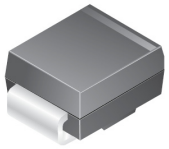
General-Purpose Rectifiers (Glass Passivated)

S2A-S2M



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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 **onsemi** representative.

Features

- High−Current Capability, 2 A Rated
- Fast Response: 2 μs T_{rr}
- Low−Forward Voltage Drop, 1.15 V V_F Max at 2 A
- High−Surge Current Capability, 50 A^2s 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

MARKING DIAGRAM

$Y	= **onsemi** Logo
&Z	= Assembly Plant Code
&3	= Numeric Date Code
S2X	= Specific Device Code X = A−M

ORDERING INFORMATION

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

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 2.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°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°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							°C
T_J	Operating Junction Temperature Range	−65 to +150							°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.

THERMAL CHARACTERISTICS (T_A = 25°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	°C/W

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

ELECTRICAL CHARACTERISTICS (T_A = 25°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 A	1.15							V
t_{rr}	Typical Reverse−Recovery Time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A	2.0							μs
I_R	Maximum Reverse Current at Rated V_R	T_A = 25°C	1.0							μA
		T_A = 125°C	125							
C_T	Typical Total Capacitance	V_R = 4.0 V, f = 1.0 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†
S2B, NRVS2B*	S2B	SMB (Pb−Free)	3000 / Tape & Reel
S2D, NRVS2D*	S2D		
S2M, NRVS2M*	S2M		

DISCONTINUED (Note 2)

Part Number	Marking	Package	Shipping†
S2A, NRVS2A*	S2A	SMB (Pb−Free)	3000 / Tape & Reel
S2G, NRVS2G*	S2G		
S2J, NRVS2J*	S2J		
S2K, NRVS2K*	S2K		

†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.

2. **DISCONTINUED:** These devices are not recommended for new design. Please contact your **onsemi** representative for information. The most current information on these devices may be available on www.onsemi.com.

TYPICAL PERFORMANCE CHARACTERISTICS

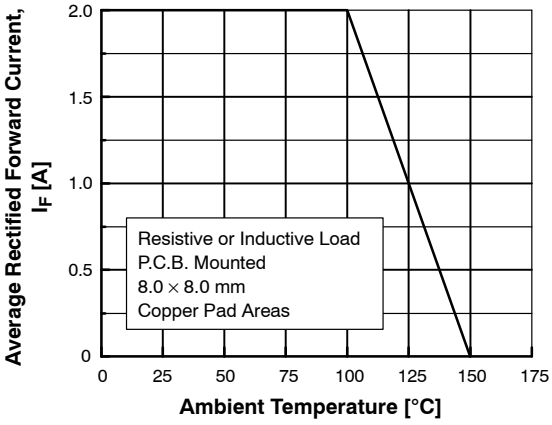

Figure 1. Forward Current Derating Curve

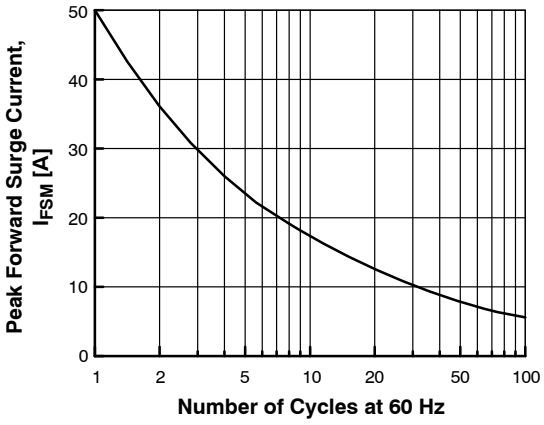

Figure 2. Non−Repetitive Surge Current

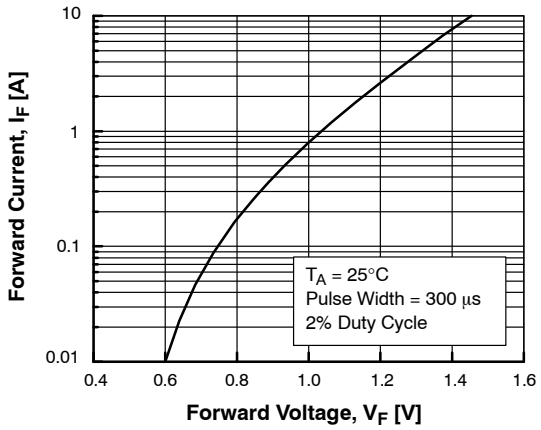

Figure 3. Forward Voltage Characteristics

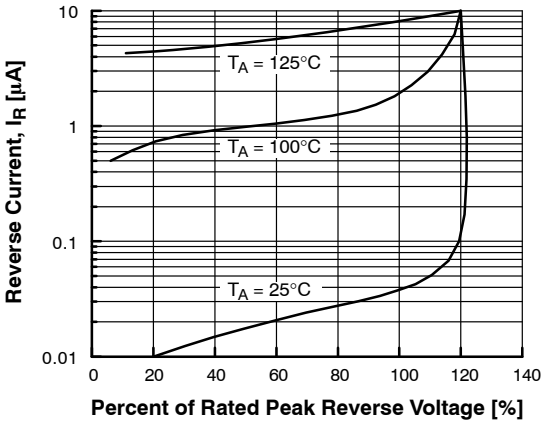

Figure 4. Reverse Current vs. Reverse Voltage

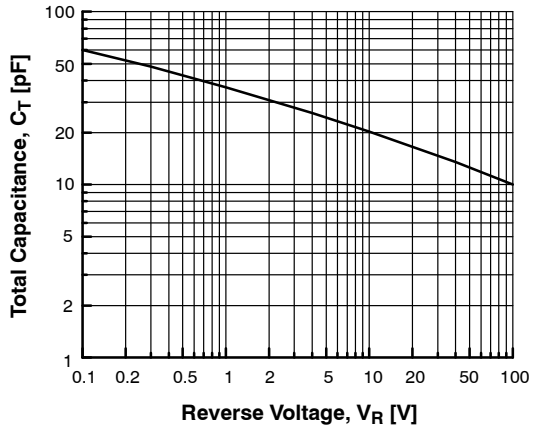

Figure 5. Total Capacitance

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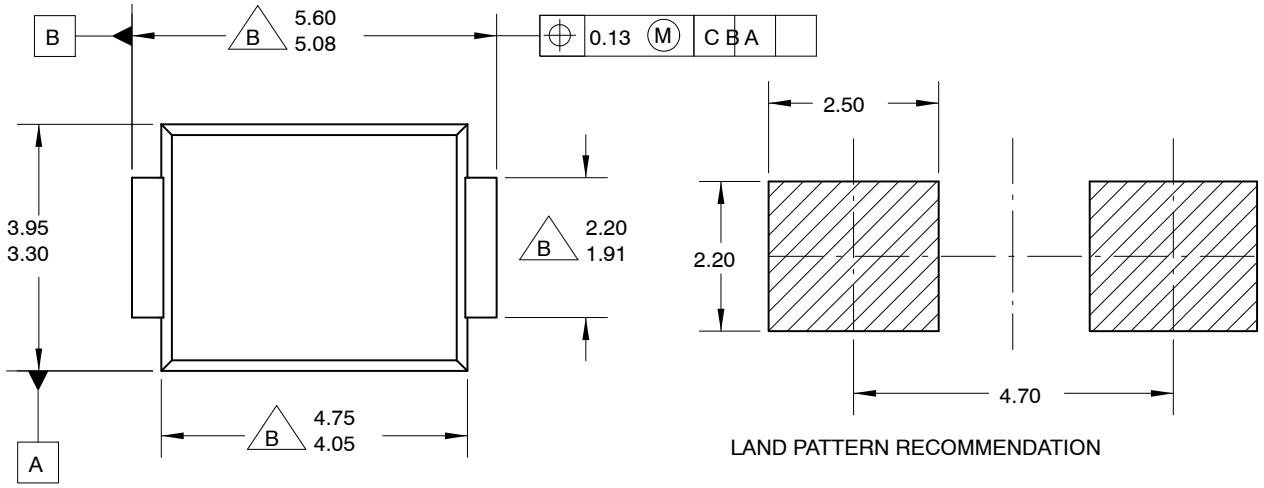
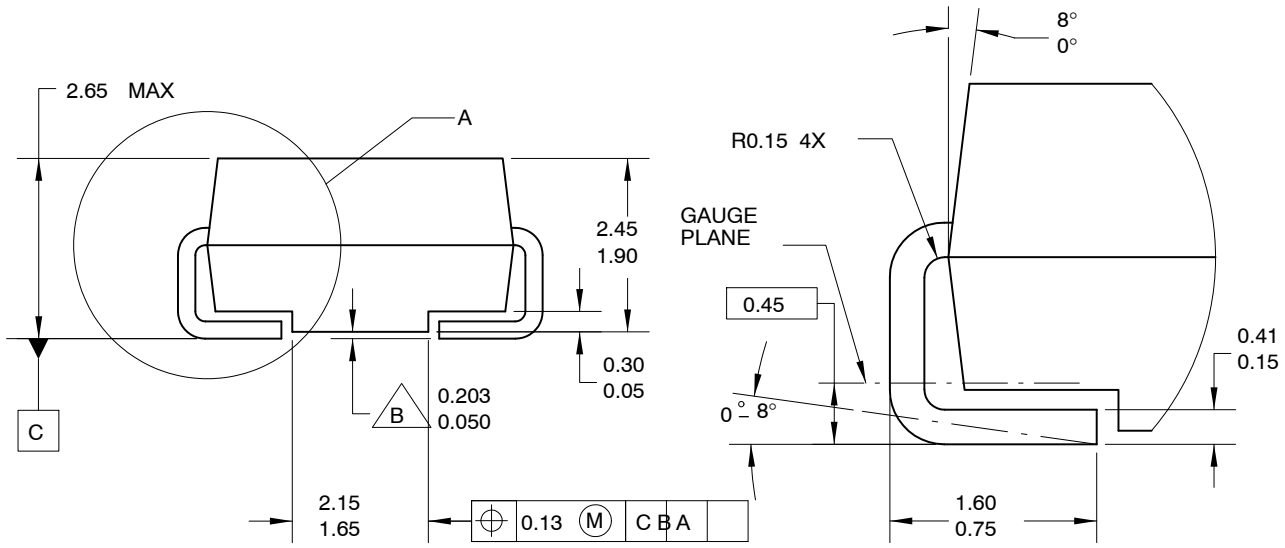


LAND PATTERN RECOMMENDATION



DETAIL A
SCALE 20 : 1

NOTES:

A. EXCEPT WHERE NOTED CONFORMS TO JEDEC DO214 VARIATION AA.
B DOES NOT COMPLY JEDEC STD. VALUE.
C. ALL DIMENSIONS ARE IN MILLIMETERS.
D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
E. DIMENSION AND TOLERANCE AS PER ASME Y14.5–1994.
F. LAND PATTERN STD. DIOM5336X240M.

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