

NSR1020MW2T1G

Schottky Barrier Diodes

This Schottky Barrier Diode in the SOD-323 package offers extremely low V_f performance. The low forward voltage makes them capable of handling high current in a very small package. The resulting device is ideally suited for application as a blocking diode in charging applications or as part of discrete buck converter or discrete boost converter. As part of a buck conversion circuit, a boost conversion circuit or a charging circuit the low V_f drop of the schottky improves the efficiency of the overall device by consuming less power in the forward mode.

Features

- Low Forward Voltage – 0.24 Volts (Typ) @ $I_F = 10$ mAdc
- High Current Capability
- ESD Rating – Human Body Model: CLASS 3B
– Machine Model: C
- Pb-Free Packages are Available

MAXIMUM RATINGS ($T_J = 125^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	20	Vdc
Peak Reverse Voltage	V_{RM}	30	V
Forward Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_F	200 2.0	mW mW/ $^\circ\text{C}$
Forward Current (DC) Continuous	I_F	1	A
Forward Current $t = 8.3$ ms Half Sinewave	I_F	5	A
Junction Temperature	T_J	125 Max	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

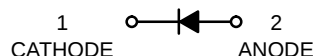
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



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HIGH CURRENT SCHOTTKY BARRIER DIODE



MARKING DIAGRAM



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

ORDERING INFORMATION

Device	Package	Shipping†
NSR1020MW2T1G	SOD-323 (Pb-Free)	3000/Tape & Reel
NSR1020MW2T3G	SOD-323 (Pb-Free)	10,000/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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Total Capacitance ($V_R = 5.0\text{ V}$, $f = 1.0\text{ MHz}$)	C_T	–	25	29	pF
Reverse Leakage ($V_R = 15\text{ V}$)	I_R	–	–	40	μA dc
Forward Voltage ($I_F = 1\text{ mA}$ dc)	V_F	–	–	0.20	Vdc
Forward Voltage ($I_F = 10\text{ mA}$ dc)	V_F	–	–	0.26	Vdc
Forward Voltage ($I_F = 100\text{ mA}$ dc)	V_F	–	–	0.33	Vdc
Forward Voltage ($I_F = 500\text{ mA}$ dc)	V_F	–	–	0.44	Vdc
Forward Voltage ($I_F = 1000\text{ mA}$ dc)	V_F	–	–	0.54	Vdc

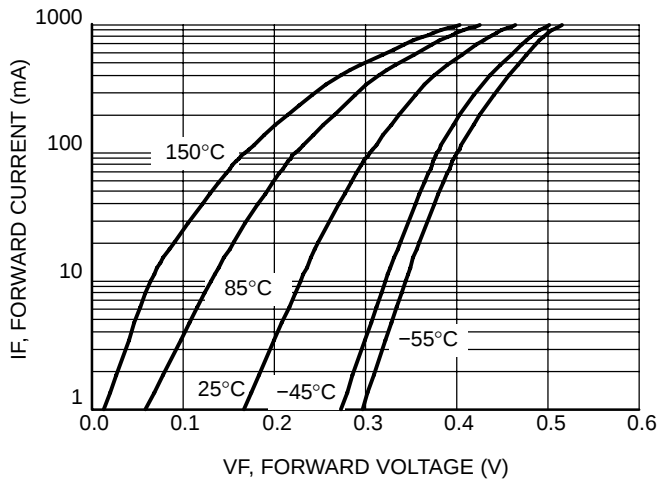


Figure 1. Forward Voltage

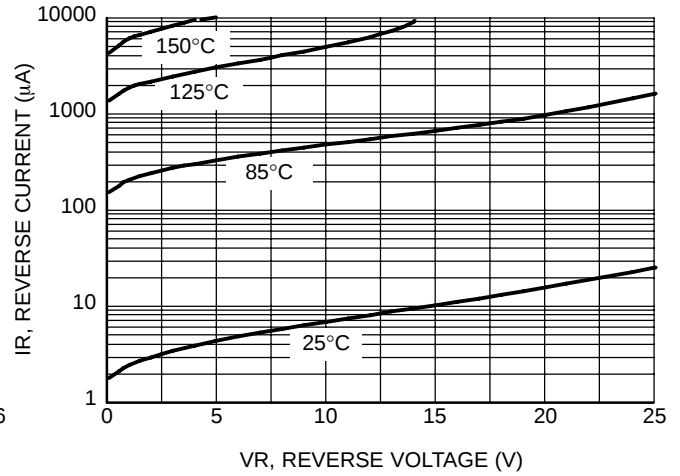


Figure 2. Leakage Current

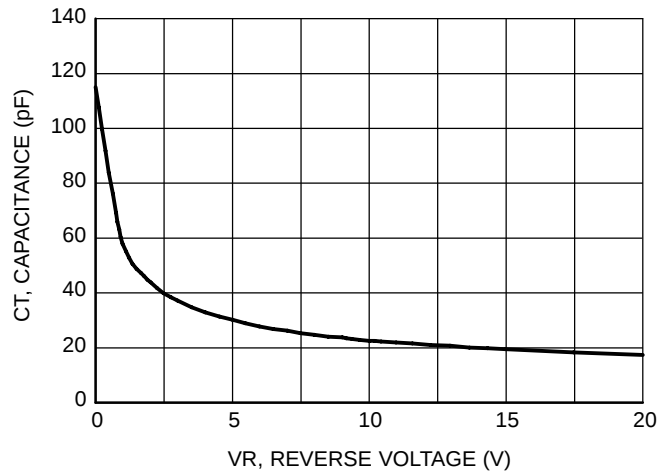
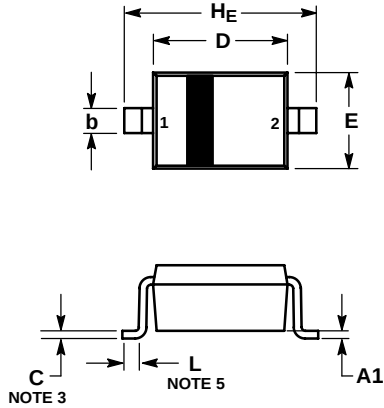


Figure 3. Total Capacitance

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PACKAGE DIMENSIONS

SOD-323
CASE 477-02
ISSUE G



NOTES:

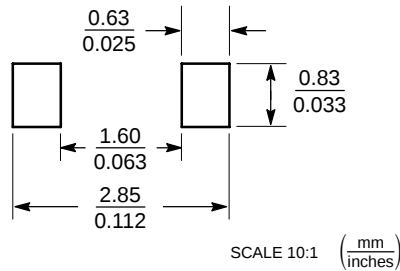
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DIMENSION L IS MEASURED FROM END OF RADIUS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.031	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A3	0.15 REF			0.006 REF		
b	0.25	0.32	0.4	0.010	0.012	0.016
C	0.089	0.12	0.177	0.003	0.005	0.007
D	1.60	1.70	1.80	0.062	0.066	0.070
E	1.15	1.25	1.35	0.045	0.049	0.053
L	0.08			0.003		
HE	2.30	2.50	2.70	0.090	0.098	0.105

STYLE 1:

1. CATHODE
2. ANODE

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.

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