

# NSD350H

## High Voltage Switching Diode

The NSD350H is a high voltage switching diode in a SOD–323 surface mount package.

### Features

- Small Footprint Package, SOD–323
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC–Q101 Qualified and PPAP Capable
- Pb–free Device, Halogen Free/BFR Free and are RoHS Compliant

### Typical Applications

- Flat Panel TVs
- Power Supply
- Industrial
- Wireless Handsets
- Automotive Modules

### MAXIMUM RATINGS Single Diode ( $T_A = 25^\circ\text{C}$ )

| Rating   | Symbol    | Max | Unit |
|--|-----------|-----|------|
| Reverse Voltage  | $V_R$     | 350 | V    |
| Forward Current (DC)   | $I_F$     | 200 | mA   |
| Non–Repetitive Peak Forward Current (Square Wave, $T_J = 25^\circ\text{C}$ prior to surge) | $I_{FSM}$ |     | A    |
| $t = 10 \mu\text{s}$   |           | 12  |      |
| $t = 100 \mu\text{s}$  |           | 5   |      |
| $t = 1 \text{ ms}$   |           | 2   |      |
| $t = 10 \text{ ms}$  |           | 1.5 |      |

### THERMAL CHARACTERISTICS

| Characteristic  | Symbol                      | Max            | Unit                       |
|---|-----------------------------|----------------|----------------------------|
| Total Device Dissipation<br>$T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$<br>(Note 1)           | 250<br>2       | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance,<br>Junction to Ambient  | $R_{\theta JA}$<br>(Note 1) | 500            | $^\circ\text{C}/\text{W}$  |
| Junction and Storage Temperature Range  | $T_J, T_{stg}$              | –55 to<br>+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–4 100 mm<sup>2</sup> 2 oz Cu PCB



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### MARKING DIAGRAM



SOD–323  
CASE 477  
STYLE 1



AJ = Specific Device Code  
M = Date Code  
▪ = Pb–Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

| Device      | Package              | Shipping†             |
|-------------|----------------------|-----------------------|
| NSD350HT1G  | SOD–323<br>(Pb–Free) | 3000 / Tape &<br>Reel |
| NSVD350HT1G |                      |                       |

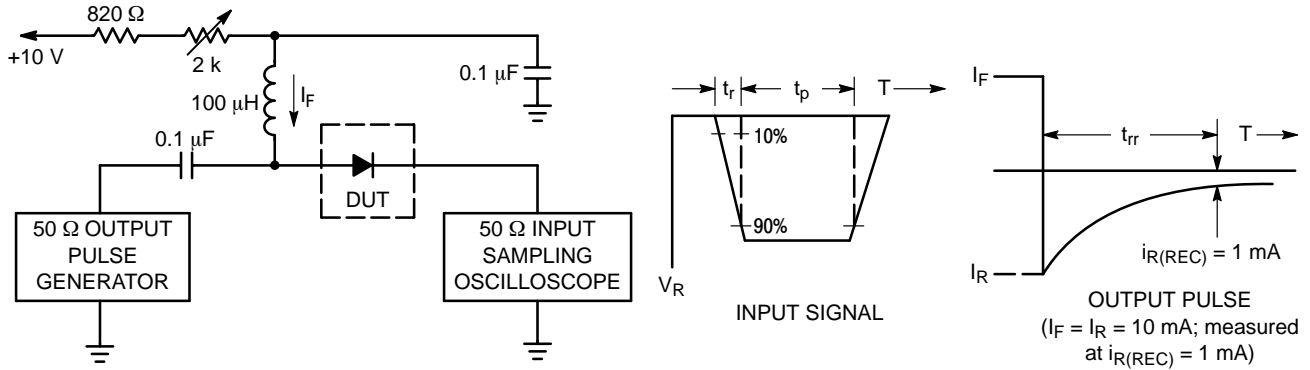
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

# NSD350H

**Table 1. ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ )

| Characteristic   | Symbol      | Min | Typ | Max | Unit          |
|--|-------------|-----|-----|-----|---------------|
| Reverse Breakdown Voltage ( $I_R = 10 \mu\text{A}$ )   | $V_{(BR)R}$ | 350 |     |     | V             |
| Reverse Leakage ( $V_R = 300 \text{ V}$ )  | $I_R$       |     |     | 150 | nA            |
| Reverse Leakage ( $V_R = 350 \text{ V}$ )  | $I_R$       |     |     | 5   | $\mu\text{A}$ |
| Forward Voltage ( $I_F = 100 \text{ mA}$ )   | $V_F$       |     |     | 1.1 | V             |
| Total Capacitance ( $V_R = 0 \text{ V}$ , $f = 1.0 \text{ MHz}$ )                                      | $C_T$       |     |     | 5.0 | pF            |
| Reverse Recovery Time ( $I_F = I_R = 10 \text{ mA}$ , $I_{R(\text{rec})} = 1.0 \text{ mA}$ , Figure 1) | $t_{rr}$    |     | 55  |     | ns            |

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.



- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.  
 2. Input pulse is adjusted so  $I_{R(\text{peak})}$  is equal to 10 mA.  
 3.  $t_p \gg t_{rr}$

**Figure 1. Recovery Time Equivalent Test Circuit**

# NSD350H

## TYPICAL CHARACTERISTICS

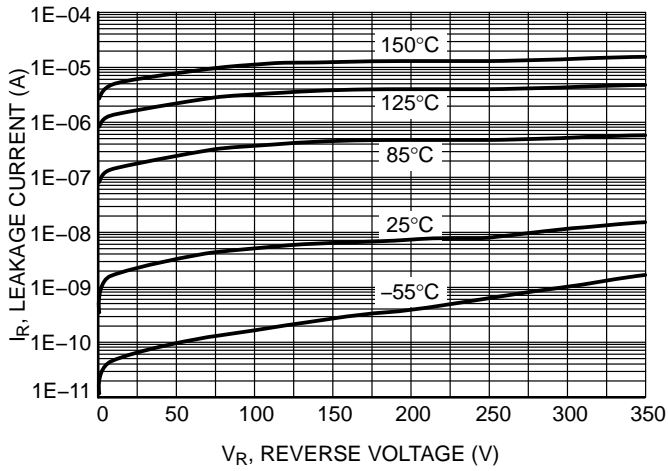


Figure 2. Reverse Leakage Current

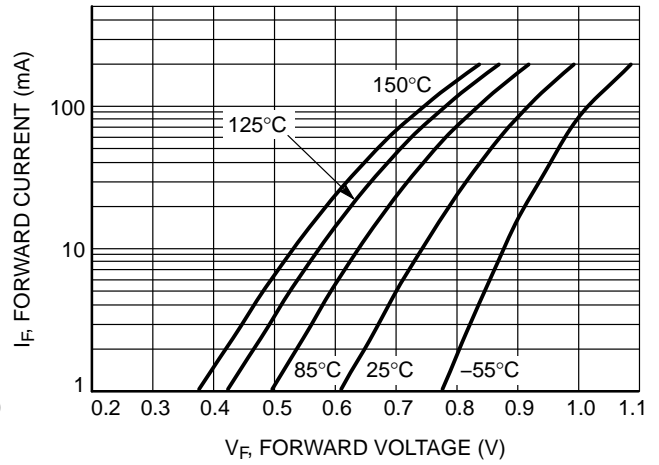


Figure 3. Forward Voltage

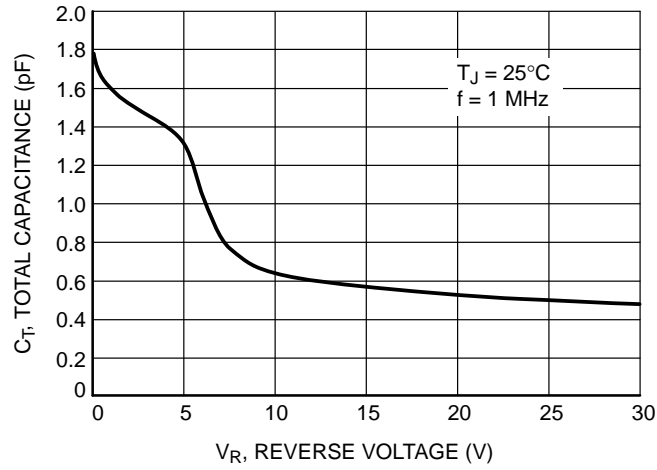


Figure 4. Total Capacitance

# 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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