

# NSR0340P2T5G

## 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. NSR0340P2 in a SOD-923 miniature package enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements.

### Features

- Very Low Forward Voltage Drop – 420 mV @ 100 mA
- Low Reverse Current – 0.6  $\mu$ A @ 10 V
- Continuous Forward Current – 200 mA
- Power Dissipation with Minimum Trace – 190 mW
- Very High Switching Speed – 3.0 ns @ 10 mA
- Low Capacitance – 4 pF @ 5.0 V
- 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 & PDAs
- GPS

### MAXIMUM RATINGS

| Rating                                        | Symbol    | Value              | Unit |
|-----------------------------------------------|-----------|--------------------|------|
| Reverse Voltage                               | $V_R$     | 40                 | V    |
| Forward Current (DC)                          | $I_F$     | 200                | mA   |
| Non-Repetitive Peak Forward Surge Current     | $I_{FSM}$ | 1.0                | A    |
| ESD Rating: Human Body Model<br>Machine Model | ESD       | Class 2<br>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.



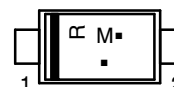
**ON Semiconductor®**

<http://onsemi.com>

## 40 V SCHOTTKY BARRIER DIODE



### MARKING DIAGRAM



R = Specific Device Code  
M = Month Code  
■ = Pb-Free Package  
(Note: Microdot may be in either location)

### ORDERING INFORMATION

| Device       | Package              | Shipping†                        |
|--------------|----------------------|----------------------------------|
| NSR0340P2T5G | SOD-923<br>(Pb-Free) | 2 mm Pitch<br>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.

# THERMAL CHARACTERISTICS

| Characteristic                                                                                           | Symbol                   | Max         | Unit                     |
|----------------------------------------------------------------------------------------------------------|--------------------------|-------------|--------------------------|
| Thermal Resistance<br>Junction-to-Ambient (Note 1)<br>Total Power Dissipation @ $T_A = 25^\circ\text{C}$ | $R_{\theta JA}$<br>$P_D$ | 520<br>190  | $^\circ\text{C/W}$<br>mW |
| Thermal Resistance<br>Junction-to-Ambient (Note 2)<br>Total Power Dissipation @ $T_A = 25^\circ\text{C}$ | $R_{\theta JA}$<br>$P_D$ | 175<br>570  | $^\circ\text{C/W}$<br>mW |
| Junction and Storage Temperature Range                                                                   | $T_J, T_{stg}$           | -55 to +125 | $^\circ\text{C}$         |

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<br>( $V_R = 10\text{ V}$ )<br>( $V_R = 40\text{ V}$ )                                 | $I_R$    |     | 0.6<br>4.0        | 5.0<br>20         | $\mu\text{A}$ |
| Forward Voltage<br>( $I_F = 10\text{ mA}$ )<br>( $I_F = 100\text{ mA}$ )<br>( $I_F = 200\text{ mA}$ ) | $V_F$    |     | 290<br>420<br>520 | 320<br>460<br>560 | mV            |
| Total Capacitance<br>( $V_R = 5.0\text{ V}$ , $f = 1\text{ MHz}$ )                                    | CT       |     | 4.0               |                   | pF            |
| Reverse Recovery Time<br>( $I_F = I_R = 10\text{ mA}$ , $I_R = 1.0\text{ mA}$ )                       | $t_{rr}$ |     | 3.0               |                   | ns            |

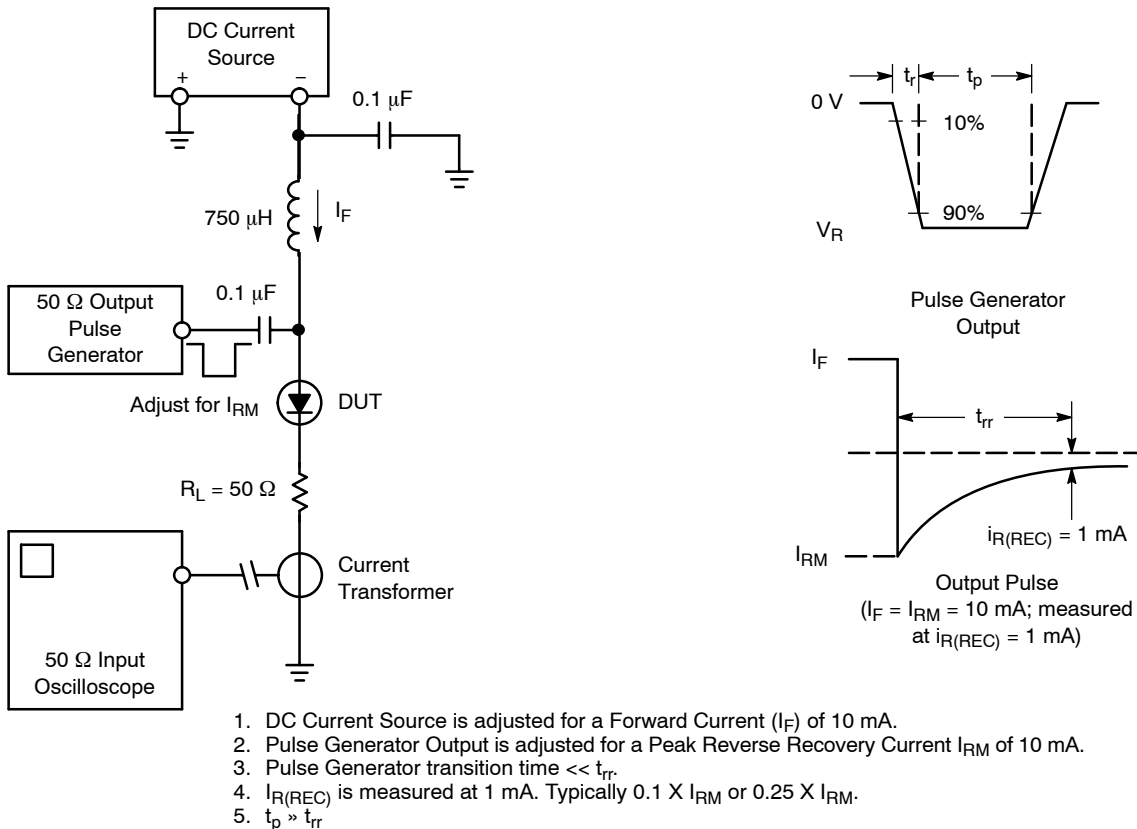


Figure 1. Recovery Time Equivalent Test Circuit

# NSR0340P2T5G

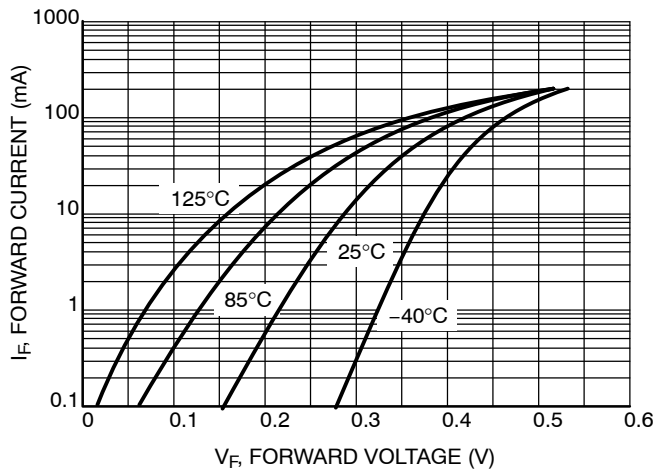


Figure 2.

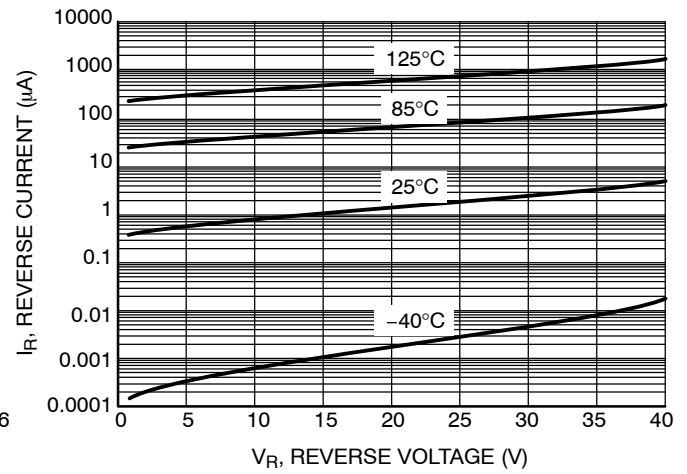


Figure 3.

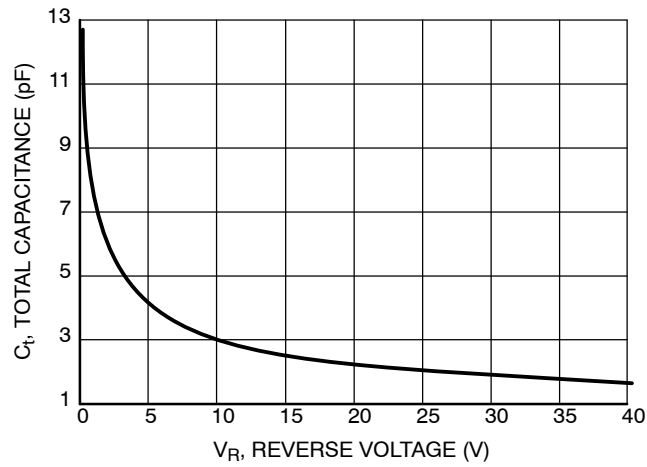
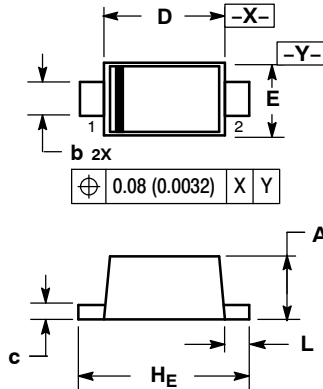


Figure 4.

# NSR0340P2T5G

## PACKAGE DIMENSIONS

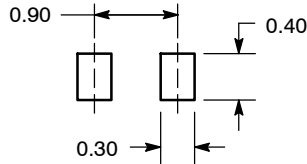
SOD-923  
CASE 514AB-01  
ISSUE B



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: MILLIMETERS.
  3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

| 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              | 0.05        | 0.10 | 0.15 | 0.002  | 0.004 | 0.006 |

## SOLDERING FOOTPRINT\*



DIMENSIONS: MILLIMETERS

\*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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NSR0340P2/D



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