

# MURS320T3G, SURS8320T3G, MURS340T3G, SURS8340T3G, MURS360T3G, SURS8360T3G

## Surface Mount Ultrafast Power Rectifiers

This series employs the state-of-the-art epitaxial construction with oxide passivation and metal overlay contact. 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
- Low Forward Voltage Drop  
(0.71 to 1.05 Volts Max @ 3.0 A,  $T_J = 150^{\circ}\text{C}$ )
- SURS8 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: Epoxy, Molded
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight: 217 mg (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes:  $260^{\circ}\text{C}$  Max. for 10 Seconds
- Shipped in 16 mm Tape and Reel, 2500 units per reel
- Polarity: Polarity Band on Plastic Body Indicates Cathode Lead
- Device Meets MSL1 Requirements
- ESD Ratings:
  - ♦ Machine Model, C (> 400 V)
  - ♦ Human Body Model, 3B (> 8 kV)



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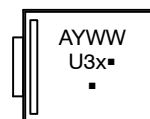
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**ULTRAFAST  
RECTIFIERS  
3.0 AMPERES  
200–600 VOLTS**



**SMC 2-LEAD  
CASE 403AC**

### MARKING DIAGRAM



U3 = Specific Device Code  
x = D (320T3)  
= G (340T3)  
= J (360T3)  
A = Assembly Location\*\*  
Y = Year  
WW = Work Week

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

### ORDERING INFORMATION

| Device       | Package          | Shipping†              |
|--------------|------------------|------------------------|
| MURS320T3G   | SMC<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| MURS340T3G   | SMC<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| MURS360T3G   | SMC<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| SURS8340T3G* | SMC<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| SURS8320T3G* | SMC<br>(Pb-Free) | 2,500 /<br>Tape & Reel |
| SURS8360T3G* | SMC<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.

# MURS320T3G, SURS8320T3G, MURS340T3G, SURS8340T3G, MURS360T3G, SURS8360T3G

## MAXIMUM RATINGS

| Rating                                                                                                         | Symbol                          | MURS320T3G/<br>SURS8320T3G                                         | MURS340T3G/<br>SURS8340T3G                                         | MURS360T3G/<br>SURS8360T3G                                         | Unit             |
|----------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                         | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 200                                                                | 400                                                                | 600                                                                | V                |
| Average Rectified Forward Current                                                                              | $I_{F(AV)}$                     | 3.0 @ $T_L = 140^\circ\text{C}$<br>4.0 @ $T_L = 130^\circ\text{C}$ | 3.0 @ $T_L = 130^\circ\text{C}$<br>4.0 @ $T_L = 115^\circ\text{C}$ | 3.0 @ $T_L = 130^\circ\text{C}$<br>4.0 @ $T_L = 115^\circ\text{C}$ | A                |
| Non-Repetitive Peak Surge Current<br>(Surge applied at rated load conditions halfwave,<br>single phase, 60 Hz) | $I_{FSM}$                       | 100                                                                |                                                                    |                                                                    | A                |
| Operating Junction Temperature                                                                                 | $T_J$                           | - 65 to +175                                                       |                                                                    |                                                                    | $^\circ\text{C}$ |

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.

## THERMAL CHARACTERISTICS

|                                      |                 |    |                    |
|--------------------------------------|-----------------|----|--------------------|
| Thermal Resistance, Junction-to-Lead | $R_{\theta JL}$ | 11 | $^\circ\text{C/W}$ |
|--------------------------------------|-----------------|----|--------------------|

## ELECTRICAL CHARACTERISTICS

|                                                                                                                                                                                                                      |          |                       |                      |                      |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------|----------------------|----------------------|---------------|
| Maximum Instantaneous Forward Voltage (Note 1)<br>( $i_F = 3.0\text{ A}$ , $T_J = 25^\circ\text{C}$ )<br>( $i_F = 4.0\text{ A}$ , $T_J = 25^\circ\text{C}$ )<br>( $i_F = 3.0\text{ A}$ , $T_J = 150^\circ\text{C}$ ) | $V_F$    | 0.875<br>0.89<br>0.71 | 1.25<br>1.28<br>1.05 | 1.25<br>1.28<br>1.05 | V             |
| Maximum Instantaneous Reverse Current (Note 1)<br>(Rated dc Voltage, $T_J = 25^\circ\text{C}$ )<br>(Rated dc Voltage, $T_J = 150^\circ\text{C}$ )                                                                    | $i_R$    | 5.0<br>150            | 10<br>250            | 10<br>250            | $\mu\text{A}$ |
| Maximum Reverse Recovery Time<br>( $i_F = 1.0\text{ A}$ , $di/dt = 50\text{ A}/\mu\text{s}$ )<br>( $i_F = 0.5\text{ A}$ , $i_R = 1.0\text{ A}$ , $I_{REC}$ to $0.25\text{ A}$ )                                      | $t_{rr}$ | 35<br>25              | 75<br>50             | 75<br>50             | ns            |
| Maximum Forward Recovery Time<br>( $i_F = 1.0\text{ A}$ , $di/dt = 100\text{ A}/\mu\text{s}$ , Recovery to $1.0\text{ V}$ )                                                                                          | $t_{fr}$ | 25                    | 50                   | 50                   | ns            |
| Typical Peak Reverse Recovery Current<br>( $I_F = 1.0\text{ A}$ , $di/dt = 50\text{ A}/\mu\text{s}$ )                                                                                                                | $I_{RM}$ | 0.8                   |                      |                      | A             |

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.

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

# MURS320T3G, SURS8320T3G, MURS340T3G, SURS8340T3G, MURS360T3G, SURS8360T3G

## MURS320T3G/SURS8320T3G

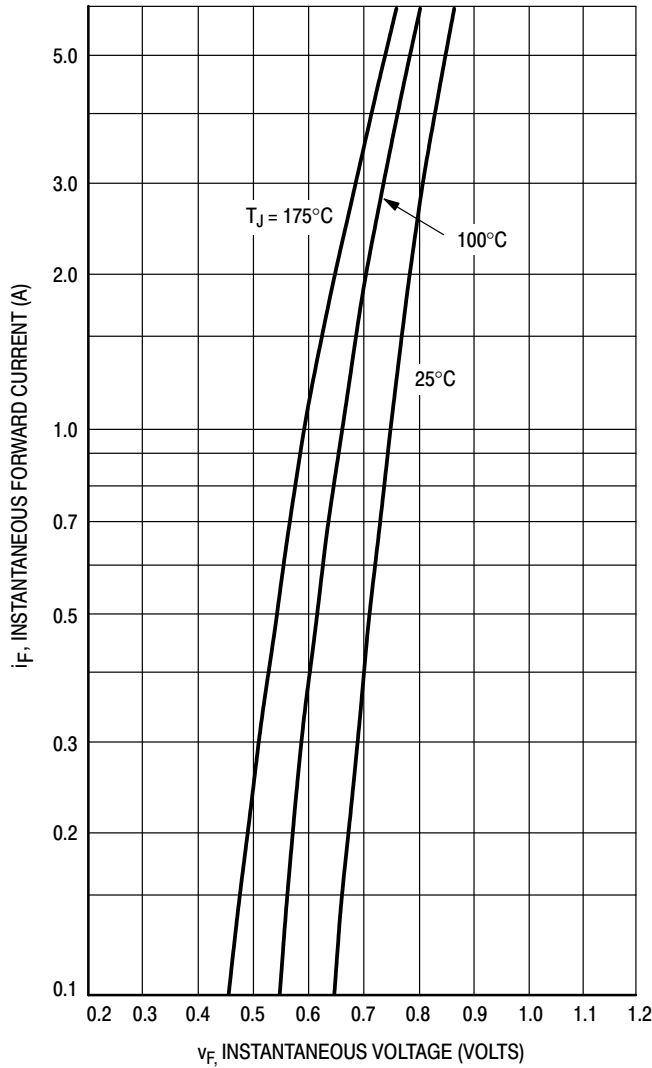


Figure 1. Typical Forward Voltage

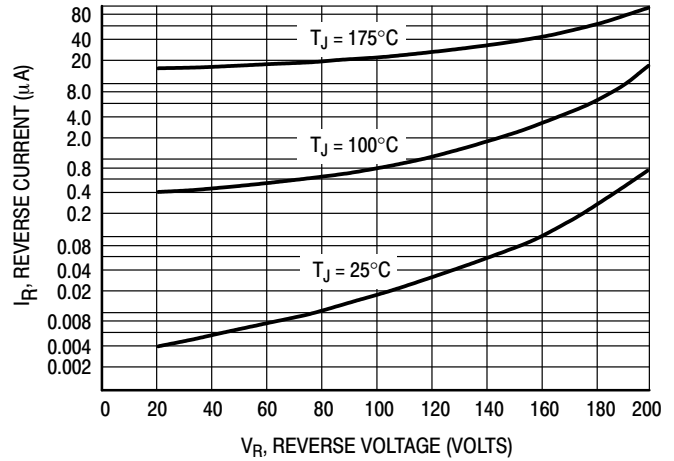


Figure 2. Typical Reverse Current\*

\* The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if  $V_R$  is sufficiently below rated  $V_R$ .

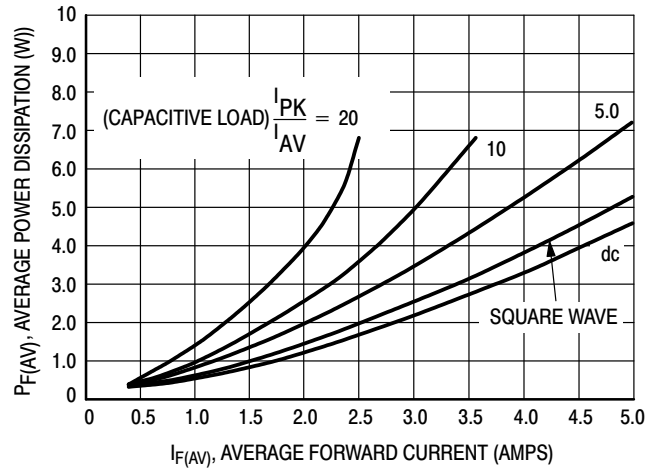


Figure 3. Power Dissipation

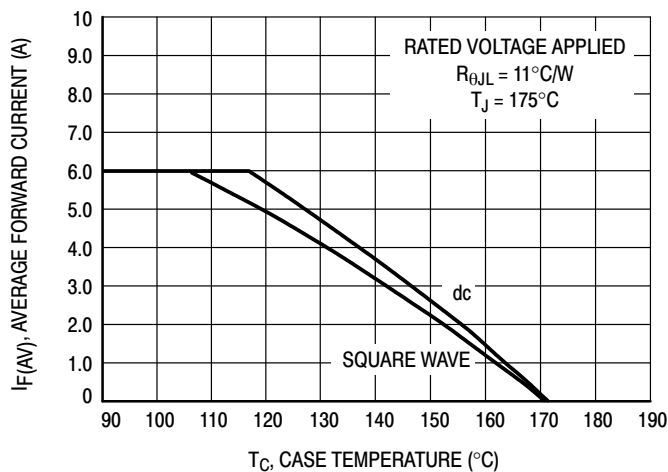


Figure 4. Current Derating, Case

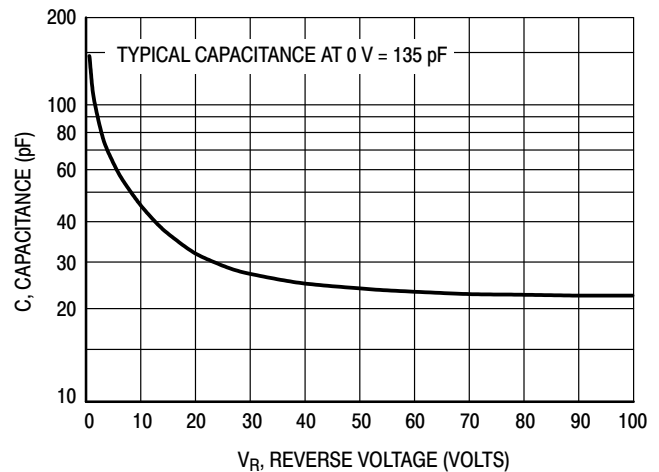


Figure 5. Typical Capacitance

# MURS320T3G, SURS8320T3G, MURS340T3G, SURS8340T3G, MURS360T3G, SURS8360T3G

## TYPICAL CHARACTERISTICS

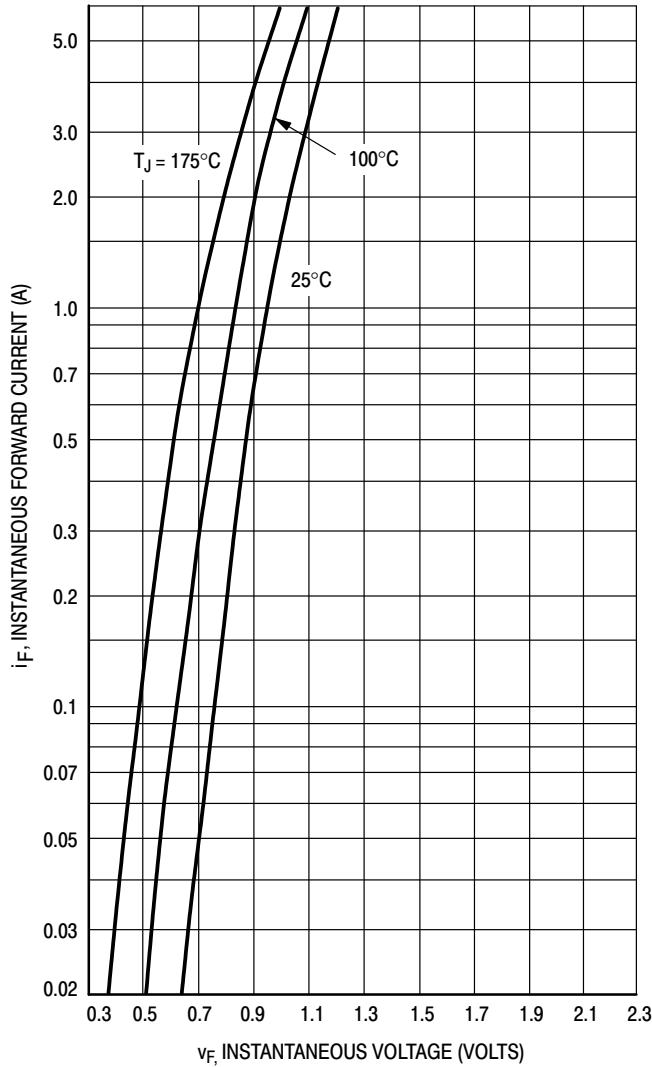


Figure 6. Typical Forward Voltage

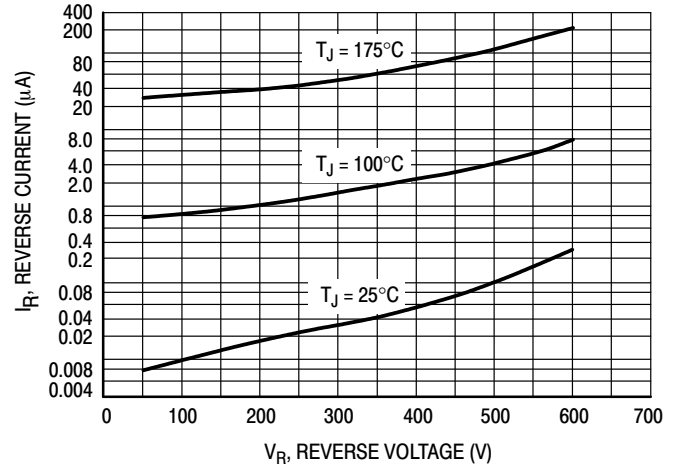


Figure 7. Typical Reverse Current\*

\* The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if  $V_R$  is sufficiently below rated  $V_R$ .

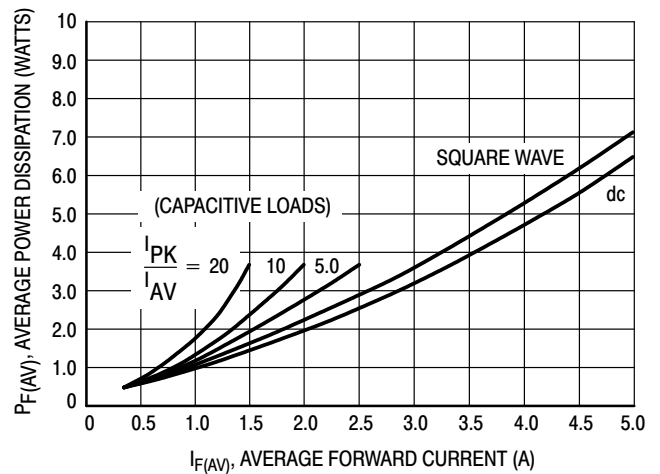


Figure 8. Power Dissipation

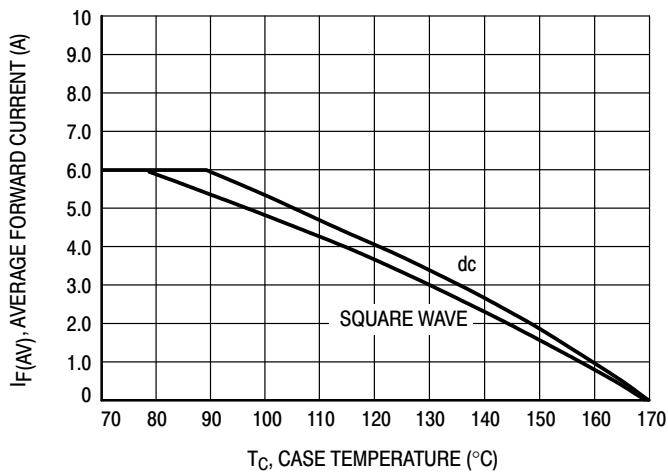


Figure 9. Current Derating, Case

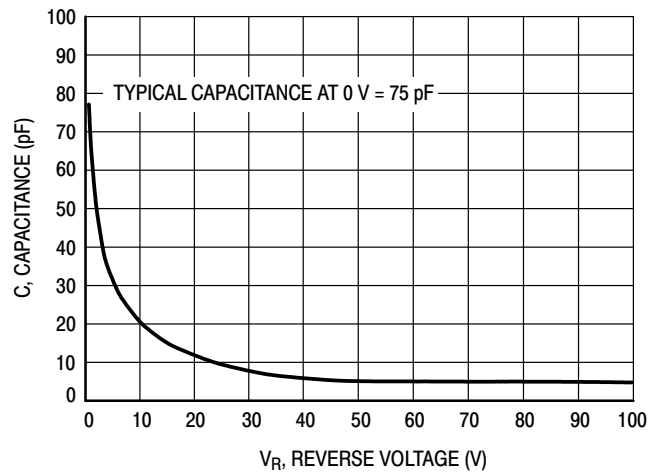
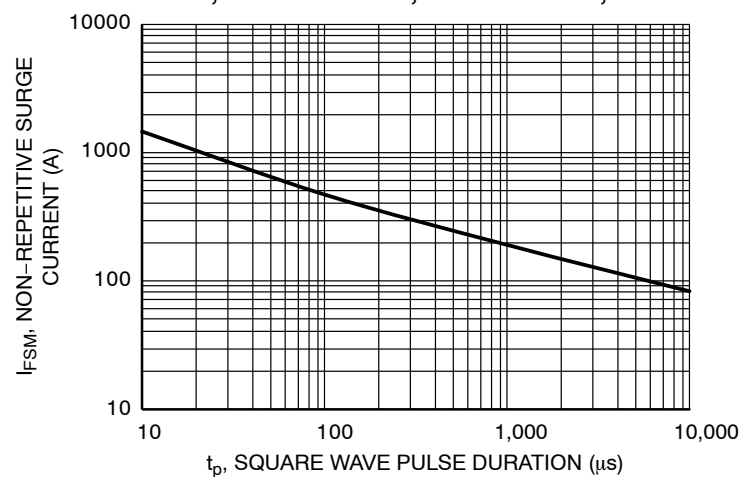


Figure 10. Typical Capacitance

**MURS320T3G, SURS8320T3G, MURS340T3G, SURS8340T3G, MURS360T3G,  
SURS8360T3G**

**MURS340T3G, SURS8340T3G, MURS360T3G, SURS8360T3G**



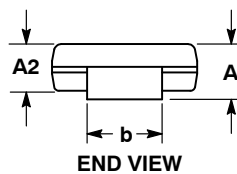
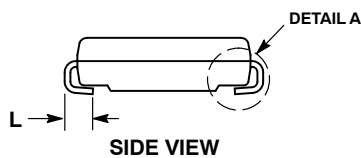
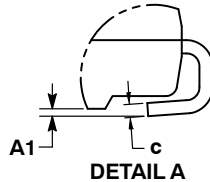
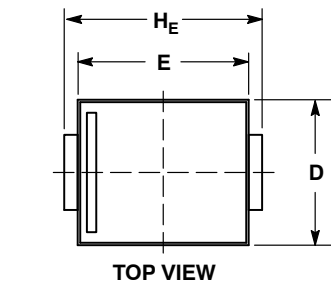
**Figure 11. Typical Non-Repetitive Surge Current**

\*Typical performance based on a limited sample size. ON Semiconductor does not guarantee ratings not listed in the Maximum Ratings table.

# MURS320T3G, SURS8320T3G, MURS340T3G, SURS8340T3G, MURS360T3G, SURS8360T3G

## PACKAGE DIMENSIONS

### SMC 2-LEAD CASE 403AC ISSUE A

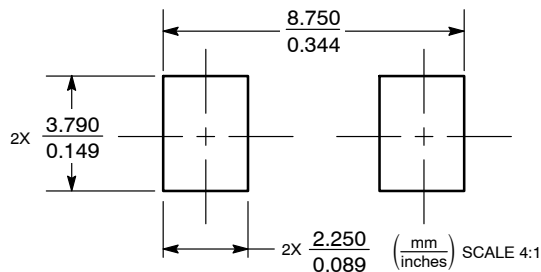


#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.254mm PER SIDE.
4. DIMENSIONS D AND E TO BE DETERMINED AT DATUM H.
5. DIMENSION b SHALL BE MEASURED WITHIN THE AREA DETERMINED BY DIMENSION L.

| DIM            | MILLIMETERS |      | INCHES |       |
|----------------|-------------|------|--------|-------|
|                | MIN         | MAX  | MIN    | MAX   |
| A              | 1.95        | 2.61 | 0.077  | 0.103 |
| A1             | 0.05        | 0.20 | 0.002  | 0.008 |
| A2             | 1.90        | 2.41 | 0.075  | 0.095 |
| b              | 2.90        | 3.20 | 0.114  | 0.126 |
| c              | 0.15        | 0.41 | 0.060  | 0.016 |
| D              | 5.55        | 6.25 | 0.219  | 0.246 |
| E              | 6.60        | 7.15 | 0.260  | 0.281 |
| H <sub>E</sub> | 7.75        | 8.15 | 0.305  | 0.321 |
| L              | 0.75        | 1.60 | 0.030  | 0.063 |

### RECOMMENDED 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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