

# Schottky Barrier Diode

## RB520S30T1G, RB520S30T5G

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 Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS

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

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.

### 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<br>1.57 | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient                                                                      | $R_{\theta JA}$ | 635         | $^\circ\text{C/W}$         |
| Junction and Storage Temperature Range                                                                       | $T_J, T_{stg}$  | -55 to +150 | $^\circ\text{C}$           |
| Non-Repetitive Peak Forward Current, $t_p < 10$ msec                                                         | $I_{FSM}$       | 600         | mA                         |
| Repetitive Peak Forward Current<br>Pulse Wave = 1 sec, Duty Cycle = 66%                                      | $I_{FRM}$       | 300         | mA                         |
| Thermal Resistance,<br>Junction-to-Ambient                                                                   | $R_{\theta JA}$ | 635         | $^\circ\text{C/W}$         |

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           |

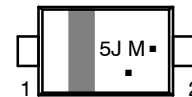
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

## 30 VOLT SCHOTTKY BARRIER DIODE



SOD-523  
CASE 502

### 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†                      |
|-------------|----------------------|--------------------------------|
| RB520S30T1G | SOD-523<br>(Pb-Free) | 4 mm Pitch<br>3000/Tape & Reel |
| RB520S30T5G | SOD-523<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.

## RB520S30T1G, RB520S30T5G

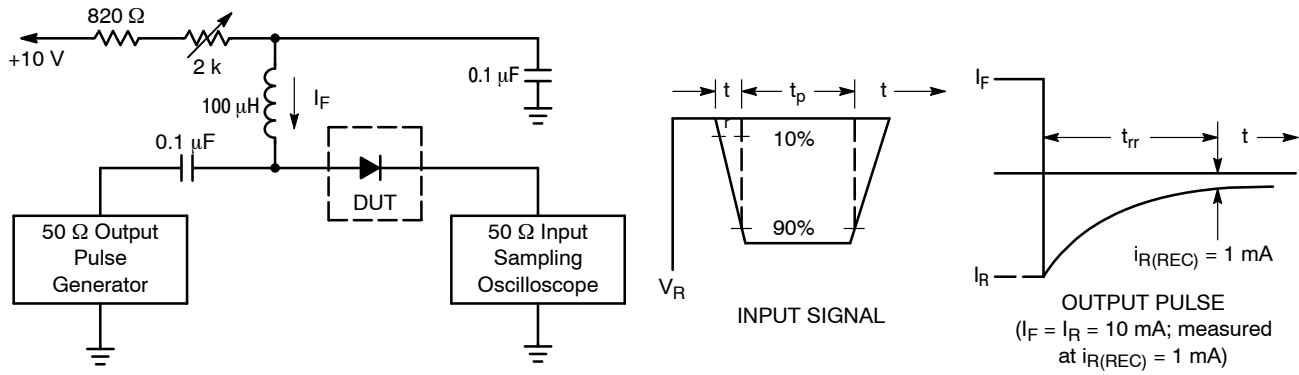


Figure 1. Recovery Time Equivalent Test Circuit

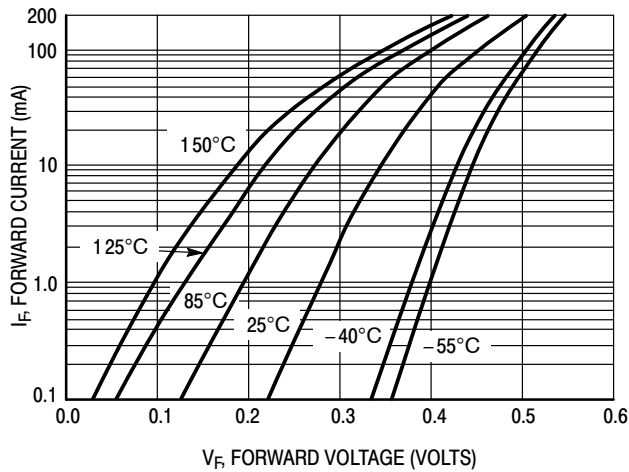


Figure 2. Forward Voltage

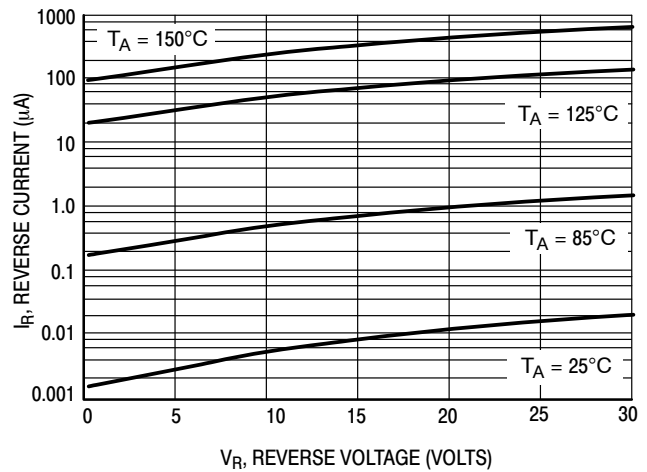


Figure 3. Leakage Current

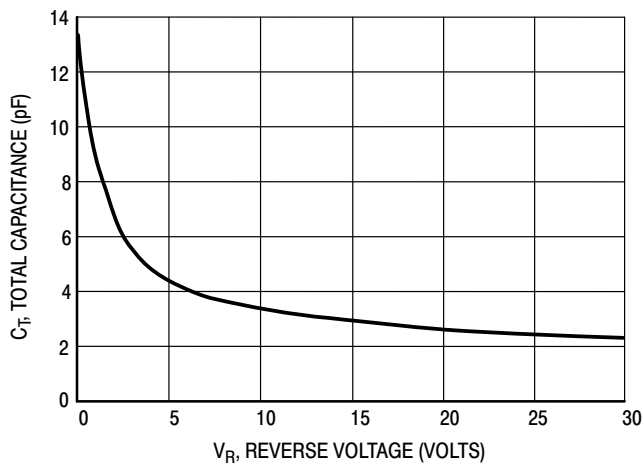


Figure 4. Total Capacitance

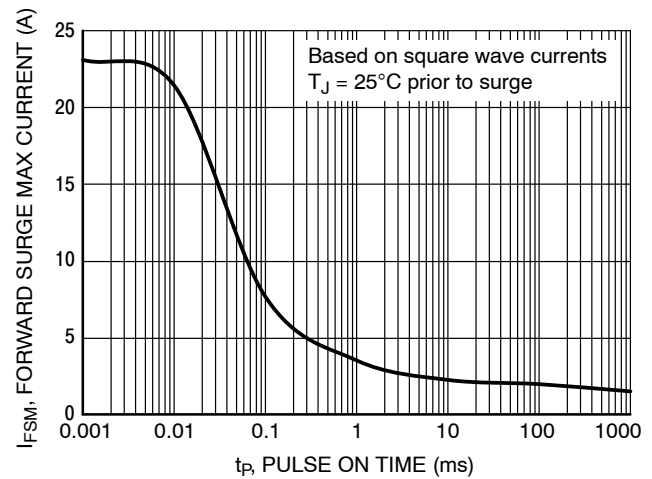
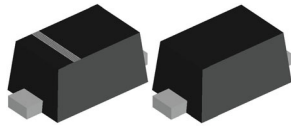


Figure 5. Forward Surge Current

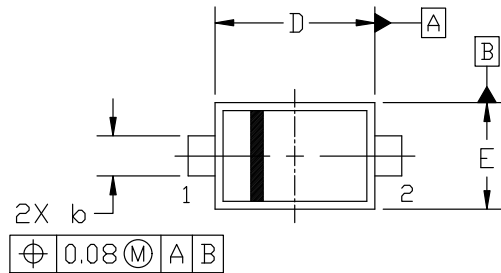


### SOD-523 1.20x0.80x0.60

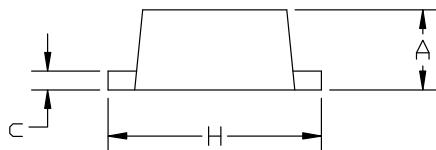
#### CASE 502

#### ISSUE F

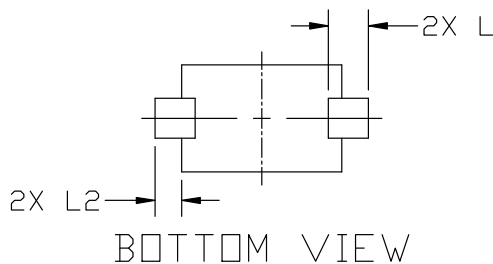
DATE 08 FEB 2024



TOP VIEW

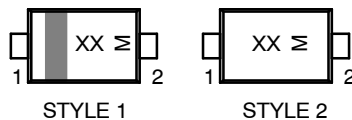


SIDE VIEW



BOTTOM VIEW

### GENERIC MARKING DIAGRAM\*



XX = Specific Device Code  
M Date Code

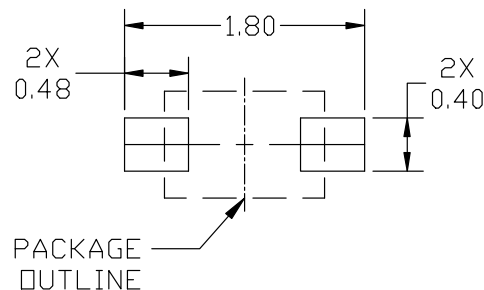
\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

STYLE 1: PIN 1: CATHODE (POLARITY BAND)  
2: ANODE  
STYLE 2: NO POLARITY

### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
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.

| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | 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   | 1.50        | 1.60 | 1.70 |
| L   | 0.30 REF    |      |      |
| L2  | 0.15        | 0.20 | 0.25 |



### RECOMMENDED MOUNTING 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.

|                  |                        |                                                                                                                                                                                  |
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| DESCRIPTION:     | SOD-523 1.20x0.80x0.60 | PAGE 1 OF 1                                                                                                                                                                      |

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