}) | h _{FE1} h _{FE2} | 210 290 90 | 340 460 – | – |
| Collector – Emitter Saturation Voltage (I _C = 100 mA _{dc} , I _B = 10 mA _{dc}) | V _{CE(sat)} | – | 0.5 | V _{dc} |

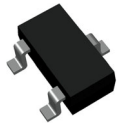
1. Pulse Test: Pulse Width ≤ 300 μs, D.C. ≤ 2%.

ORDERING INFORMATION

| Device | Package | Shipping [†] |
|-------------|--------------------|-----------------------|
| MSD-601RT1 | SC-59 | 3000 / Tape & Reel |
| MSD-601RT1G | SC-59 (Pb-Free) | 3000 / Tape & Reel |
| MSD-601ST1 | SC-59 | 3000 / Tape & Reel |
| MSD-601ST1G | SC-59 (Pb-Free) | 3000 / Tape & Reel |

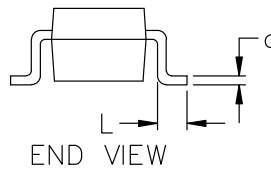
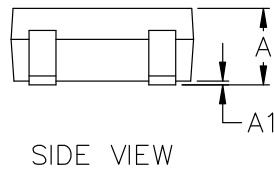
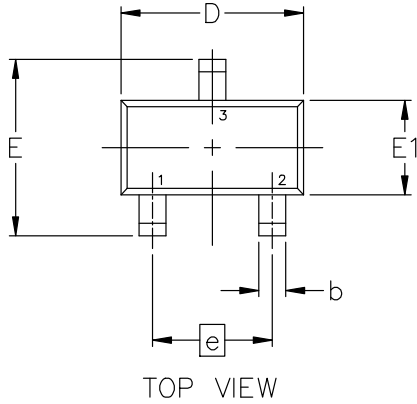
[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SC-59-3 2.90x1.50x1.15, 1.90P
CASE 318D
ISSUE J

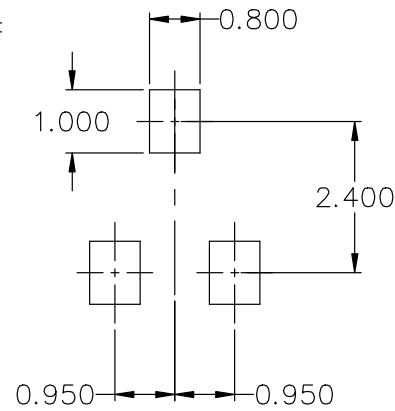
DATE 15 FEB 2024



NOTES:

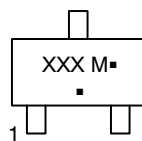
1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
2. ALL DIMENSION ARE IN MILLIMETERS.

| DIM | MILLIMETERS | | |
|-----|-------------|------|------|
| | MIN. | NOM. | MAX. |
| A | 1.00 | 1.15 | 1.30 |
| A1 | 0.01 | 0.06 | 0.10 |
| b | 0.35 | 0.43 | 0.50 |
| c | 0.09 | 0.14 | 0.18 |
| D | 2.70 | 2.90 | 3.10 |
| E | 2.50 | 2.80 | 3.00 |
| E1 | 1.30 | 1.50 | 1.70 |
| e | 1.90 BSC | | |
| L | 0.20 | 0.40 | 0.60 |



* FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

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.

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

| | | |
|-------------------------|--------------------------------------|--|
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| DESCRIPTION: | SC-59-3 2.90x1.50x1.15, 1.90P | PAGE 1 OF 1 |

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