

# **Surface-Mount Package Schottky Rectifier**

3 A, 200 V

## **S320**

### **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:  $V_{RRM} = 200 \text{ V}$ 

Low-Power Loss, High Efficiency

• High-Surge Current: I<sub>FSM</sub> = 80 A

• RoHS 2002/95/EC Compliant

• This is a Pb-Free and Halide Free Device

## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25 °C unless otherwise noted)

Symbol	Parameter		Unit
V <sub>RRM</sub>	Maximum Repetitive Peak Reverse Voltage		٧
V <sub>RMS</sub>	Maximum RMS Voltage		V
V <sub>DC</sub>	Maximum DC Blocking Voltage		V
I <sub>F(AV)</sub>	Maximum Average Forward Current	3.0	Α
I <sub>FSM</sub>	Non-Repetitive Peak Forward Surge Current: 8.3 ms Single Half-Sine Wave Superimposed on Rated Load (JEDEC Method)	80	Α
T <sub>STG</sub> , T <sub>J</sub>	S, T <sub>J</sub> Operating Junction and Storage Temperature Range		°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.

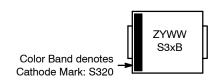
### THERMAL CHARACTERISTICS (Note 1)

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

<sup>1.</sup> 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.



#### **MARKING DIAGRAM**



Z = Assembly Plant Code

Y = Year WW = Work Week

S320 = Specific Device Code

#### ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
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.

## **S320**

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

Symbol	Parameter	Test Conditions	Min	Тур	Max	Unit
V <sub>F</sub>	Forward Voltage (Note 2)	3.0 A	-	-	0.9	V
I <sub>R</sub>	DC Reverse Current at Rated V <sub>DC</sub>	T <sub>A</sub> = 25 °C	-	-	7	μΑ
		T <sub>A</sub> = 100 °C	-	-	120	
t <sub>rr</sub>	Reverse-Recovery Time (Note 3)	$I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, I_{RR} = 0.25 \text{ A}$	_	14	_	ns
		$I_F = 1 \text{ A}, V_R = -30 \text{ A},$ $I_{RR} = 10\% I_{RM}, \text{ di/dt} = 50 \text{ A/}\mu\text{s}$	ı	30	İ	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<sub>R</sub> < 1 A due to fast reverse recovery.

## **TYPICAL PERFORMANCE CHARACTERISTICS**

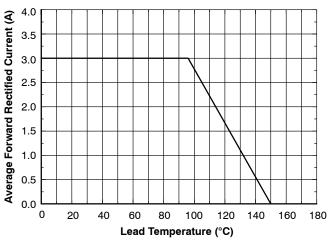
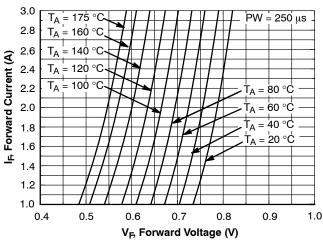


Figure 1. DC Forward Current Derating Curve



**Figure 2. Forward Current Characteristics** 

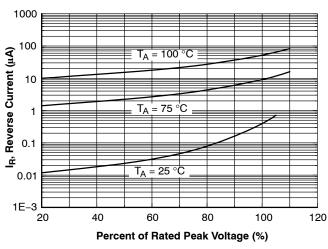


Figure 3. Typical Reverse Characteristics

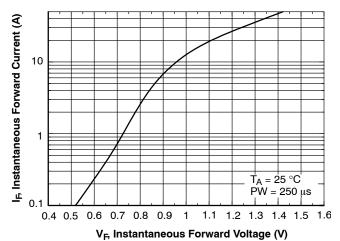
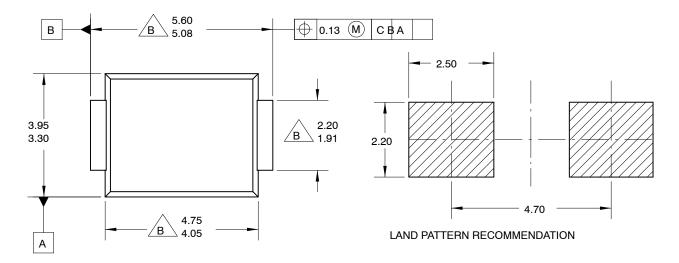


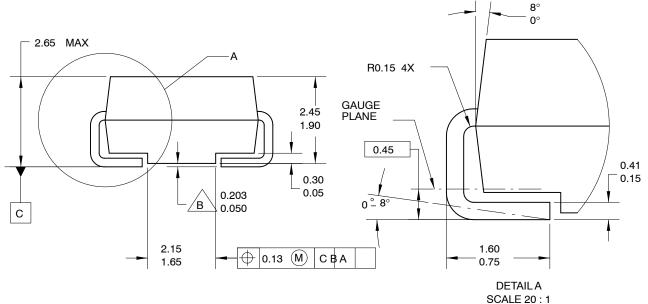
Figure 4. Typical Instantaneous Forward Characteristics



SMB CASE 403AF ISSUE O

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#### NOTES:

- A. EXCEPT WHERE NOTED CONFORMS TO
- JEDEC DO214 VARIATION AA.
- $\overline{/\mathtt{B}\,ackslash}$  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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