

# Schottky Barrier Diodes

## NSR0320MW2T1G, NSVR0320MW2T1G, NSR0320MW2T3G

These Schottky barrier diodes are designed for high current, handling capability, and low forward voltage performance.

### Features

- Low Forward Voltage – 0.24 Volts (Typ) @  $I_F = 10 \text{ mAdc}$
- High Current Capability
- ESD Rating:
  - ◆ Human Body Model: CLASS 3B
  - ◆ Machine Model: C
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant\*

### MAXIMUM RATINGS ( $T_J = 125^\circ\text{C}$ unless otherwise noted)

| Rating   | Symbol          | Value          | Unit        |
|--|-----------------|----------------|-------------|
| Reverse Voltage  | $V_R$           | 20             | Vdc         |
| Peak Reverse Voltage   | $V_{RM}$        | 23             | V           |
| Forward Power Dissipation<br>@ $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_F$           | 200<br>2.0     | mW<br>mW/°C |
| Forward Current (DC)<br>Continuous   | $I_F$           | 1              | A           |
| Forward Current<br>$t = 8.3 \text{ ms}$ Half Sinewave                                      | $I_{FSM}$       | 5              | A           |
| Thermal Resistance, Junction-to-Ambient<br>175 mm <sup>2</sup> , 1 oz. Cu, FR-4            | $R_{\theta JA}$ | 500            | °C/W        |
| Thermal Resistance, Junction-to-Lead<br>175 mm <sup>2</sup> , 1 oz. Cu, FR-4               | $R_{\theta JL}$ | 322            | °C/W        |
| Junction Temperature Range   | $T_J$           | -55 to<br>+125 | °C          |
| Storage Temperature Range  | $T_{stg}$       | -55 to<br>+150 | °C          |

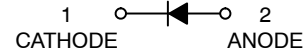
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

\*For additional information on our Pb-Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

## HIGH CURRENT SCHOTTKY BARRIER DIODE



SOD-323  
CASE 477  
STYLE 1



### MARKING DIAGRAM



RD = Specific Device Code  
M = Date Code  
■ = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

| Device         | Package              | Shipping†               |
|----------------|----------------------|-------------------------|
| NSR0320MW2T1G  | SOD-323<br>(Pb-Free) | 3,000 /<br>Tape & Reel  |
| NSR0320MW2T3G  | SOD-323<br>(Pb-Free) | 10,000 /<br>Tape & Reel |
| NSVR0320MW2T1G | SOD-323<br>(Pb-Free) | 3,000 /<br>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.

# NSR0320MW2T1G, NSVR0320MW2T1G, NSR0320MW2T3G

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

| Characteristic  | Symbol         | Min         | Typ                  | Max                  | Unit |
|---|----------------|-------------|----------------------|----------------------|------|
| Total Capacitance (V <sub>R</sub> = 5.0 V, f = 1.0 MHz)   | C <sub>T</sub> | -           | 25                   | 29                   | pF   |
| Reverse Leakage<br>(V <sub>R</sub> = 15 V)<br>(V <sub>R</sub> = 2.0 V @ 85°C)<br>(V <sub>R</sub> = 15.0 V @ 85°C) | I <sub>R</sub> | -<br>-<br>- | 10<br>200<br>450     | 50<br>-<br>-         | μA   |
| Forward Voltage<br>(I <sub>F</sub> = 10 mA)<br>(I <sub>F</sub> = 100 mA)<br>(I <sub>F</sub> = 900 mA)             | V <sub>F</sub> | -<br>-<br>- | 0.24<br>0.30<br>0.45 | 0.27<br>0.35<br>0.50 | V    |

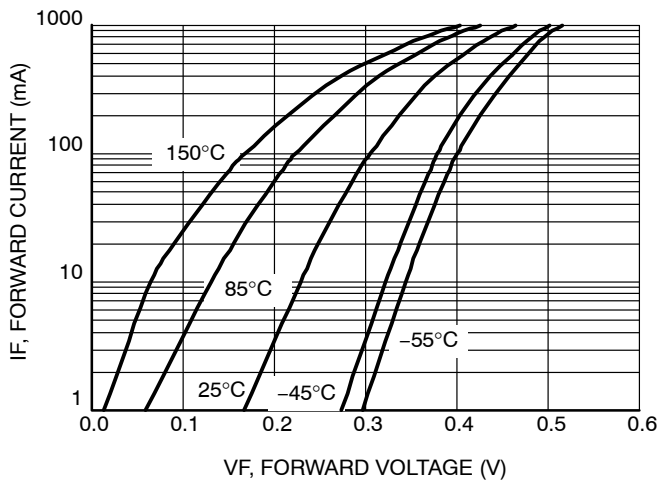


Figure 1. Forward Voltage

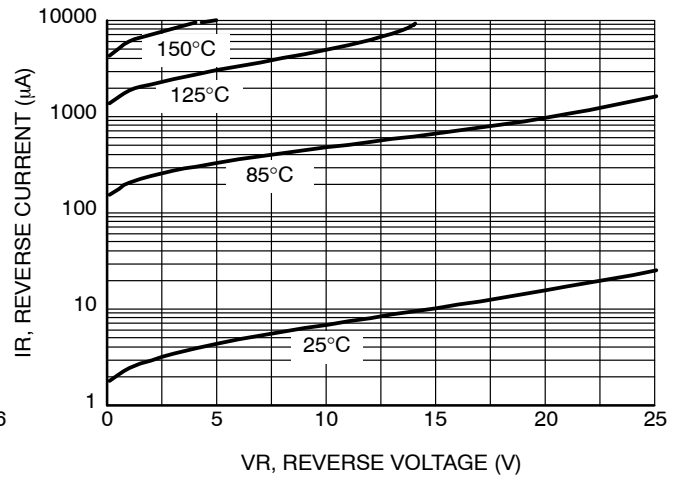


Figure 2. Leakage Current

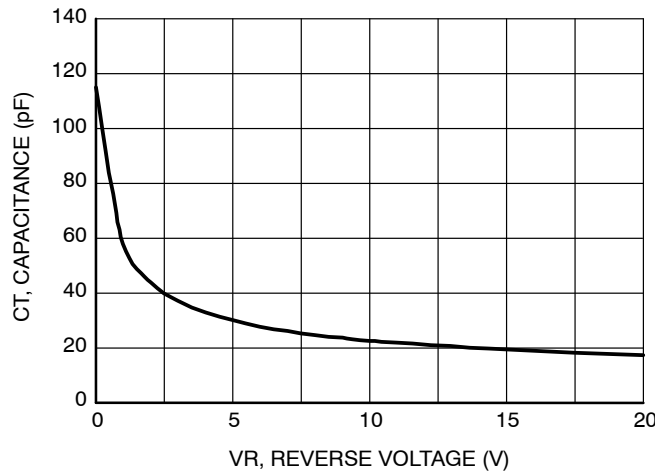
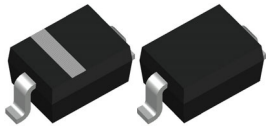


Figure 3. Total Capacitance

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS



**SOD-323 1.70x1.25x0.85**  
**CASE 477**  
**ISSUE K**

DATE 11 MAR 2024



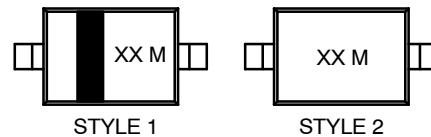
NOTES:

1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DIMENSION L IS MEASURE FROM END OF RADIUS.

| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | 0.80        | 0.90 | 1.00 |
| A1  | 0.00        | 0.05 | 0.10 |
| A2  | 0.75        | 0.85 | 0.95 |
| A3  | 0.15 (REF)  |      |      |
| b   | 0.25        | 0.32 | 0.4  |
| c   | 0.09        | 0.12 | 0.18 |
| D   | 1.60        | 1.70 | 1.80 |
| E   | 1.15        | 1.25 | 1.35 |
| H   | 2.30        | 2.50 | 2.70 |
| L   | 0.08        | ---  | ---  |
| L1  | 0.40 (REF)  |      |      |

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference manual, SOLDERRM/D.

### GENERIC MARKING DIAGRAM\*



XX = Specific Device Code  
M = Date Code

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

STYLE 1: PIN 1. CATHODE (POLARITY BAND)  
2. ANODE

STYLE 2: NO POLARITY

|                         |                               |  |
|-------------------------|-------------------------------|--|
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| <b>DESCRIPTION:</b>     | <b>SOD-323 1.70x1.25x0.85</b> | <b>PAGE 1 OF 1</b>   |

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