

# Surface Mount General Purpose Rectifiers

## S1MFL Series, NRVS1MFL Series

S1AFL, S1BFL, S1DFL, S1GFL, S1JFL, S1MFL,  
NRVS1AFL, NRVS1BFL, NRVS1DFL, NRVS1GFL,  
NRVS1JFL, NRVS1MFL

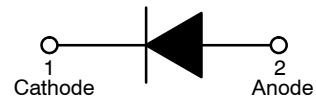
### Features

- Ultra Thin Profile – Maximum Height of 1.08 mm
- UL Flammability 94V-0 Classification
- MSL 1
- Green Mold Compound
- NRV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free and RoHS Compliant

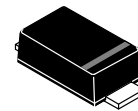


**ON Semiconductor®**

[www.onsemi.com](http://www.onsemi.com)

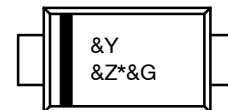


General-Purpose Rectifier



SOD-123F  
CASE 425AD

### MARKING DIAGRAM



Band Indicates Cathode

- &Y = Binary Calendar Year Coding Scheme
- &Z = Assembly Plant Code
- \* = Specific Device Code  
1A, 1B, 1D, 1G, 1J, 1M
- &G = Single Digit Weekly Data Code

### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

## S1MFL Series, NRVS1MFL Series

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Rating	Value						Unit
		S1AFL	S1BFL	S1DFL	S1GFL	S1JFL	S1MFL	
V <sub>RRM</sub>	Recurrent Peak Reverse Voltage	50	100	200	400	600	1000	V
V <sub>RMS</sub>	RMS Voltage	35	70	140	280	420	700	V
V <sub>DC</sub>	DC Blocking Voltage	50	100	200	400	600	1000	V
I <sub>F(AV)</sub>	Average Forward Current (Note 1)	1						A
I <sub>FSM</sub>	Peak One Cycle Forward Current (Non-Repetitive) at 60Hz	30						A
T <sub>J</sub> , T <sub>STG</sub>	Operating and Storage Temperature Range	-55 to +175						°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Pulse test: 300 μs pulse width, 1 % duty cycle.

### THERMAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted) (Note 2)

Symbol	Characteristic	Value	Unit
Ψ <sub>JL</sub>	Typical Thermal Characteristics, Junction-to-Lead (Note 3)	25	°C/W
R <sub>θJA</sub>	Typical Thermal Resistance, Junction-to-Ambient	140	°C/W

2. Per JESD51-3 recommended thermal test board. Device mounted on FR-4 PCB, board size = 76.2 mm x 114.3 mm.
3. Thermocouple soldered at cathode lead.

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> = 1 A	-	-	1.1	V
I <sub>R</sub>	Reverse Current	V <sub>R</sub> = V <sub>DC</sub>				
		T <sub>A</sub> = 25°C	-	-	1	μA
		T <sub>A</sub> = 125°C	-	-	50	
T <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1 A, I <sub>rr</sub> = 0.25 A	-	1.304	2	μs
C <sub>J</sub>	Junction Capacitance	V <sub>R</sub> = 4 V, f = 1.0 MHz	-	4	-	pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

### ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping†
S1AFL, NRVS1AFL*	1A	SOD-123F (Pb-Free/Halogen Free)	3000 / Tape & Reel
S1BFL, NRVS1BFL*	1B	SOD-123F (Pb-Free/Halogen Free)	3000 / Tape & Reel
S1DFL, NRVS1DFL*	1D	SOD-123F (Pb-Free/Halogen Free)	3000 / Tape & Reel
S1GFL, NRVS1GFL*	1G	SOD-123F (Pb-Free/Halogen Free)	3000 / Tape & Reel
S1JFL, NRVS1JFL*	1J	SOD-123F (Pb-Free/Halogen Free)	3000 / Tape & Reel
S1MFL, NRVS1MFL*	1M	SOD-123F (Pb-Free/Halogen 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.

\*NRV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

# S1MFL Series, NRVS1MFL Series

## TYPICAL PERFORMANCE CHARACTERISTICS

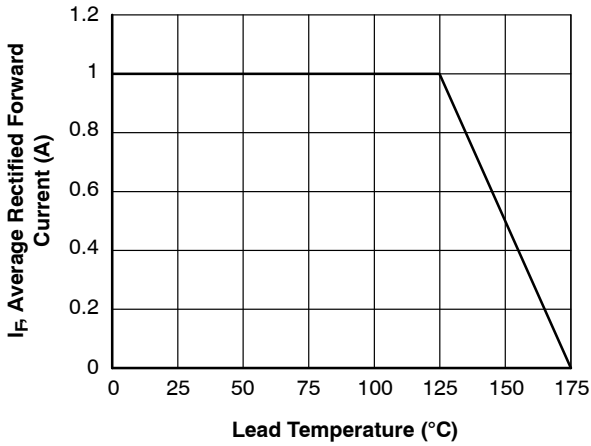


Figure 1. Forward Current Derating Curve

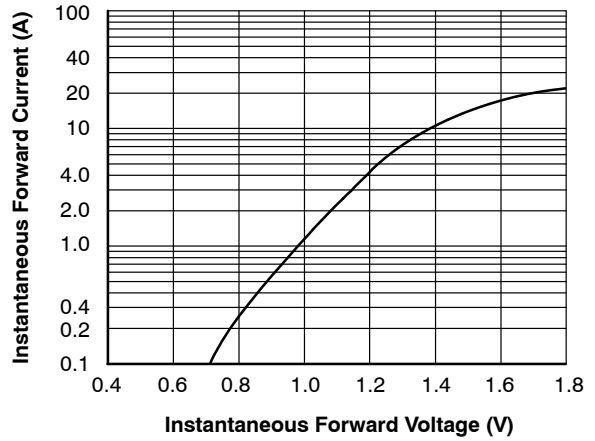


Figure 2. Typical Instantaneous Forward Characteristics

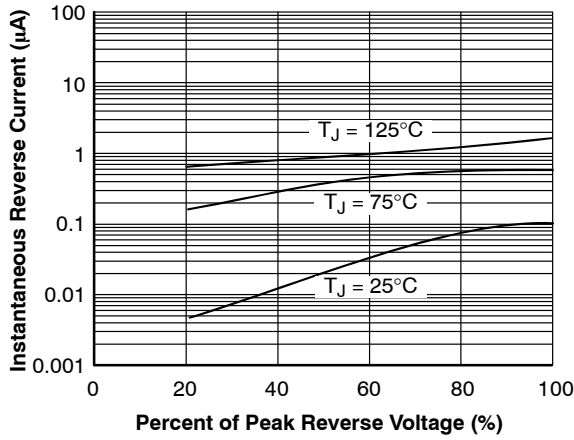


Figure 3. Typical Reverse Characteristics

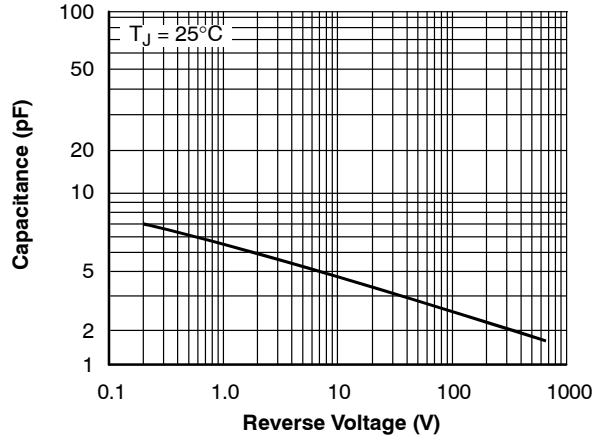


Figure 4. Typical Junction Capacitance

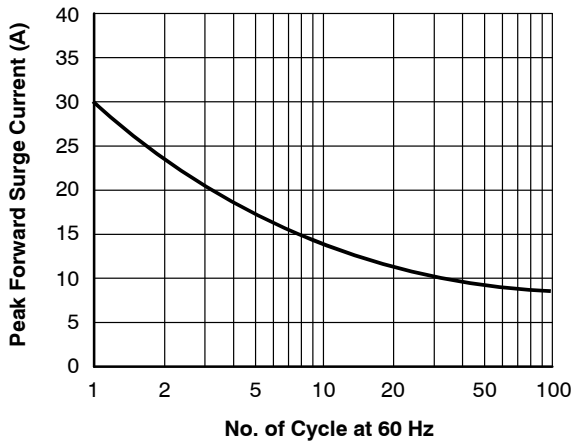


Figure 5. Maximum Non-Repetitive Surge Current

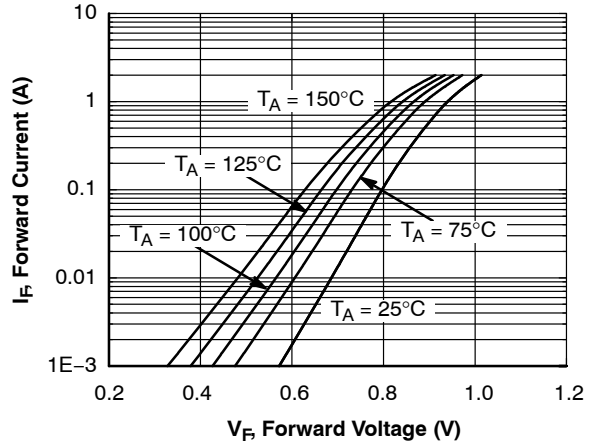
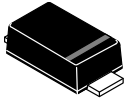


Figure 6. Typical Forward Characteristics

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

ON Semiconductor®



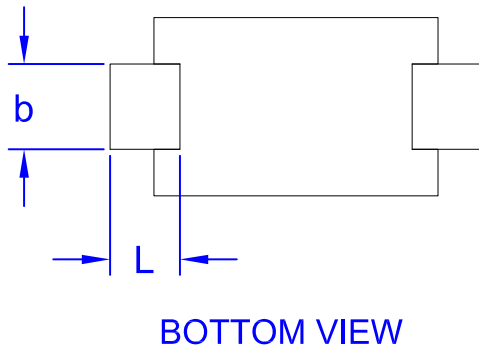
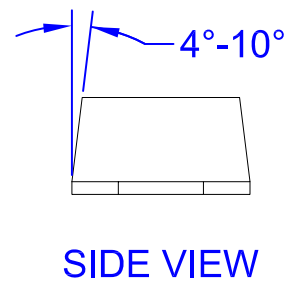
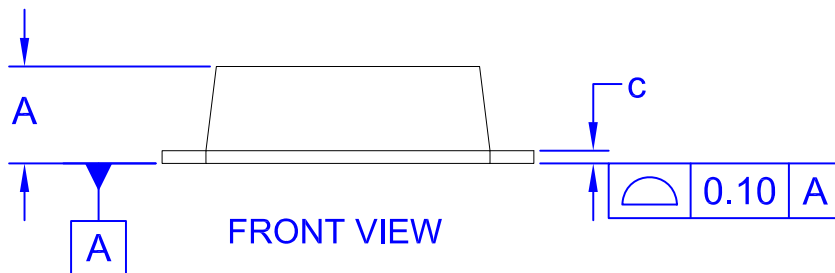
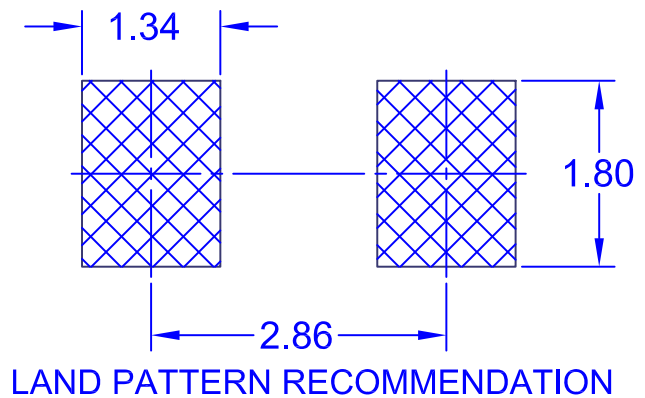
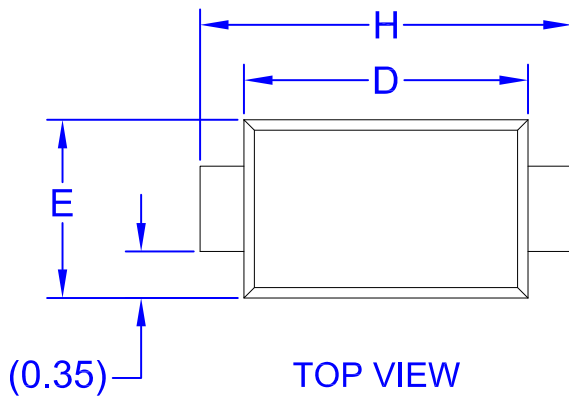
SCALE 4:1

SOD-123FL  
CASE 425AD  
ISSUE A

DATE 04 AUG 2017

### NOTES:

- A. NO INDUSTRY STANDARD APPLIES TO THIS PACKAGE
- B. ALL DIMENSIONS ARE IN MILLIMETERS
- C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.031	0.043	0.80	1.08
b	0.020	0.045	0.50	1.15
c	0.002	0.008	0.05	0.20
D	0.098	0.118	2.50	3.00
E	0.059	0.077	1.50	1.95
H	0.130	0.154	3.30	3.90
L	0.018	0.035	0.45	0.90

<b>DOCUMENT NUMBER:</b>	<b>98AON13725G</b>	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
<b>DESCRIPTION:</b>	<b>SOD-123FL</b>	<b>PAGE 1 OF 1</b>

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 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.

**onsemi**, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** 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 **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** 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. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** 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 **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** 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 **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** 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](mailto:orderlit@onsemi.com)

**onsemi Website:** [www.onsemi.com](http://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