# MSB710-RT1

**Preferred Device**

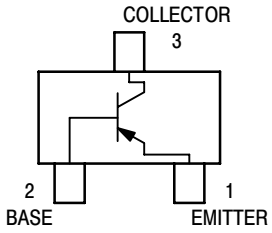
# PNP General Purpose Amplifier Transistor Surface Mount

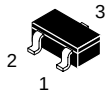
**ON Semiconductor®**

**http://onsemi.com**

### Features

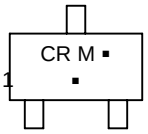
- Pb−Free Package is Available




**SC−59**
**CASE 318D**

### MARKING DIAGRAM




CR = Device Code
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*Date Code orientation may vary depending upon manufacturing location.

### 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 | $I_C$ | −500 | mAdc |
| Collector Current − Peak | $I_{C(P)}$ | −1.0 | Adc |

### THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Power Dissipation | $P_D$ | 200 | mW |
| Junction Temperature | $T_J$ | 150 | °C |
| Storage Temperature | $T_{stg}$ | −55 to +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.

### ELECTRICAL CHARACTERISTICS ($T_A$ = 25°C)

| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| Collector−Emitter Breakdown Voltage ($I_C$ = −10 mAdc, $I_B$ = 0) | $V_{(BR)CEO}$ | −50 | − | Vdc |
| Collector−Base Breakdown Voltage ($I_C$ = −10 μAdc, $I_E$ = 0) | $V_{(BR)CBO}$ | −60 | − | Vdc |
| Emitter−Base Breakdown Voltage ($I_E$ = −10 μAdc, $I_C$ = 0) | $V_{(BR)EBO}$ | −7.0 | − | Vdc |
| Collector−Base Cutoff Current ($V_{CB}$ = −20 Vdc, $I_E$ = 0) | $I_{CBO}$ | − | −0.1 | μAdc |
| DC Current Gain (Note 1) ($V_{CE}$ = −10 Vdc, $I_C$ = −150 mAdc) ($V_{CE}$ = −10 Vdc, $I_C$ = 500 mAdc) | $h_{FE1}$ $h_{FE2}$ | 120 40 | 240 − | − |
| Collector−Emitter Saturation Voltage ($I_C$ = −300 mAdc, $I_B$ = −30 mAdc) | $V_{CE(sat)}$ | − | −0.6 | Vdc |
| Collector−Base Saturation Voltage ($I_C$ = −300 mAdc, $I_B$ = −30 mAdc) | $V_{BE(sat)}$ | − | −1.5 | Vdc |
| Output Capacitance ($V_{CB}$ = −10 Vdc, $I_E$ = 0, f = 1.0 MHz) | $C_{ob}$ | − | 15 | pF |

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

### ORDERING INFORMATION

| Device | Package | Shipping† |
|---|---|---|
| MSB710−RT1 | SC−59 | 3000 / Tape & Reel |
| MSB710−RT1G | 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.

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

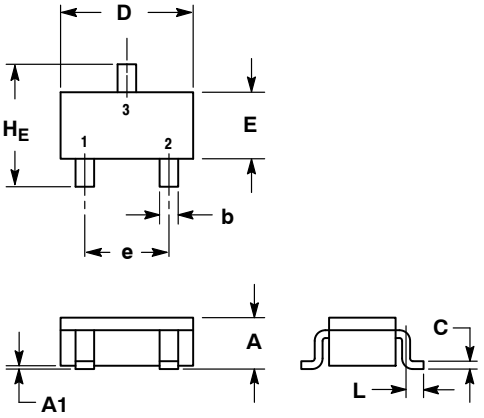
# MECHANICAL CASE OUTLINE
## PACKAGE DIMENSIONS

ON Semiconductor®

SCALE 2:1

**SC−59**
CASE 318D−04
ISSUE H

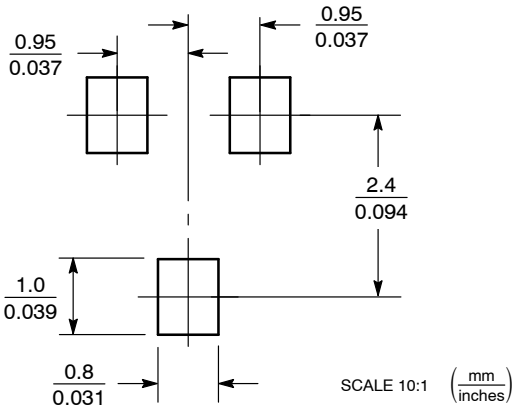
DATE 28 JUN 2012




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

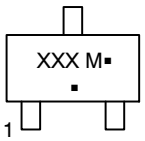
| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| DIM | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 1.00 | 1.15 | 1.30 | 0.039 | 0.045 | 0.051 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| b | 0.35 | 0.43 | 0.50 | 0.014 | 0.017 | 0.020 |
| c | 0.09 | 0.14 | 0.18 | 0.003 | 0.005 | 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 |
| $H_E$ | 2.50 | 2.80 | 3.00 | 0.099 | 0.110 | 0.118 |

### 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.

### 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.

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** | **PAGE 1 OF 1** |

## PUBLICATION ORDERING INFORMATION

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