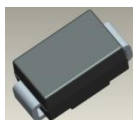


## Features

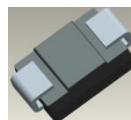
- Glass Passivated Die Construction
- Super-Fast Recovery Time For High Efficiency
- Surge Overload Rating to 40A Peak
- Ideally Suited for Automated Assembly
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solder Plated Terminal - Solderable per MIL-STD-202, Method 208 Ⓔ<sup>3</sup>
- Lead Free Plating (Matte Tin Finish).
- Polarity: Cathode Band or Cathode Notch
- Marking Information: As Marked on Body
- Weight: 0.093 grams (Approximate)



Top View



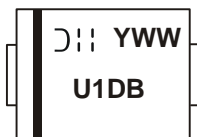
Bottom View

## Ordering Information (Note 4)

| Part Number   | Compliance | Case | Packaging        |
|---------------|------------|------|------------------|
| MURS120 -13-F | Commercial | SMB  | 3000/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



- U1DB = Product Type Marking Code
- YWW = Manufacturers' Code Marking
- YWW = Date Code Marking
- Y = Last Digit of Year (ex: 7 for 2017)
- WW = Week Code (01 to 53)

### Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| Characteristic   | Symbol              | Value | Unit |
|--|---------------------|-------|------|
| Peak Repetitive Reverse Voltage  | V <sub>RRM</sub>    | 200   | V    |
| Working Peak Reverse Voltage   | V <sub>RWM</sub>    |       |      |
| DC Blocking Voltage (Note 7) @ I <sub>R</sub> = 5μA  | V <sub>R</sub>      |       |      |
| RMS Reverse Voltage  | V <sub>R(RMS)</sub> | 141   | V    |
| Average Rectified Output Current @ T <sub>T</sub> = +135°C                                       | I <sub>O</sub>      | 1.0   | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>    | 40    | A    |

### Thermal Characteristics

| Characteristic  | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Typical Total Capacitance (Note 6)                        | C <sub>T</sub>                    | 27          | pF   |
| Typical Thermal Resistance, Junction to Terminal (Note 5) | R <sub>θJT</sub>                  | 15          | °C/W |
| Operating and Storage Temperature Range                   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C   |

### Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic  | Symbol          | Value | Unit |
|---|-----------------|-------|------|
| Forward Voltage @ I <sub>F</sub> = 1.0A, T <sub>J</sub> = +25°C | V <sub>FM</sub> | 0.875 | V    |
| @ I <sub>F</sub> = 1.0A, T <sub>J</sub> = +150°C                |                 | 0.710 |      |
| Peak Reverse Current @ T <sub>A</sub> = +25°C                   | I <sub>RM</sub> | 2.0   | μA   |
| at Rated DC Blocking Voltage (Note 9) @ T <sub>A</sub> = +150°C |                 | 50    |      |
| Reverse Recovery Time (Note 7)                                  | t <sub>RR</sub> | 25    | ns   |
| Forward Recovery Time (Note 8)                                  | t <sub>FR</sub> | 25    | ns   |

- Notes:
5. Unit mounted on PC board with 5.0mm<sup>2</sup> (0.013mm thick) copper pads as heat sink.
  6. Measured at 1.0MHz and applied reverse voltage of 4V DC.
  7. Measured with I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1.0A, I<sub>RR</sub> = 0.25A. See Figure 5.
  8. Measured with I<sub>F</sub> = 1.0A, di/dt = 100A/μs, Duty Cycle ≤ 2.0%.
  9. Short duration pulse test used to minimize self-heating effect.

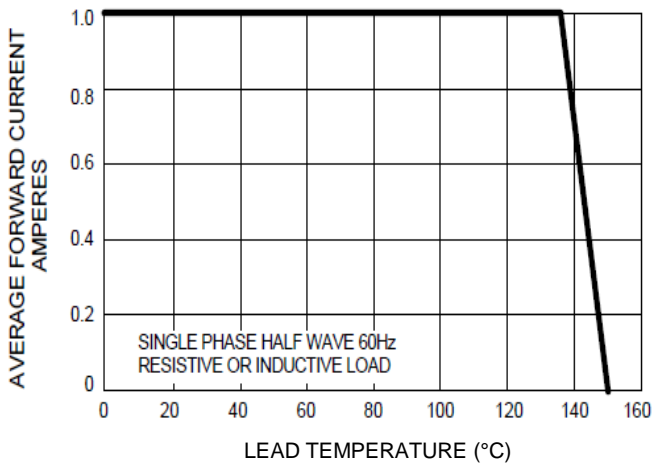


Fig. 1 Forward Current Derating Curve

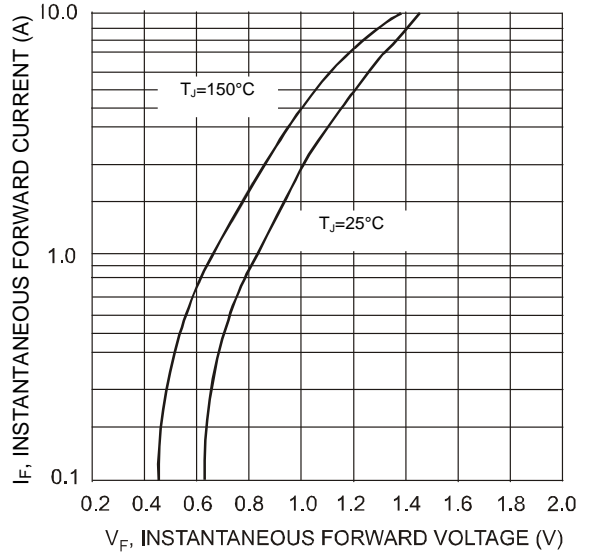


Fig. 2 Typical Forward Characteristics

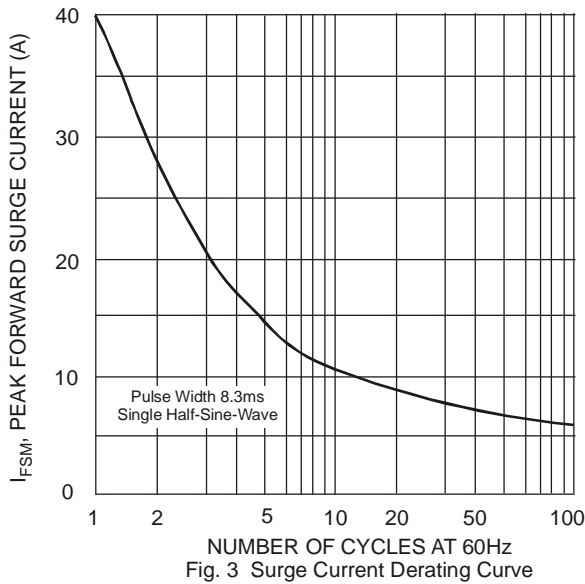


Fig. 3 Surge Current Derating Curve

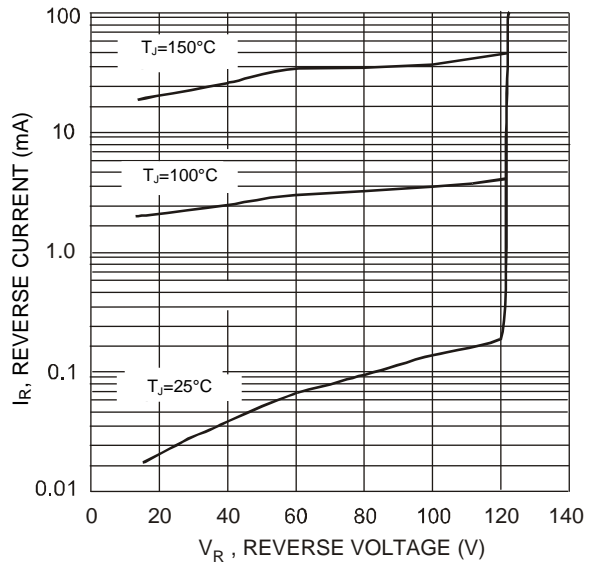
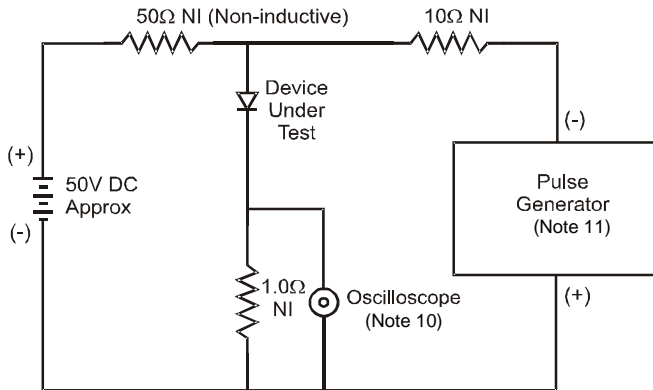
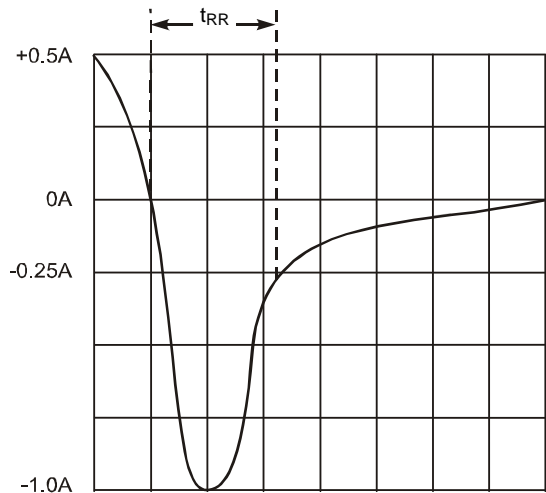


Fig. 4 Typical Reverse Characteristics



- Notes:  
 10. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.  
 11. Rise Time = 10ns max. Input Impedance = 50Ω.

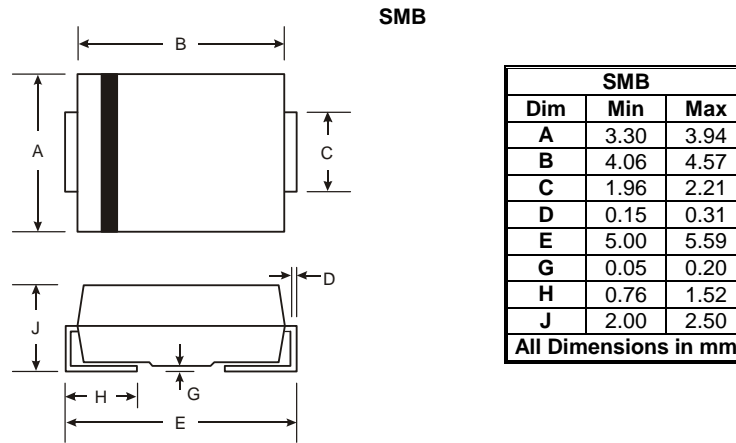


Set Time Base for 50/100 ns/cm

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



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