Surface Mount Schottky Power Rectifier

SMA Power Surface Mount Package

MBRA130LT3G, NRVBA130LT3G, NRVBA130LN

This device employs the Schottky Barrier principle in a metal−to−silicon power rectifier. Features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency switching power supplies; free wheeling diodes and polarity protection diodes.

Features

- Compact Package with J−Bend Leads Ideal for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guardring for Over−Voltage Protection
- Low Forward Voltage Drop
- NRVBA 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

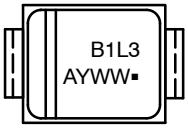
Mechanical Characteristics:

- Case: Molded Epoxy
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Weight: 70 mg (approximately)
- 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
- Polarity: Cathode Lead Indicated by Either Notch in Plastic Body or Polarity Band
- Device Meets MSL1 Requirements
- ESD Ratings:
  - Machine Model = C (> 400 V)
  - Human Body Model = 3B (> 8000 V)

SCHOTTKY BARRIER RECTIFIER 1.0 AMPERES, 30 VOLTS

SMA
CASE 403D

MARKING DIAGRAM



B1L3	= Specific Device Code
A	= Assembly Location***
Y	= Year
WW	= Work Week
▪	= Pb−Free Package

(Note: Microdot may be in either location)

***The Assembly Location code (A) is front side optional. In cases where the Assembly Location is stamped in the package bottom (molding ejecter pin), the front side assembly code may be blank.

ORDERING INFORMATION

Device	Package	Shipping†
MBRA130LT3G	SMA (Pb−Free)	5,000 / Tape & Reel **
NRVBA130LT3G*	SMA (Pb−Free)	5,000 / Tape & Reel **
NRVBA130LNT3G*	SMA (Pb−Free)	5,000 / Tape & Reel **

** 12 mm Tape, 13” 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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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 (At Rated V_R, T_C = 105°C)	I_O	1.0	A
Peak Repetitive Forward Current (At Rated V_R, Square Wave, 100 kHz, T_C = 105°C)	I_{FRM}	2.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	25	A
Storage Temperature	T_{stg}	−55 to +150	°C
Operating Junction Temperature	T_J	−55 to +125	°C
Voltage Rate of Change, (Rated V_R, T_J = 25°C)	dv/dt	10,000	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−Lead (Note 1) Thermal Resistance — Junction−to−Ambient (Note 1)	$R_{\theta JL}$ $R_{\theta JA}$	35 86	°C/W

1. Mounted on 2″ Square PC Board with 1″ Square Total Pad Size, PC Board FR4.

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value		Unit
Maximum Instantaneous Forward Voltage (Note 2)	V_F	**T_J = 25°C**	**T_J = 100°C**	Volts
(I_F = 1.0 A) see Figure 2 (I_F = 2.0 A)		0.41 0.47	0.35 0.43	
Maximum Instantaneous Reverse Current	I_R	**T_J = 25°C**	**T_J = 100°C**	mA
(V_R = 30 V) see Figure 4 (V_R = 15 V)		1.0 0.4	25 12	

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 ≤ 250 μs, Duty Cycle ≤ 2.0%.

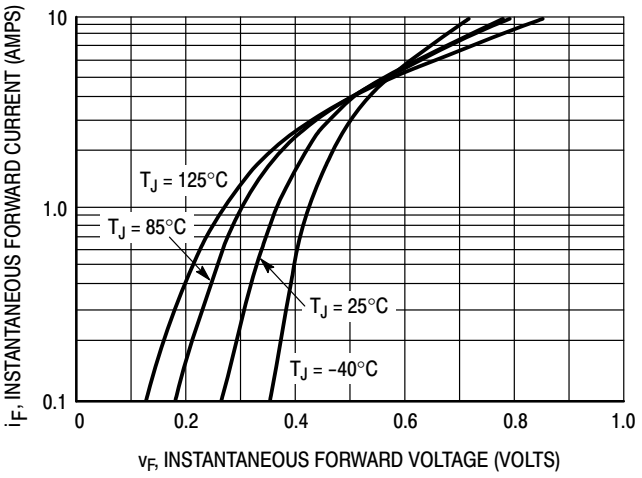

Figure 1. Typical Forward Voltage

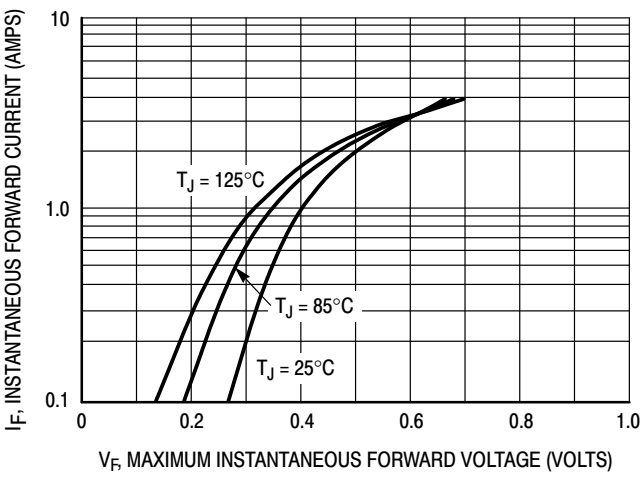

Figure 2. Maximum Forward Voltage

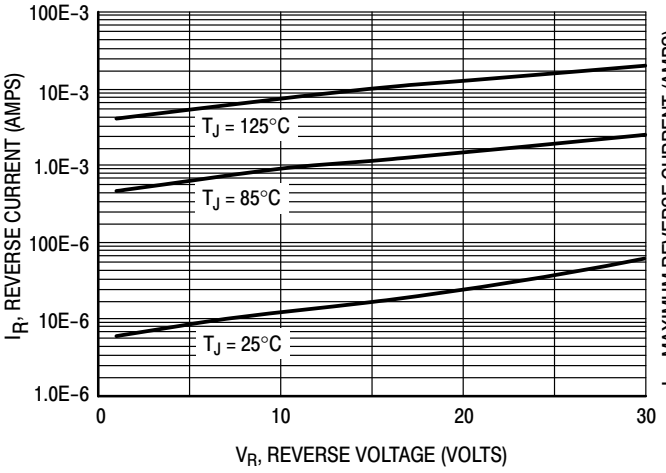

Figure 3. Typical Reverse Current

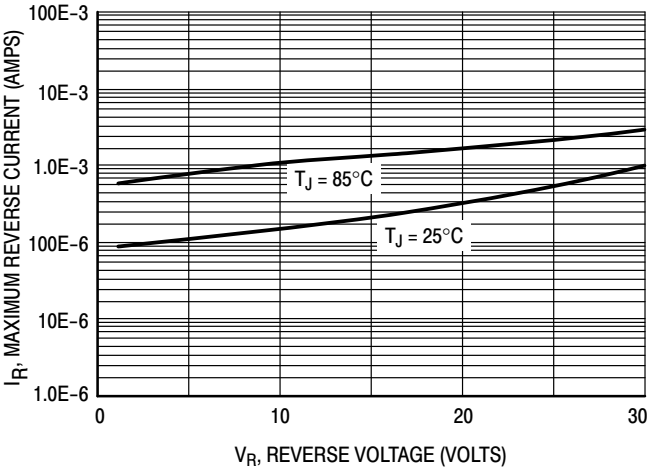

Figure 4. Maximum Reverse Current

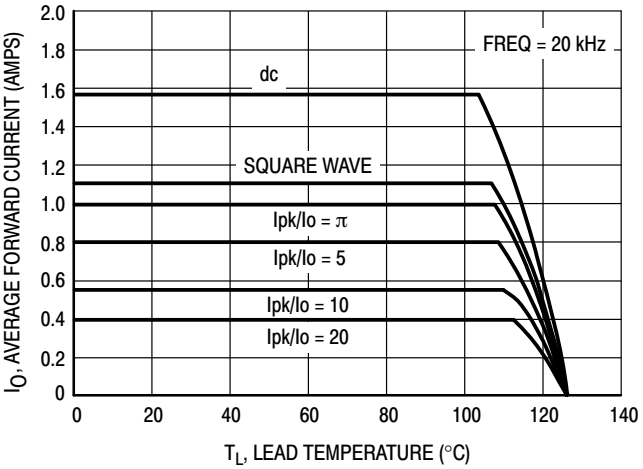

Figure 5. Current Derating

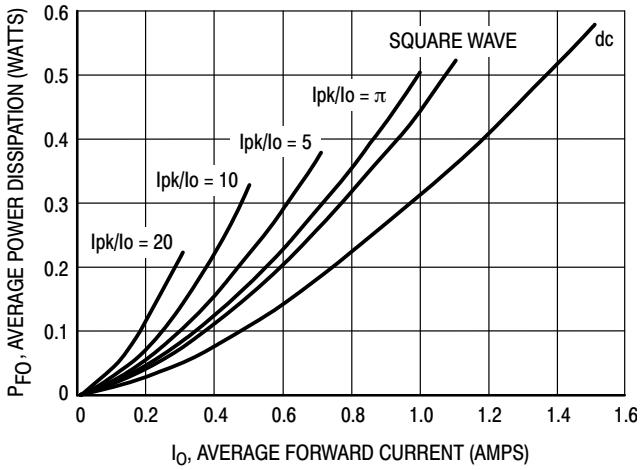

Figure 6. Forward Power Dissipation

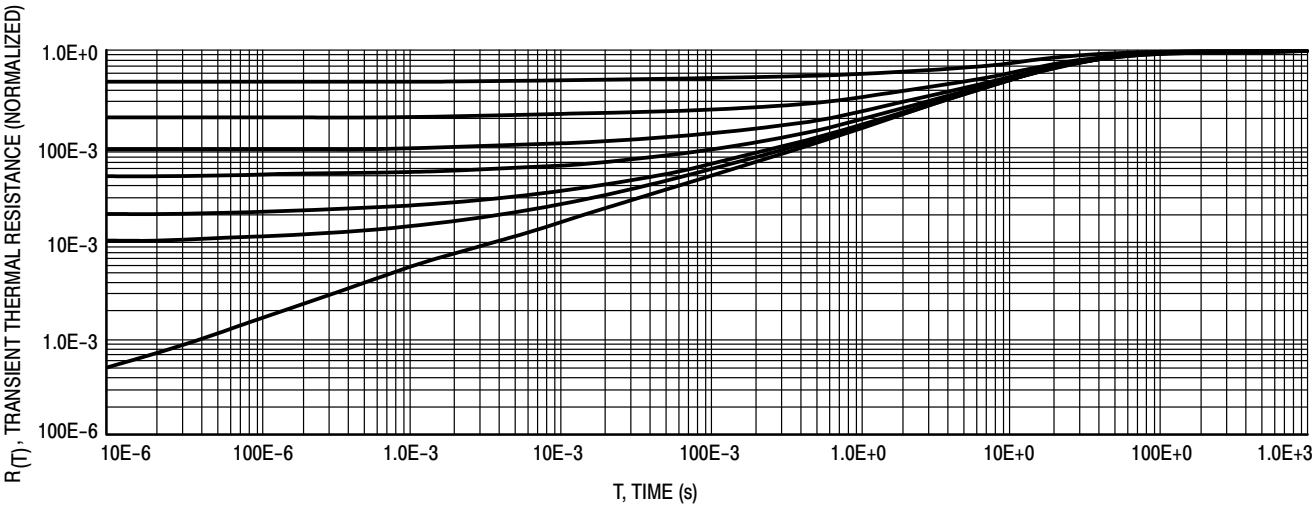

Figure 7. Thermal Response

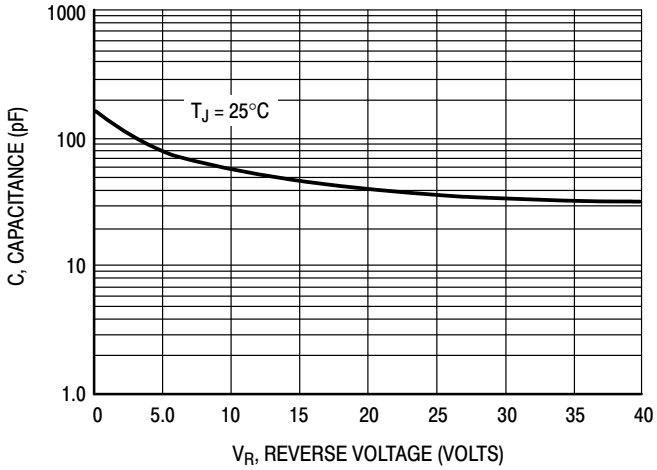

Figure 8. Capacitance

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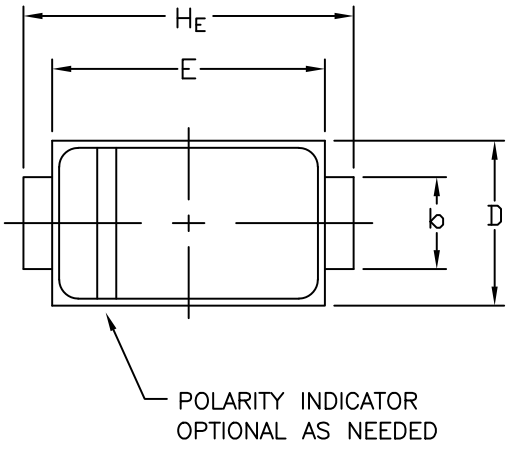
ISSUE J

DATE 22 OCT 2021

STYLE 1 STYLE 2

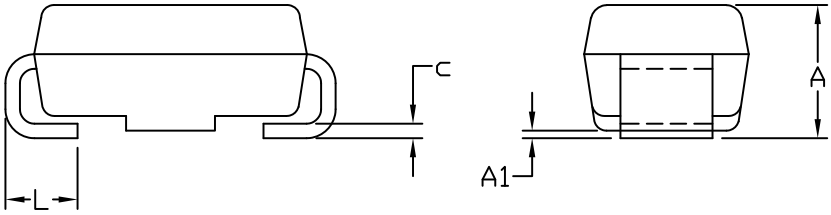
SCALE 1:1



NOTES:

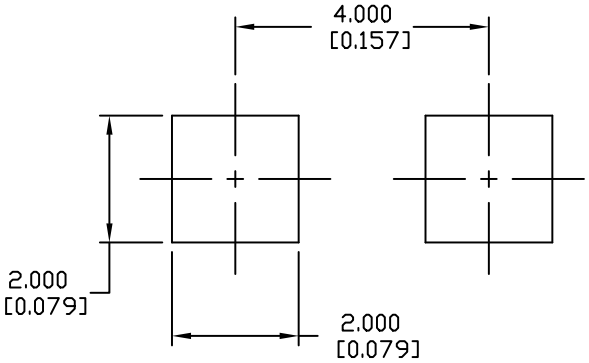
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCHES
3. DIMENSION b SHALL BE MEASURED WITHIN DIMENSION L.

	MILLIMETERS			INCHES		
DIM	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	1.97	2.10	2.20	0.078	0.083	0.087
A1	0.05	0.10	0.20	0.002	0.004	0.008
b	1.27	1.45	1.63	0.050	0.057	0.064
c	0.15	0.28	0.41	0.006	0.011	0.016
D	2.29	2.60	2.92	0.090	0.103	0.115
E	4.06	4.32	4.57	0.160	0.170	0.180
HE	4.83	5.21	5.59	0.190	0.205	0.220
L	0.76	1.14	1.52	0.030	0.045	0.060



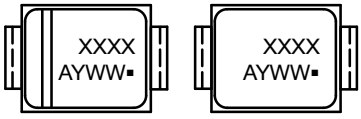
STYLE 1:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

STYLE 2:
NO POLARITY



RECOMMENDED
MOUNTING FOOTPRINT

GENERIC MARKING DIAGRAM*



STYLE 1 STYLE 2

XXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

*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.

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