

General-Purpose Rectifiers (Glass Passivated)

S2A-S2M

Description

The S2 family of devices are general-purpose 2 A rated rectifiers with voltage ratings ranging from 50 to 1000 V. They are implemented in traditional SMB packages and are well known to the industry. For advanced or special requirements, please contact an ON Semiconductor representative.

Features

- High-Current Capability, 2 A Rated
- Fast Response: $2 \mu\text{s}$ T_{rr}
- Low-Forward Voltage Drop, 1.15 V V_F Max at 2 A
- High-Surge Current Capability, 50 A²s I_{FSM}
- Glass Passivated Junction
- UL Certified, UL #E258596
- 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 and are RoHS Compliant

Applications

- Power Supplies
- AC to DC Rectification
- Bypass Diodes

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

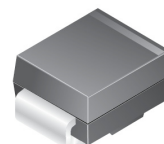
Symbol	Parameter	Value							Unit
		S2A	S2B	S2D	S2G	S2J	S2K	S2M	
V_{RRM}	Maximum Repetitive Reverse Voltage	50	100	200	400	600	800	1000	V
$I_{F(AV)}$	Average Rectified Forward Current at $T_A = 100^\circ\text{C}$	2.0							A
I_{FSM}	Non-Repetitive Peak Forward Surge Current 8.3 ms Single Half-Sine Wave	50							A
T_{STG}	Storage Temperature Range	-65 to +150							$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-65 to +150							$^\circ\text{C}$

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.



ON Semiconductor®

www.onsemi.com



SMB
CASE 403AF

S2A–S2M

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

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	2.35	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient (Note 1)	53	$^\circ\text{C}/\text{W}$

1. Device is mounted on FR–4 PCB 0.013 mm.

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

Symbol	Parameter	Conditions	Value						Unit	
			S2A	S2B	S2D	S2G	S2J	S2K	S2M	
V_F	Maximum Forward Voltage	$I_F = 2.0\text{ A}$	1.15							V
t_{rr}	Typical Reverse–Recovery Time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$	2.0							μs
I_R	Maximum Reverse Current at Rated V_R	$T_A = 25^\circ\text{C}$	1.0							μA
		$T_A = 125^\circ\text{C}$	125							
C_T	Typical Total Capacitance	$V_R = 4.0\text{ V}$, $f = 1.0\text{ MHz}$	30							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	Marking	Package	Shipping [†]
S2A, NRVS2A*	S2A	SMB (Pb–Free)	3000 / Tape & Reel
S2B, NRVS2B*	S2B		
S2D, NRVS2D*	S2D		
S2G, NRVS2G*	S2G		
S2J, NRVS2J*	S2J		

TYPICAL PERFORMANCE CHARACTERISTICS

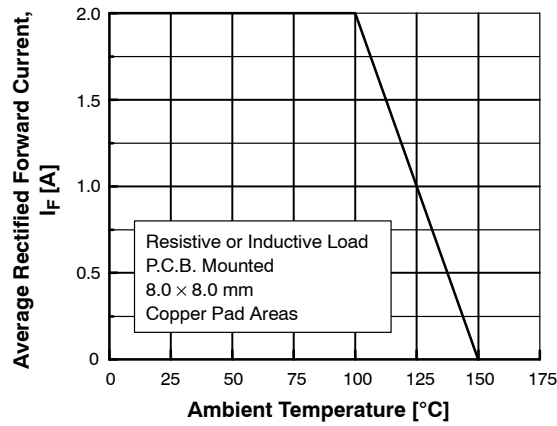


Figure 1. Forward Current Derating Curve

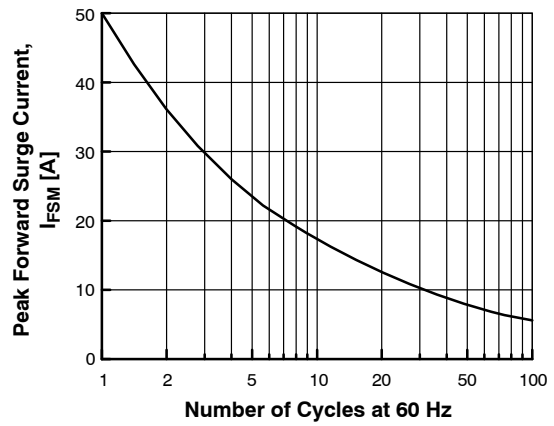


Figure 2. Non-Repetitive Surge Current

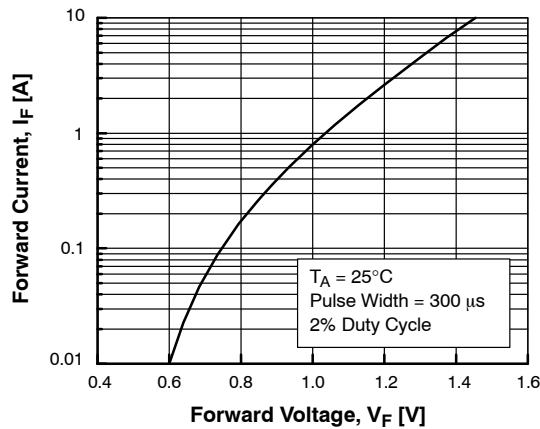


Figure 3. Forward Voltage Characteristics

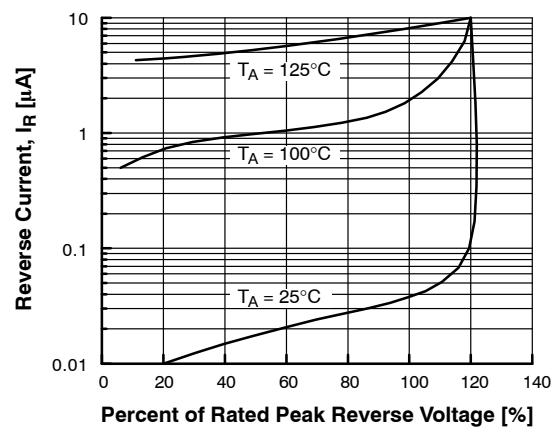
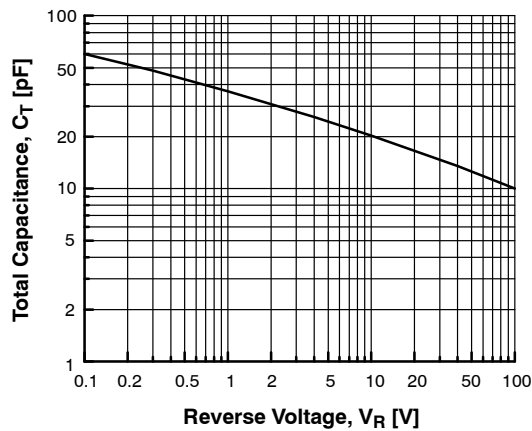


Figure 4. Reverse Current vs. Reverse Voltage



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.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Email Requests to: orderlit@onsemi.com

onsemi 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