

MBRAF3200T3G

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
- This is a Pb-Free Device

Mechanical Characteristics

- 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 ($T_L = 100^\circ\text{C}$) | $I_{F(AV)}$ | 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 |

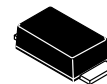
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



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**SCHOTTKY BARRIER
RECTIFIER
3.0 AMPERE
200 VOLTS**



**SMA-FL
CASE 403AA
PLASTIC
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 |

† 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.

MBRAF3200T3G

THERMAL CHARACTERISTICS

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

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) ($I_F = 3.0\text{ A}$, $T_J = 25^{\circ}C$) ($I_F = 4.0\text{ A}$, $T_J = 25^{\circ}C$) ($I_F = 3.0\text{ A}$, $T_J = 150^{\circ}C$) | V_F | 0.84 0.86 0.62 | V |
| Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, $T_J = 25^{\circ}C$) (Rated dc Voltage, $T_J = 150^{\circ}C$) | I_R | 1.0 6.0 | mA mA |

2. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

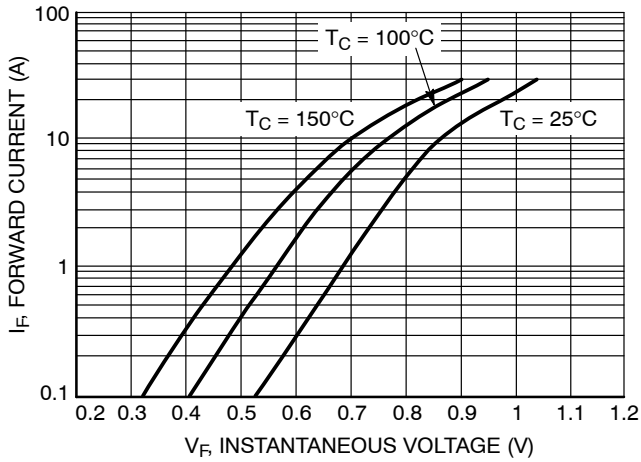


Figure 1. Typical Forward Voltage

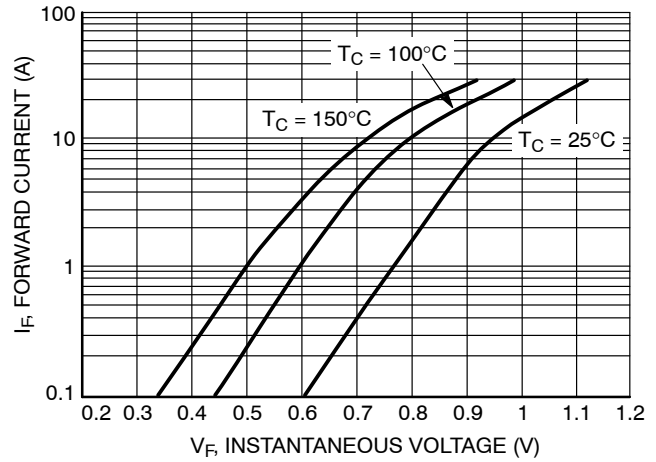


Figure 2. Maximum Forward Voltage

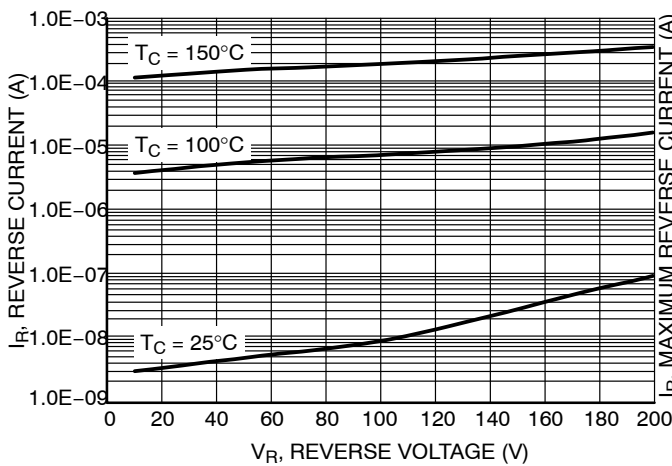


Figure 3. Typical Reverse Current

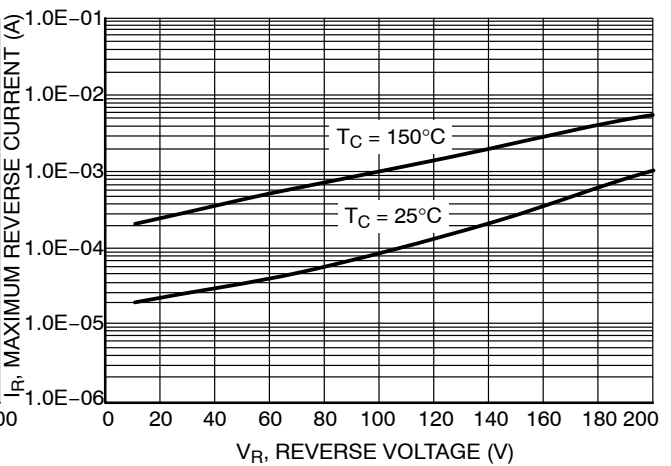


Figure 4. Maximum Reverse Current

MBRAF3200T3G

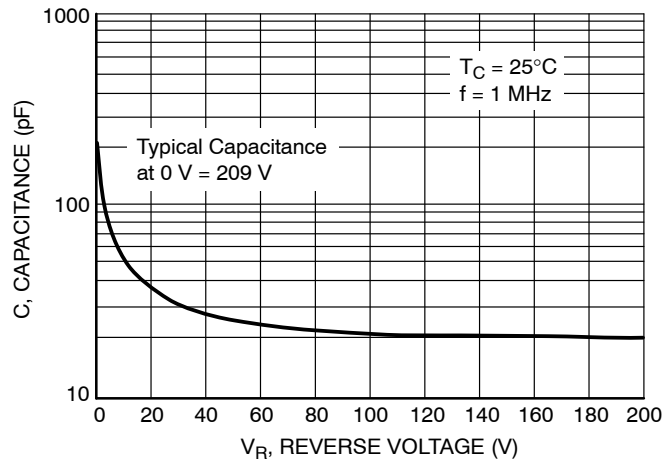


Figure 5. Typical Capacitance

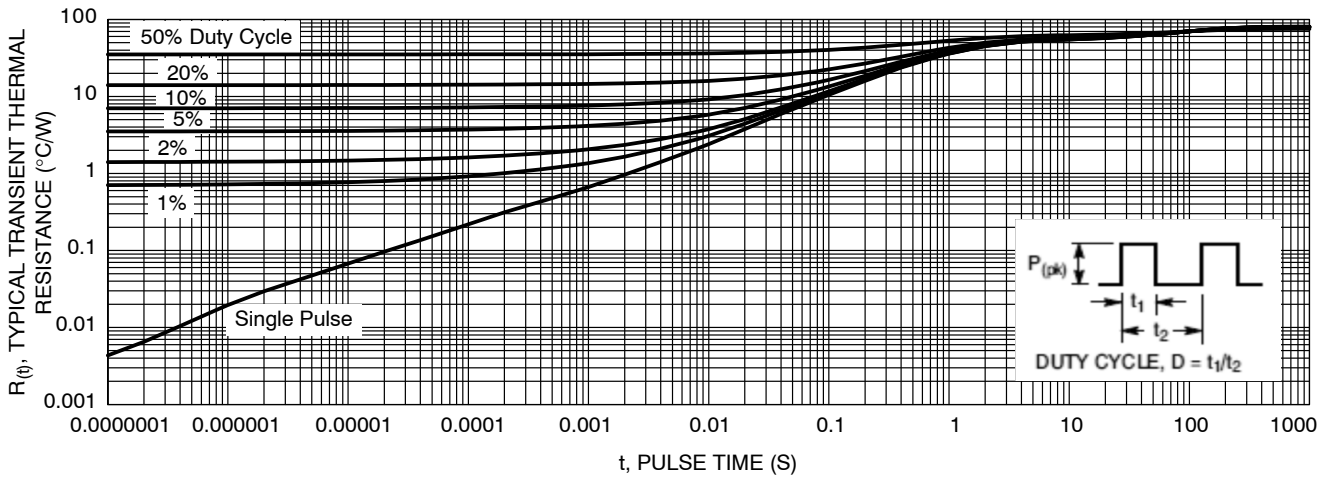
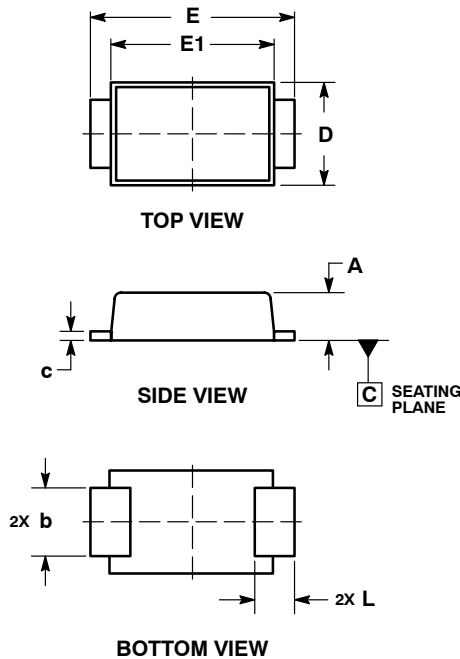


Figure 6. Typical Transient Thermal Response, Junction-to-Ambient

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PACKAGE DIMENSIONS

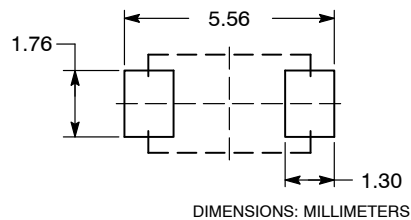
SMA-FL
CASE 403AA-01
ISSUE O




- 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*



*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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