

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

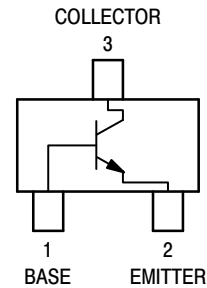
Characteristic	Symbol	Max	Unit
Power Dissipation	P _D	200	mW
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55 ~ +150	°C

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.



ON Semiconductor®

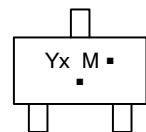
<http://onsemi.com>



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

Characteristic	Symbol	Min	Max	Unit
Collector – Emitter Breakdown Voltage ($I_C = 2.0 \text{ mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	50	–	Vdc
Collector – Base Breakdown Voltage ($I_C = 10 \mu\text{Adc}$, $I_E = 0$)	$V_{(BR)CBO}$	60	–	Vdc
Emitter – Base Breakdown Voltage ($I_E = 10 \mu\text{Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	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) ($V_{CE} = 10 \text{ Vdc}$, $I_C = 2.0 \text{ mAdc}$) MSD601-RT1 MSD601-ST1 ($V_{CE} = 2.0 \text{ Vdc}$, $I_C = 100 \text{ mAdc}$)	h_{FE1} h_{FE2}	210 290 90	340 460 –	–
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 $\leq 300 \mu\text{s}$, D.C. $\leq 2\%$.

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

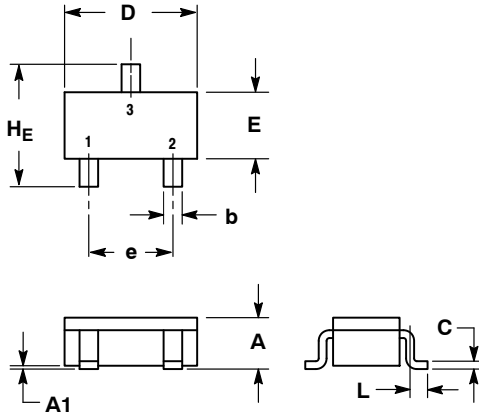
ON Semiconductor®



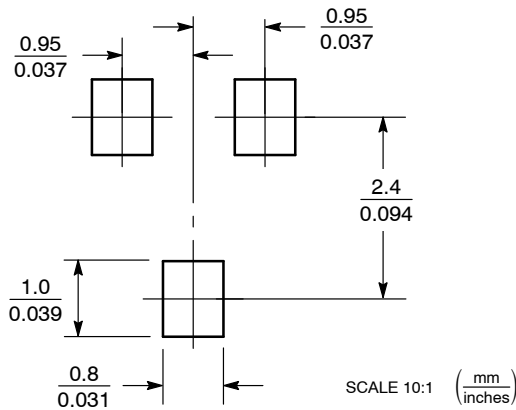
SC-59
CASE 318D-04
ISSUE H

DATE 28 JUN 2012

SCALE 2:1



SOLDERING FOOTPRINT*

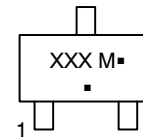


*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

- 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

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	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	SC-59	PAGE 1 OF 1

ON Semiconductor and ON are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Email Requests to: orderlit@onsemi.com

ON Semiconductor Website: www.onsemi.com

TECHNICAL SUPPORT

North American Technical Support:
Voice Mail: 1 800-282-9855 Toll Free USA/Canada
Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative