

# RB751S40T1

## 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 – 0.28 V (Typ) @  $I_F = 1.0$  mAdc
- Low Reverse Current
- Lead-Free Plating
- Pb-Free Package is Available

### MAXIMUM RATINGS

| Rating   | Symbol    | Value | Unit |
|--|-----------|-------|------|
| Peak Reverse Voltage   | $V_{RM}$  | 40    | V    |
| Reverse Voltage  | $V_R$     | 30    | V    |
| Forward Continuous Current (DC)  | $I_F$     | 30    | mA   |
| Peak Forward Surge Current   | $I_{FSM}$ | 500   | mA   |
| ESD Rating: Class 1C per Human Body Model<br>Class A per Machine Model |           |       |      |

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<br>1.57 | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance,<br>Junction-to-Ambient   | $R_{\theta JA}$ | 635         | $^\circ\text{C}/\text{W}$  |
| Junction and Storage<br>Temperature Range  | $T_J, T_{stg}$  | -55 to +150 | $^\circ\text{C}$           |

1. FR-5 Minimum Pad.



ON Semiconductor®

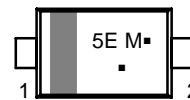
<http://onsemi.com>

## 40 V SCHOTTKY BARRIER DIODE



SOD-523  
CASE 502  
PLASTIC

### MARKING DIAGRAM



5E = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package  
(Note: Microdot may be in either location)

### ORDERING INFORMATION

| Device      | Package              | Shipping†        |
|-------------|----------------------|------------------|
| RB751S40T1  | SOD-523              | 4000/Tape & Reel |
| RB751S40T1G | SOD-523<br>(Pb-Free) | 4000/Tape & Reel |

†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.

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## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

| Characteristic  | Symbol             | Min | Typ  | Max  | Unit             |
|---|--------------------|-----|------|------|------------------|
| Reverse Breakdown Voltage<br>(I <sub>R</sub> = 10 μA)       | V <sub>(BR)R</sub> | 30  | -    | -    | V                |
| Total Capacitance<br>(V <sub>R</sub> = 1.0 V, f = 1.0 MHz)  | C <sub>T</sub>     | -   | 2.0  | 2.5  | pF               |
| Reverse Leakage<br>(V <sub>R</sub> = 30 V)                  | I <sub>R</sub>     | -   | 300  | 500  | nA <sub>dc</sub> |
| Forward Voltage<br>(I <sub>F</sub> = 1.0 mA <sub>dc</sub> ) | V <sub>F</sub>     | -   | 0.28 | 0.37 | V <sub>dc</sub>  |

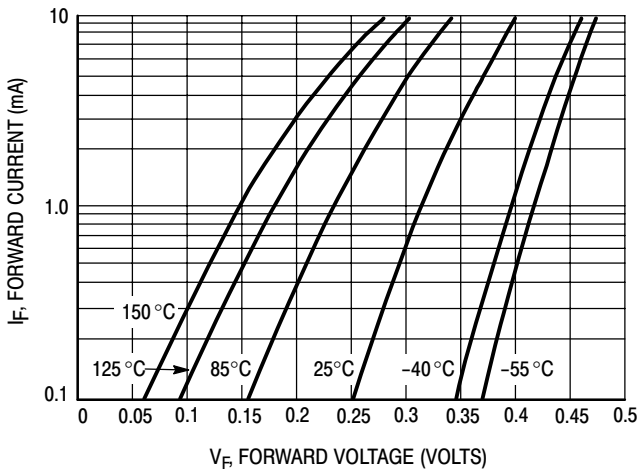


Figure 1. Typical Forward Voltage

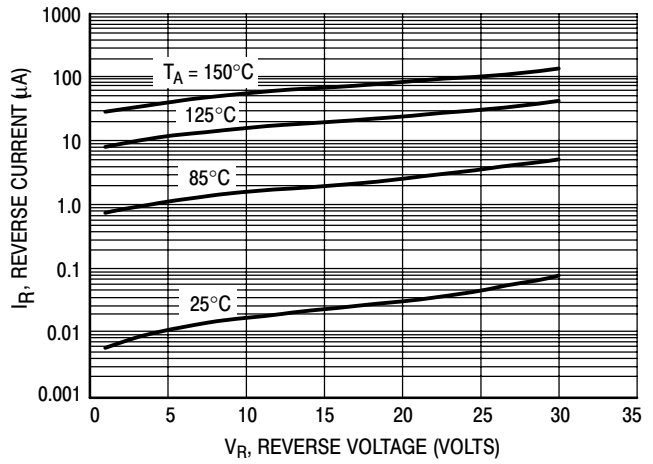


Figure 2. Reverse Current versus Reverse Voltage

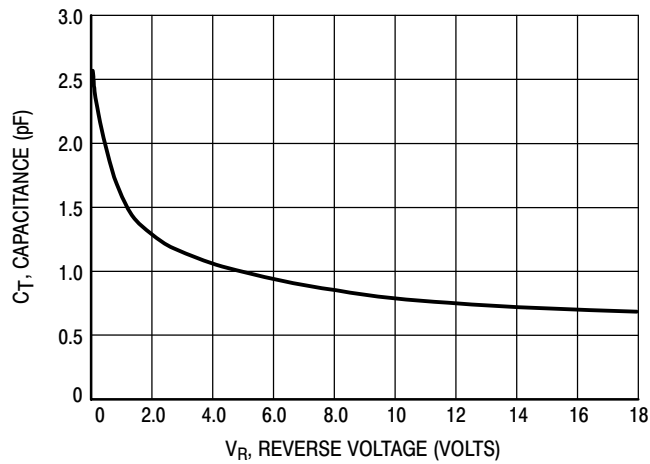
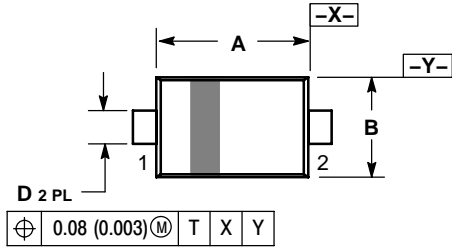


Figure 3. Typical Capacitance

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## PACKAGE DIMENSIONS

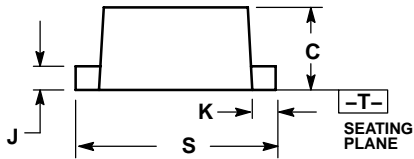
SOD-523  
CASE 502-01  
ISSUE B



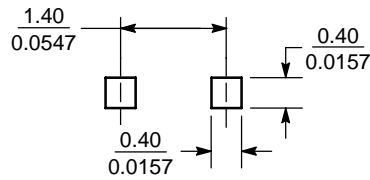
NOTES:

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\*



SCALE 10:1  $\left(\frac{\text{mm}}{\text{inches}}\right)$

\*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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**RB751S40T1/D**