

# MBRS260T3G, NRVBS260T3G

## Surface Mount Schottky Power Rectifier

### SMB Power Surface Mount Package

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
- Guard-Ring for Over-Voltage Protection
- Low Forward Voltage Drop
- NRVB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These are Pb-Free Devices

#### Mechanical Characteristics

- Case: Molded Epoxy
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight: 95 mg (Approximately)
- Cathode Polarity Band
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- ESD Ratings:
  - ♦ Machine Model = C
  - ♦ Human Body Model = 3B



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### SCHOTTKY BARRIER RECTIFIER 2.0 AMPERES, 60 VOLTS



**SMB  
CASE 403A**

#### MARKING DIAGRAM



B26 = 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†              |
|-------------|------------------|------------------------|
| MBRS260T3G  | SMB<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| NRVBS260T3G | SMB<br>(Pb-Free) | 2,500 /<br>Tape & Reel |

†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.

# MBRS260T3G, NRVBS260T3G

## MAXIMUM RATINGS

| Rating                                                                                                      | Symbol                          | Value       | Unit             |
|-------------------------------------------------------------------------------------------------------------|---------------------------------|-------------|------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                      | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 60          | V                |
| Average Rectified Forward Current<br>(At Rated $V_R$ , $T_L = 95^\circ\text{C}$ )                           | $I_O$                           | 2.0         | A                |
| Non-Repetitive Peak Surge Current<br>(Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz) | $I_{FSM}$                       | 60          | A                |
| Storage Temperature Range                                                                                   | $T_{stg}$                       | -55 to +150 | $^\circ\text{C}$ |
| Operating Junction Temperature                                                                              | $T_J$                           | -55 to +125 | $^\circ\text{C}$ |
| Voltage Rate of Change<br>(Rated $V_R$ , $T_J = 25^\circ\text{C}$ )                                         | $dv/dt$                         | 10,000      | V/ $\mu\text{s}$ |

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.

## THERMAL CHARACTERISTICS

| Characteristic                                                                                    | Symbol                             | Value    | Unit               |
|---------------------------------------------------------------------------------------------------|------------------------------------|----------|--------------------|
| Thermal Resistance, Junction-to-Lead (Note 1)<br>Thermal Resistance, Junction-to-Ambient (Note 2) | $R_{\theta JL}$<br>$R_{\theta JA}$ | 24<br>80 | $^\circ\text{C/W}$ |

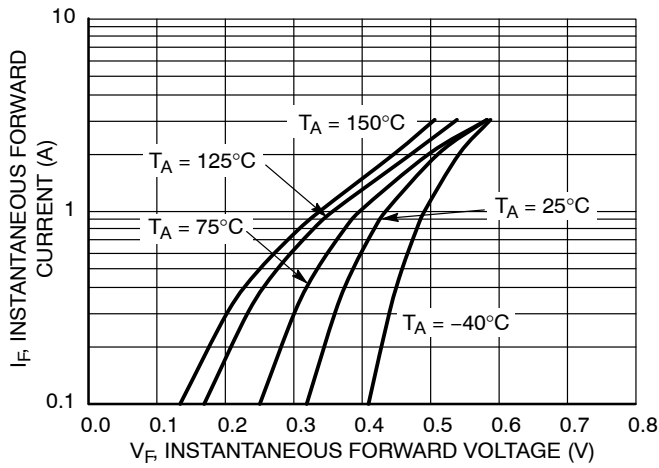
1. Mounted with minimum recommended pad size, PC Board FR4.
2. 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board.

## ELECTRICAL CHARACTERISTICS

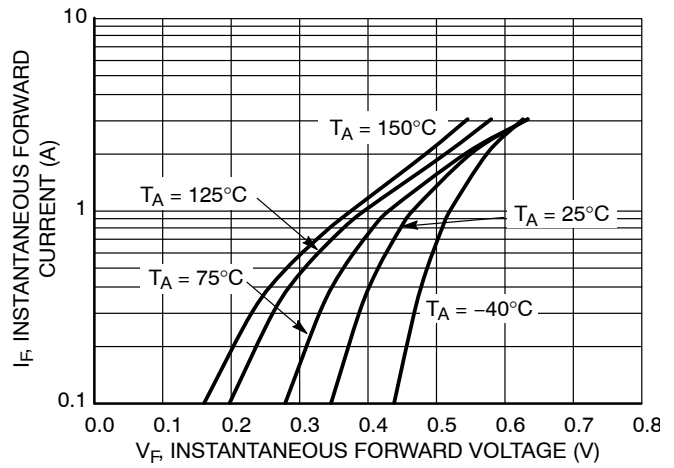
| Characteristic                                                                                             | Symbol | Value                    |                           | Unit |
|------------------------------------------------------------------------------------------------------------|--------|--------------------------|---------------------------|------|
| Maximum Instantaneous Forward Voltage (Note 3)<br><br>( $I_F = 1.0\text{ A}$ )<br>( $I_F = 2.0\text{ A}$ ) | $V_F$  | $T_J = 25^\circ\text{C}$ | $T_J = 125^\circ\text{C}$ | V    |
|                                                                                                            |        | 0.51<br>0.63             | 0.475<br>0.55             |      |
| Maximum Instantaneous Reverse Current (Note 3)<br><br>( $V_R = 60\text{ V}$ )                              | $I_R$  | $T_J = 25^\circ\text{C}$ | $T_J = 125^\circ\text{C}$ | mA   |
|                                                                                                            |        | 0.2                      | 20                        |      |

3. Pulse Test: Pulse Width  $\leq 250\text{ }\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

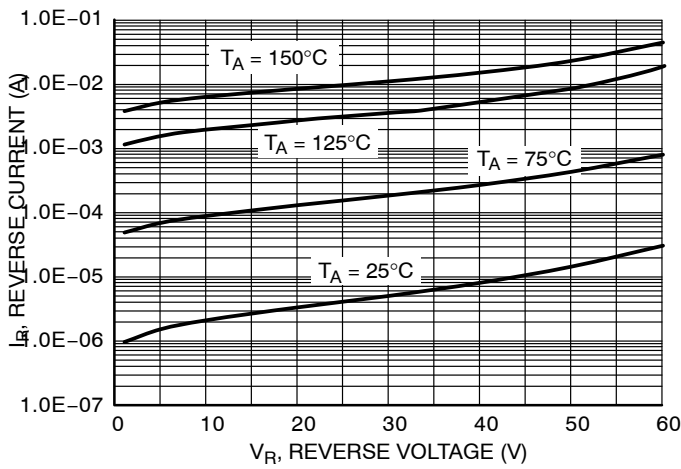
# MBRS260T3G, NRVBS260T3G



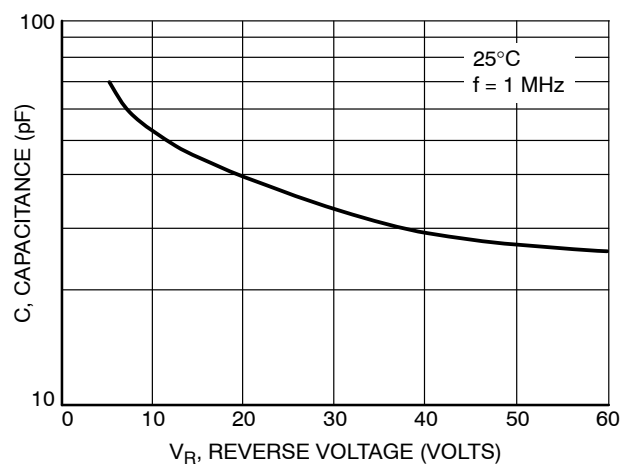
**Figure 1. Typical Forward Voltage**



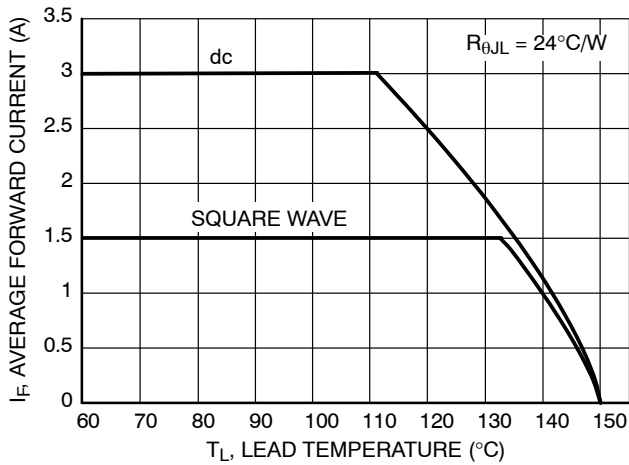
**Figure 2. Maximum Forward Voltage**



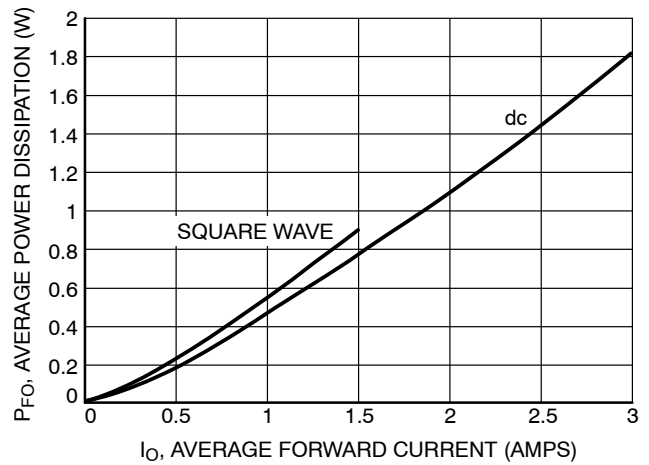
**Figure 3. Typical Reverse Current**



**Figure 4. Typical Capacitance**



**Figure 5. Current Derating – Junction to Lead**



**Figure 6. Forward Power Dissipation**

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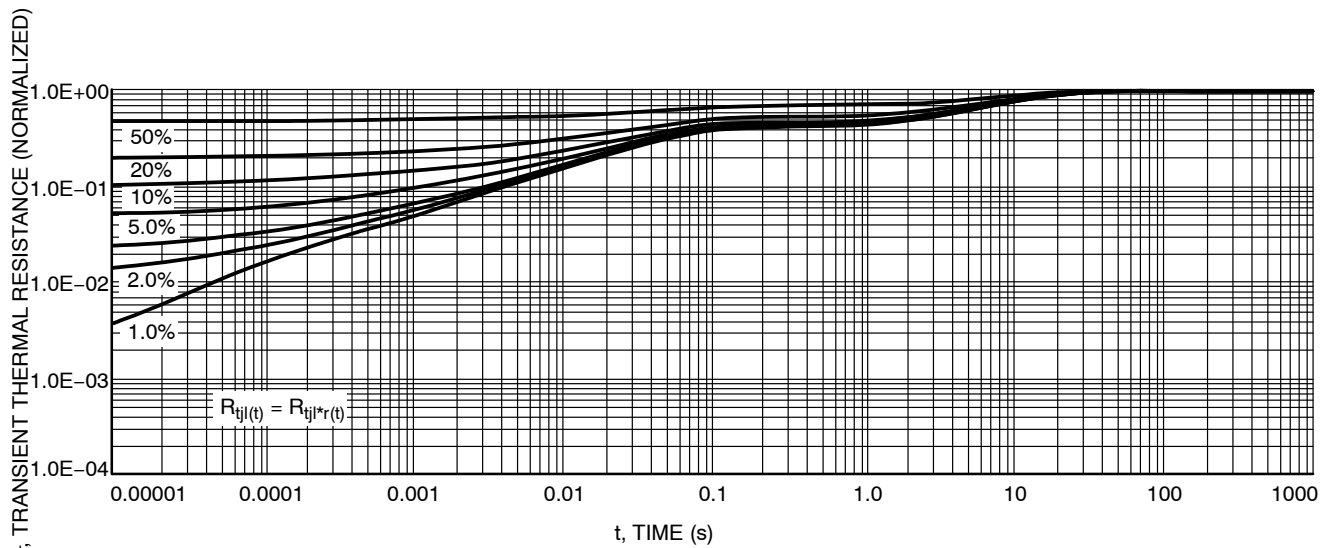


Figure 7. Thermal Response – Junction to Case

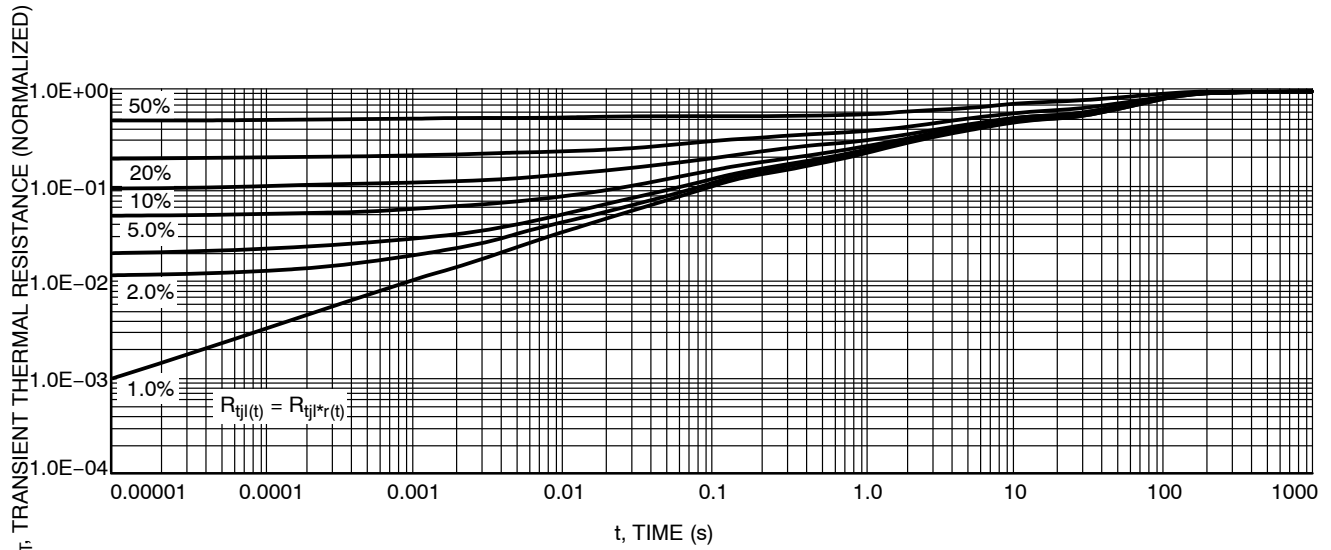
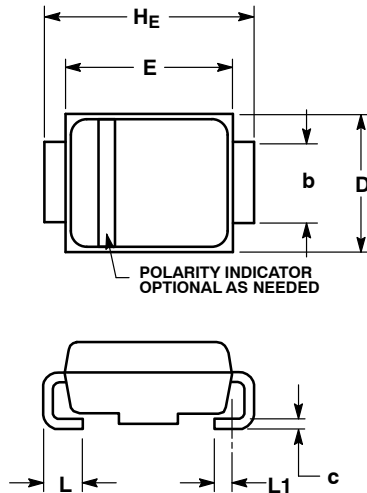


Figure 8. Thermal Response – Junction to Ambient

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## PACKAGE DIMENSIONS

**SMB**  
CASE 403A-03  
ISSUE J

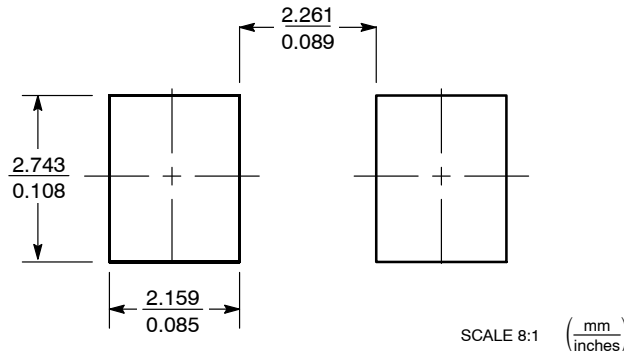


### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION b SHALL BE MEASURED WITHIN DIMENSION L1.

| DIM | MILLIMETERS |      |      | INCHES    |       |       |
|-----|-------------|------|------|-----------|-------|-------|
|     | MIN         | NOM  | MAX  | MIN       | NOM   | MAX   |
| A   | 1.95        | 2.30 | 2.47 | 0.077     | 0.091 | 0.097 |
| A1  | 0.05        | 0.10 | 0.20 | 0.002     | 0.004 | 0.008 |
| b   | 1.96        | 2.03 | 2.20 | 0.077     | 0.080 | 0.087 |
| c   | 0.15        | 0.23 | 0.31 | 0.006     | 0.009 | 0.012 |
| D   | 3.30        | 3.56 | 3.95 | 0.130     | 0.140 | 0.156 |
| E   | 4.06        | 4.32 | 4.60 | 0.160     | 0.170 | 0.181 |
| HE  | 5.21        | 5.44 | 5.60 | 0.205     | 0.214 | 0.220 |
| L   | 0.76        | 1.02 | 1.60 | 0.030     | 0.040 | 0.063 |
| L1  | 0.51 REF    |      |      | 0.020 REF |       |       |

## SOLDERING FOOTPRINT\*



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

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