

# MURS360BT3G, SURS8360BT3G

## Surface Mount Ultrafast Power Rectifiers

Ideally suited for high voltage, high frequency rectification, or as free wheeling and 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
- High Temperature Glass Passivated Junction
- SURS8 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: Epoxy, Molded
- Epoxy Meets UL 94 V-O @ 0.125 in
- 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
- Polarity: Polarity Band Indicates Cathode Lead
- ESD Rating:
  - ◆ Human Body Model (HBM) 3B (> 8 kV)
  - ◆ Machine Model (MM) C (> 400 V)

### MAXIMUM RATINGS

| Rating   | Symbol      | Value                           | Unit |
|--|-------------|---------------------------------|------|
| Peak Repetitive Reverse Voltage  | $V_{RRM}$   | 600                             | V    |
| Working Peak Reverse Voltage   | $V_{RWM}$   |                                 |      |
| DC Blocking Voltage  | $V_R$       |                                 |      |
| Average Rectified Forward Current  | $I_{F(AV)}$ | 3.0 @ $T_L = 105^\circ\text{C}$ | A    |
| Non-Repetitive Peak Surge Current<br>(Surge applied at rated load conditions<br>halfwave, single phase, 60 Hz) | $I_{FSM}$   | 100                             | A    |
| Operating Junction Temperature   | $T_J$       | -65 to +175                     | °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.

\*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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## ULTRAFAST RECTIFIERS 3 AMPERES 600 VOLTS



SMB  
CASE 403A

### MARKING DIAGRAM



- B36B = 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†              |
|--------------|------------------|------------------------|
| MURS360BT3G  | SMB<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| SURS8360BT3G | 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.

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## THERMAL CHARACTERISTICS

| Characteristic                                   | Symbol          | Value | Unit                        |
|--|-----------------|-------|-----------------------------|
| Thermal Resistance, Junction-to-Lead (Note 1)    | $R_{\theta JL}$ | 14    | $^{\circ}\text{C}/\text{W}$ |
| Thermal Resistance, Junction-to-Ambient (Note 1) | $R_{\theta JA}$ | 125   | $^{\circ}\text{C}/\text{W}$ |

1. Mounted with minimum recommended pad size, PC Board FR4.

## ELECTRICAL CHARACTERISTICS

| Characteristic  | Symbol   | Typ       | Max          | Unit          |
|---|----------|-----------|--------------|---------------|
| Maximum Instantaneous Forward Voltage (Note 2)<br>( $i_F = 3.0\text{ A}$ , $T_J = 25^{\circ}\text{C}$ )<br>( $i_F = 3.0\text{ A}$ , $T_J = 150^{\circ}\text{C}$ ) | $V_F$    | -<br>0.83 | 1.25<br>1.05 | V             |
| Maximum Instantaneous Reverse Current (Note 2)<br>(Rated DC Voltage, $T_J = 25^{\circ}\text{C}$ )<br>(Rated DC Voltage, $T_J = 150^{\circ}\text{C}$ )             | $i_R$    | -<br>95   | 3.0<br>150   | $\mu\text{A}$ |
| Maximum Reverse Recovery Time<br>( $i_F = 1.0\text{ A}$ , $di/dt = 50\text{ A}/\mu\text{s}$ )<br>( $i_F = 0.5\text{ A}$ , $i_R = 1.0\text{ A}$ , $I_R$ to 0.25 A) | $t_{rr}$ | -<br>-    | 75<br>50     | ns            |
| Maximum Forward Recovery Time<br>( $i_F = 1.0\text{ A}$ , $di/dt = 100\text{ A}/\mu\text{s}$ , Rec. to 1.0 V)   | $t_{fr}$ | -         | 50           | ns            |

2. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

## TYPICAL CHARACTERISTICS

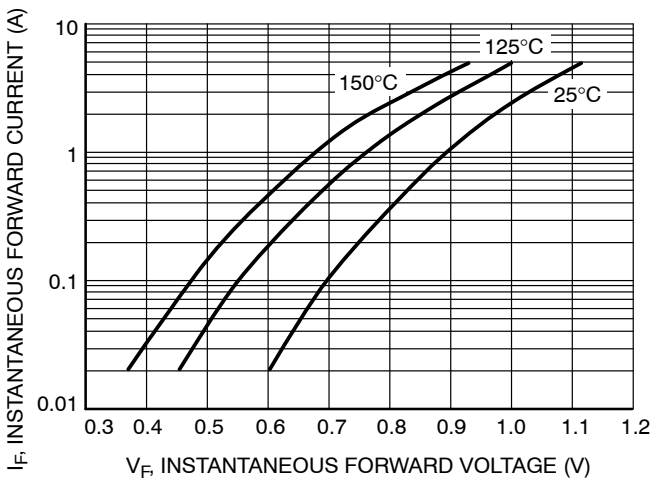


Figure 1. Typical Forward Voltage

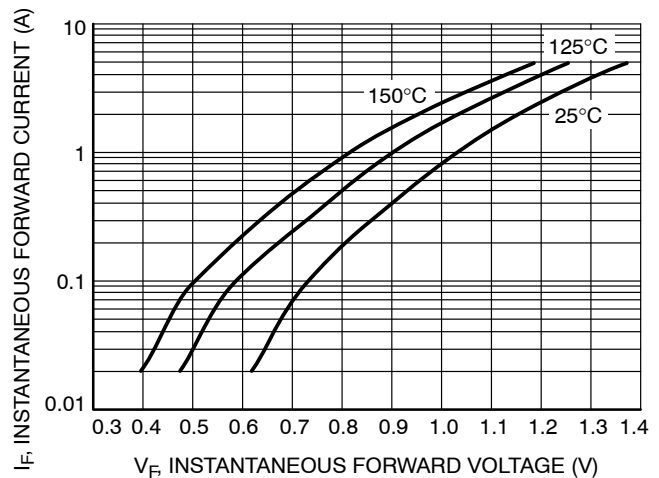


Figure 2. Maximum Forward Voltage

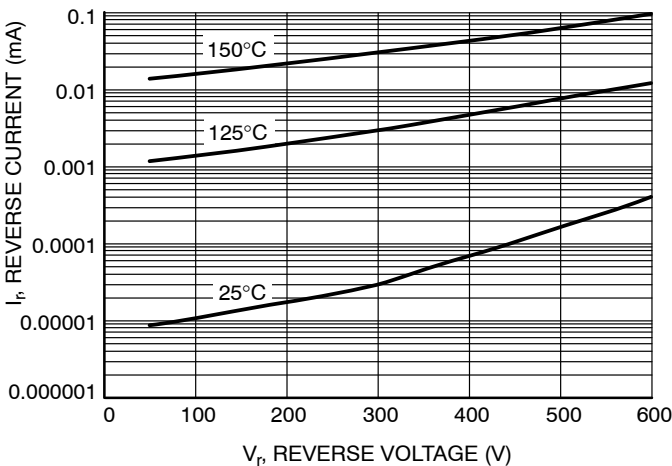


Figure 3. Typical Reverse Current

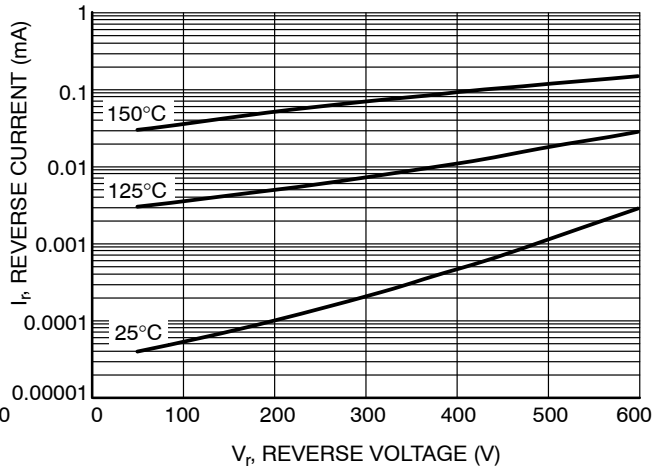


Figure 4. Maximum Reverse Current

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## TYPICAL CHARACTERISTICS

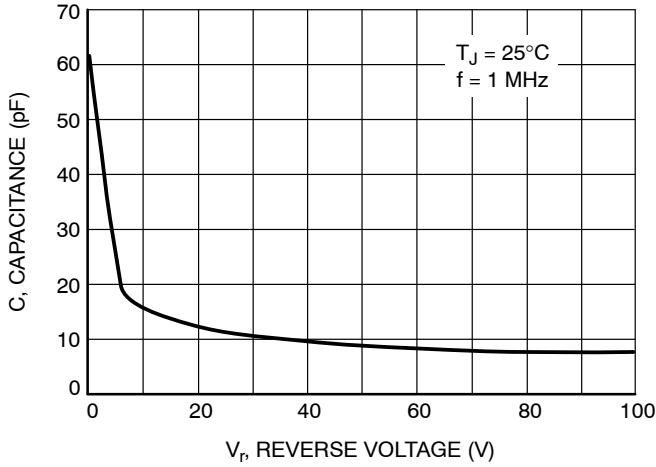


Figure 5. Typical Capacitance

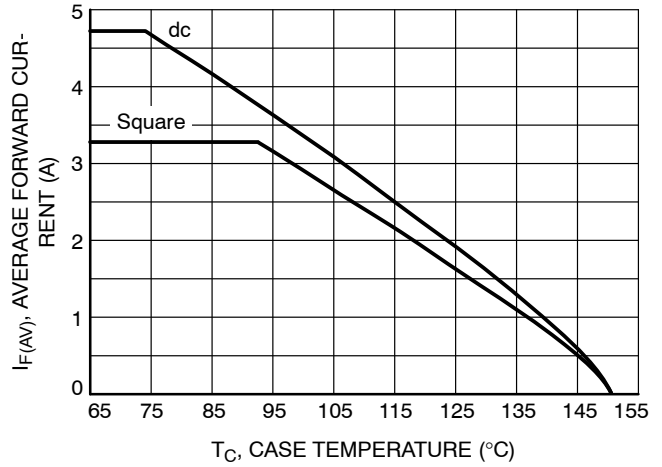


Figure 6. Current Derating, Lead

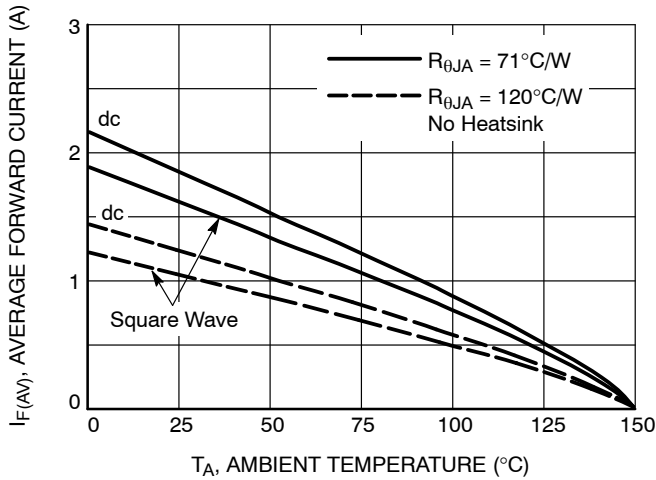


Figure 7. Current Derating, Ambient

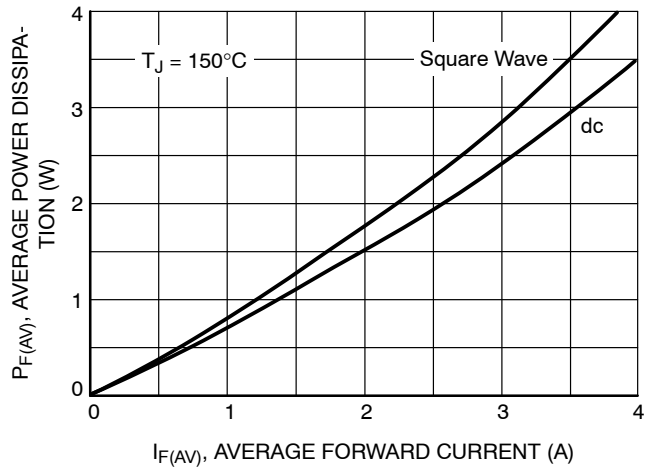


Figure 8. Typical Forward Power Dissipation

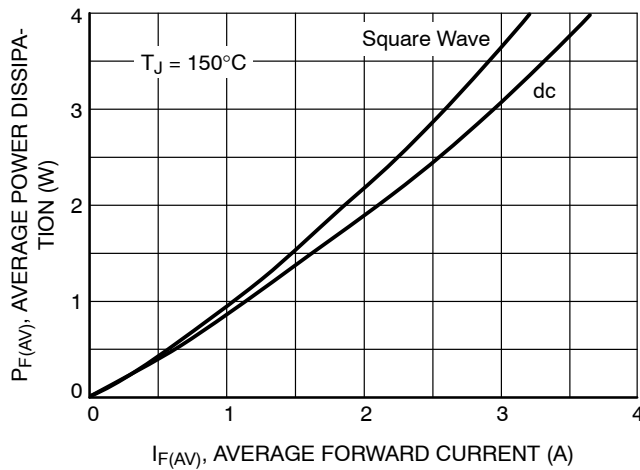


Figure 9. Maximum Forward Power Dissipation

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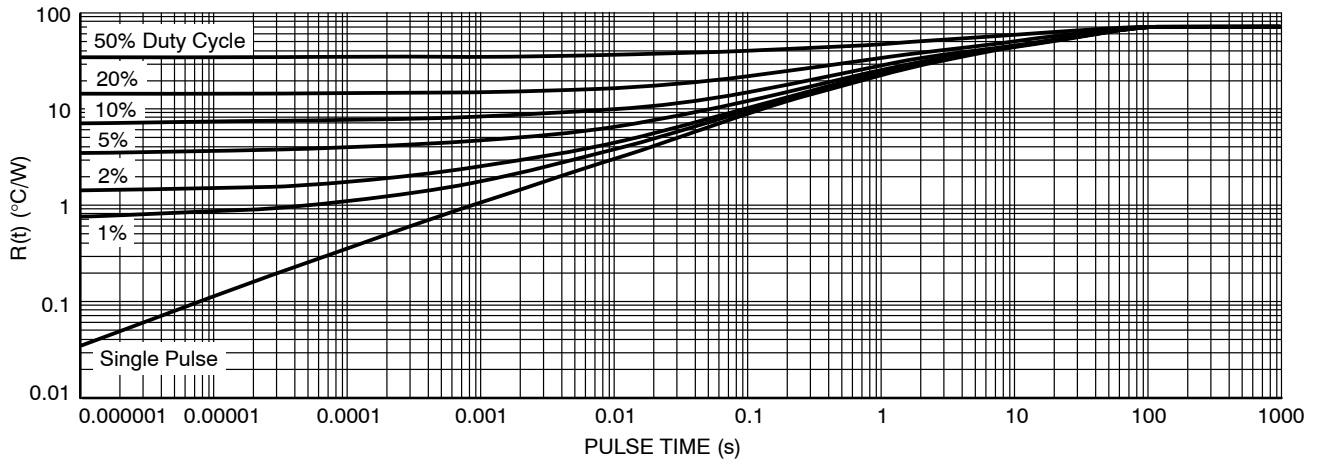
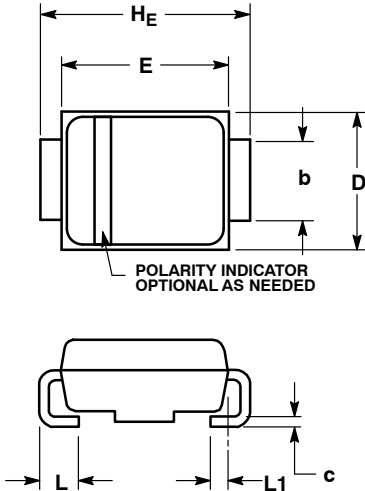


Figure 10. Thermal Response, Junction-to-Ambient

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## PACKAGE DIMENSIONS

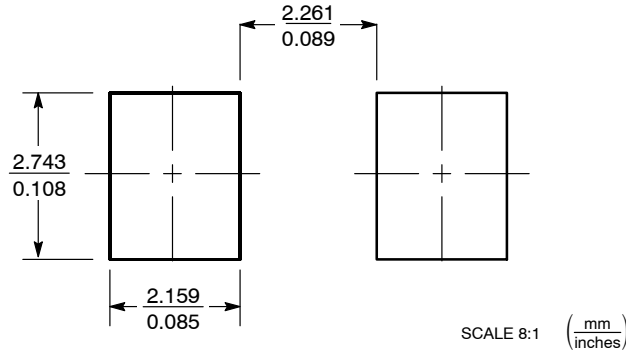
**SMB**  
**DO-214AA**  
 CASE 403A-03  
 ISSUE H



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.

| DIM | MILLIMETERS |      |      | INCHES    |       |       |
|-----|-------------|------|------|-----------|-------|-------|
|     | MIN         | NOM  | MAX  | MIN       | NOM   | MAX   |
| A   | 1.90        | 2.20 | 2.28 | 0.075     | 0.087 | 0.090 |
| A1  | 0.05        | 0.10 | 0.19 | 0.002     | 0.004 | 0.007 |
| 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, SOLDERRM/D.

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