

Surface Mount Schottky Power Rectifier MBR130, NRVB130

Plastic SOD-123 Package

This device uses the Schottky Barrier principle with a large area metal-to-silicon power diode. Ideally suited for low voltage, high frequency rectification or as free wheeling and polarity protection diodes in surface mount applications where compact size and weight are critical to the system. This package also provides an easy to work with alternative to leadless 34 package style.

Features

- Guardring for Stress Protection
- Low Forward Voltage
- 125°C Operating Junction Temperature
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Package Designed for Optimal Automated Board Assembly
- ESD Rating:
 - ◆ Human Body Model = 3
 - ◆ Machine Model = C
- NRVB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These are Pb-Free Packages*

Mechanical Characteristics

- Device Marking: S3
- Polarity Designator: Cathode Band
- Weight: 11.7 mg (approximately)
- Case: Epoxy, Molded
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

SCHOTTKY BARRIER RECTIFIER 1.0 AMPERES 30 VOLTS



SOD-123
CASE 425
STYLE 1

MARKING DIAGRAM



- S3 = Specific Device Code
- M = Date Code
- = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping [†]
MBR130T1G, NRVB130T1G	SOD-123 (Pb-Free)	3,000 / Tape & Reel **
MBR130T3G,	SOD-123 (Pb-Free)	10,000 / Tape & Reel ***

** 8 mm Tape, 7" Reel

*** 8 mm Tape, 13" Reel

DISCONTINUED (Note 1)

NRVB130T3G	SOD-123 (Pb-Free)	10,000 / Tape & Reel ***
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[†]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](#).

1. **DISCONTINUED:** This device is not recommended for new design. Please contact your **onsemi** representative for information. The most current information on this device may be available on www.onsemi.com.

MBR130, NRVB130

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	30	V
Average Rectified Forward Current (Rated V_R) $T_L = 65^\circ\text{C}$	$I_{F(AV)}$	1.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions, Halfwave, Single Phase, 60 Hz)	I_{FSM}	5.5	A
Storage Temperature Range	T_{stg}	-65 to +125	$^\circ\text{C}$
Operating Junction Temperature	T_J	-65 to +125	$^\circ\text{C}$
Voltage Rate of Change (Rated V_R)	dv/dt	1000	V/ μs

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	Value	Unit
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	230	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Lead (Note 1)	$R_{\theta JL}$	108	$^\circ\text{C}/\text{W}$

1. FR-4 or FR-5 = 3.5 × 1.5 inches using a 1 inch Cu pad.

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Typ	Max	Unit
Instantaneous Forward Voltage (Note 2) ($I_F = 0.1\text{ A}$, $T_J = 25^\circ\text{C}$) ($I_F = 0.7\text{ A}$, $T_J = 25^\circ\text{C}$) ($I_F = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	V_F	- - 0.47	0.35 0.45 -	V
Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, $T_C = 25^\circ\text{C}$) ($V_R = 5\text{ V}$, $T_C = 25^\circ\text{C}$)	I_R		60 10	μA

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.

2. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2\%$.

MBR130, NRVB130

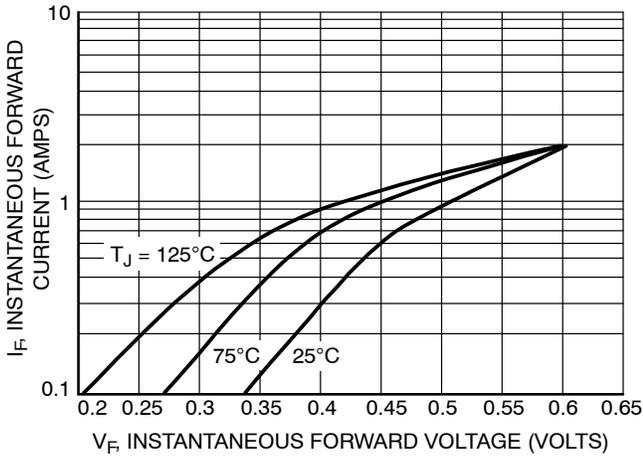


Figure 1. Maximum Forward Voltage

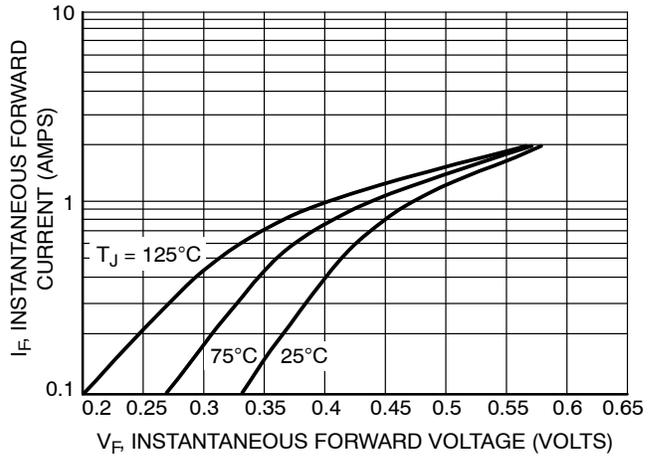


Figure 2. Typical Forward Voltage

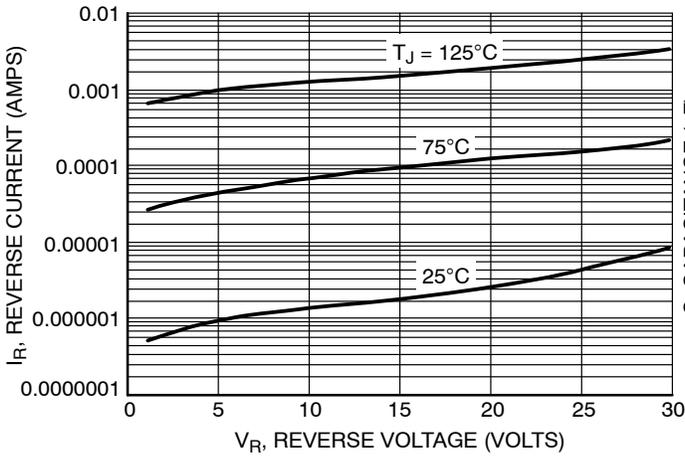


Figure 3. Typical Reverse Current

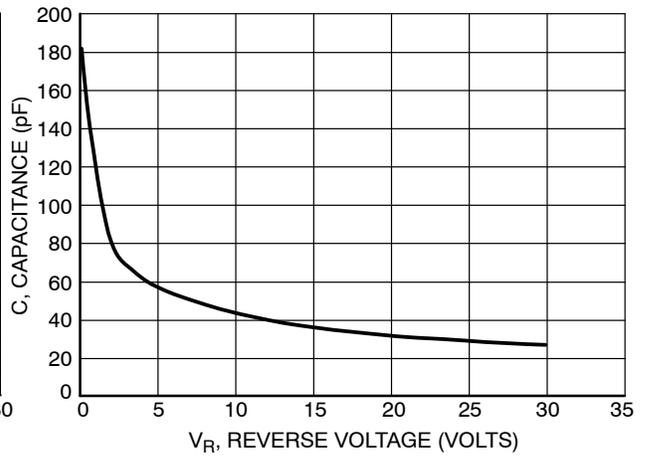


Figure 4. Typical Capacitance

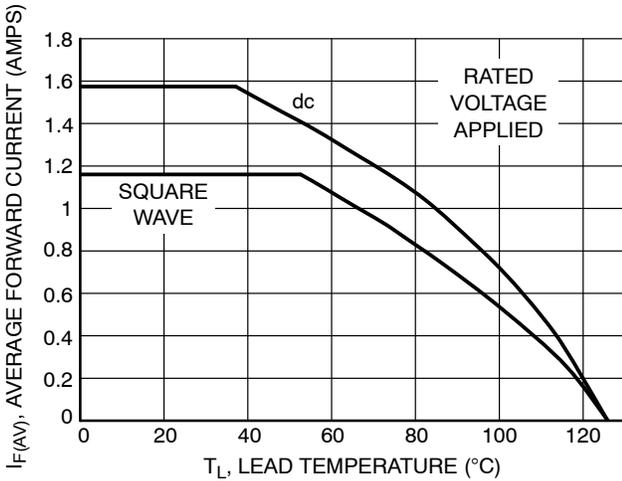


Figure 5. Current Derating, Lead, $R_{\theta JL} = 108^\circ\text{C/W}$

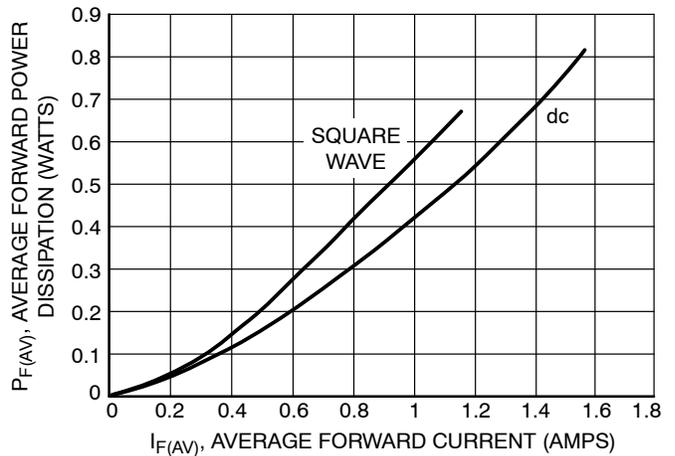


Figure 6. Forward Power Dissipation

MBR130, NRVB130

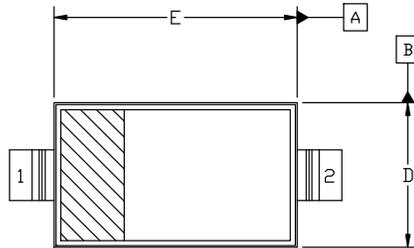
REVISION HISTORY

Revision	Description of Changes	Date
6	NRVB130T3G OPN Marked as Discontinued + Rebranded the Data Sheet to onsemi format	6/24/2025

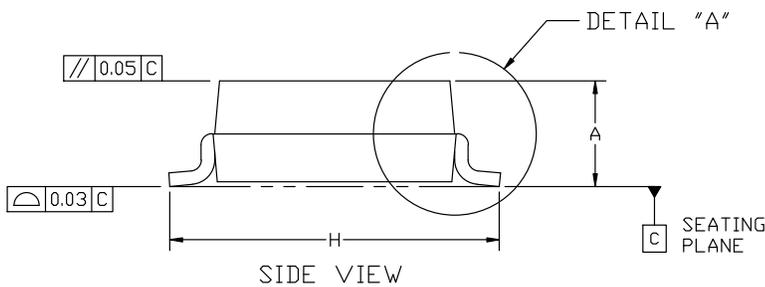


SOD-123 2-LEAD, 1.60x2.69x1.16
CASE 425
ISSUE H

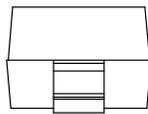
DATE 29 FEB 2024



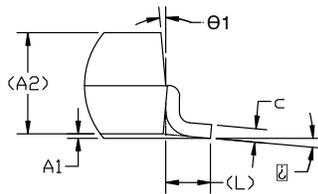
TOP VIEW



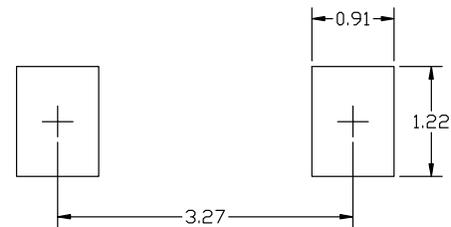
SIDE VIEW



END VIEW



DETAIL "A"



RECOMMENDED MOUNTING FOOTPRINT

*For additional information on or Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference manual SOLDERM/D.

NOTES:

1. DIMENSION AND TOLERANCING PER ASME Y14.5M, 2018
2. CONTROLLING DIMENSION: MILLIMETERS

DIM	MILLIMETER		
	MIN.	NOM.	MAX.
A	0.94	1.17	1.35
A1	0.00	0.05	0.10
A2	1.16 REF.		
b	0.51	0.61	0.71
c	-	-	0.15
D	1.40	1.60	1.80
E	2.54	2.69	2.84
H	3.56	3.68	3.86
L	0.25 REF.		
∠	0°		10°
θ1	0°		10°

GENERIC MARKING DIAGRAM*



XXX = Specific Device Code
M = Date Code
▪ = Pb-Free Package

(Note: Microdot may be in either location)

*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
2. ANODE

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DESCRIPTION:	SOD-123 2-LEAD, 1.60x2.69x1.16	PAGE 1 OF 1

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