

# RB520S30T1G, RB520S30T5G

## 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 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, (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	200	mW
		1.57	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	635	$^\circ\text{C}/\text{W}$
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 Pulse Wave = 1 sec, Duty Cycle = 66%	$I_{FRM}$	300	mA
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	635	$^\circ\text{C}/\text{W}$

1. FR-5 Minimum Pad.

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

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



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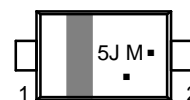
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## 30 VOLT SCHOTTKY BARRIER DIODE



SOD-523  
CASE 502

### MARKING DIAGRAM



5J = Device Code  
M = Date Code\*  
■ = Pb-Free Package

(Note: Microdot may be in either location)

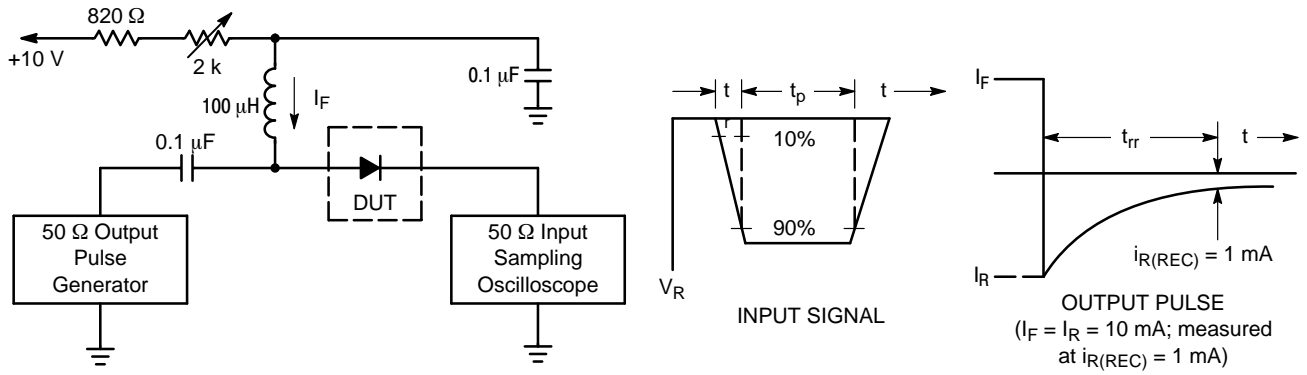
\*Date Code orientation position may vary depending upon manufacturing location.

### ORDERING INFORMATION

Device	Package	Shipping†
RB520S30T1G	SOD-523 (Pb-Free)	4 mm Pitch 3000/Tape & Reel
RB520S30T5G	SOD-523 (Pb-Free)	2 mm Pitch 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



- 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

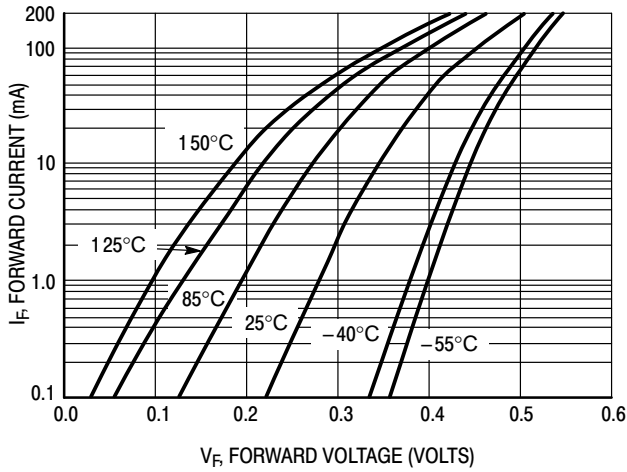


Figure 2. Forward Voltage

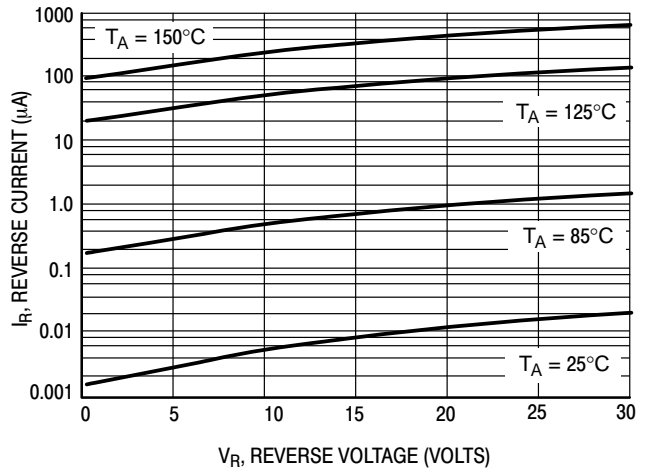


Figure 3. Leakage Current

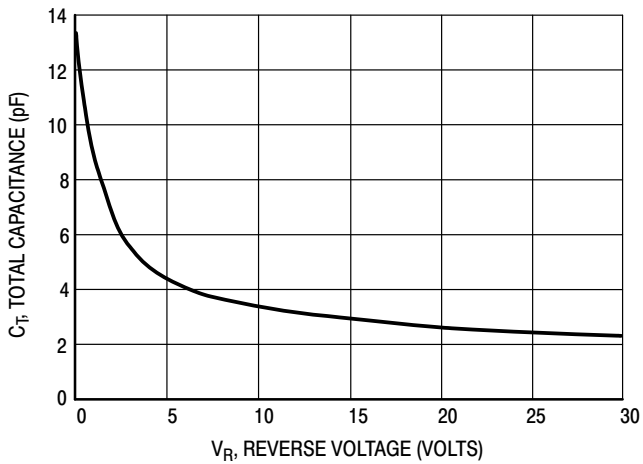


Figure 4. Total Capacitance

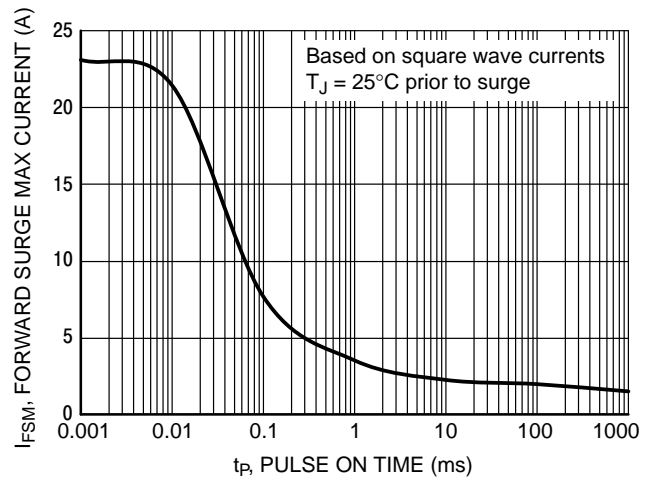


Figure 5. Forward Surge Current

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

ON Semiconductor®



**SOD-523**  
CASE 502-01  
ISSUE E

DATE 28 SEP 2010

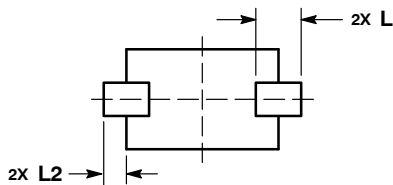
SCALE 4:1



TOP VIEW



SIDE VIEW



BOTTOM VIEW

### RECOMMENDED SOLDERING FOOTPRINT\*

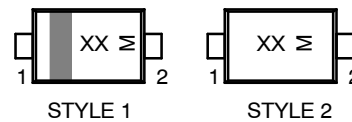


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
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 <sub>E</sub>	1.50	1.60	1.70
L	0.30 REF		
L2	0.15	0.20	0.25

### 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.

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

\*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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