

# MURA115T3, MURA120T3

Preferred Devices

## 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.

- 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 Volts Max @ 1.0 A,  $T_J = 150^\circ\text{C}$ )

### Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 70 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 12 mm Tape and Reel, 5000 units per reel
- Polarity: Polarity Band Indicates Cathode Lead
- ESD Protection: Human Body Model > 4000 V (Class 3)  
Machine Model > 400 V (Class C)
- Marking: U4C, U4D

DataSheet4U.com

### MAXIMUM RATINGS

| Rating   | Symbol      | Value           | Unit             |
|--|-------------|-----------------|------------------|
| Peak Repetitive Reverse Voltage  | $V_{RRM}$   | 150             | V                |
| Working Peak Reverse Voltage   | $V_{RWM}$   |                 |                  |
| DC Blocking Voltage  | $V_R$       |                 |                  |
|  |             | 200             |                  |
| Average Rectified Forward Current<br>@ $T_L = 155^\circ\text{C}$<br>@ $T_L = 135^\circ\text{C}$                | $I_{F(AV)}$ | 1.0<br>2.0      | A                |
| Non-Repetitive Peak Surge Current<br>(Surge Applied at Rated Load Conditions<br>Halfwave, Single Phase, 60 Hz) | $I_{FSM}$   | 40              | A                |
| Operating Junction Temperature Range   | $T_J$       | - 65 to<br>+175 | $^\circ\text{C}$ |



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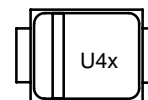
<http://onsemi.com>

## ULTRAFAST RECTIFIERS 1 AMPERE 100-200 VOLTS



SMA  
CASE 403D  
PLASTIC

### MARKING DIAGRAM



x = C (115T3)  
D (120T3)

DataSheet4U.com

### ORDERING INFORMATION

| Device    | Package | Shipping         |
|-----------|---------|------------------|
| MURA115T3 | SMA     | 5000/Tape & Reel |
| MURA120T3 | SMA     | 5000/Tape & Reel |

Preferred devices are recommended choices for future use and best overall value.

## MURA115T3, MURA120T3

## THERMAL CHARACTERISTICS

| Characteristic   | Symbol                   | Max | Unit                      |
|--|--------------------------|-----|---------------------------|
| Thermal Resistance, Junction to Lead ( $T_L = 25^\circ\text{C}$ ) (Note 1) | $\Psi_{sJL}$<br>(Note 2) | 24  | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance, Junction to Ambient (Note 1)                           | $R_{\theta JA}$          | 216 |                           |

## ELECTRICAL CHARACTERISTICS

|   |          |               |               |
|---|----------|---------------|---------------|
| Maximum Instantaneous Forward Voltage (Note 3)<br>( $i_F = 1.0\text{ A}$ , $T_J = 25^\circ\text{C}$ )<br>( $i_F = 1.0\text{ A}$ , $T_J = 150^\circ\text{C}$ ) | $V_F$    | 0.875<br>0.71 | Volts         |
| Maximum Instantaneous Reverse Current (Note 3)<br>(Rated dc Voltage, $T_J = 25^\circ\text{C}$ )<br>(Rated dc Voltage, $T_J = 150^\circ\text{C}$ )             | $i_R$    | 2.0<br>50     | $\mu\text{A}$ |
| Maximum Reverse Recovery Time<br>( $i_F = 1.0\text{ A}$ , $di/dt = 50\text{ A}/\mu\text{s}$ )   | $t_{rr}$ | 35            | ns            |

- Rating applies when surface mounted on the minimum pad size recommended, PC Board FR-4.
- In compliance with JEDEC 51, these values (historically represented by  $R_{\theta JL}$ ) are now referenced as  $\Psi_{sJL}$ .
- Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

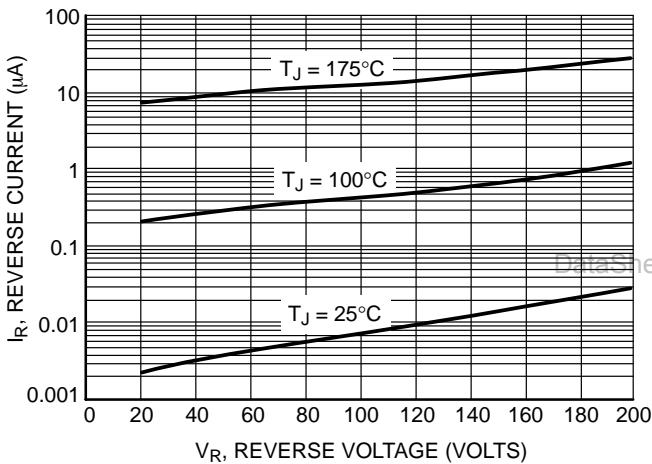


Figure 1. Typical Reverse Current

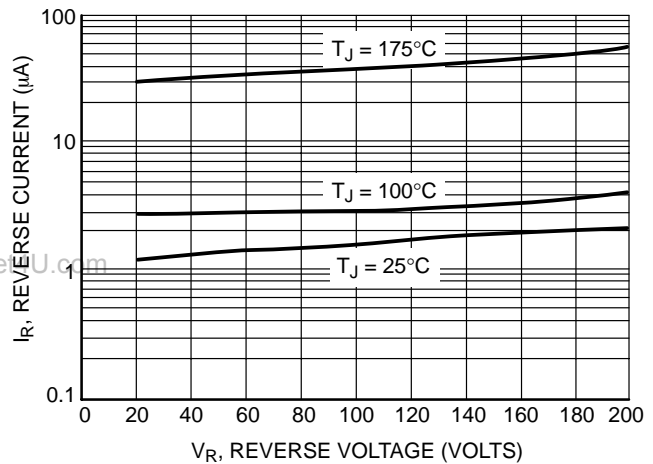


Figure 2. Maximum Reverse Current

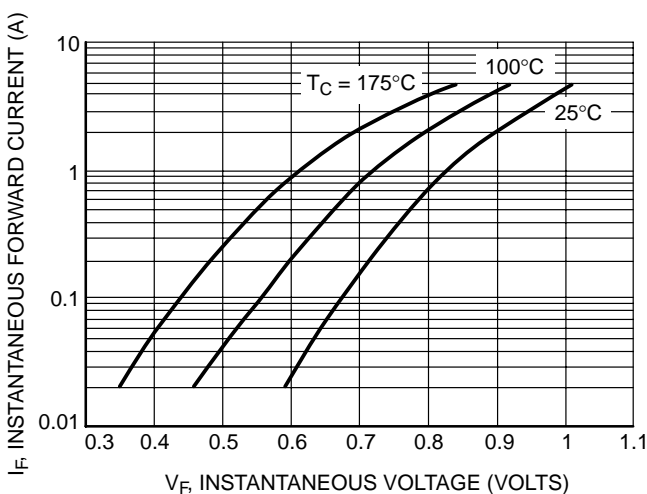


Figure 3. Typical Forward Voltage

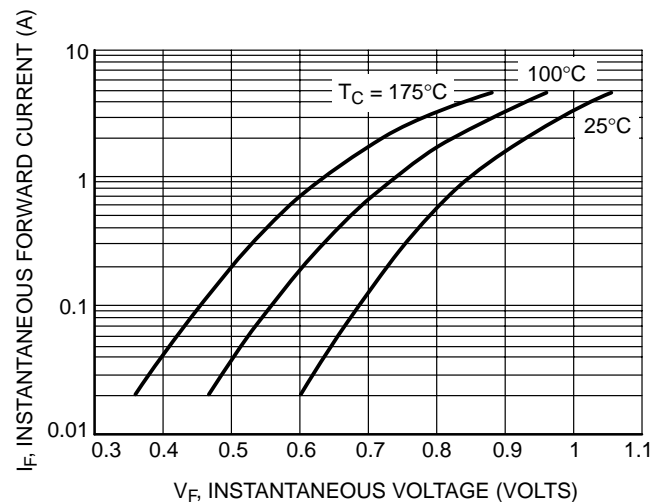
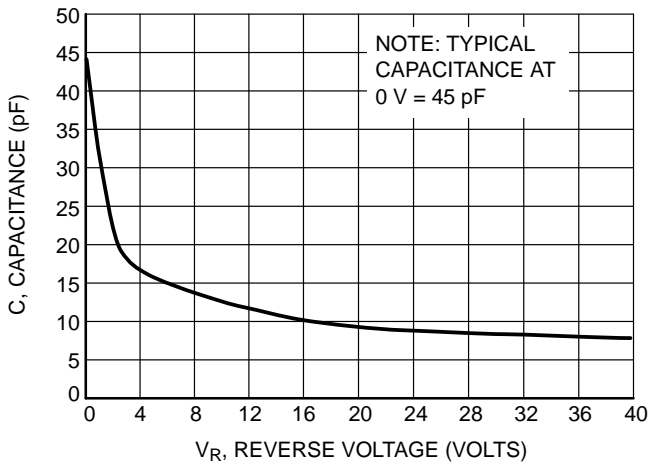
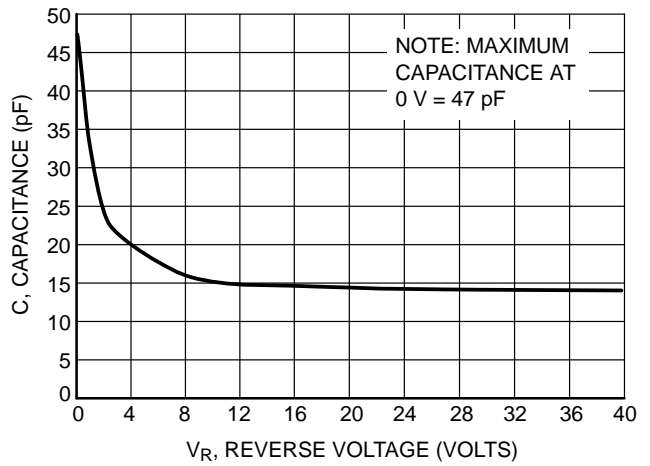


Figure 4. Maximum Forward Voltage

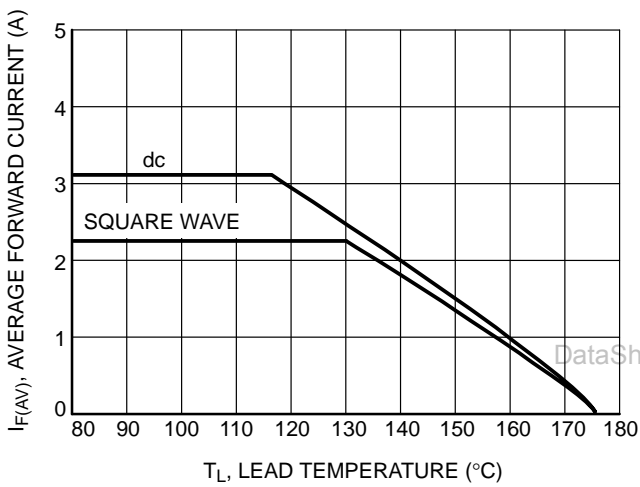
# MURA115T3, MURA120T3



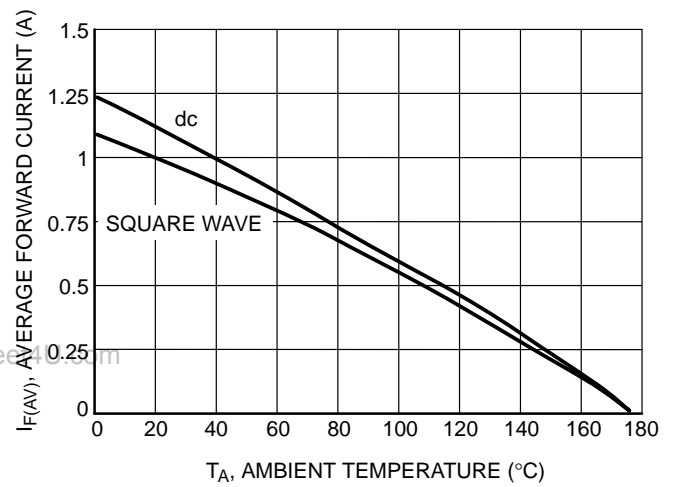
**Figure 5. Typical Capacitance**



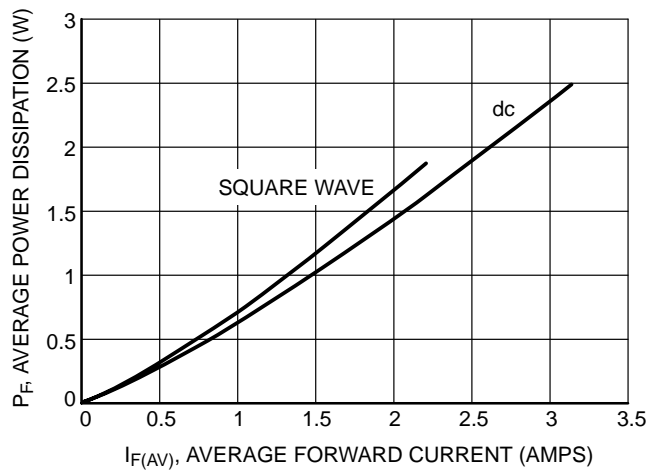
**Figure 6. Maximum Capacitance**



**Figure 7. Current Derating, Lead**



**Figure 8. Current Derating, Ambient  
(FR-4 Board with Minimum Pad)**

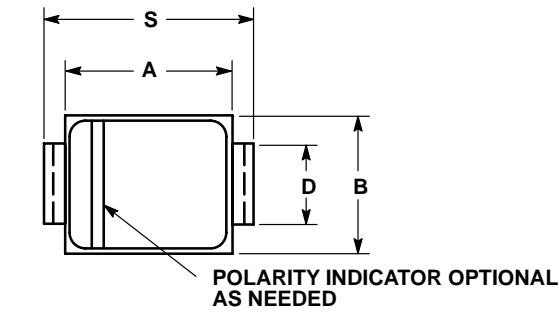


**Figure 9. Power Dissipation**

## MURA115T3, MURA120T3

## PACKAGE DIMENSIONS

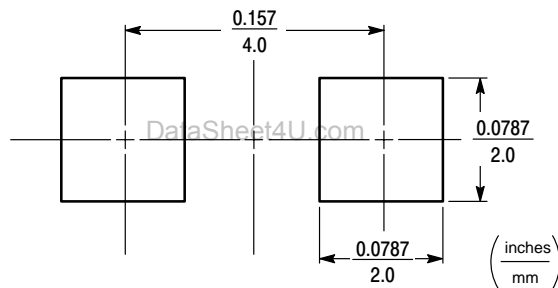
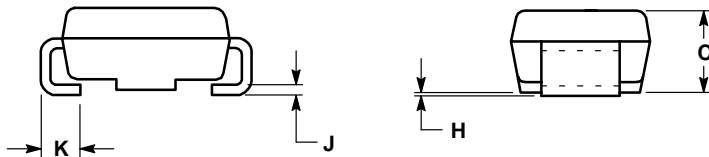
SMA  
CASE 403D-02  
ISSUE A




## NOTES:

- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: INCH.
- 403D-01 OBSOLETE, NEW STANDARD IS 403D-02.

| DIM | INCHES |       | MILLIMETERS |      |
|-----|--------|-------|-------------|------|
|     | MIN    | MAX   | MIN         | MAX  |
| A   | 0.160  | 0.180 | 4.06        | 4.57 |
| B   | 0.090  | 0.115 | 2.29        | 2.92 |
| C   | 0.075  | 0.095 | 1.91        | 2.41 |
| D   | 0.050  | 0.064 | 1.27        | 1.63 |
| H   | 0.002  | 0.006 | 0.05        | 0.15 |
| J   | 0.006  | 0.016 | 0.15        | 0.41 |
| K   | 0.030  | 0.060 | 0.76        | 1.52 |
| S   | 0.190  | 0.220 | 4.83        | 5.59 |



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