

# RB520S30T1

## Schottky Barrier Diode

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 0.6 V (max) @  $I_F = 200$  mA
- Low Reverse Current
- ESD Rating: Class 3B per Human Body Model  
Class C per Machine Model
- These are Pb-Free Devices

### MAXIMUM RATINGS

| Rating             | Symbol | Value | Unit |
|--------------------|--------|-------|------|
| Reverse Voltage    | $V_R$  | 30    | Vdc  |
| Forward Current DC | $I_F$  | 200   | mA   |

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, 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 $25^\circ\text{C}$ | $P_D$           | 200         | mW                         |
| Thermal Resistance, Junction-to-Ambient                                                                      | $R_{\theta JA}$ | 1.57        | $\text{mW}/^\circ\text{C}$ |
| Junction and Storage Temperature Range                                                                       | $T_J, T_{stg}$  | -55 to +150 | $^\circ\text{C}$           |

1. FR-5 Minimum Pad.

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

| Characteristic                       | Symbol | Min | Typ | Max  | Unit          |
|--------------------------------------|--------|-----|-----|------|---------------|
| Reverse Leakage<br>( $V_R = 10$ V)   | $I_R$  | -   | -   | 1.0  | $\mu\text{A}$ |
| Forward Voltage<br>( $I_F = 200$ mA) | $V_F$  | -   | -   | 0.60 | Vdc           |



ON Semiconductor®

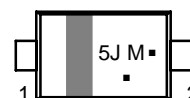
<http://onsemi.com>

## 30 VOLT SCHOTTKY BARRIER DIODE



SOD-523  
CASE 502  
PLASTIC

### MARKING DIAGRAM



5J = 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.

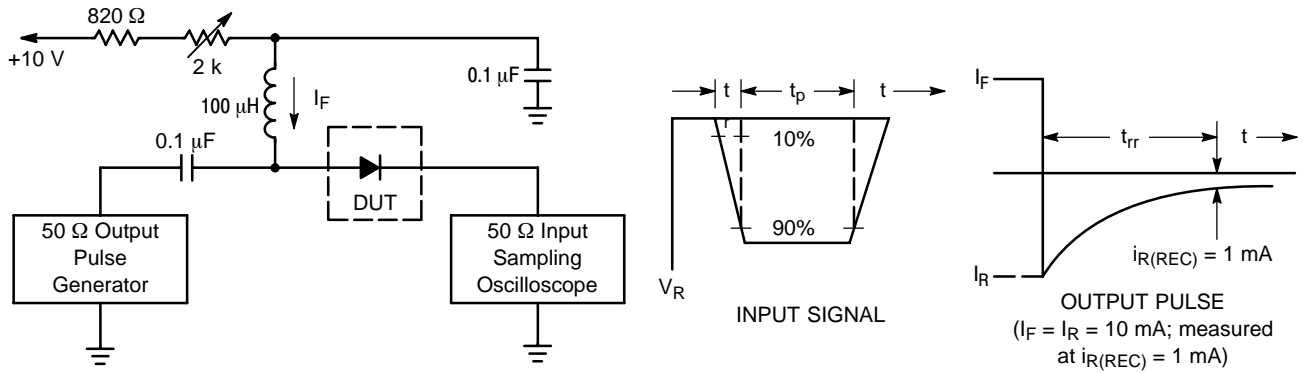
### ORDERING INFORMATION

| Device      | Package  | Shipping†        |
|-------------|----------|------------------|
| RB520S30T1  | SOD-523* | 3000/Tape & Reel |
| RB520S30T1G | SOD-523* | 3000/Tape & Reel |

\*This package is inherently Pb-Free.

†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.

# RB520S30T1



- 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

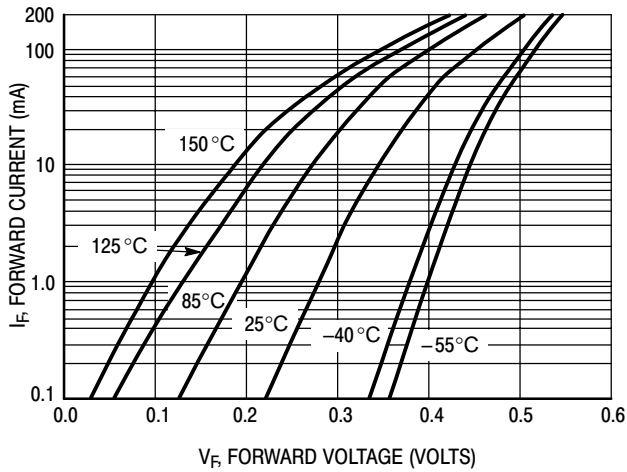


Figure 2. Forward Voltage

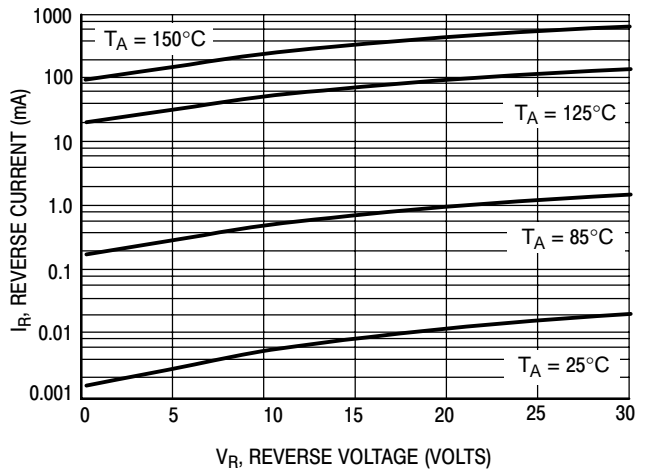


Figure 3. Leakage Current

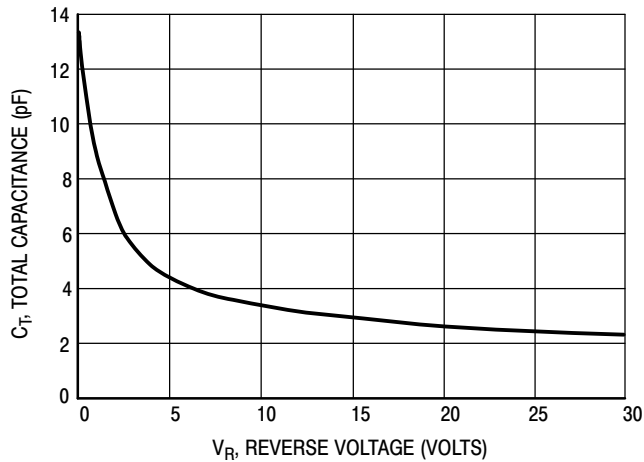
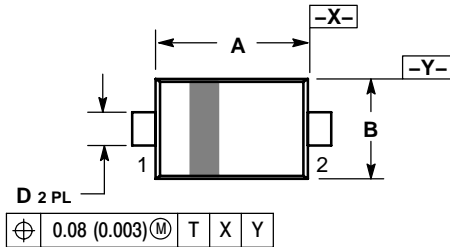


Figure 4. Total Capacitance

# RB520S30T1

## PACKAGE DIMENSIONS

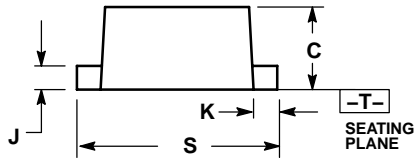
SOD-523  
CASE 502-01  
ISSUE B



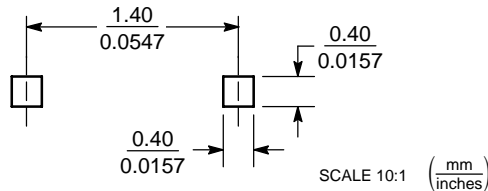
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
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   | 1.10        | 1.20 | 1.30 | 0.043  | 0.047  | 0.051  |
| B   | 0.70        | 0.80 | 0.90 | 0.028  | 0.032  | 0.035  |
| C   | 0.50        | 0.60 | 0.70 | 0.020  | 0.024  | 0.028  |
| D   | 0.25        | 0.30 | 0.35 | 0.010  | 0.012  | 0.014  |
| J   | 0.07        | 0.14 | 0.20 | 0.0028 | 0.0055 | 0.0079 |
| K   | 0.15        | 0.20 | 0.25 | 0.006  | 0.008  | 0.010  |
| S   | 1.50        | 1.60 | 1.70 | 0.059  | 0.063  | 0.067  |



### 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.

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC 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. "Typical" parameters which may be provided in SCILLC 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. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

### PUBLICATION ORDERING INFORMATION

**LITERATURE FULFILLMENT:**  
Literature Distribution Center for ON Semiconductor  
P.O. Box 61312, Phoenix, Arizona 85082-1312 USA  
**Phone:** 480-829-7710 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 480-829-7709 or 800-344-3867 Toll Free USA/Canada  
**Email:** orderlit@onsemi.com

**N. American Technical Support:** 800-282-9855 Toll Free  
USA/Canada

**Japan:** ON Semiconductor, Japan Customer Focus Center  
2-9-1 Kamimeguro, Meguro-ku, Tokyo, Japan 153-0051  
**Phone:** 81-3-5773-3850

**ON Semiconductor Website:** <http://onsemi.com>

**Order Literature:** <http://www.onsemi.com/litorder>

For additional information, please contact your local Sales Representative.