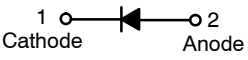
Rectifiers, Surface Mount

3 A, 50 V-1000 V

S3AB-S3MB



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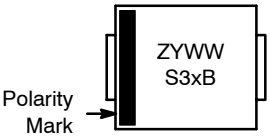
MARKING DIAGRAM



Z	= Assembly Plant Code
Y	= Year
WW	= Work Week
S3xB	= Specific Device Code x = A, B, D, G, J, K, M

Features

- Glass Passivated Chip Junction
- High Surge Current Capacity
- Low Forward Voltage: 1.15 V Maximum
- UL Flammability 94V-0 Classification
- MSL 1 per J-STD-020
- RoHS Compliant / Green Molding Compound
- NRV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These are Pb-Free and Halide Free Devices

ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 3.

ABSOLUTE MAXIMUM RATINGS Values are at T_A = 25 °C unless otherwise noted.

Symbol	Parameter	Value							Unit
		S3AB	S3BB	S3DB	S3GB	S3JB	S3KB	S3MB	
V_{RRM}	Repetitive Peak Reverse Voltage	50	100	200	400	600	800	1000	V
V_{RMS}	RMS Reverse Voltage	35	70	140	280	420	560	700	V
V_R	DC Blocking Voltage	50	100	200	400	600	800	1000	V
$I_{F(AV)}$	Average Forward Rectified Current	3							A
I_{FSM}	Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed on Rated Load	80							A
T_J	Operating Junction Temperature Range	−55 to 150							°C
T_{STG}	Storage Temperature Range	−55 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 Values are at T_A = 25 °C unless otherwise noted. (Note 1)

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Typical Thermal Resistance, Junction-to-Ambient	148	°C/W
Ψ_{JL}	Typical Thermal Characteristics, Junction-to-Lead	14	°C/W

1. Device mounted on FR-4 PCB, board size = 76.2 mm x 114.3 mm per JESD51-3.

ELECTRICAL CHARACTERISTICS Values are at T_A = 25 °C unless otherwise noted.

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_F	Instantaneous Forward Voltage (Note 2)	I_F = 3 A	–	–	1.15	V
I_R	Reverse Current at Rated V_R	T_J = 25 °C	–	–	10	μA
		T_J = 125 °C	–	–	250	
t_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A	–	1.5	–	μs
C_J	Junction Capacitance	V_R = 4 V, f = 1 MHz	–	40	–	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.

2. Pulse test with PW = 300 μs, 1% duty cycle.

TYPICAL PERFORMANCE CHARACTERISTICS

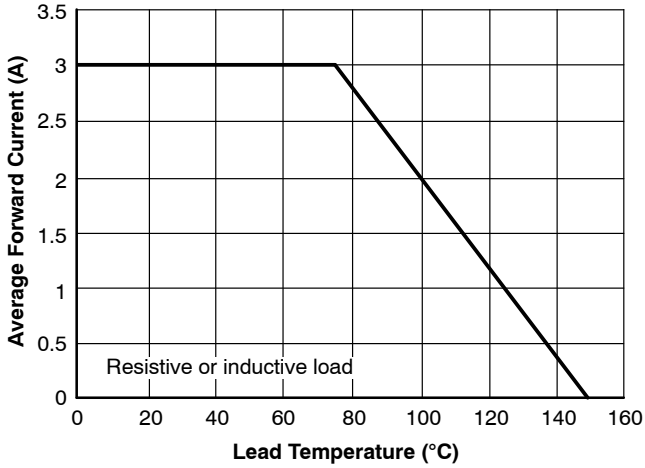


Figure 1. Forward Current Derating Curve

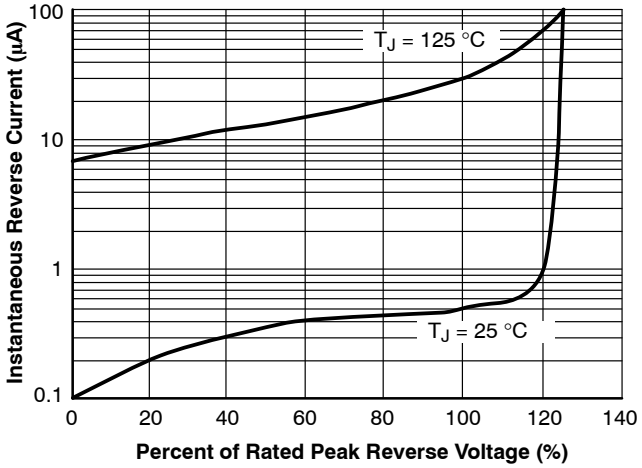


Figure 2. Typical Reverse Characteristics

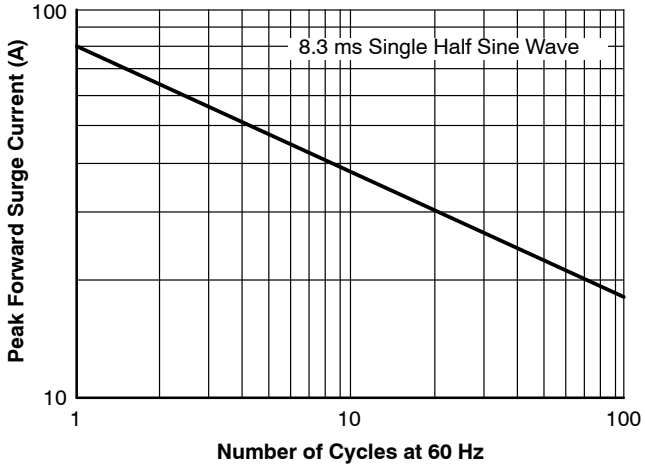


Figure 3. Maximum Non-Repetitive Forward Surge Current

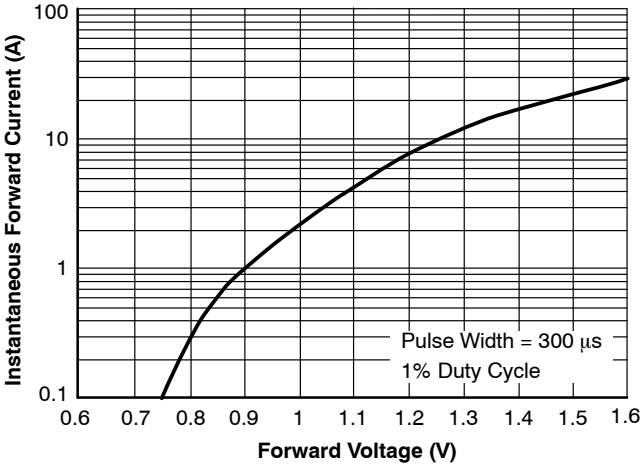


Figure 4. Typical Forward Characteristics

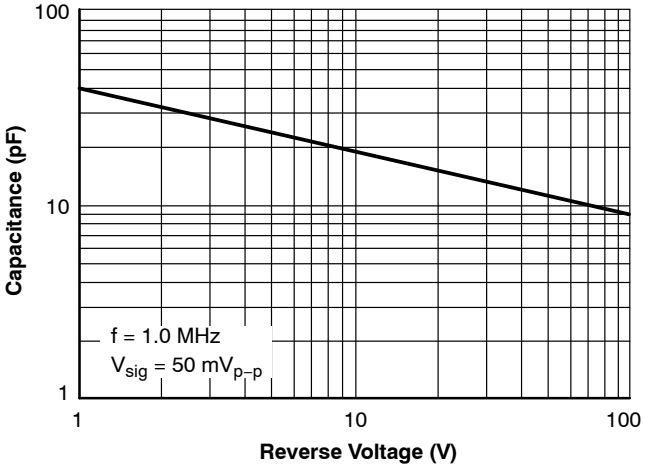


Figure 5. Typical Junction Capacitance

TEST CIRCUIT DIAGRAM

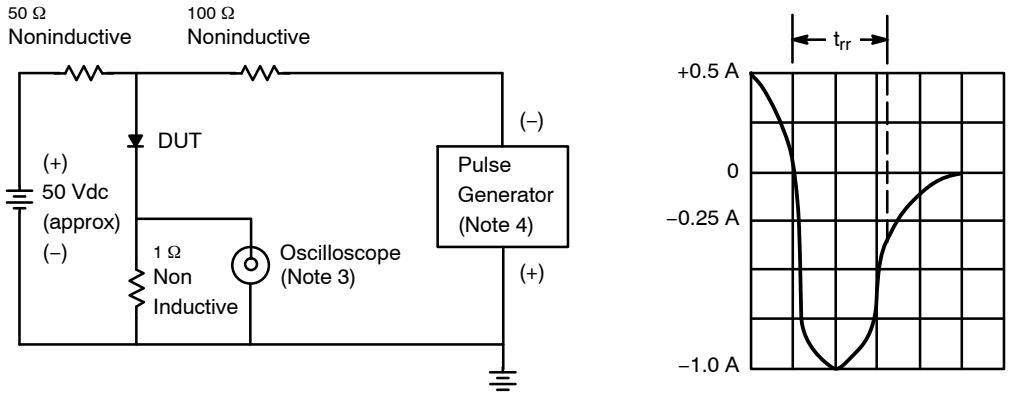


Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram

NOTES:
3. Rise Time = 7 ns max. Input Impedance = 1 MΩ, 22 pF
4. Rise Time = 10 ns max. Source Impedance = 50 Ω, 22 pF

ORDERING INFORMATION

Part Number	Device Code Marking	Package	Shipping†
NRVS3BB*	S3BB	SMB (Pb-Free, Halide-Free)	3000 / Tape & Reel
S3DB	S3DB		
S3GB, NRVS3GB*	S3GB		
S3JB, NRVS3JB*	S3JB		
S3KB	S3KB		
S3MB, NRVS3MB*	S3MB		

DISCONTINUED (Note 5)

S3AB, NRVS3AB*	S3AB	SMB (Pb-Free, Halide-Free)	3000 / Tape & Reel
S3BB	S3BB		
NRVS3DB*	S3DB		
NRVS3KB*	S3KB		

† 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

5. **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.

REVISION HISTORY

Revision	Description of Changes	Date
6	Corrected DC Blocking Voltage unit from A to V in page 1 table.	6/8/2026

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

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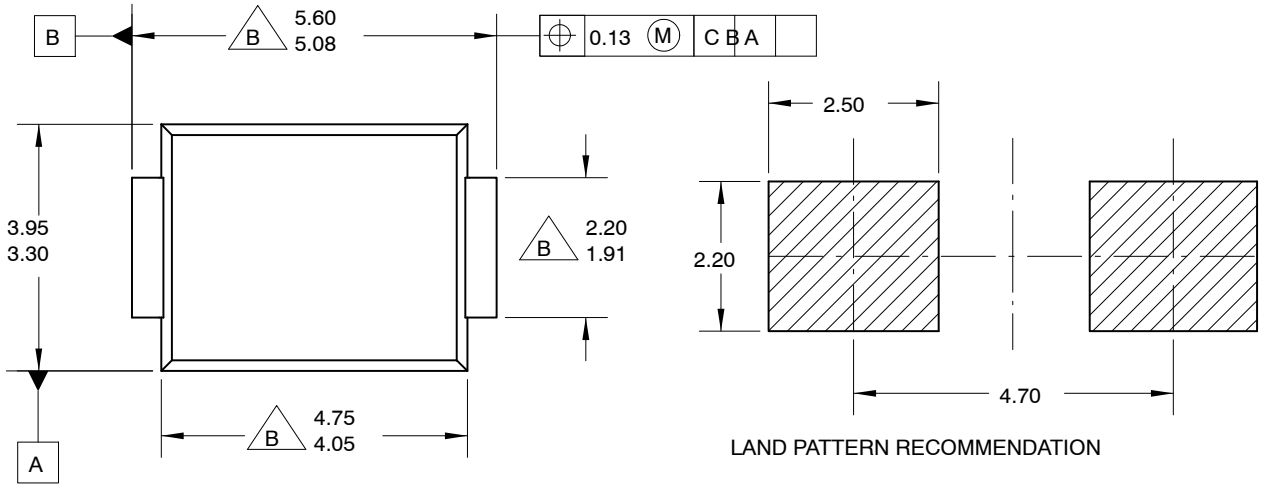
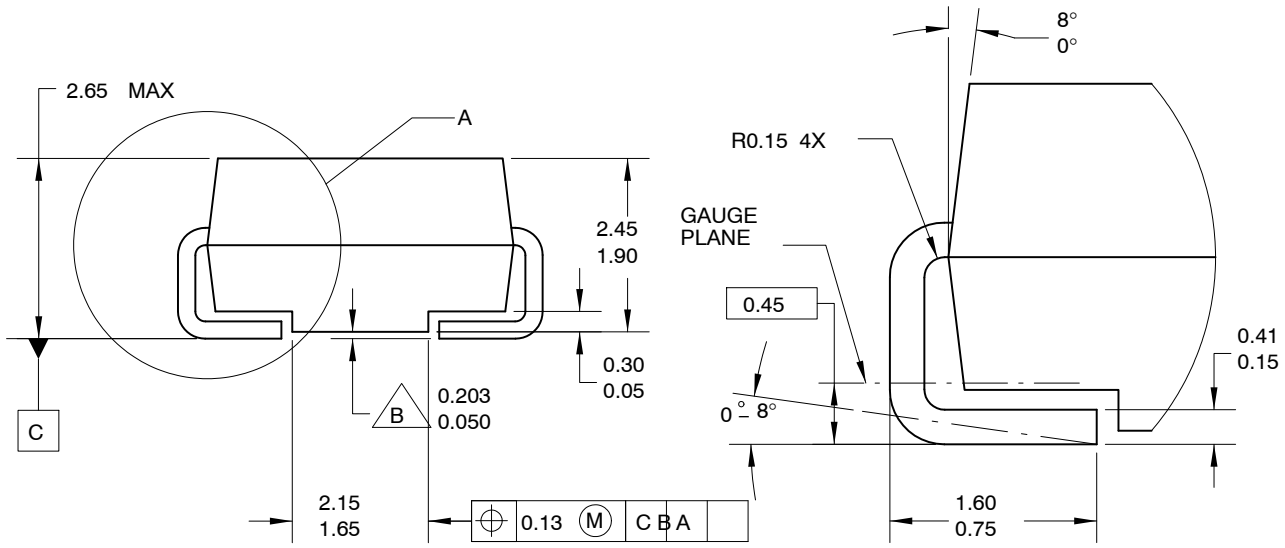
DATE 31 AUG 2016



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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