# 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

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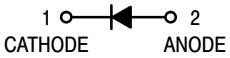
## 30 VOLT SCHOTTKY BARRIER DIODE





**SOD−523**
**CASE 502**
**PLASTIC**

### 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

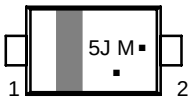
| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Total Device Dissipation FR−5 Board, (Note 1) $T_A$ = 25°C<br>Derate above 25°C | $P_D$ | 200<br>1.57 | mW<br>mW/°C |
| Thermal Resistance, Junction−to−Ambient | $R_{\theta JA}$ | 635 | °C/W |
| Junction and Storage Temperature Range | $T_J$, $T_{stg}$ | −55 to +150 | °C |

1. FR−5 Minimum Pad.

### ELECTRICAL CHARACTERISTICS ($T_A$ = 25°C unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Reverse Leakage ($V_R$ = 10 V) | $I_R$ | − | − | 1.0 | μA |
| Forward Voltage ($I_F$ = 200 mA) | $V_F$ | − | − | 0.60 | Vdc |

### MARKING DIAGRAM




5J = Device Code
M = Date Code*
▪ = Pb−Free Package
(Note: Microdot may be in either location)

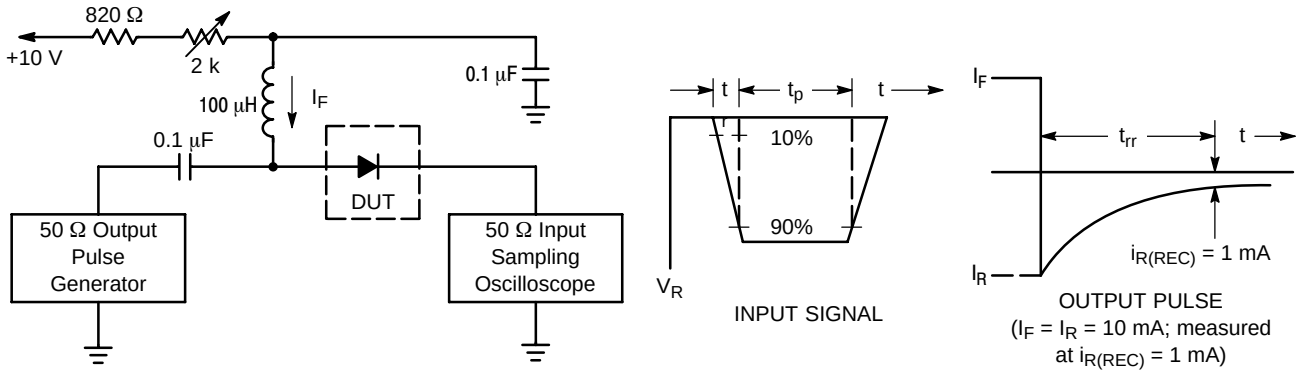
*Date Code orientation position may vary depending upon manufacturing location.

### 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.




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

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

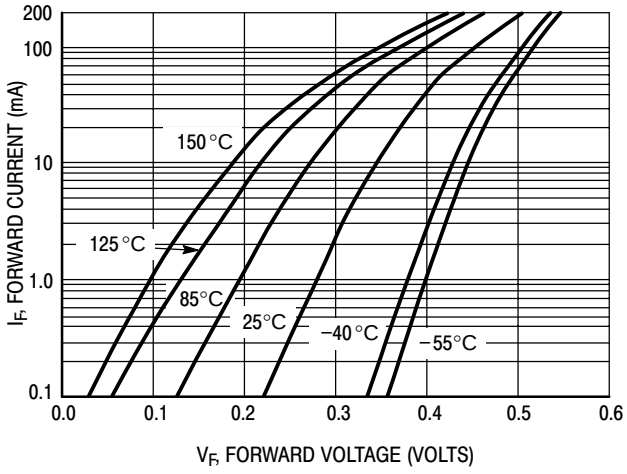



**Figure 2. Forward Voltage**

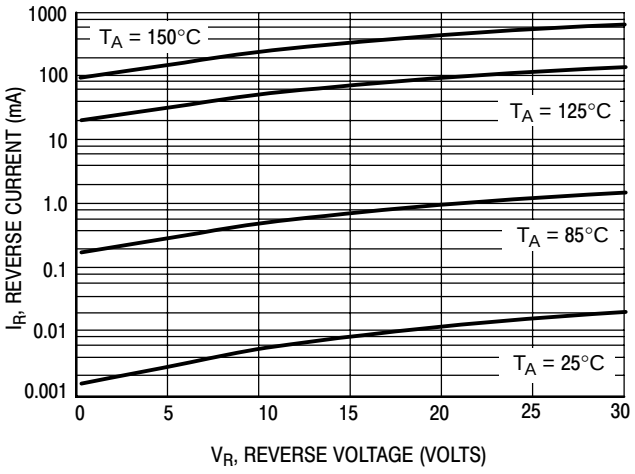



**Figure 3. Leakage Current**

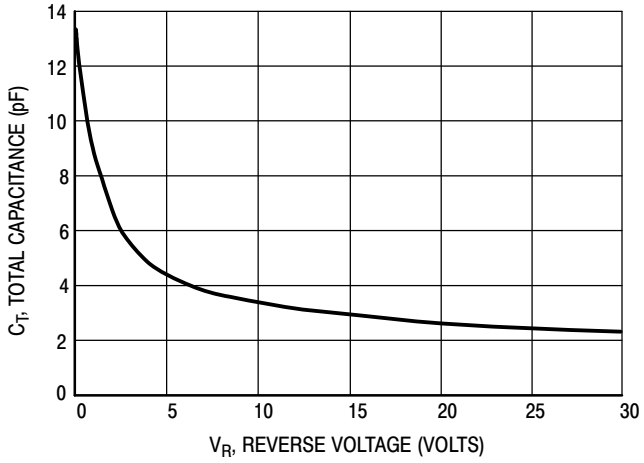
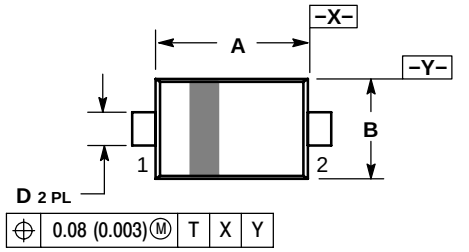
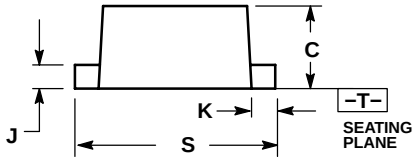



**Figure 4. Total Capacitance**

## PACKAGE DIMENSIONS

**SOD−523**
CASE 502−01
ISSUE B

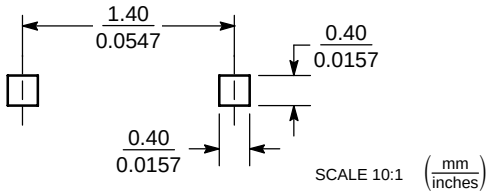



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| DIM | 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.



**PUBLICATION ORDERING INFORMATION**

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