

OM SENI

Schottky Barrier Diode

Schottky barrier diodes are optimized for very low forward voltage drop and low leakage current and are used in a wide range of dc-dc converter, clamping and protection applications in portable devices. NSR0240V2 in a SOD-523 miniature package enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements.

Features

- Very Low Forward Voltage Drop – 480 mV @ 100 mA
- Low Reverse Current – 0.2 μ A @ 25 V VR
- 250 mA of Continuous Forward Current
- Power Dissipation of 200 mW with Minimum Trace
- Very High Switching Speed
- Low Capacitance – CT = 4 pF
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

Typical Applications

- LCD and Keypad Backlighting
- Camera Photo Flash
- Buck and Boost dc-dc Converters
- Reverse Voltage and Current Protection
- Clamping & Protection

Markets

- Mobile Handsets
- MP3 Players
- Digital Camera and Camcorders
- Notebook PCs & PDAs
- GPS

MAXIMUM RATINGS

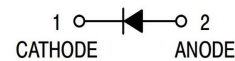
Rating	Symbol	Value	Unit
Reverse Voltage	V_R	40	Vdc
Forward Continuous Current (DC)	I_F	250	mA
Non-Repetitive Peak Forward Surge Current	I_{FSM}	2.0	A
ESD Rating: Human Body Model Machine Model	ESD	Class 2 Class A	

NSR0240V2T1G

40 VOLT SCHOTTKY BARRIER DIODE



SOD-523
CASE 502



MARKING DIAGRAM



AC = 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 [†]
NSR0240V2T1G	SOD-523 (Pb-Free)	3,000 / 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.

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction-to-Ambient (Note 1) Total Power Dissipation @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$ P_D	600 200	$^\circ\text{C/W}$ mW
Thermal Resistance Junction-to-Ambient (Note 2) Total Power Dissipation @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$ P_D	300 400	$^\circ\text{C/W}$ mW
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

1. Mounted onto a 4 in square FR-4 board 10 mm sq. 1 oz. Cu 0.06" thick single-sided. Operating to steady state.
2. Mounted onto a 4 in square FR-4 board 1 in sq. 1 oz. Cu 0.06" thick single-sided. Operating to steady state.

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Leakage ($V_R = 10\text{ V}$) ($V_R = 25\text{ V}$) ($V_R = 40\text{ V}$)	I_R	- - -	- 0.2 0.5	0.55 2.0 10	μA
Forward Voltage ($I_F = 10\text{ mA}$) ($I_F = 100\text{ mA}$) ($I_F = 200\text{ mA}$)	V_F	- - -	345 485 580	390 550 700	mV
Total Capacitance ($V_R = 5.0\text{ V}$, $f = 1\text{ MHz}$)	C_T	-	4.0	-	pF
Reverse Recovery Time ($I_F = I_R = 10\text{ mA}$, $I_R = 1.0\text{ mA}$)	t_{rr}	-	3.0	-	ns

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.

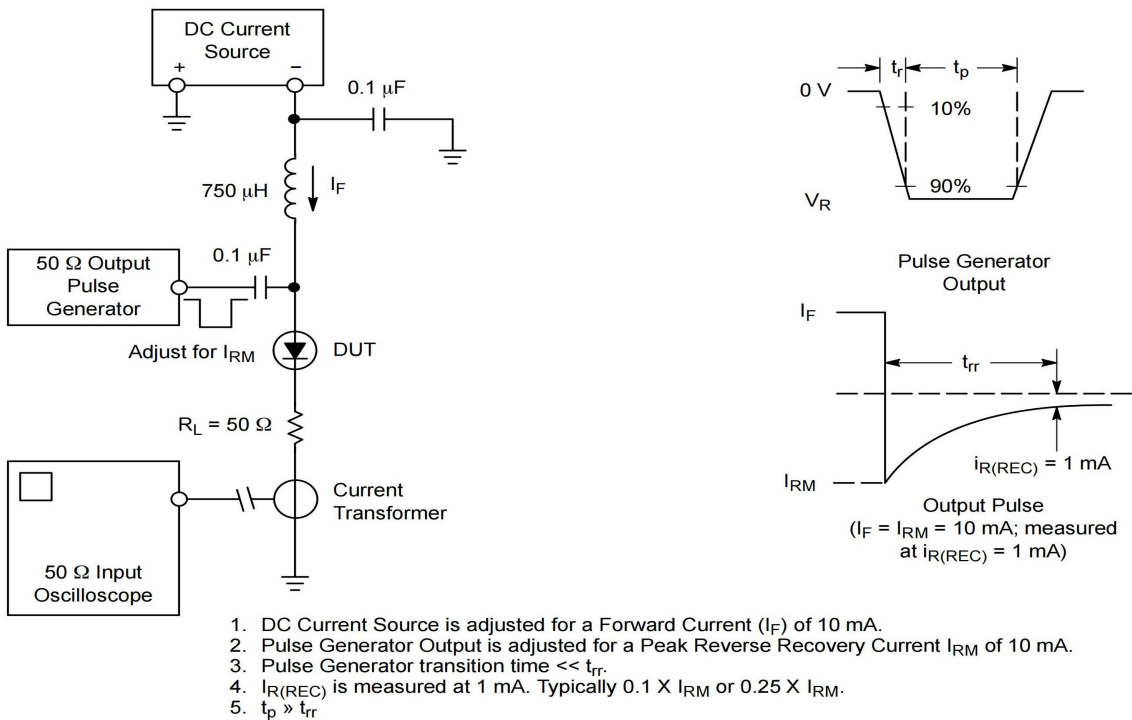


Figure 1. Recovery Time Equivalent Test Circuit

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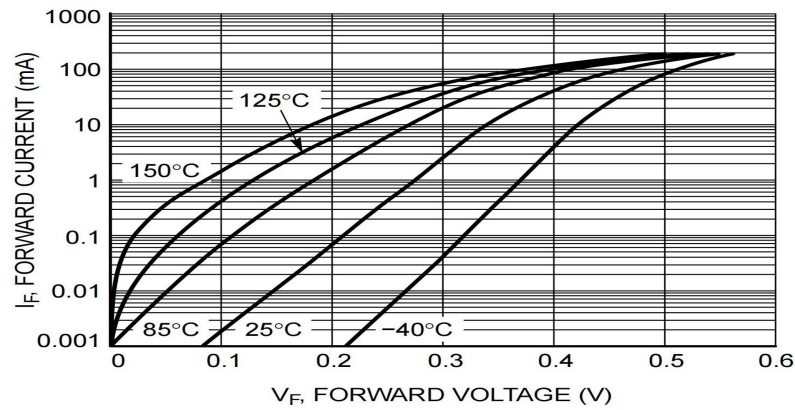


Figure 2. Forward Voltage

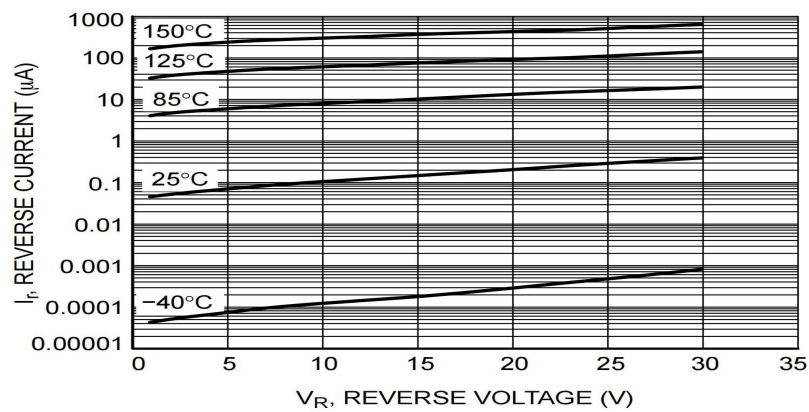


Figure 3. Leakage Current

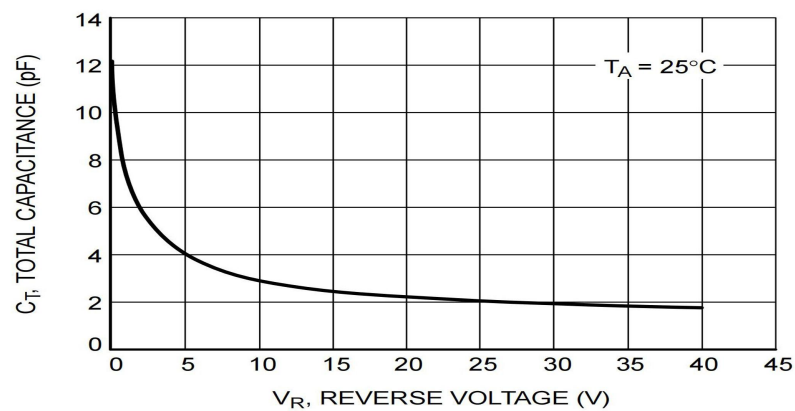


Figure 4. Total Capacitance

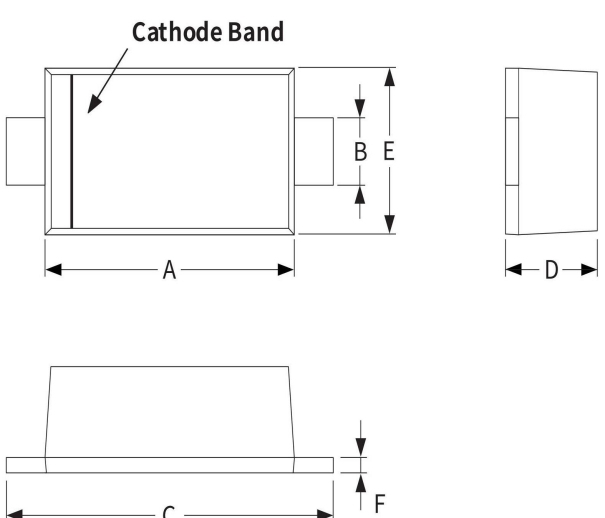
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Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOD-523	R1	0.002	3000	30000	240000	7"

Package Outline Dimensions (SOD-523)

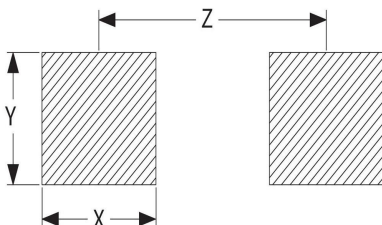
Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	1.10	1.30	0.043	0.051
B	0.25	0.35	0.010	0.014
C	1.50	1.70	0.059	0.067
D	0.50	0.70	0.020	0.027
E	0.70	0.90	0.027	0.035
F	0.05	0.20	0.002	0.008



The diagram illustrates the package outline dimensions for SOD-523. It includes three views: a top view showing dimensions A (width) and B (height of the cathode band), a side view showing dimension D (width), and a front view showing dimensions C (width) and F (height). A label 'Cathode Band' points to the top edge of the package.

Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
X	0.55	0.65	0.022	0.026
Y	0.65	0.75	0.026	0.029
Z	1.37	1.47	0.054	0.058



The diagram shows the suggested pad layout for the package. It includes two shaded rectangular pads. Dimension X is the width of the pad, Y is the height, and Z is the distance between the pads.