# Surface-Mount Package Schottky Rectifier

## 3 A, 200 V

# S320



**SMB / DO-214AA**
**CASE 403AF**

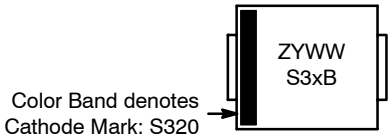
### Description

The S320 is a high-efficiency, low power loss, general-propose Schottky rectifier. The clip-bonded leg structure provides high thermal performance and low electrical resistance. This rectifier is suited for free wheeling, secondary rectification, and reverse polarity protection applications.

### Features

- Low-Profile, Mini-Surface-Mount Package: SMB / DO-214AA
- High-Reverse Voltage: $V_{RRM}$ = 200 V
- Low-Power Loss, High Efficiency
- High-Surge Current: $I_{FSM}$ = 80 A
- RoHS 2002/95/EC Compliant
- This is a Pb-Free and Halide Free Device

### MARKING DIAGRAM




| | |
|---|---|
| Z | = Assembly Plant Code |
| Y | = Year |
| WW | = Work Week |
| S320 | = Specific Device Code |

### ORDERING INFORMATION

| Device | Package | Shipping† |
|---|---|---|
| S320 | SMB | 3000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

### ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25 °C unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{RRM}$ | Maximum Repetitive Peak Reverse Voltage | 200 | V |
| $V_{RMS}$ | Maximum RMS Voltage | 140 | V |
| $V_{DC}$ | Maximum DC Blocking Voltage | 200 | V |
| $I_{F(AV)}$ | Maximum Average Forward Current | 3.0 | A |
| $I_{FSM}$ | Non-Repetitive Peak Forward Surge Current: 8.3 ms Single Half-Sine Wave Superimposed on Rated Load (JEDEC Method) | 80 | A |
| $T_{STG}$, $T_J$ | Operating Junction and Storage 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 (Note 1)

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 160 | °C/W |
| $\Psi_{JL}$ | Junction to Lead Thermal Characteristics | 20 | °C/W |

1. Test condition – test environment & PCB type: JESD51-2,3, board size: 76.2 x 114.3 mm, pad size: 2.5 x 2.2 mm, trace width: 30 mils.

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**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted)

| Symbol | Parameter | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $V_F$ | Forward Voltage (Note 2) | 3.0 A | – | – | 0.9 | V |
| $I_R$ | DC Reverse Current at Rated $V_{DC}$ | $T_A$ = 25 °C | – | – | 7 | μA |
| | | $T_A$ = 100 °C | – | – | 120 | |
| $t_{rr}$ | Reverse-Recovery Time (Note 3) | $I_F$ = 0.5 A, $I_R$ = 1 A, $I_{RR}$ = 0.25 A | – | 14 | – | ns |
| | | $I_F$ = 1 A, $V_R$ = –30 A, $I_{RR}$ = 10% $I_{RM}$, di/dt = 50 A/μs | – | 30 | – | ns |

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 = 250 μs, 2% duty cycle.
3. $I_R$ < 1 A due to fast reverse recovery.



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## TYPICAL PERFORMANCE CHARACTERISTICS

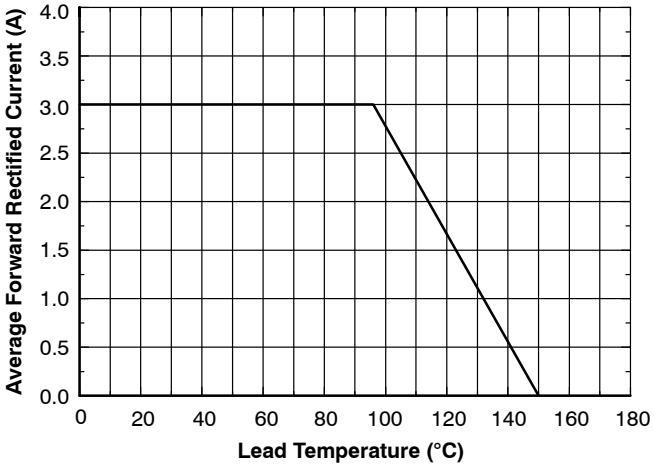



**Figure 1. DC Forward Current Derating Curve**

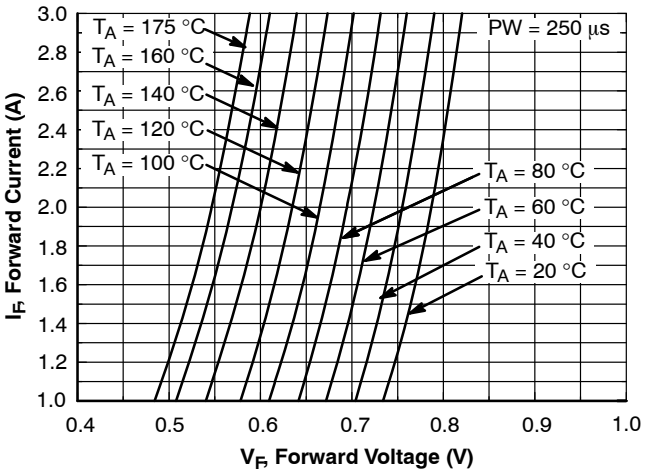



**Figure 2. Forward Current Characteristics**

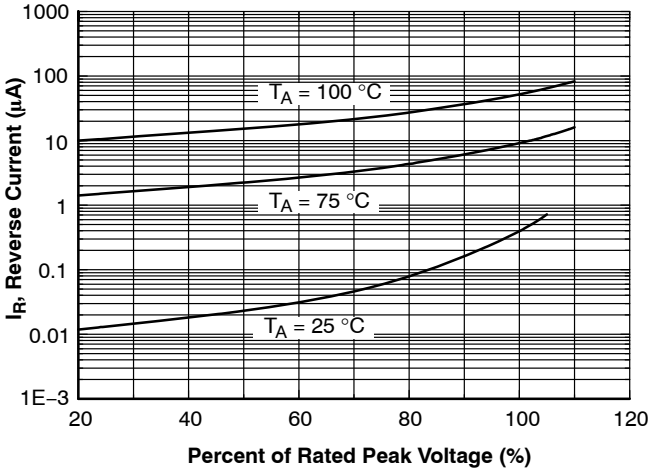



**Figure 3. Typical Reverse Characteristics**

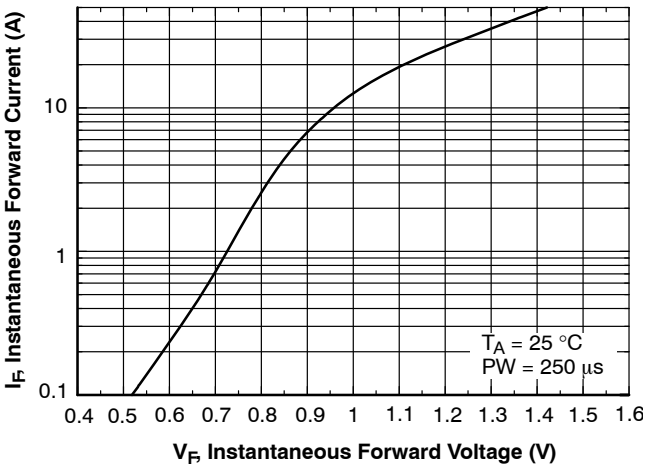


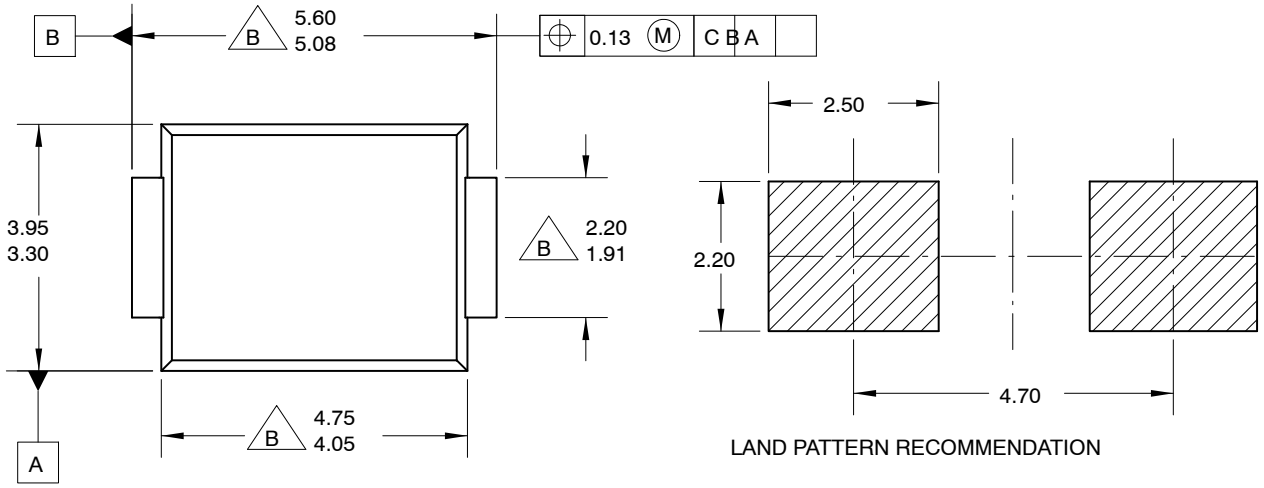

**Figure 4. Typical Instantaneous Forward Characteristics**



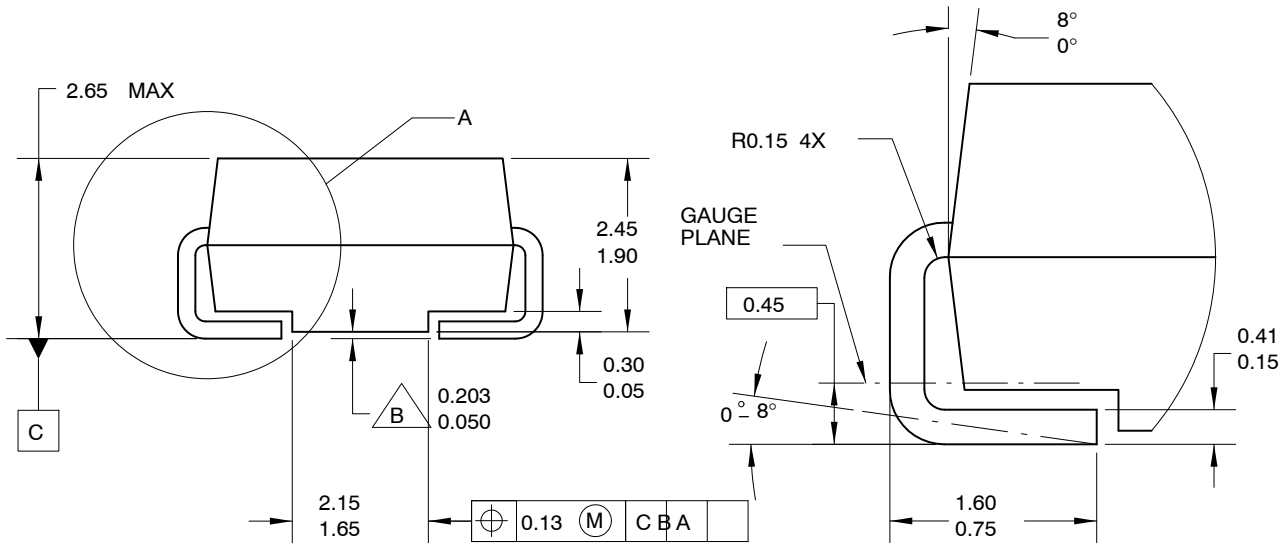
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CASE 403AF
ISSUE O

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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