

# NSR02100HT1G

## Schottky Barrier Diodes

These Schottky barrier diodes are designed for high speed switching applications, circuit protection, and voltage clamping. Extremely low forward voltage reduces conduction loss. Miniature surface mount package is excellent for hand held and portable applications where space is limited.

### Features

- Fast Switching Speed
- Low Leakage Current
- Low Forward Voltage – 0.45 V @  $I_F = 1$  mA
- Surface Mount Device
- Low Capacitance Diode
- NSVR 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

| Characteristic   | Symbol          | Value         | Unit                       |
|--|-----------------|---------------|----------------------------|
| Total Device Dissipation FR-5 Board, (Note 1)<br>$T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 200<br>1.57   | mW<br>mW/ $^\circ\text{C}$ |
| Forward Current (DC)   | $I_F$           | 200           | mA                         |
| Non-Repetitive Peak Forward Current,<br>$t_p < 10$ msec  | $I_{FSM}$       | 2             | A                          |
| Thermal Resistance<br>Junction-to-Ambient  | $R_{\theta JA}$ | 635           | $^\circ\text{C}/\text{W}$  |
| Junction and Storage Temperature Range   | $T_J, T_{stg}$  | -55<br>to 150 | $^\circ\text{C}$           |

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.

1. FR-4 Minimum Pad



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## 100 VOLT SCHOTTKY BARRIER DIODE



SOD-323  
CASE 477  
STYLE 1



### MARKING DIAGRAM



JC = Device Code  
M = Date Code  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

| Device        | Package              | Shipping†              |
|---------------|----------------------|------------------------|
| NSR02100HT1G  | SOD-323<br>(Pb-Free) | 3,000 /<br>Tape & Reel |
| NSVR02100HT1G | 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 Specifications Brochure, BRD8011/D.

# NSR02100HT1G

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

| Characteristic   | Symbol | Min | Typ | Max  | Unit               |
|--|--------|-----|-----|------|--------------------|
| Reverse Breakdown Voltage<br>( $I_R = 10 \mu\text{A}$ )              | $V_R$  | –   | 100 | –    | V                  |
| Reverse Leakage<br>( $V_R = 50 \text{V}$ )                           | $I_R$  | –   | –   | 0.05 | $\mu\text{A}_{dc}$ |
| Reverse Leakage<br>( $V_R = 100 \text{V}$ )                          | $I_R$  | –   | –   | 0.15 | $\mu\text{A}_{dc}$ |
| Forward Voltage<br>( $I_F = 1 \text{mA}_{dc}$ )                      | $V_F$  | –   | –   | 0.45 | Vdc                |
| Forward Voltage<br>( $I_F = 10 \text{mA}_{dc}$ )                     | $V_F$  | –   | –   | 0.57 | Vdc                |
| Forward Voltage<br>( $I_F = 100 \text{mA}_{dc}$ )                    | $V_F$  | –   | –   | 0.80 | Vdc                |
| Forward Voltage<br>( $I_F = 200 \text{mA}_{dc}$ )                    | $V_F$  | –   | –   | 0.95 | Vdc                |
| Total Capacitance<br>( $V_R = 1.0 \text{V}$ , $f = 1.0 \text{MHz}$ ) | $C_T$  | –   | 4   | 10   | pF                 |

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.

# NSR02100HT1G

## TYPICAL CHARACTERISTICS

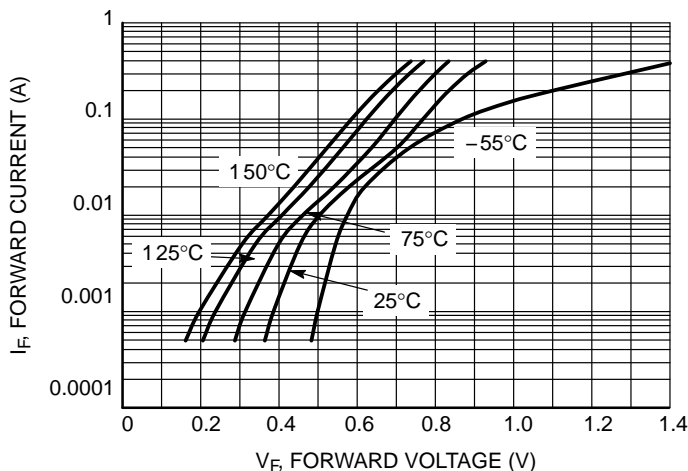


Figure 1. Forward Voltage

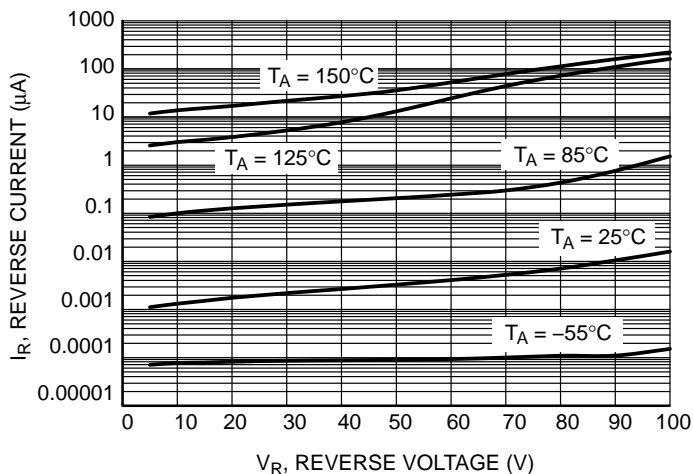


Figure 2. Leakage Current

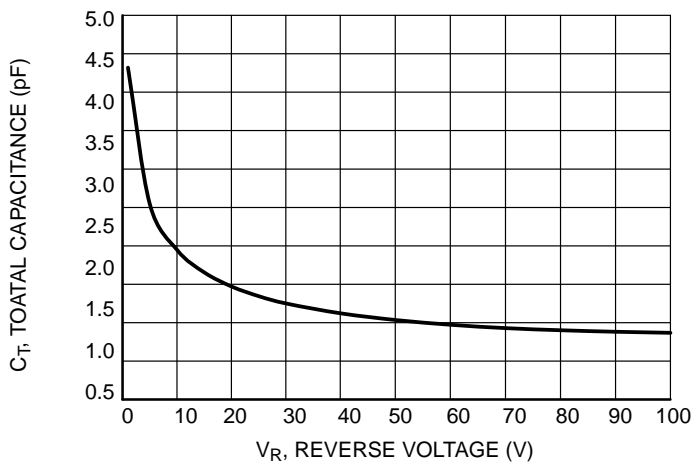


Figure 3. Total Capacitance

# MECHANICAL CASE OUTLINE

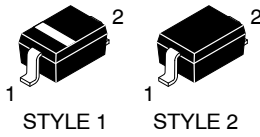
## PACKAGE DIMENSIONS

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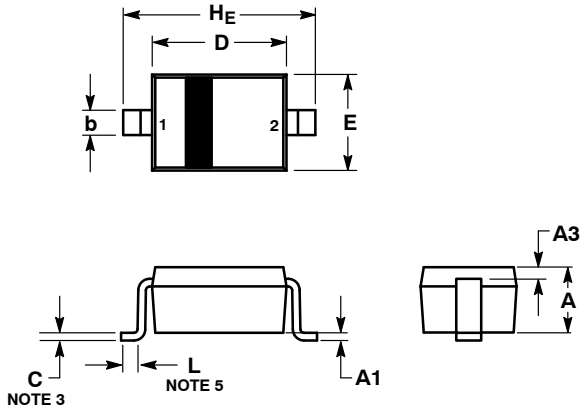


**SOD-323**  
CASE 477-02  
ISSUE H

DATE 13 MAR 2007



SCALE 4:1

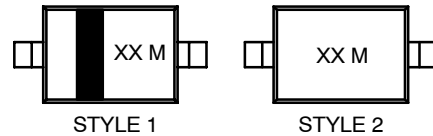


**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
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 MEASURED FROM END OF RADIUS.

| DIM | MILLIMETERS |      |       | INCHES    |       |       |
|-----|-------------|------|-------|-----------|-------|-------|
|     | MIN         | NOM  | MAX   | MIN       | NOM   | MAX   |
| A   | 0.80        | 0.90 | 1.00  | 0.031     | 0.035 | 0.040 |
| A1  | 0.00        | 0.05 | 0.10  | 0.000     | 0.002 | 0.004 |
| A3  | 0.15 REF    |      |       | 0.006 REF |       |       |
| b   | 0.25        | 0.32 | 0.4   | 0.010     | 0.012 | 0.016 |
| C   | 0.089       | 0.12 | 0.177 | 0.003     | 0.005 | 0.007 |
| D   | 1.60        | 1.70 | 1.80  | 0.062     | 0.066 | 0.070 |
| E   | 1.15        | 1.25 | 1.35  | 0.045     | 0.049 | 0.053 |
| L   | 0.08        |      |       | 0.003     |       |       |
| HE  | 2.30        | 2.50 | 2.70  | 0.090     | 0.098 | 0.105 |

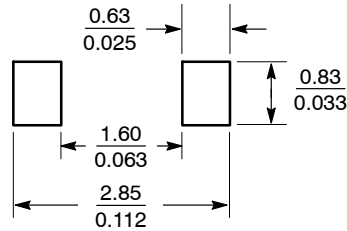
**GENERIC MARKING DIAGRAM\***



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.

**SOLDERING FOOTPRINT\***



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

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

STYLE 2:  
NO POLARITY

|                         |                    |  |
|-------------------------|--------------------|--|
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| <b>DESCRIPTION:</b>     | <b>SOD-323</b>     | <b>PAGE 1 OF 1</b>   |

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