

# Switch-mode Power Rectifiers

## MURS480ET3G

### Ultrafast “E” Series with High Reverse Energy Capability

These state-of-the-art devices are designed for use in switching power supplies, inverters and as free wheeling diodes.

#### Features

- 20 mJ Avalanche Energy Guaranteed
- Excellent Protection Against Voltage Transients in Switching Inductive Load Circuits
- Ultrafast 75 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Reverse Voltage to 800 V
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

#### Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 217 mg (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped in 16 mm Tape & Reel, 2500 Units per Reel
- Polarity: Polarity Band on Plastic Body Indicates Cathode Lead

#### MAXIMUM RATINGS

| Rating                                                                                                         | Symbol                          | Value                            | Unit |
|----------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage MURS480E                | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 800                              | V    |
| Average Rectified Forward Current                                                                              | $I_{F(AV)}$                     | 4.0 @<br>$T_L=110^\circ\text{C}$ | A    |
| Non-Repetitive Peak Surge Current<br>(Surge Applied at Rated Load Conditions<br>Halfwave, Single Phase, 60 Hz) | $I_{FSM}$                       | 70                               | A    |
| Operating Junction and Storage Temperature<br>Range                                                            | $T_J, T_{stg}$                  | -65 to<br>+175                   | °C   |

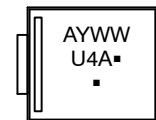
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

## ULTRAFAST RECTIFIER 4.0 AMPERES, 800 VOLTS



SMC 2-LEAD  
CASE 403AC

#### MARKING DIAGRAM



U4 = Specific Device Code  
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†        |
|-------------|------------------|------------------|
| MURS480ET3G | SMC<br>(Pb-Free) | 2500/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](http://www.onsemi.com/BRD8011/D).

# MURS480ET3G

## THERMAL CHARACTERISTICS

| Rating                                          | Symbol          | Value | Unit |
|-------------------------------------------------|-----------------|-------|------|
| Maximum Thermal Resistance, Junction-to-Lead    | $R_{\theta JL}$ | 11    | °C/W |
| Maximum Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 165   | °C/W |

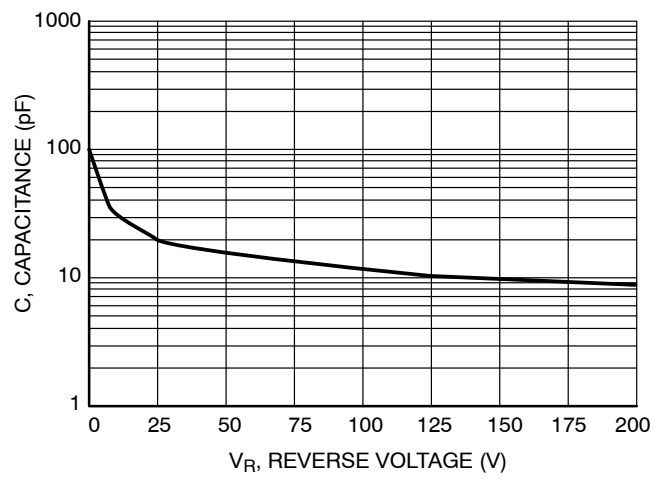
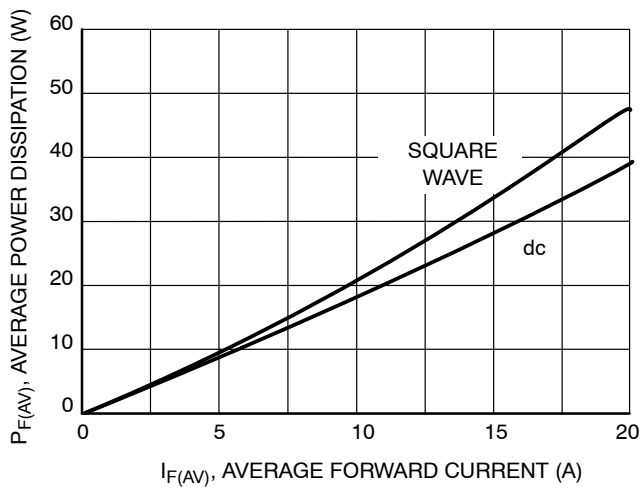
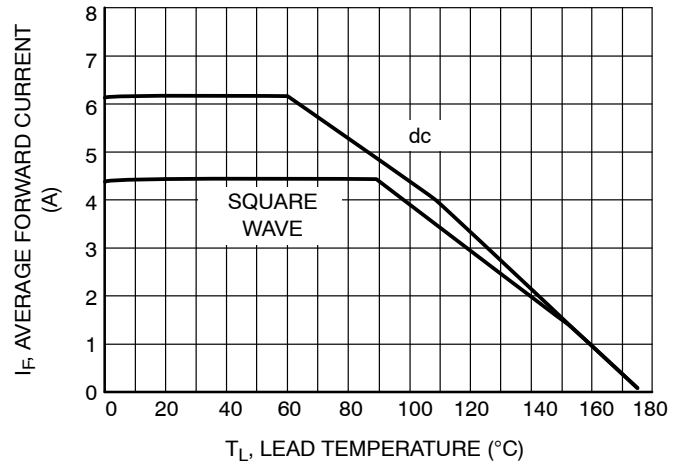
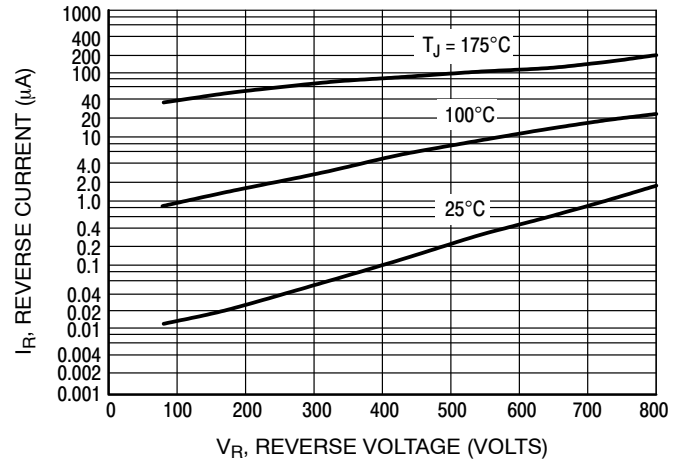
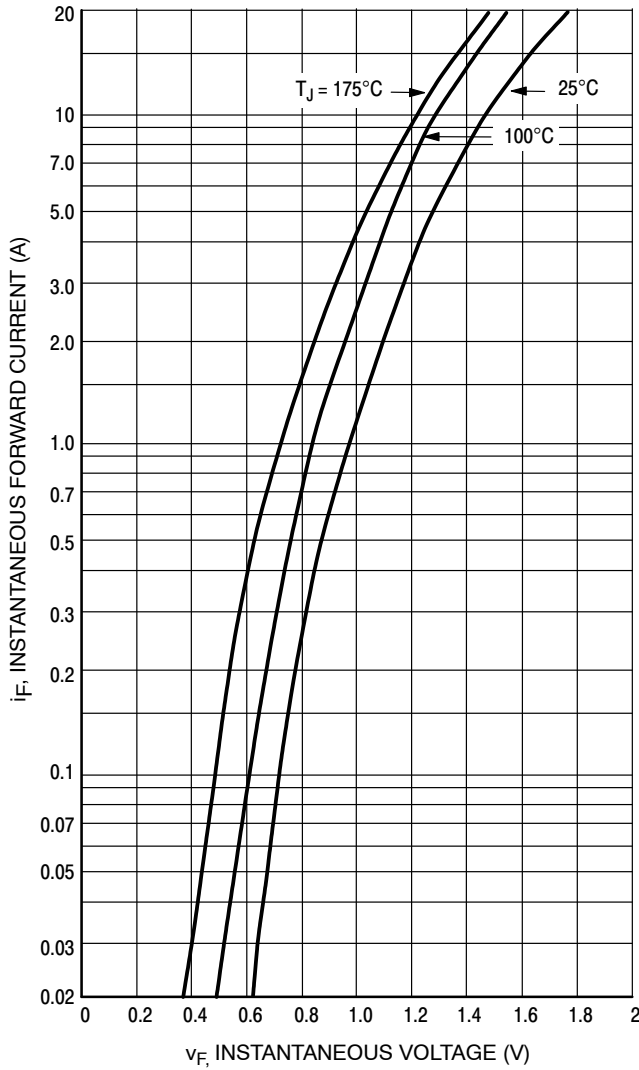
## ELECTRICAL CHARACTERISTICS

| Characteristic                                                                                                                                                                                        | Symbol     | Max                  | Unit          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------|---------------|
| Maximum Instantaneous Forward Voltage (Note 1)<br>( $I_F = 3.0$ Amps, $T_J = 150^\circ\text{C}$ )<br>( $I_F = 3.0$ Amps, $T_J = 25^\circ\text{C}$ )<br>( $I_F = 4.0$ Amps, $T_J = 25^\circ\text{C}$ ) | $V_F$      | 1.53<br>1.75<br>1.85 | V             |
| Maximum Instantaneous Reverse Current (Note 1)<br>(Rated dc Voltage, $T_J = 150^\circ\text{C}$ )<br>(Rated dc Voltage, $T_J = 25^\circ\text{C}$ )                                                     | $i_R$      | 900<br>25            | $\mu\text{A}$ |
| Maximum Reverse Recovery Time<br>( $I_F = 1.0$ A, $di/dt = 50$ A/ $\mu\text{s}$ )<br>( $I_F = 0.5$ A, $i_R = 1.0$ A, $I_{REC} = 0.25$ A)                                                              | $t_{rr}$   | 100<br>75            | ns            |
| Maximum Forward Recovery Time<br>( $I_F = 1.0$ Amp, $di/dt = 100$ Amp/ $\mu\text{s}$ , Recovery to 1.0 V)                                                                                             | $t_{fr}$   | 75                   | ns            |
| Controlled Avalanche Energy                                                                                                                                                                           | $W_{AVAL}$ | 20                   | mJ            |

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  $\leq 2.0\%$ .

TYPICAL ELECTRICAL CHARACTERISTICS

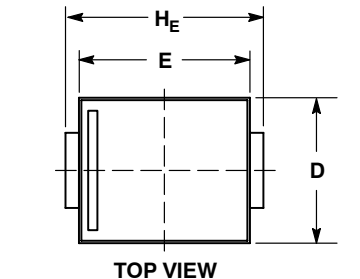




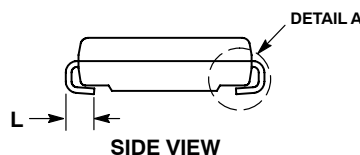
SCALE 1:1

**SMC 2-LEAD**  
**CASE 403AC**  
**ISSUE B**

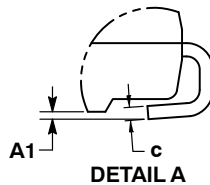
DATE 27 JUL 2017



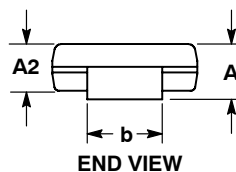
TOP VIEW



SIDE VIEW



DETAIL A



END VIEW

**GENERIC**  
**MARKING DIAGRAM\***


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

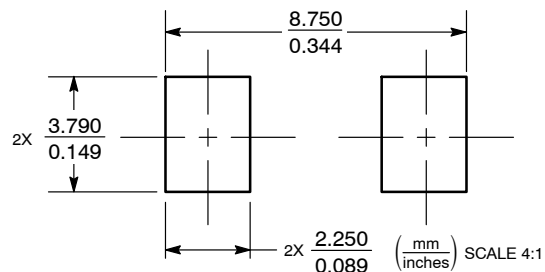
(Note: Microdot may be in either location)

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

## 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 | 0.006  | 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 onsemi Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

|                         |                    |                                                                                                                                                                                  |
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| <b>DESCRIPTION:</b>     | <b>SMC 2-LEAD</b>  | <b>PAGE 1 OF 1</b>                                                                                                                                                               |

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