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S320

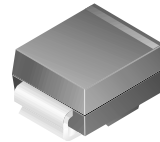
3 A, 200 V, Surface-Mount Package Schottky Rectifier

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: $I_{FSM} = 80\text{ A}$
- RoHS 2002/95/EC Compliant

Description

The S320 is a high-efficiency, low power loss, general-purpose 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.



SMB / DO-214AA
Color Band Denotes Cathode
Mark: S320

Ordering Information

| Part Number | Marking | Package | Packing Method |
|-------------|---------|----------|----------------|
| S320 | S320 | DO-214AA | Tape and Reel |

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Value | Units |
|----------------|---|-------------|------------------|
| 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 | $^\circ\text{C}$ |

Thermal Characteristics⁽¹⁾

| Symbol | Parameter | Typ. | Units |
|-----------------|--|------|-------|
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 160 | °C/W |
| Ψ_{JL} | Junction to Lead Thermal Characteristics | 20 | °C/W |

Note:

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

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Test Condition | Typ. | Max. | Units |
|----------|--------------------------------------|---|------|------|---------------|
| V_F | Forward Voltage ⁽²⁾ | 3.0 A | | 0.9 | V |
| I_R | DC Reverse Current at Rated V_{DC} | $T_A = 25^\circ\text{C}$ | | 7 | μA |
| | | $T_A = 100^\circ\text{C}$ | | 120 | |
| t_{rr} | Reverse-Recovery Time ⁽³⁾ | $I_F = 0.5\text{ A}, I_R = 1\text{ A}, I_{RR} = 0.25\text{ A}$ | 14 | | ns |
| | | $I_F = 1\text{ A}, V_R = -30\text{ V}, I_{RR} = 10\% I_{RM}, di/dt = 50\text{ A}/\mu\text{s}$ | 30 | | ns |

Notes:

2. Pulse test with $PW = 250\ \mu\text{s}$, 2% duty cycle.
3. $I_R < 1\text{ A}$ due to fast reverse recovery.

Typical Performance Characteristics

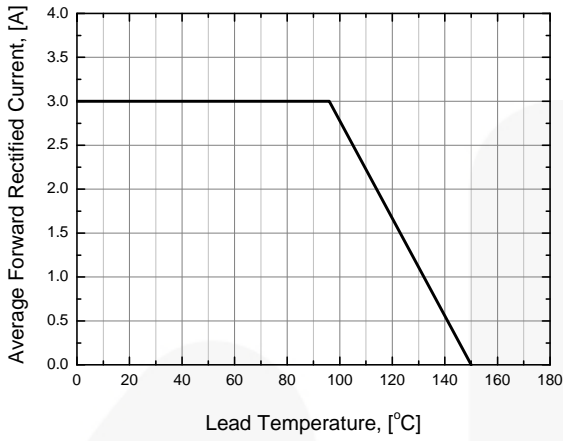


Figure 1. DC Forward Current Derating Curve

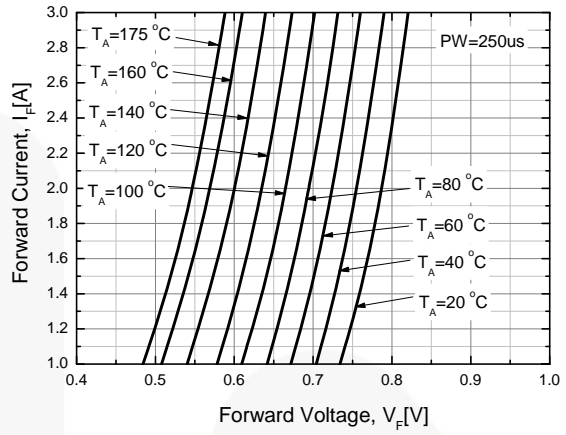


Figure 2. Forward Current Characteristics

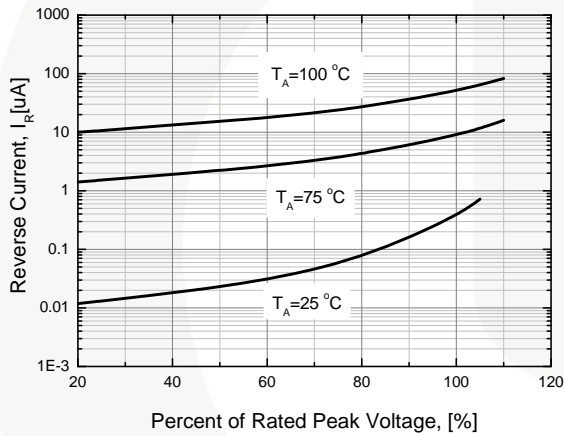


Figure 3. Typical Reverse Characteristics

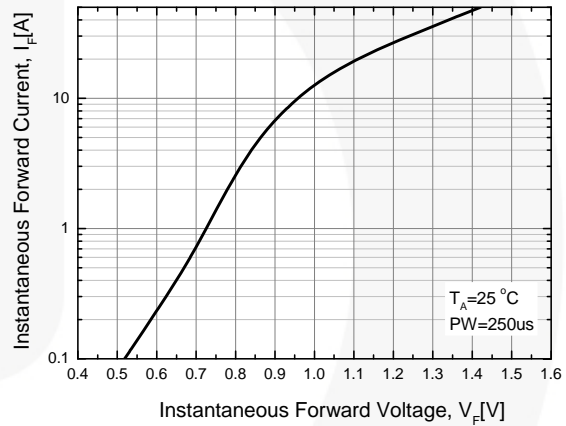
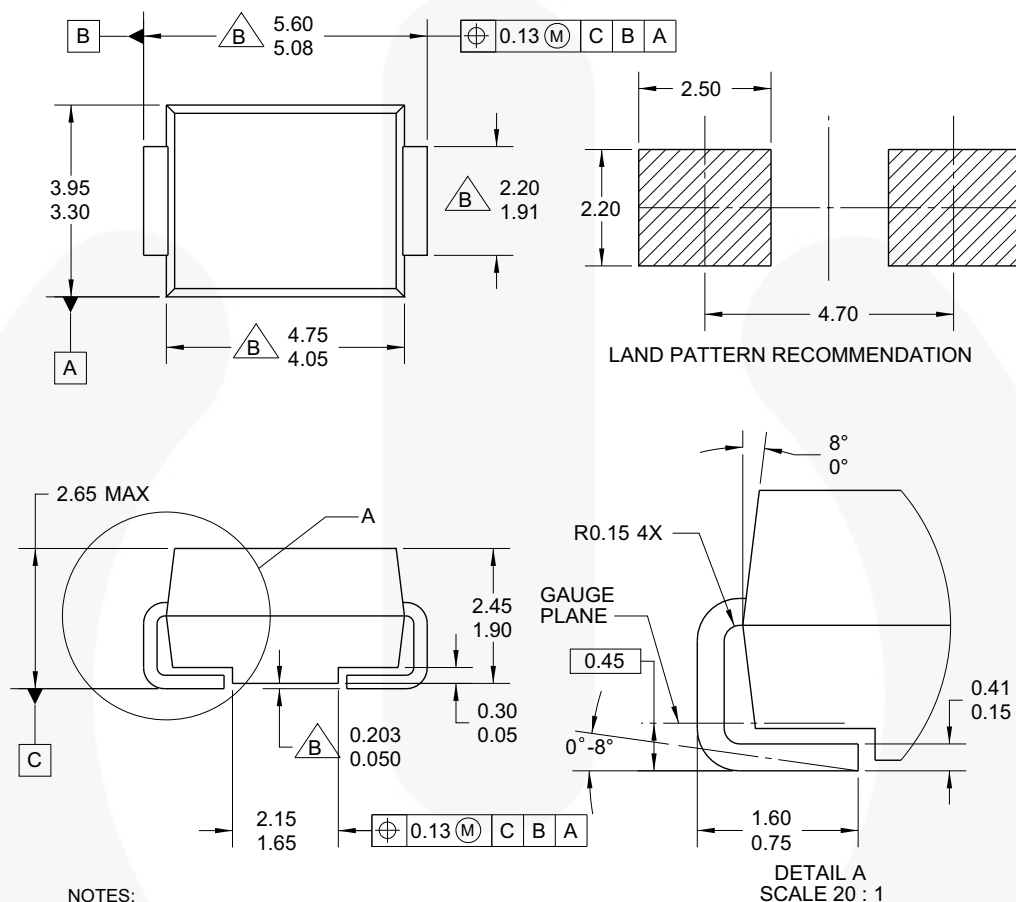


Figure 4. Typical Instantaneous Forward Characteristic

Physical Dimensions

DO-214AA



NOTES:

- A. EXCEPT WHERE NOTED CONFORMS TO JEDEC DO214 VARIATION AA.
- △ 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.
- G. DRAWING FILE NAME: DO214AAREV1

Figure 5. 2-LEAD, SMB, JEDEC DO-214, VARIATION AA (ACTIVE)

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