MSD601-RT1, MSD601-ST1

Preferred Device

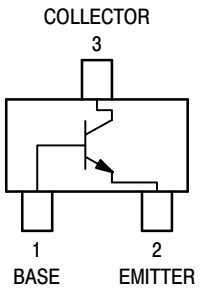
NPN General Purpose Amplifier Transistors Surface Mount

ON Semiconductor®

http://onsemi.com

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

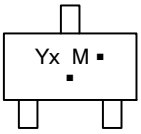
THERMAL CHARACTERISTICS

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.

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.

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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Characteristic	Symbol	Min	Max	Unit
Collector − Emitter Breakdown Voltage (I_C = 2.0 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} = 45 Vdc, I_E = 0)	I_{CBO}	−	0.1	μAdc
Collector − Emitter Cutoff Current (V_{CE} = 10 Vdc, I_B = 0)	I_{CEO}	−	100	nAdc
DC Current Gain (Note 1) (V_{CE} = 10 Vdc, I_C = 2.0 mAdc)				−
MSD601−RT1	h_{FE1}	210	340	
MSD601−ST1		290	460	
(V_{CE} = 2.0 Vdc, I_C = 100 mAdc)	h_{FE2}	90	−	
Collector − Emitter Saturation Voltage (I_C = 100 mAdc, I_B = 10 mAdc)	$V_{CE(sat)}$	−	0.5	Vdc

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.

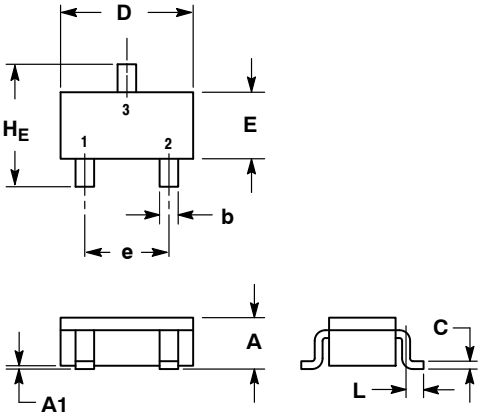
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

ON Semiconductor®

SCALE 2:1

SC−59
CASE 318D−04
ISSUE H

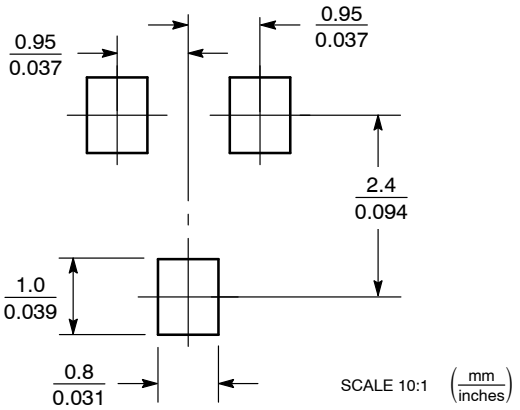
DATE 28 JUN 2012



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

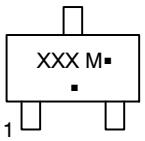
	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	1.00	1.15	1.30	0.039	0.045	0.051
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.35	0.43	0.50	0.014	0.017	0.020
c	0.09	0.14	0.18	0.003	0.005	0.007
D	2.70	2.90	3.10	0.106	0.114	0.122
E	1.30	1.50	1.70	0.051	0.059	0.067
e	1.70	1.90	2.10	0.067	0.075	0.083
L	0.20	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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