

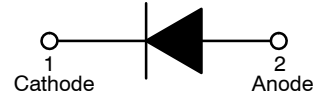
Surface Mount General Purpose Rectifiers

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

S1MFL Series, NRVS1MFL Series

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



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

| Symbol | Rating | Value | | | | | | Unit |
|----------------|---|-------------|-------|-------|-------|-------|-------|------------------|
| | | S1AFL | S1BFL | S1DFL | S1GFL | S1JFL | S1MFL | |
| V_{RRM} | Recurrent Peak Reverse Voltage | 50 | 100 | 200 | 400 | 600 | 1000 | V |
| V_{RMS} | RMS Voltage | 35 | 70 | 140 | 280 | 420 | 700 | V |
| V_{DC} | DC Blocking Voltage | 50 | 100 | 200 | 400 | 600 | 1000 | V |
| $I_{F(AV)}$ | Average Forward Current (Note 1) | 1 | | | | | | A |
| I_{FSM} | Peak One Cycle Forward Current (Non-Repetitive) at 60Hz | 30 | | | | | | A |
| T_J, T_{STG} | Operating and Storage Temperature Range | -55 to +175 | | | | | | $^\circ\text{C}$ |

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 ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Note 2)

| Symbol | Characteristic | Value | Unit |
|-----------------|--|-------|---------------------------|
| Ψ_{JL} | Typical Thermal Characteristics, Junction-to-Lead (Note 3) | 25 | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JA}$ | Typical Thermal Resistance, Junction-to-Ambient | 140 | $^\circ\text{C}/\text{W}$ |

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|----------|-----------------------|--|---------------------------|-------|-----|---------------|---------------|
| V_F | Forward Voltage | $I_F = 1\text{ A}$ | - | - | 1.1 | V | |
| I_R | Reverse Current | $V_R = V_{DC}$ | $T_A = 25^\circ\text{C}$ | - | - | 1 | μA |
| | | | $T_A = 125^\circ\text{C}$ | - | - | 50 | |
| T_{rr} | Reverse Recovery Time | $I_F = 0.5\text{ A}, I_R = 1\text{ A}, I_{rr} = 0.25\text{ A}$ | - | 1.304 | 2 | μs | |
| C_J | Junction Capacitance | $V_R = 4\text{ V}, f = 1.0\text{ MHz}$ | - | 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

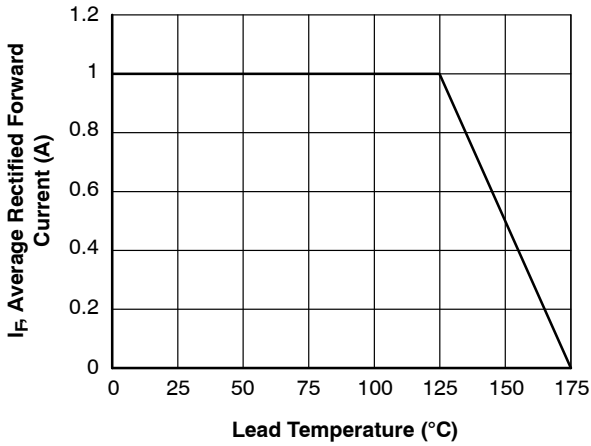


Figure 1. Forward Current Derating Curve

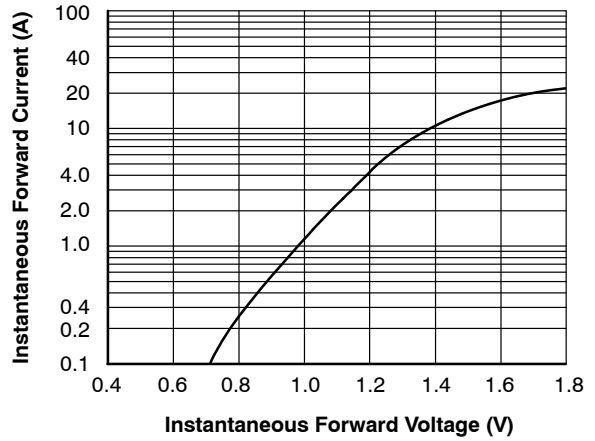


Figure 2. Typical Instantaneous Forward Characteristics

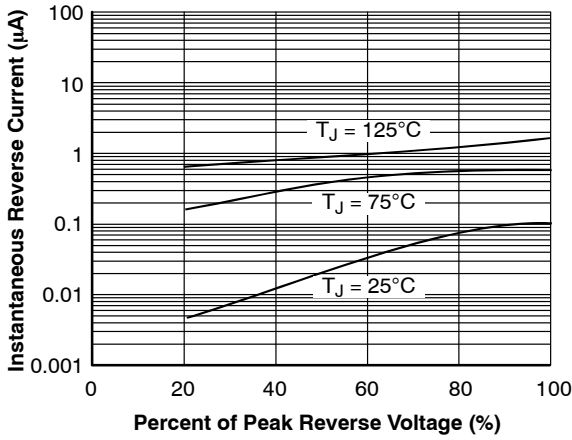


Figure 3. Typical Reverse Characteristics

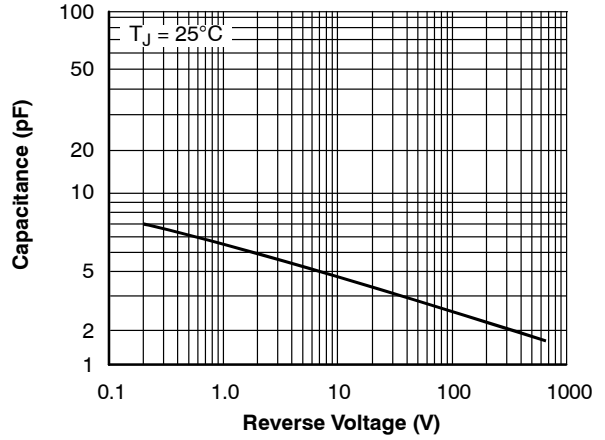


Figure 4. Typical Junction Capacitance

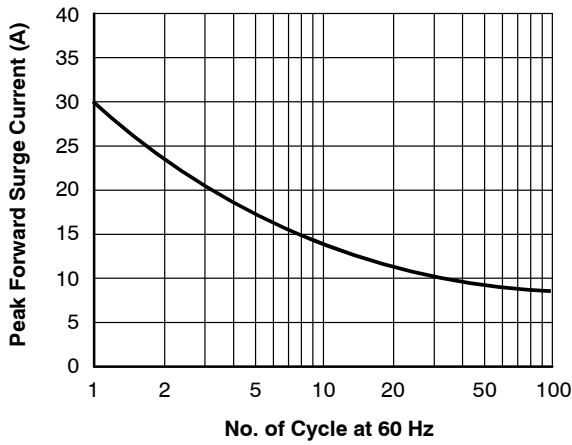


Figure 5. Maximum Non-Repetitive Surge Current

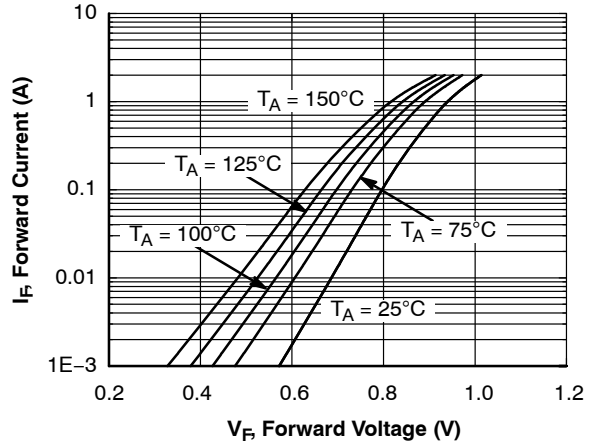
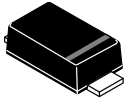


Figure 6. Typical Forward Characteristics



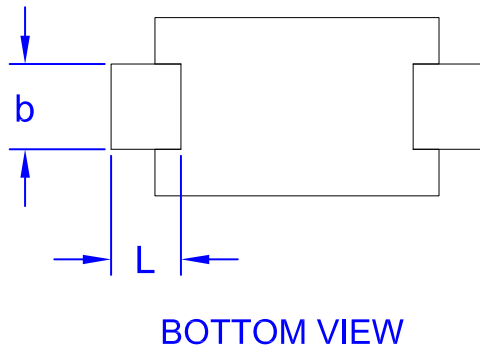
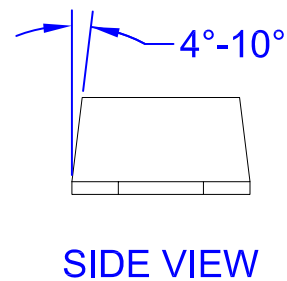
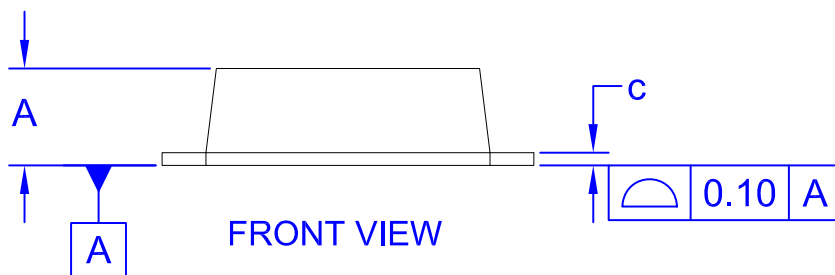
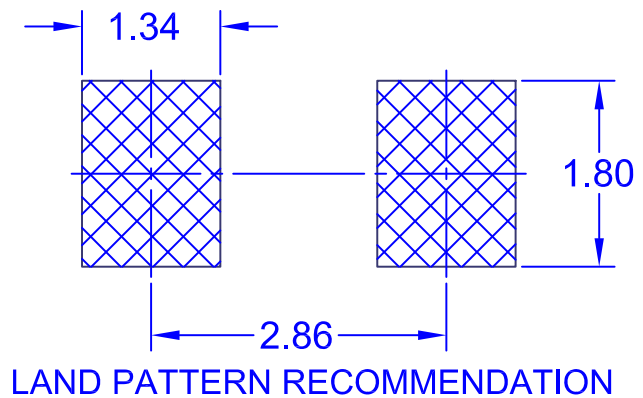
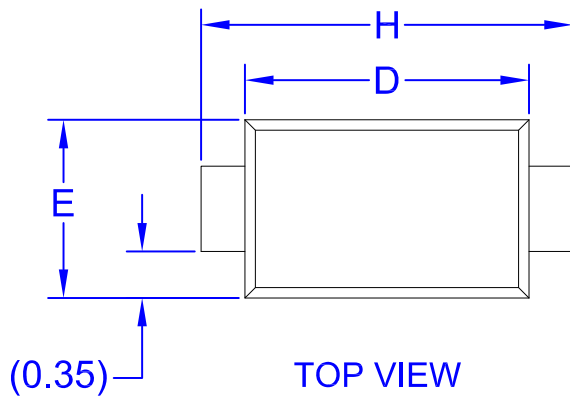
SCALE 4:1

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 |

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

onsemi and Onsemi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the 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. onsemi 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. **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.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

Technical Library: www.onsemi.com/design/resources/technical-documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales