Schottky Barrier Diodes

NSR1020MW2

This Schottky Barrier Diode in the SOD-323 package offers extremely low Vf 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 Vf drop of the Schottky improves the efficiency of the overall device by consuming less power in the forward mode.

Features

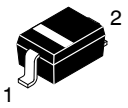
- Low Forward Voltage - 0.24 Volts (Typ) @ I_F = 10 mAdc
- High Current Capability
- ESD Rating - Human Body Model: CLASS 3B
  - Machine Model: C
- NSVR Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS (T_J = 125 °C unless otherwise noted)

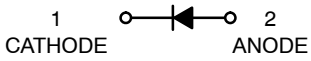
Symbol	Rating	Value	Unit
V_R	Reverse Voltage	20	Vdc
V_{RM}	Peak Revese Voltage	30	V
P_F	Forward Power Dissipation @ T_A = 25 °C Derate above 25 °C	 200 2.0	 mW mW/°C
I_F	Forward Current (DC) Continuous	 1	 A
I_F	Forward Current t = 8.3 ms Half Sinewave	 5	 A
I_{FRM}	Repetitive Forward Current period = 1.5 s, Duty Cycle = 66.7%	 2	 A
T_J	Junction Temperature	125 Max	°C
T_{stg}	Storage Temperature Range	−55 to +150	°C

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.

HIGH CURRENT SCHOTTKY BARRIER DIODE



SOD-323
CASE 477
STYLE 1



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)	3,000 / Tape & Reel
NSR1020MW2T3G	SOD-323 (Pb-Free)	10,000 / Tape & Reel
NSVR1020MW2T1G	SOD-323 (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 Specification Brochure, BRD8011/D.

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

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

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.

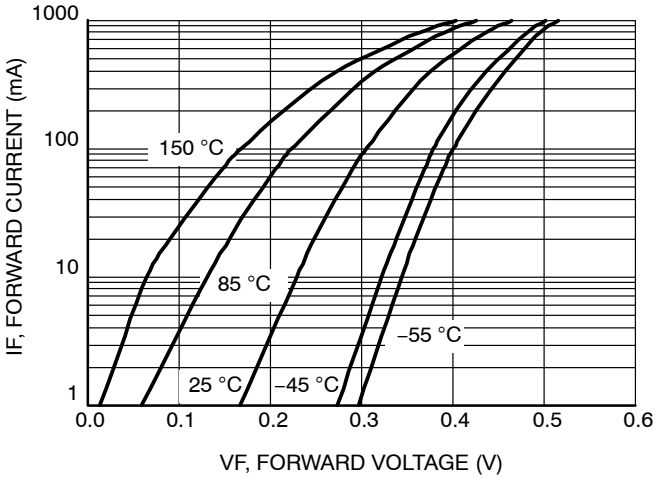


Figure 1. Forward Voltage

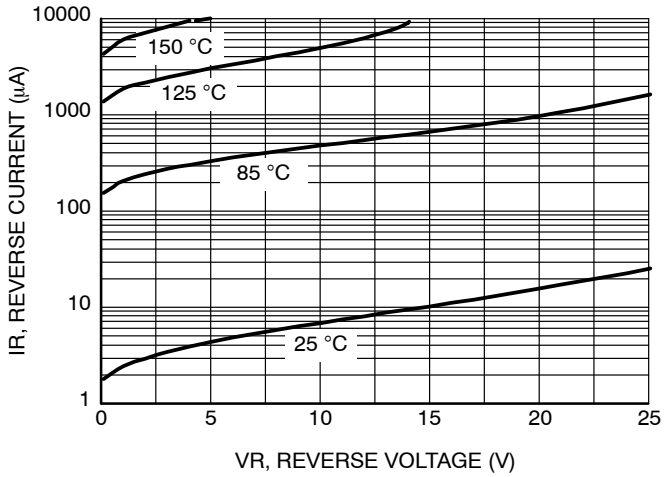


Figure 2. Leakage Current

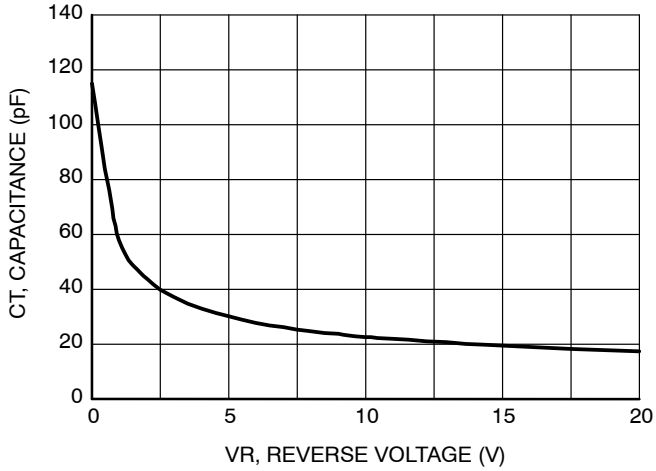
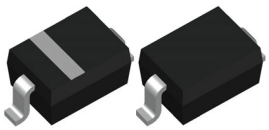


Figure 3. Total Capacitance

REVISION HISTORY

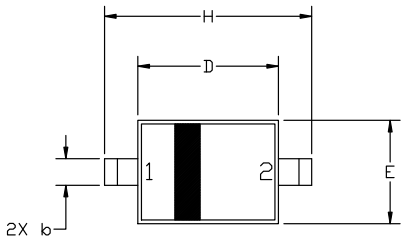
Revision	Description of Changes	Date
4	Rebranding to **onsemi** format.	10/08/2025

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

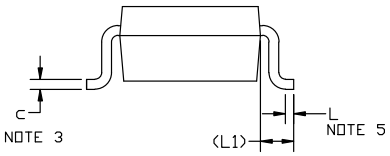


SOD−323 1.70x1.25x0.85
CASE 477
ISSUE K

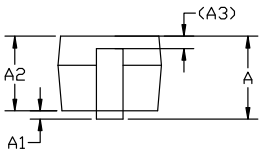
DATE 11 MAR 2024



TOP VIEW



SIDE VIEW

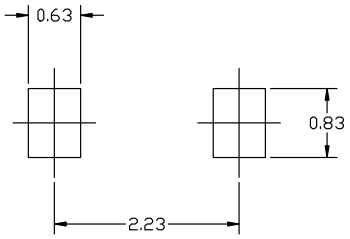


END VIEW

NOTES:

1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M, 2018.
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 MEASURE FROM END OF RADIUS.

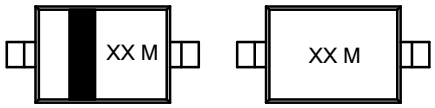
DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.80	0.90	1.00
A1	0.00	0.05	0.10
A2	0.75	0.85	0.95
A3	0.15 (REF)		
b	0.25	0.32	0.4
c	0.09	0.12	0.18
D	1.60	1.70	1.80
E	1.15	1.25	1.35
H	2.30	2.50	2.70
L	0.08	---	---
L1	0.40 (REF)		



RECOMMENDED MOUNTING 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.

GENERIC MARKING DIAGRAM*



STYLE 1 STYLE 2

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. Some products may not follow the Generic Marking.

STYLE 1:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

STYLE 2:
NO POLARITY

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DESCRIPTION:	**SOD−323 1.70x1.25x0.85**		**PAGE 1 OF 1**

ADDITIONAL INFORMATION

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