

# MSB709-RT1

Preferred Device

## PNP General Purpose Amplifier Transistor Surface Mount

### Features

- Pb-Free Package is Available

### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

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

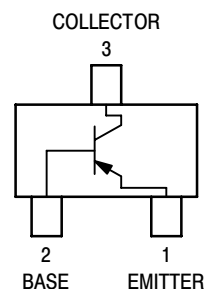
Characteristic	Symbol	Max	Unit
Power Dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

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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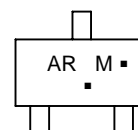
<http://onsemi.com>



### 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<sub>A</sub> = 25°C)

Characteristic	Symbol	Min	Max	Unit
Collector – Emitter Breakdown Voltage (I <sub>C</sub> = 2.0 mA <sub>dc</sub> , I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	-45	–	V <sub>dc</sub>
Collector – Base Breakdown Voltage (I <sub>C</sub> = 10 μA <sub>dc</sub> , I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	-60	–	V <sub>dc</sub>
Emitter – Base Breakdown Voltage (I <sub>E</sub> = 10 μA <sub>dc</sub> , I <sub>E</sub> = 0)	V <sub>(BR)EBO</sub>	-7.0	–	V <sub>dc</sub>
Collector – Base Cutoff Current (V <sub>CB</sub> = 45 V <sub>dc</sub> , I <sub>E</sub> = 0)	I <sub>CBO</sub>	–	-0.1	μA <sub>dc</sub>
Collector – Emitter Cutoff Current (V <sub>CE</sub> = 10 V <sub>dc</sub> , I <sub>B</sub> = 0)	I <sub>CEO</sub>	–	-100	nA <sub>dc</sub>
DC Current Gain (Note 1) (V <sub>CE</sub> = 10 V <sub>dc</sub> , I <sub>C</sub> = 2.0 mA <sub>dc</sub> )	h <sub>FE1</sub>	210	340	–
Collector – Emitter Saturation Voltage (I <sub>C</sub> = 100 mA <sub>dc</sub> , I <sub>B</sub> = 10 mA <sub>dc</sub> )	V <sub>CE(sat)</sub>	–	-0.5	V <sub>dc</sub>

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

## ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
MSB-709RT1	SC-59	3000 Units / Reel
MSB-709RT1G	SC-59 (Pb-Free)	3000 Units / Reel

<sup>†</sup>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

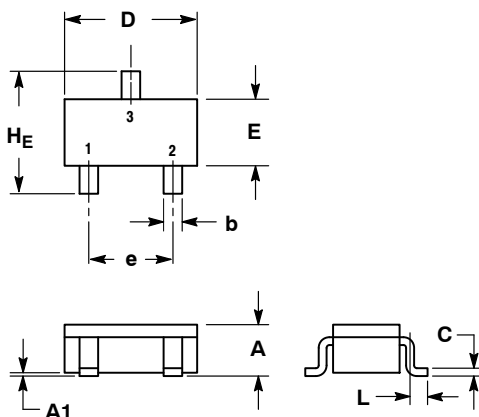
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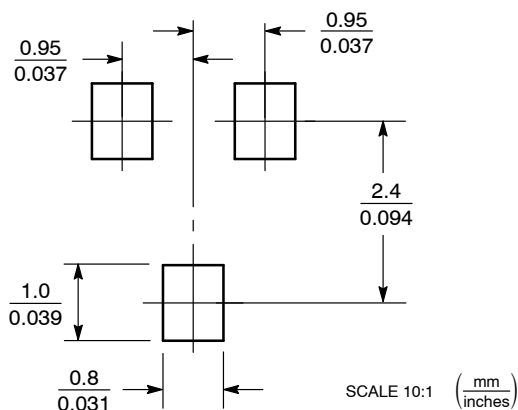
SCALE 2:1

SC-59  
CASE 318D-04  
ISSUE H

DATE 28 JUN 2012



## SOLDERING FOOTPRINT\*

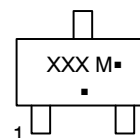


\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

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
H_E	2.50	2.80	3.00	0.099	0.110	0.118

## 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

DOCUMENT NUMBER: 98ASB42664B

DESCRIPTION: SC-59

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