Surface-Mount Package Schottky Rectifier

3 A, 200 V

S320

SMB / DO-214AA
CASE 403AF

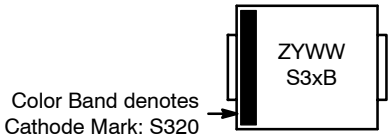
Description

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
Ψ_{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.

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.

TYPICAL PERFORMANCE CHARACTERISTICS

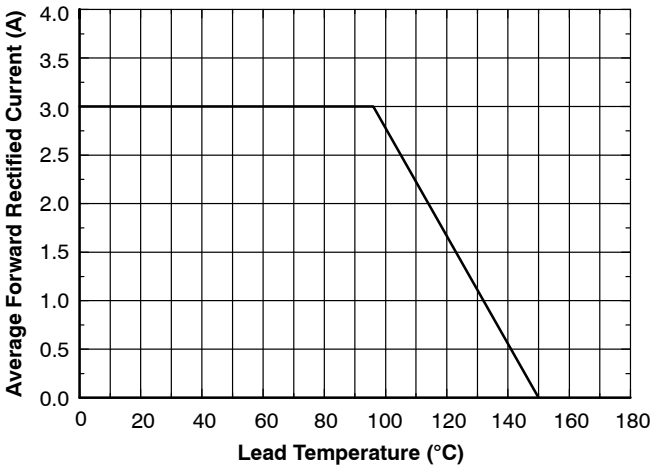


Figure 1. DC Forward Current Derating Curve

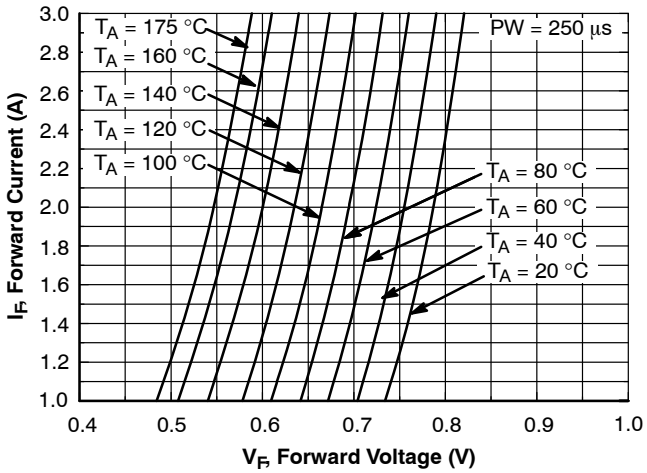


Figure 2. Forward Current Characteristics

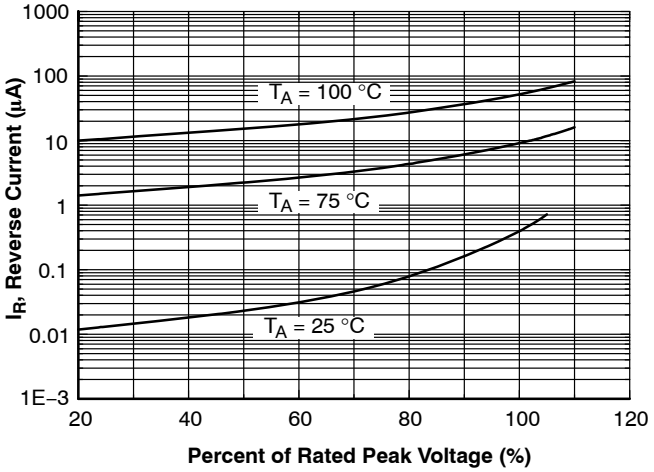


Figure 3. Typical Reverse Characteristics

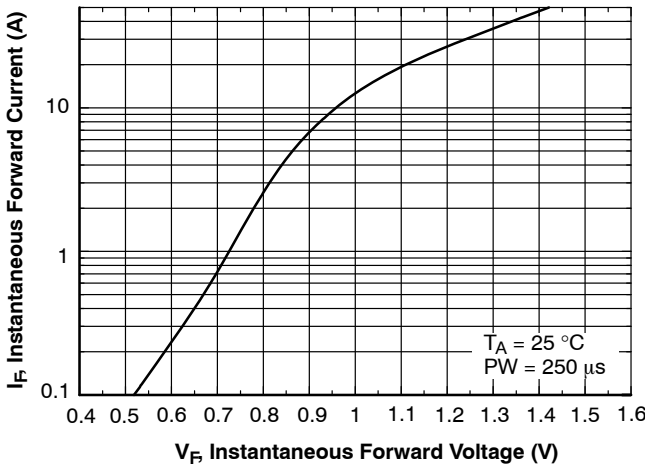


Figure 4. Typical Instantaneous Forward Characteristics

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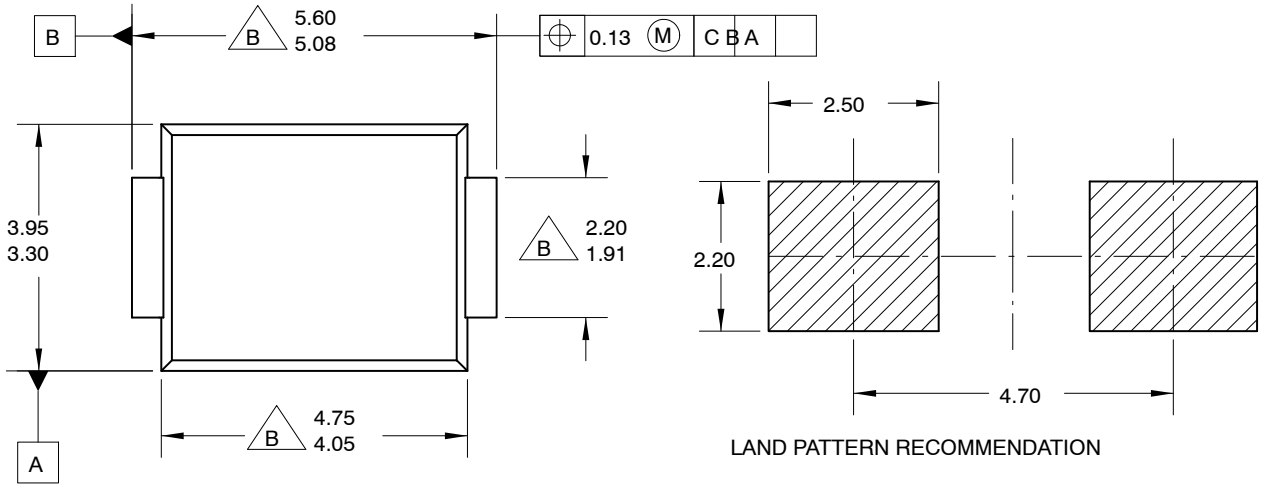
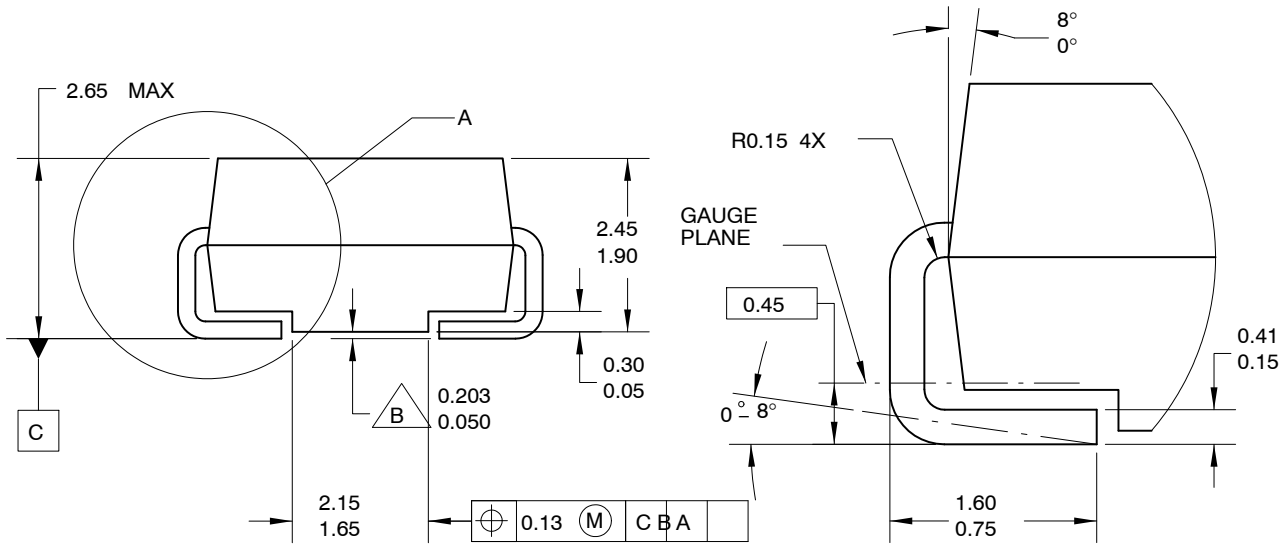


LAND PATTERN RECOMMENDATION



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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