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 μA @ 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) | IF | 250 | mA |
| Non-Repetitive Peak Forward Surge Current | I _{FSM} | 1.0 | Α |
| 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.



ON Semiconductor®

http://onsemi.com

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)

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.

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

NSR0340V2

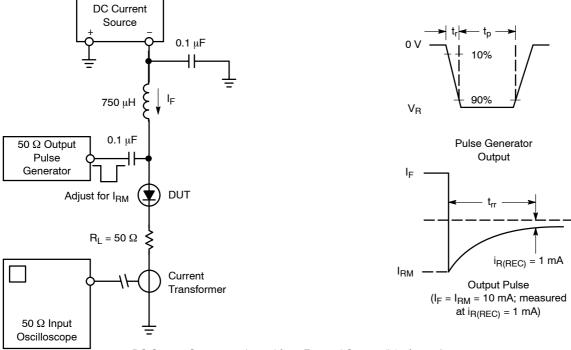
THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit | |
|---|-----------------------------------|-------------|------|--|
| Thermal Resistance Junction-to-Ambient (Note 1) Total Power Dissipation @ T _A = 25°C | R _{θJA} | 600 | °C/W | |
| | P _D | 200 | mW | |
| Thermal Resistance Junction-to-Ambient (Note 2) Total Power Dissipation @ T _A = 25°C | R _{θJA} | 300 | °C/W | |
| | P _D | 400 | mW | |
| Junction and Storage Temperature Range | T _J , T _{stg} | -55 to +150 | °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°C unless otherwise noted)

| Characteristic | Symbol | Min | Тур | Max | Unit |
|---|-----------------|-----|-------------------|-------------------|------|
| Reverse Leakage (V _R = 10 V) (V _R = 25 V) (V _R = 40 V) | I _R | | 0.2 0.5 1.5 | 1.0 3.0 6.0 | μΑ |
| Forward Voltage (I _F = 10 mA) (I _F = 100 mA) (I _F = 200 mA) | V _F | | 310 410 470 | 350 450 510 | mV |
| Total Capacitance (V _R = 10 V, f = 1 MHz) | СТ | | 6.0 | | pF |
| Reverse Recovery Time $(I_F = I_R = 10 \text{ mA}, I_R = 1.0 \text{ mA})$ | t _{rr} | | 5.0 | | ns |



- 1. DC Current Source is adjusted for a Forward Current (I_F) of 10 mA.
- Pulse Generator Output is adjusted for a Peak Reverse Recovery Current I_{RM} of 10 mA.
 Pulse Generator transition time << t_{rr}.
- 4. $I_{R(REC)}$ is measured at 1 mA. Typically 0.1 X I_{RM} or 0.25 X $I_{RM}.$
- $5. \ t_p \ \tilde{} \ v_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

NSR0340V2

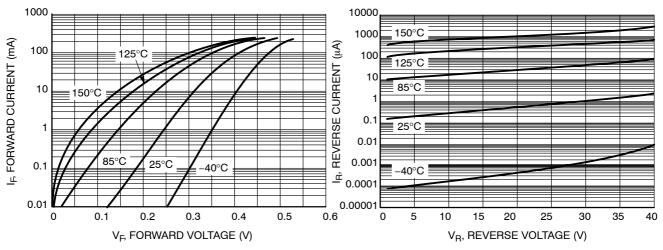


Figure 2. Forward Voltage

Figure 3. Leakage Current

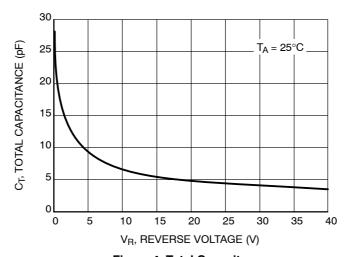


Figure 4. Total Capacitance

onsemi, Onsemi, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. Onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using onsemi products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by onsemi. "Typical" parameters which may be provided in onsemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. onsemi does not convey any license under any of its intellectual property rights nor the rights of others. onsemi products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA class 3 medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

 $\textbf{Technical Library:} \ \underline{www.onsemi.com/design/resources/technical-documentation}$

onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at

www.onsemi.com/support/sales