

# Schottky Barrier Diode

## NSR0140P2

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

- Extremely Fast Switching Speed
- Extremely Low Forward Voltage – 0.28 V (Typ) @  $I_F = 1.0$  mA
- Low Reverse Current
- Lead-Free Plating
- This is a Pb-Free Device

### MAXIMUM RATINGS

| Rating   | Symbol    | Value | Unit |
|--|-----------|-------|------|
| Repetitive Peak Reverse Voltage  | $V_{RM}$  | 40    | V    |
| Continuous Reverse Voltage (DC)  | $V_R$     | 30    | V    |
| Continuous Forward Current (DC)  | $I_F$     | 70    | mA   |
| Non-Repetitive Peak Forward Surge Current                              | $I_{FSM}$ | 500   | mA   |
| ESD Rating: Class 1C per Human Body Model<br>Class A per Machine Model |           |       |      |

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

| Characteristic   | Symbol          | Max         | Unit                       |
|--|-----------------|-------------|----------------------------|
| Total Device Dissipation FR-5 Board,<br>(Note 1) $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 100<br>1.0  | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance,<br>Junction-to-Ambient   | $R_{\theta JA}$ | 1000        | $^\circ\text{C}/\text{W}$  |
| Junction and Storage<br>Temperature Range  | $T_J, T_{stg}$  | -55 to +125 | $^\circ\text{C}$           |

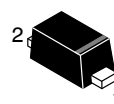
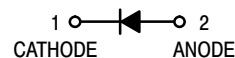
1. FR-5 Minimum Pad.



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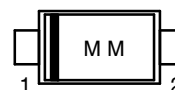
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## 40 V SCHOTTKY BARRIER DIODE



SOD-923  
CASE 514AB

### MARKING DIAGRAM



M = Specific Device Code\*  
(Character is rotated 270° clockwise)  
M = Month Code

### ORDERING INFORMATION

| Device       | Package              | Shipping†        |
|--------------|----------------------|------------------|
| NSR0140P2T5G | SOD-923<br>(Pb-Free) | 8000/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.

# NSR0140P2

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

| Characteristic   | Symbol             | Min | Typ  | Max  | Unit |
|--|--------------------|-----|------|------|------|
| Reverse Breakdown Voltage<br>(I <sub>R</sub> = 10 μA)      | V <sub>(BR)R</sub> | 30  | -    | -    | V    |
| Total Capacitance<br>(V <sub>R</sub> = 1.0 V, f = 1.0 MHz) | C <sub>T</sub>     | -   | 2.0  | 2.5  | pF   |
| Reverse Leakage<br>(V <sub>R</sub> = 30 V)                 | I <sub>R</sub>     | -   | 300  | 500  | nA   |
| Forward Voltage<br>(I <sub>F</sub> = 1.0 mA)               | V <sub>F</sub>     | -   | 0.28 | 0.35 | V    |

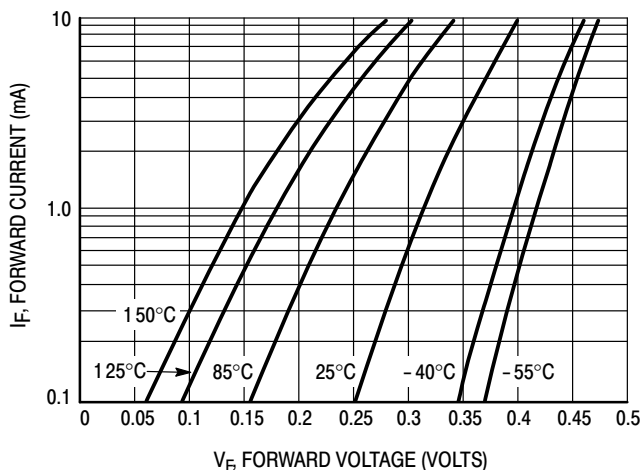


Figure 1. Typical Forward Voltage

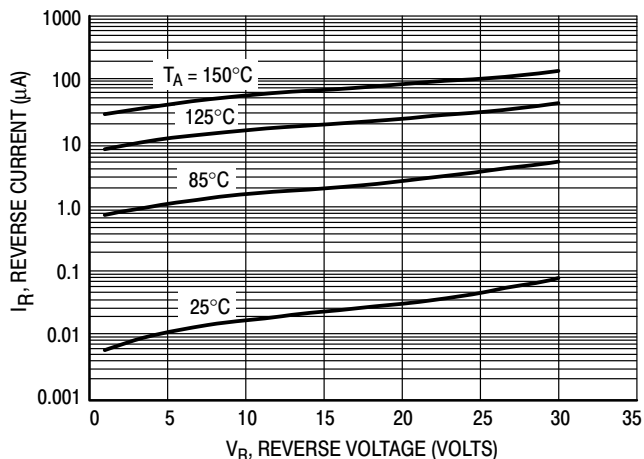


Figure 2. Reverse Current versus Reverse Voltage

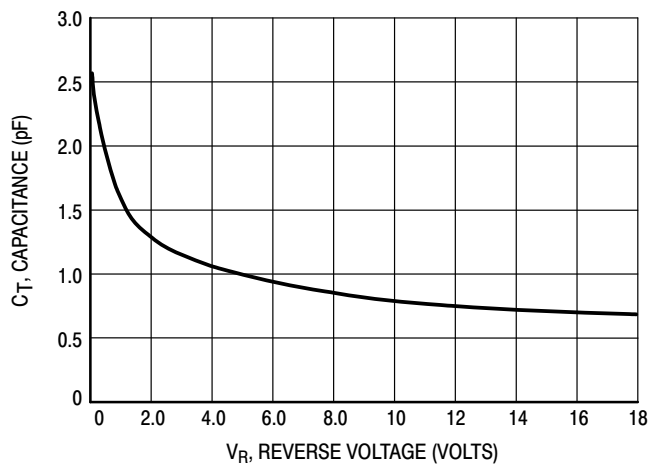
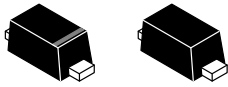


Figure 3. Typical Capacitance

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

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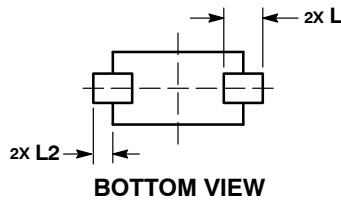
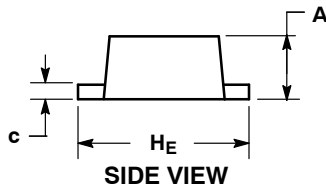
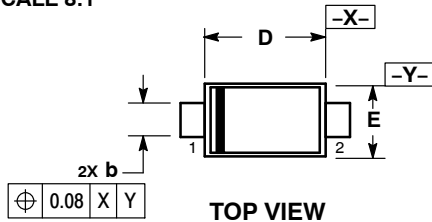


STYLE 1      STYLE 2

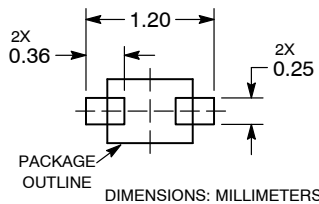
SCALE 8:1

**SOD-923**  
CASE 514AB  
ISSUE D

DATE 03 SEP 2020



**SOLDERING FOOTPRINT\***

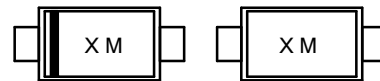


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.
5. DIMENSION L WILL NOT EXCEED 0.30mm.

| DIM            | MILLIMETERS |      |      | INCHES    |       |       |
|----------------|-------------|------|------|-----------|-------|-------|
|                | MIN         | NOM  | MAX  | MIN       | NOM   | MAX   |
| A              | 0.34        | 0.37 | 0.40 | 0.013     | 0.015 | 0.016 |
| b              | 0.15        | 0.20 | 0.25 | 0.006     | 0.008 | 0.010 |
| c              | 0.07        | 0.12 | 0.17 | 0.003     | 0.005 | 0.007 |
| D              | 0.75        | 0.80 | 0.85 | 0.030     | 0.031 | 0.033 |
| E              | 0.55        | 0.60 | 0.65 | 0.022     | 0.024 | 0.026 |
| H <sub>E</sub> | 0.95        | 1.00 | 1.05 | 0.037     | 0.039 | 0.041 |
| L              | 0.19 REF    |      |      | 0.007 REF |       |       |
| L2             | 0.05        | 0.10 | 0.15 | 0.002     | 0.004 | 0.006 |

**GENERIC MARKING DIAGRAM\***



STYLE 1

STYLE 2

X = 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.

STYLE 1:      STYLE 2:  
PIN 1. CATHODE (POLARITY BAND)      NO POLARITY  
2. ANODE

See Application Note AND8455/D for more mounting details

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

|                         |   |  |
|-------------------------|---|--|
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| <b>DESCRIPTION:</b>     | <b>SOD-923, 1.0X0.6X0.37, MAX HEIGHT 0.40</b> | <b>PAGE 1 OF 1</b>   |

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