

MURS220T3

Preferred Device

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
(0.77 Volts Max @ 2.0 A, $T_J = 150^\circ\text{C}$)

Mechanical Characteristics:

- Case: Epoxy, Molded
- 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
- Shipped in 12 mm Tape and Reel, 2500 units per reel
- Polarity: Polarity Band Indicates Cathode Lead
- Marking: U2D
- Pb-Free Package is Available

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|---------------------------------|---------------------------------|------------------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V_{RRM} V_{RWM} V_R | 200 | V |
| Average Rectified Forward Current | $I_{F(AV)}$ | 2.0 @ $T_L = 145^\circ\text{C}$ | A |
| Non-Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz) | I_{FSM} | 40 | A |
| Operating Junction Temperature Range | T_J | -65 to +175 | $^\circ\text{C}$ |

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



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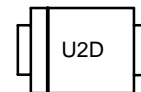
<http://onsemi.com>

ULTRAFAST RECTIFIERS 2 AMPERES 200 VOLTS



SMB
CASE 403A

MARKING DIAGRAM



U2D = Specific Device Code

ORDERING INFORMATION

| Device | Package | Shipping† |
|------------|------------------|------------------|
| MURS220T3 | SMB | 2500/Tape & Reel |
| MURS220T3G | SMB (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 Specification Brochure, BRD8011/D.

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

MURS220T3

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------|--------------------|
| Thermal Resistance, Junction to Lead ($T_L = 25^\circ\text{C}$) | $R_{\theta JL}$ | 13 | $^\circ\text{C/W}$ |

ELECTRICAL CHARACTERISTICS

| Characteristic | Symbol | Value | Unit |
|---|----------|--------------|---------------|
| Maximum Instantaneous Forward Voltage (Note 1) ($I_F = 2.0\text{ A}$, $T_J = 25^\circ\text{C}$) ($I_F = 2.0\text{ A}$, $T_J = 150^\circ\text{C}$) | V_F | 0.95 0.77 | Volts |
| Maximum Instantaneous Reverse Current (Note 1) (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 ($I_F = 1.0\text{ A}$, $di/dt = 50\text{ A}/\mu\text{s}$) ($I_F = 0.5\text{ A}$, $i_R = 1.0\text{ A}$, I_R to 0.25 A) | t_{rr} | 35 25 | ns |
| Maximum Forward Recovery Time ($I_F = 1.0\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$, Rec. to 1.0 V) | t_{fr} | 25 | ns |

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

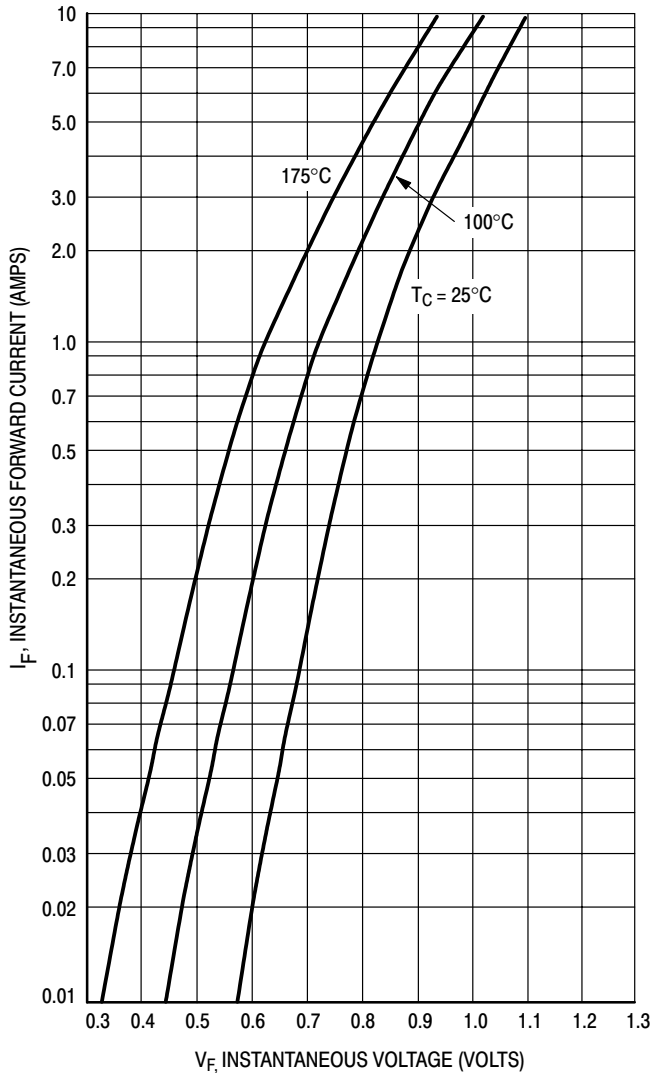


Figure 1. Typical Forward Voltage

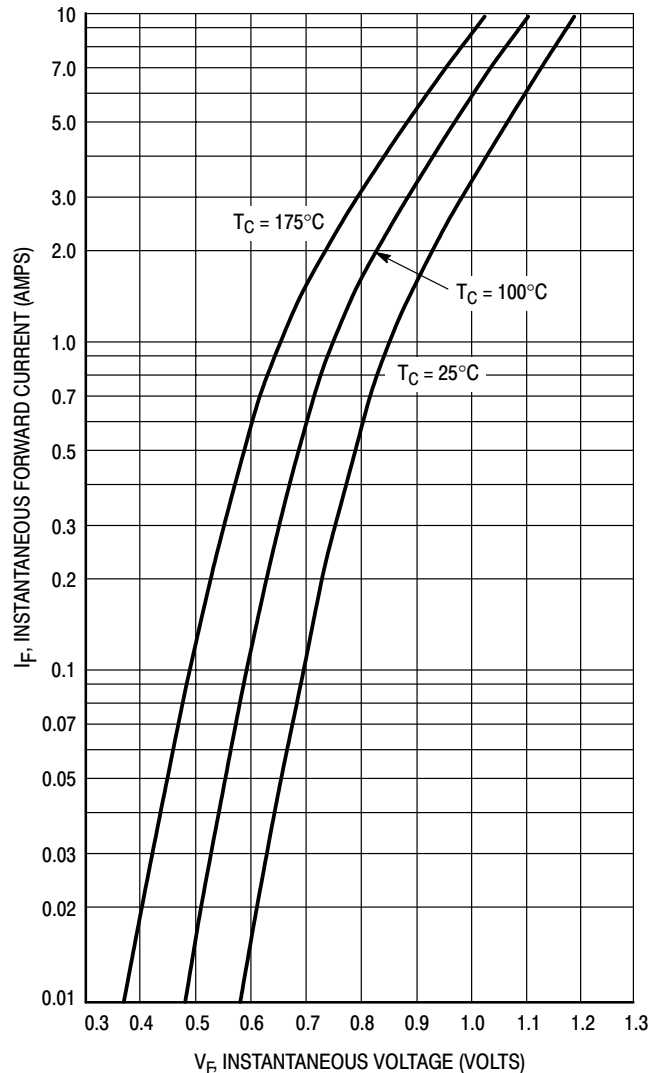


Figure 2. Maximum Forward Voltage

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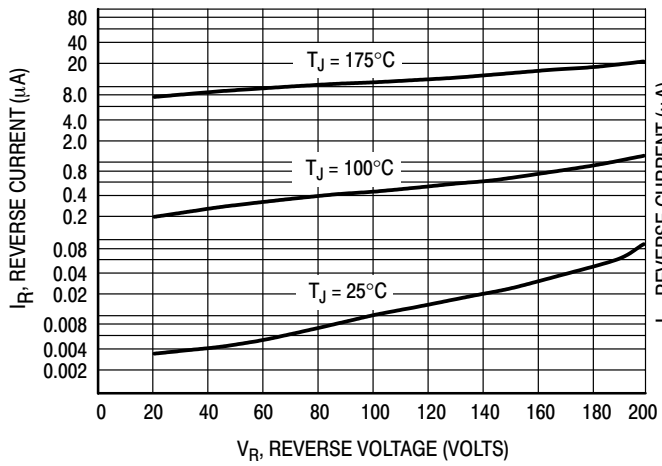


Figure 3. Typical Reverse Current*

* 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 applied V_R is sufficiently below rated V_R .

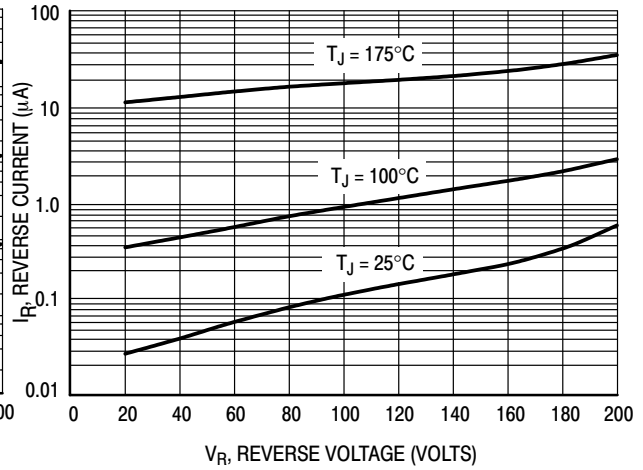


Figure 4. Maximum Reverse Current

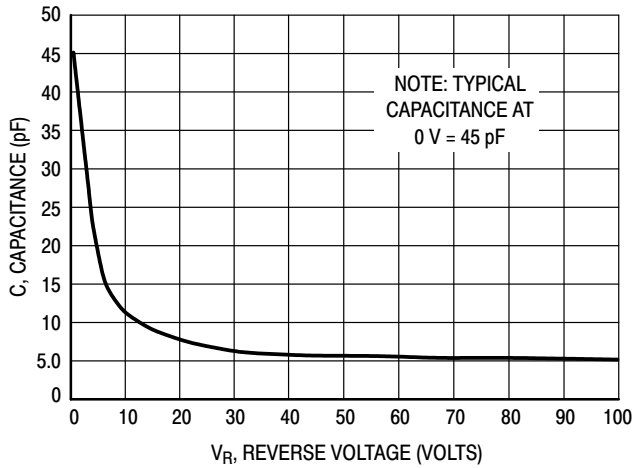


Figure 5. Typical Capacitance

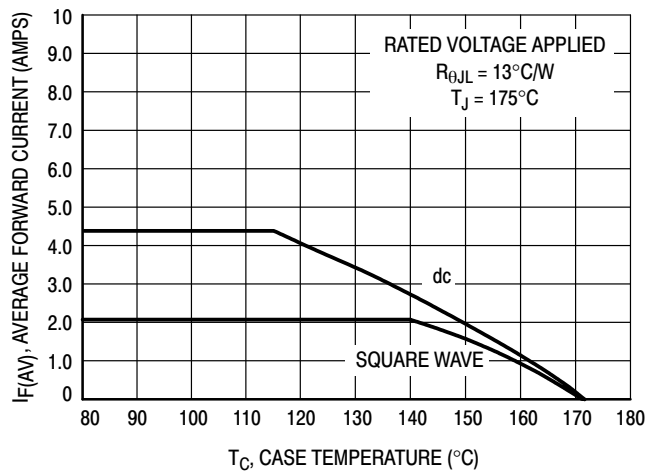


Figure 6. Current Derating, Case

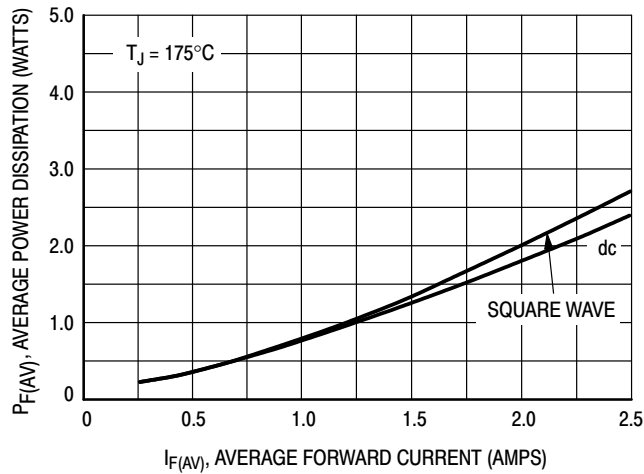
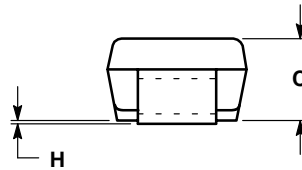
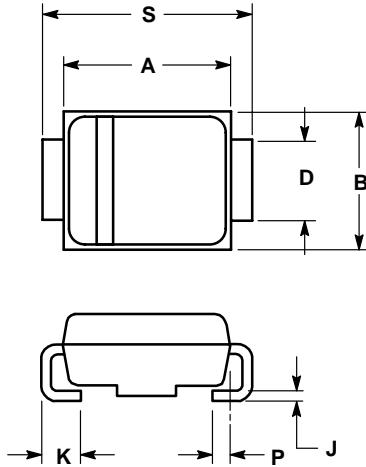


Figure 7. Power Dissipation

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PACKAGE DIMENSIONS

SMB
DO-214AA
CASE 403A-03
ISSUE D

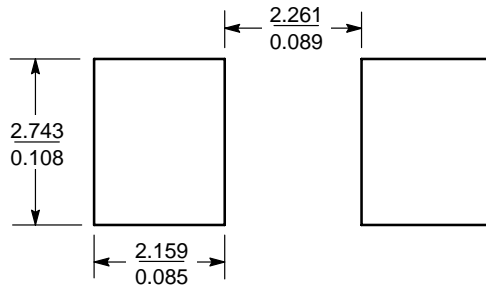


NOTES:

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

| DIM | INCHES | | MILLIMETERS | |
|-----|-----------|--------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.160 | 0.180 | 4.06 | 4.57 |
| B | 0.130 | 0.150 | 3.30 | 3.81 |
| C | 0.075 | 0.095 | 1.90 | 2.41 |
| D | 0.077 | 0.083 | 1.96 | 2.11 |
| H | 0.0020 | 0.0060 | 0.051 | 0.152 |
| J | 0.006 | 0.012 | 0.15 | 0.30 |
| K | 0.030 | 0.050 | 0.76 | 1.27 |
| P | 0.020 REF | | 0.51 REF | |
| S | 0.205 | 0.220 | 5.21 | 5.59 |

SOLDERING FOOTPRINT*



SCALE 8:1 $\left(\frac{\text{mm}}{\text{inches}}\right)$

*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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