MBRAF3200, NRVBAF3200

Surface Mount Schottky Power Rectifier

This device employs the Schottky Barrier principle in a large area metal−to−silicon power diode. State−of−the−art geometry features epitaxial construction with oxide passivation and metal overlay contact. 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.

Features

- Small Compact Surface Mountable Package with J−Bend Leads
- Rectangular Package for Automated Handling
- Highly Stable Oxide Passivated Junction
- Very High Blocking Voltage − 200 V
- 150°C Operating Junction Temperature
- Guard−Ring for Stress Protection
- NRVB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- This is a Pb−Free Device

Mechanical Charactersistics

- Case: Epoxy, Molded, Epoxy Meets UL 94, V−0
- Weight: 95 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
- Cathode Polarity Band
- Device Meets MSL 1 Requirements
- ESD Ratings: Machine Model = A
  Human Body Model = 1B

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	V
Average Rectified Forward Current (T_L = 100°C)	$I_{F(AV)}$	3.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	100	A
Operating Junction Temperature	T_J	−65 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.

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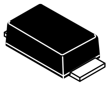
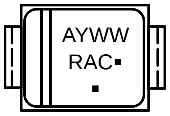
**SCHOTTKY BARRIER
RECTIFIER
3.0 AMPERE
200 VOLTS**



**SMA−FL
CASE 403AA
STYLE 6**

MARKING DIAGRAM



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

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MBRAF3200T3G	SMA−FL (Pb−Free)	5000 / Tape & Reel
NRVBAF3200T3G	SMA−FL (Pb−Free)	5000 / 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.

October, 2014 − Rev. 2

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction−to−Lead (Note 1 Thermal Resistance, Junction−to−Ambient (Note 1)	$R_{\theta JL}$ $R_{\theta JA}$	25 90	°C/W

1. 1 inch square pad size (1 × 0.5 inch) for each lead on FR4 board.

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) (I_F = 3.0 A, T_J = 25°C) (I_F = 4.0 A, T_J = 25°C) (I_F = 3.0 A, T_J = 150°C)	V_F	 0.84 0.86 0.62	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, T_J = 25°C) (Rated dc Voltage, T_J = 150°C)	I_R	 1.0 6.0	 mA mA

2. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

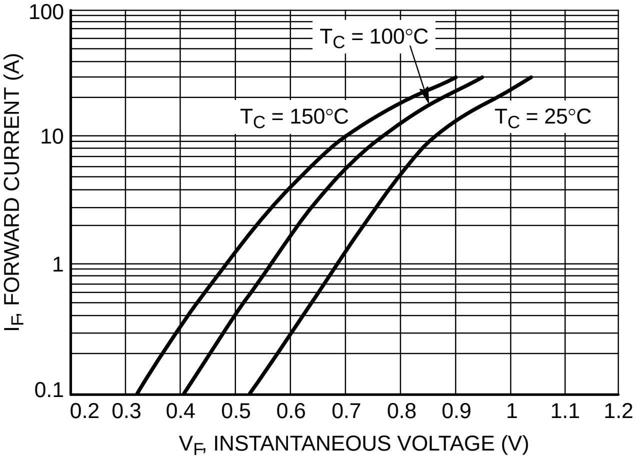


Figure 1. Typical Forward Voltage

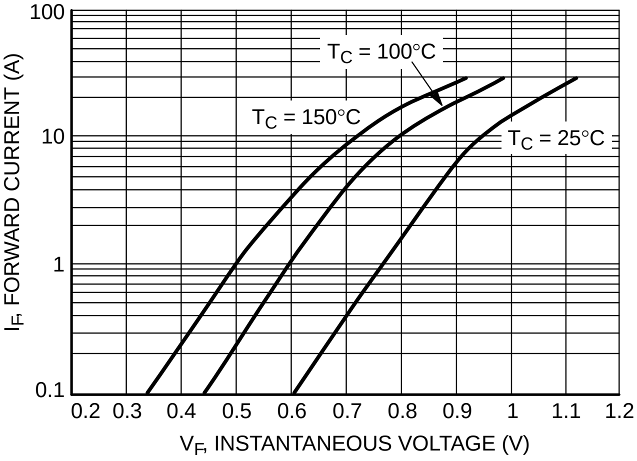


Figure 2. Maximum Forward Voltage

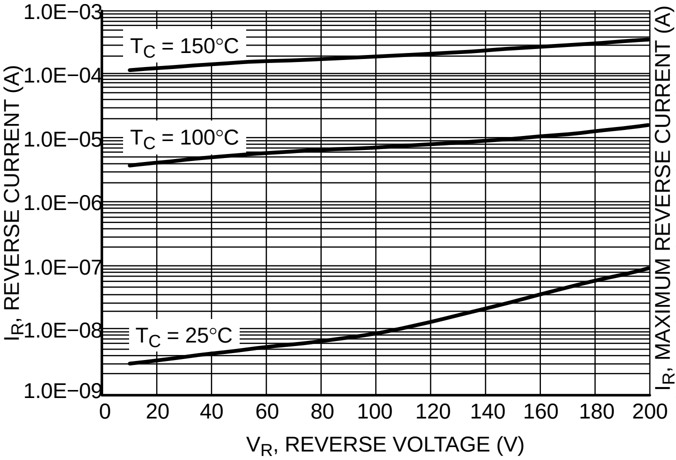


Figure 3. Typical Reverse Current

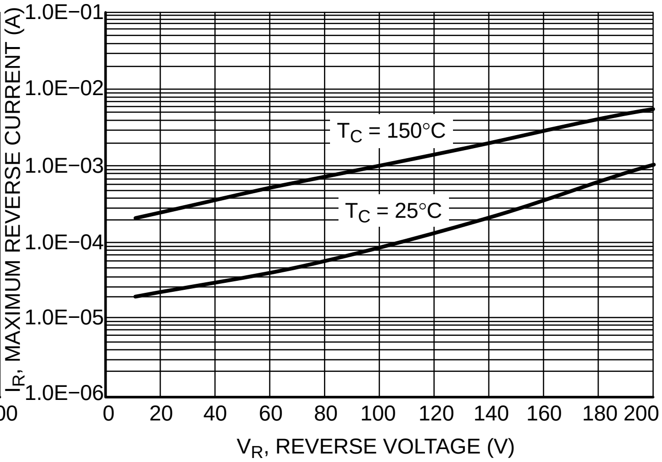


Figure 4. Maximum Reverse Current

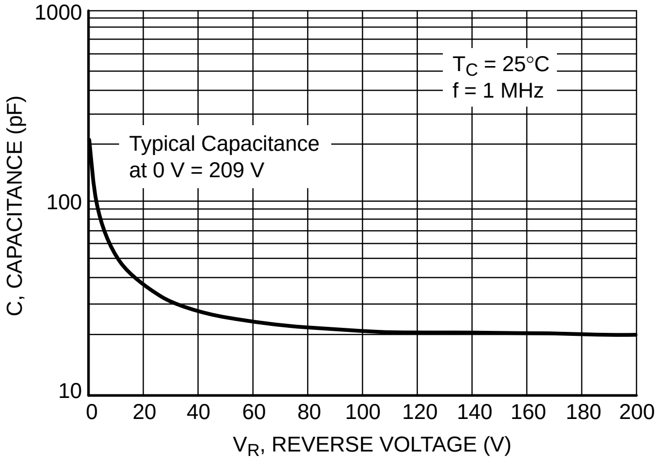


Figure 5. Typical Capacitance

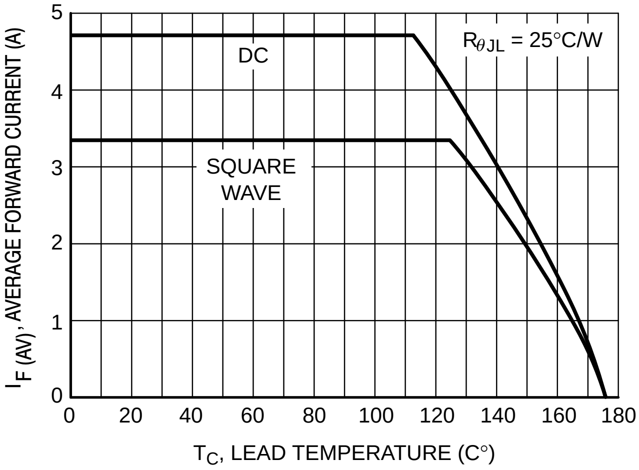


Figure 6. Current Derating

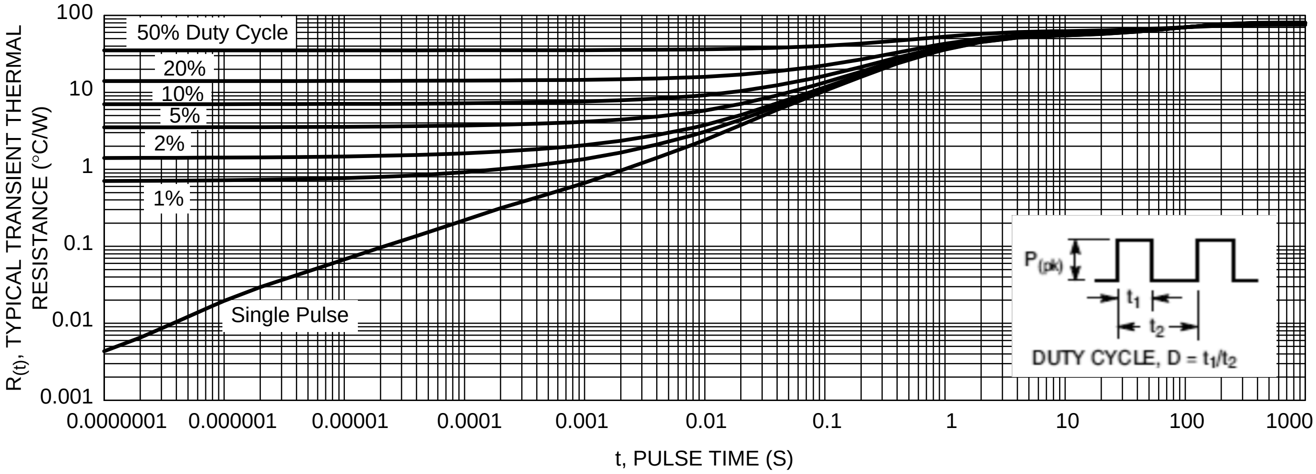
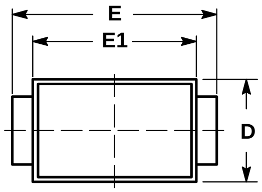


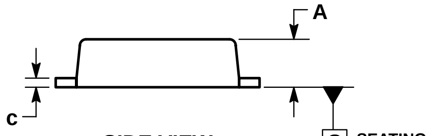
Figure 7. Typical Transient Thermal Response, Junction−to−Ambient

PACKAGE DIMENSIONS

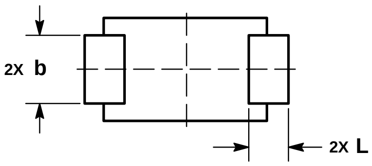
SMA−FL
CASE 403AA
ISSUE O



TOP VIEW



SIDE VIEW

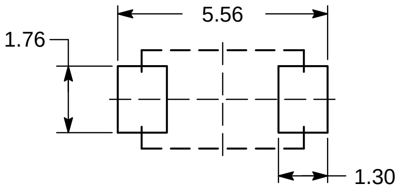


BOTTOM VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.

	MILLIMETERS	
DIM	MIN	MAX
A	0.90	1.10
b	1.25	1.65
c	0.15	0.30
D	2.40	2.80
E	4.80	5.40
E1	4.00	4.60
L	0.70	1.10

RECOMMENDED SOLDER FOOTPRINT*



DIMENSIONS: MILLIMETERS

*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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