

NSR0340V2

Schottky Barrier Diode

Schottky barrier diodes are optimized for very low forward voltage drop and low leakage current and are used in a wide range of dc-dc converter, clamping and protection applications in portable devices. NSR0340V2 in a SOD-523 miniature package enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements.

Features

- Very Low Forward Voltage Drop – 410 mV @ 100 mA
- Low Reverse Current – 0.5 μ A @ 25 V V_R
- 250 mA of Continuous Forward Current
- Power Dissipation of 200 mW with Minimum Trace
- Very High Switching Speed
- Low Capacitance – $C_T = 6$ pF
- This is a Pb-Free Device

Typical Applications

- LCD and Keypad Backlighting
- Camera Photo Flash
- Buck and Boost dc-dc Converters
- Reverse Voltage and Current Protection
- Clamping & Protection

Markets

- Mobile Handsets
- MP3 Players
- Digital Camera and Camcorders
- Notebook PCs and PDAs
- GPS

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|-----------------------------------------------|-----------|--------------------|------|
| Reverse Voltage | V_R | 40 | Vdc |
| Forward Continuous Current (DC) | I_F | 250 | mA |
| Non-Repetitive Peak Forward Surge Current | I_{FSM} | 1.0 | A |
| ESD Rating: Human Body Model Machine Model | ESD | Class 2 Class A | |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



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40 VOLT SCHOTTKY BARRIER DIODE



**SOD-523
CASE 502**

MARKING DIAGRAM



AD = Device Code
M = Date Code*
▪ = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation position may vary depending upon manufacturing location.

ORDERING INFORMATION

| Device | Package | Shipping† |
|--------------|----------------------|--------------------|
| NSR0340V2T1G | SOD-523 (Pb-Free) | 3000 / Tape & Reel |
| NSR0340V2T5G | SOD-523 (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.

NSR0340V2

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|----------------------------------------------------------------------------------------------------------|--------------------------|-------------|------------------------------------------|
| Thermal Resistance Junction-to-Ambient (Note 1) Total Power Dissipation @ $T_A = 25^\circ\text{C}$ | $R_{\theta JA}$ P_D | 600 200 | $^\circ\text{C}/\text{W}$ mW |
| Thermal Resistance Junction-to-Ambient (Note 2) Total Power Dissipation @ $T_A = 25^\circ\text{C}$ | $R_{\theta JA}$ P_D | 300 400 | $^\circ\text{C}/\text{W}$ mW |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |

1. Mounted onto a 4 in square FR-4 board 10 mm sq. 1 oz. Cu 0.06" thick single-sided. Operating to steady state.
2. Mounted onto a 4 in square FR-4 board 1 in sq. 1 oz. Cu 0.06" thick single-sided. Operating to steady state.

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

| Characteristic | Symbol | Min | Typ | Max | Unit |
|-------------------------------------------------------------------------------------------------------|----------|-----|-------------------|-------------------|---------------|
| Reverse Leakage ($V_R = 10\text{ V}$) ($V_R = 25\text{ V}$) ($V_R = 40\text{ V}$) | I_R | | 0.2 0.5 1.5 | 1.0 3.0 6.0 | μA |
| Forward Voltage ($I_F = 10\text{ mA}$) ($I_F = 100\text{ mA}$) ($I_F = 200\text{ mA}$) | V_F | | 310 410 470 | 350 450 510 | mV |
| Total Capacitance ($V_R = 10\text{ V}, f = 1\text{ MHz}$) | CT | | 6.0 | | pF |
| Reverse Recovery Time ($I_F = I_R = 10\text{ mA}, I_R = 1.0\text{ mA}$) | t_{rr} | | 5.0 | | ns |

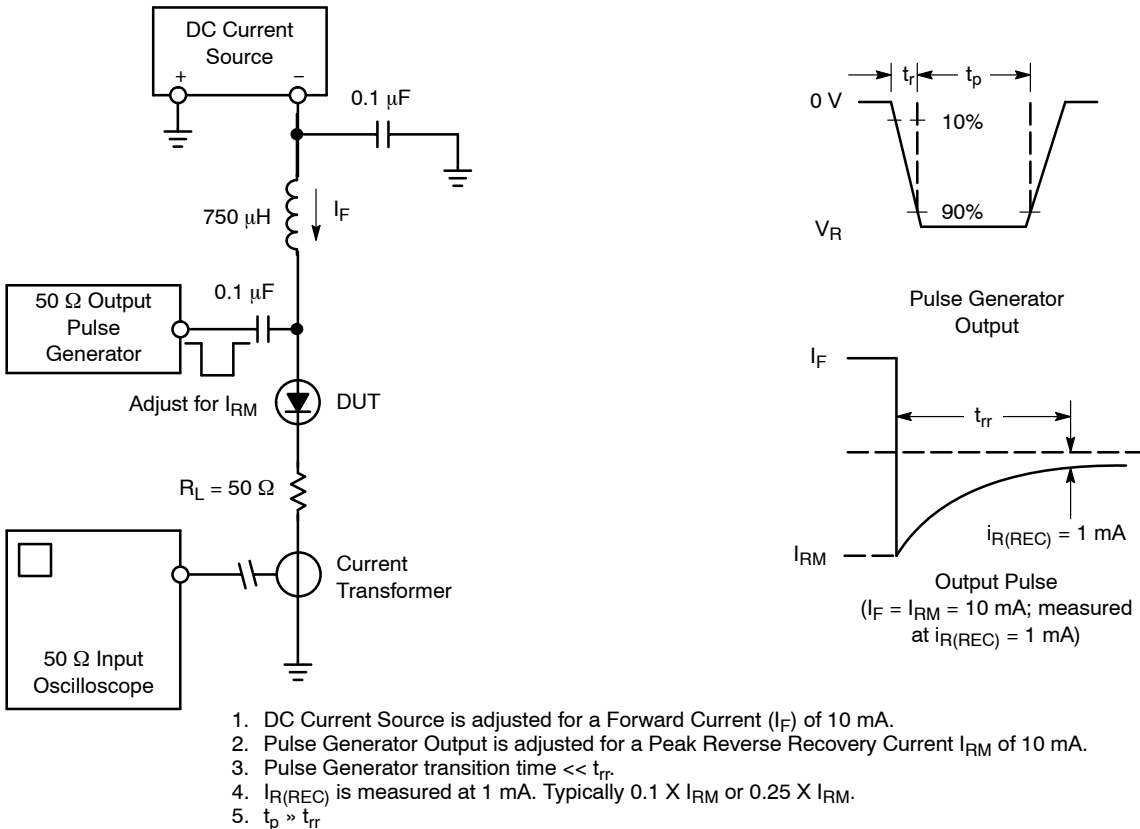


Figure 1. Recovery Time Equivalent Test Circuit

NSR0340V2

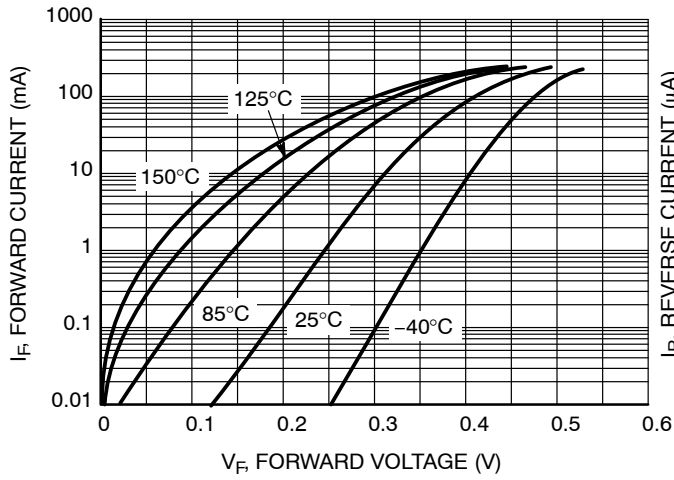


Figure 2. Forward Voltage

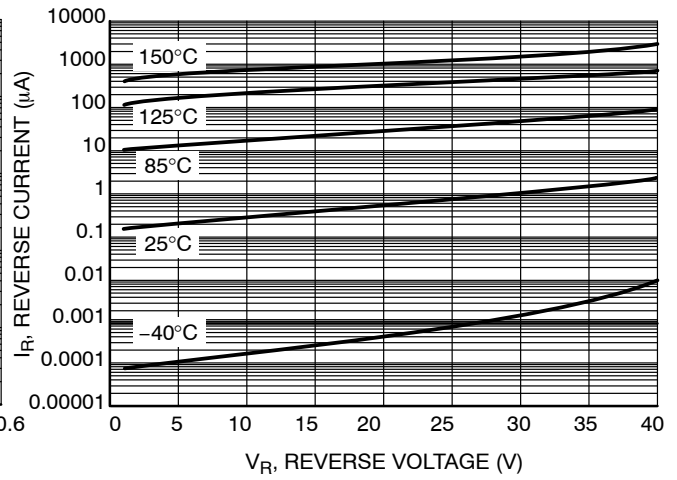


Figure 3. Leakage Current

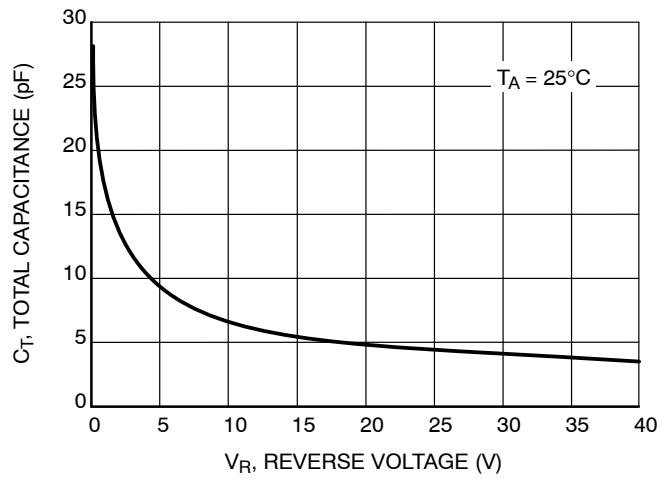
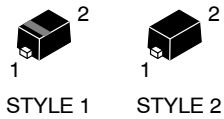


Figure 4. Total Capacitance

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

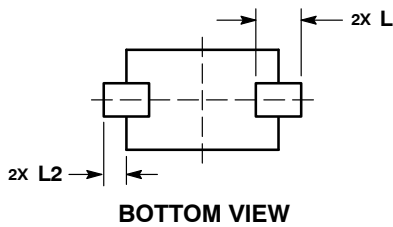
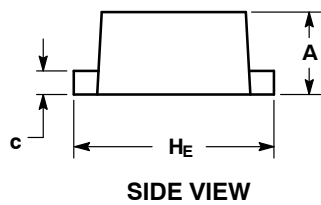
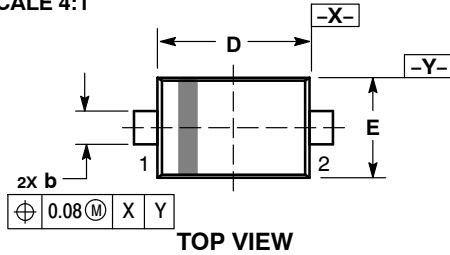
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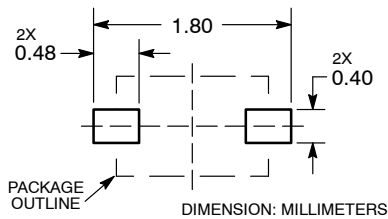
SOD-523
CASE 502-01
ISSUE E

DATE 28 SEP 2010

SCALE 4:1



RECOMMENDED SOLDERING FOOTPRINT*

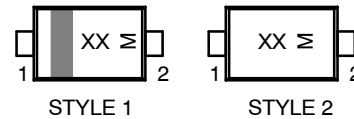


*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

- 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.

| MILLIMETERS | | | |
|----------------|----------|------|------|
| DIM | MIN | NOM | MAX |
| A | 0.50 | 0.60 | 0.70 |
| b | 0.25 | 0.30 | 0.35 |
| c | 0.07 | 0.14 | 0.20 |
| D | 1.10 | 1.20 | 1.30 |
| E | 0.70 | 0.80 | 0.90 |
| H _E | 1.50 | 1.60 | 1.70 |
| L | 0.30 REF | | |
| L2 | 0.15 | 0.20 | 0.25 |

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.

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

STYLE 2: NO POLARITY

| | | |
|-------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| DESCRIPTION: | SOD-523 | PAGE 1 OF 1 |

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