

MURA105T3, MURA110T3

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 (0.66 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°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: U4A, U4B

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|-------------|-----------------|------------------|
| Peak Repetitive Reverse Voltage | V_{RRM} | | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_R | 50 | |
| | | 100 | |
| Average Rectified Forward Current | $I_{F(AV)}$ | | A |
| @ $T_L = 155^\circ\text{C}$ | | 1.0 | |
| @ $T_L = 135^\circ\text{C}$ | | 2.0 | |
| Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz) | I_{FSM} | 50 | A |
| Operating Junction Temperature Range | T_J | - 65 to +175 | $^\circ\text{C}$ |



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ULTRAFAST RECTIFIERS 1 AMPERE 50-100 VOLTS



SMA
CASE 403D
PLASTIC

MARKING DIAGRAM



x = A (105T3)
B (110T3)

ORDERING INFORMATION

| Device | Package | Shipping |
|-----------|---------|------------------|
| MURA105T3 | SMA | 5000/Tape & Reel |
| MURA110T3 | SMA | 5000/Tape & Reel |

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

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THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|--|--------------------------|-----|-----------------------------|
| Thermal Resistance, Junction to Lead (Note 1) | Ψ_{sJL} (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) ($i_F = 1.0 \text{ A}$, $T_J = 25^{\circ}\text{C}$) ($i_F = 1.0 \text{ A}$, $T_J = 150^{\circ}\text{C}$) | V_F | 0.875 0.66 | Volts |
| Maximum Instantaneous Reverse Current (Note 3) (Rated dc Voltage, $T_J = 25^{\circ}\text{C}$) (Rated dc Voltage, $T_J = 150^{\circ}\text{C}$) | i_R | 2.0 50 | μA |
| Maximum Reverse Recovery Time ($i_F = 1.0 \text{ A}$, $di/dt = 50 \text{ A}/\mu\text{s}$) | t_{rr} | 30 | ns |

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

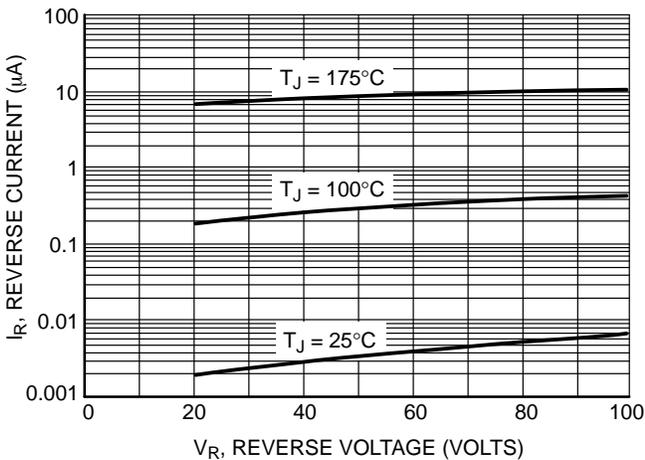


Figure 1. Typical Reverse Current

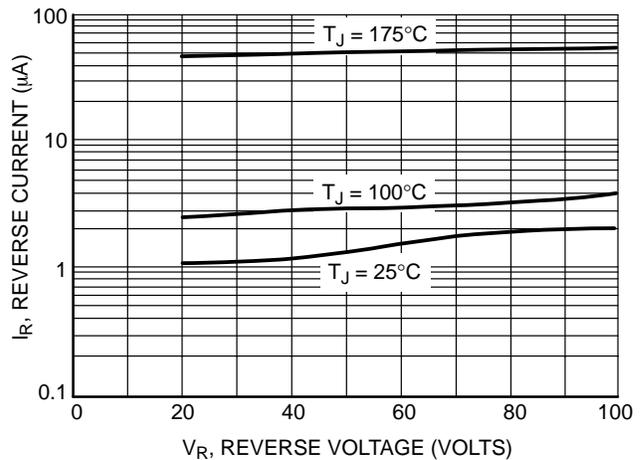


Figure 2. Maximum Reverse Current

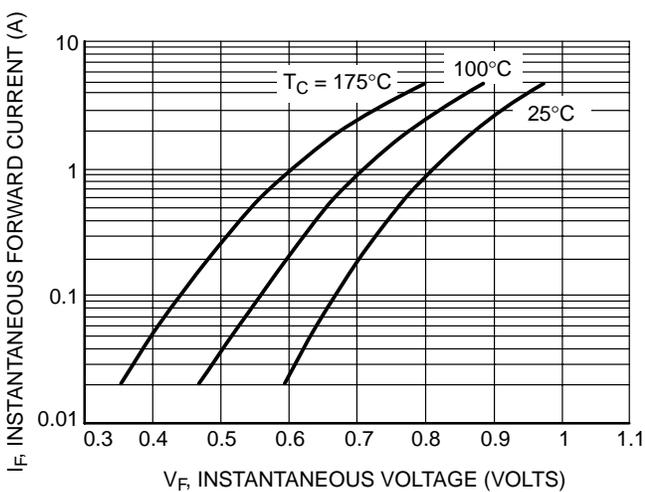


Figure 3. Typical Forward Voltage

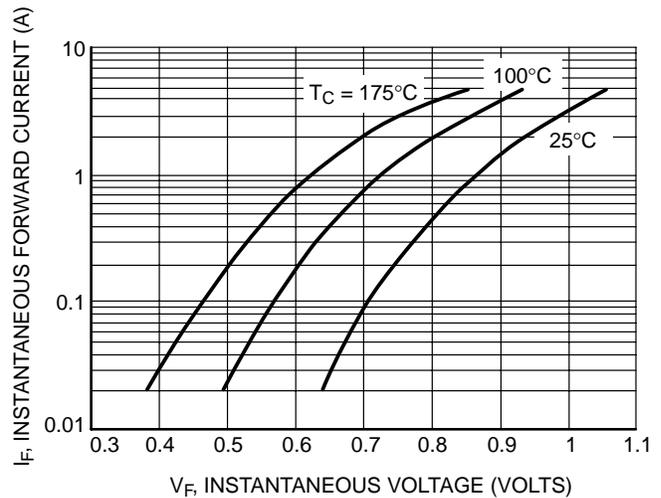


Figure 4. Maximum Forward Voltage

MURA105T3, MURA110T3

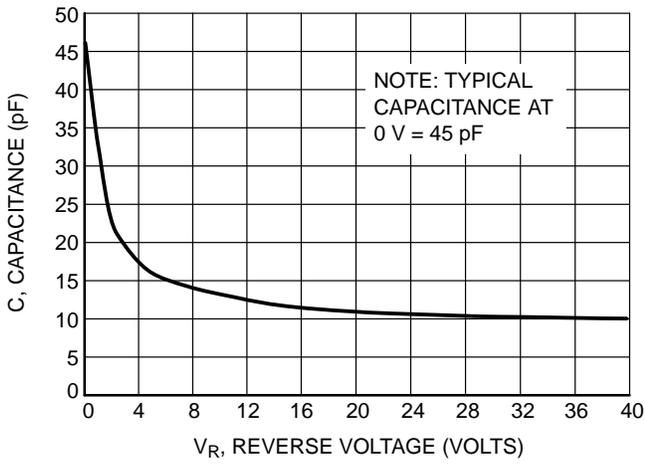


Figure 5. Typical Capacitance

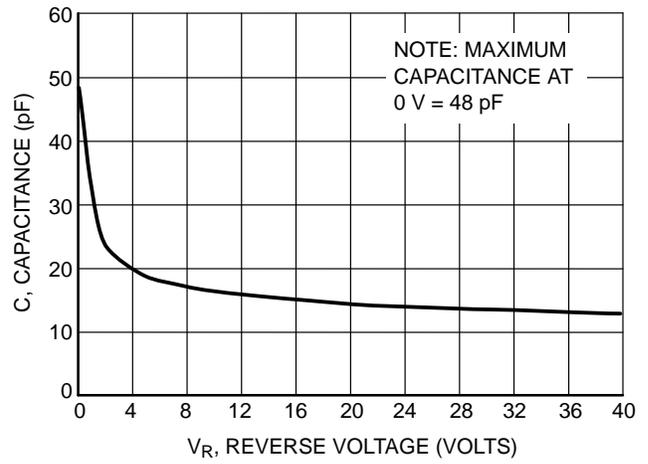


Figure 6. Maximum Capacitance

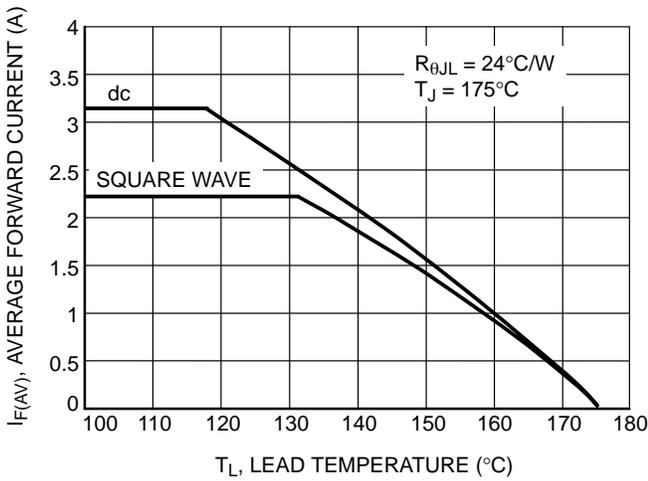


Figure 7. Current Derating, Lead

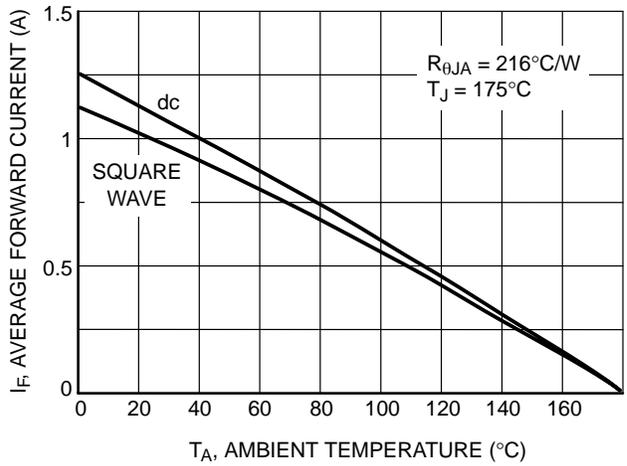


Figure 8. Current Derating, Ambient (FR-4 Board with Minimum Pad)

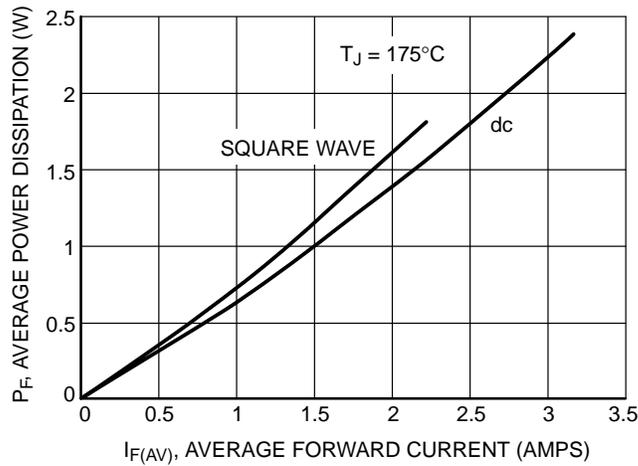
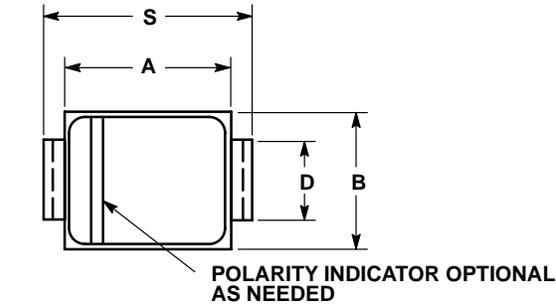


Figure 9. Power Dissipation

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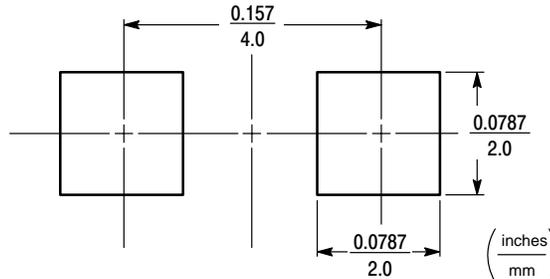
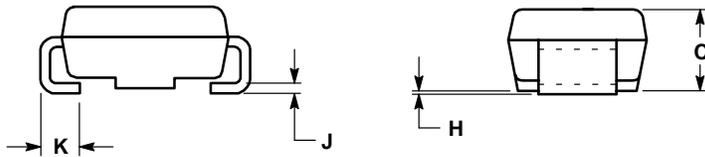
PACKAGE DIMENSIONS

SMA
CASE 403D-02
ISSUE A



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. 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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