

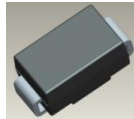
## 1.0A SURFACE MOUNT SUPER-FAST RECTIFIER

### Features

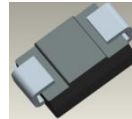
- Glass Passivated Die Construction
- Super-Fast Recovery Time For High Efficiency
- Surge Overload Rating to 40A Peak
- Ideally Suited for Automated Assembly
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

### 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



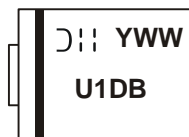
Bottom View

### 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
- ⌋:: = 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.

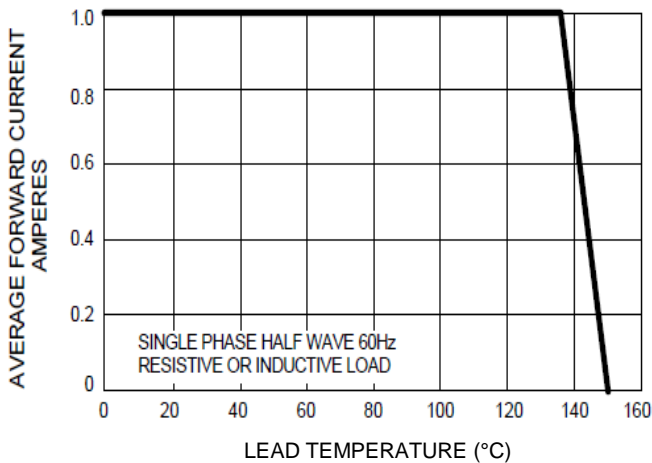


Fig. 1 Forward Current Derating Curve

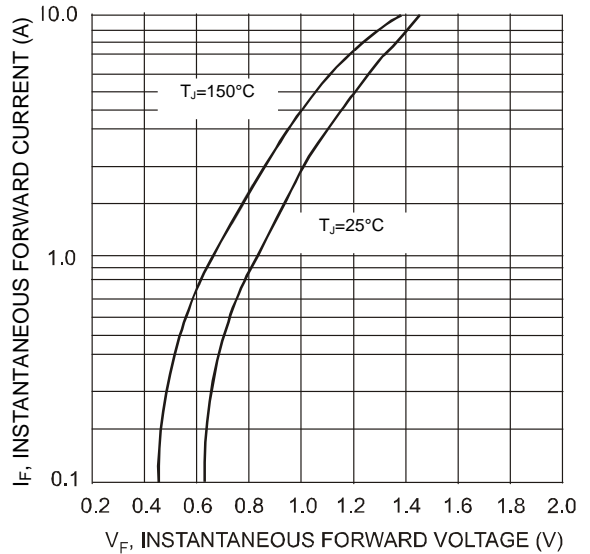


Fig. 2 Typical Forward Characteristics

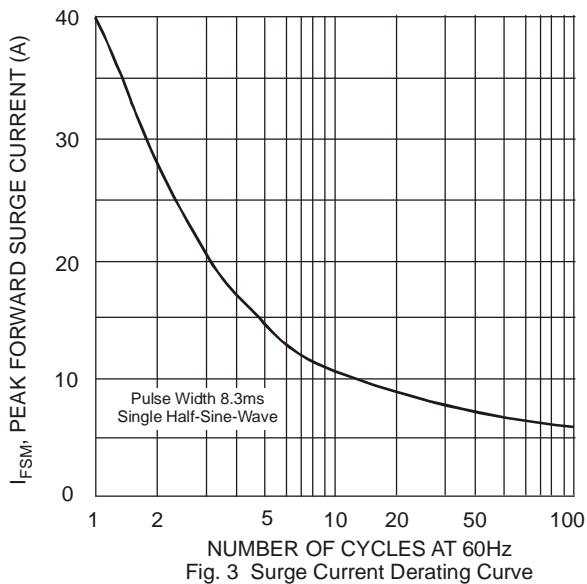


Fig. 3 Surge Current Derating Curve

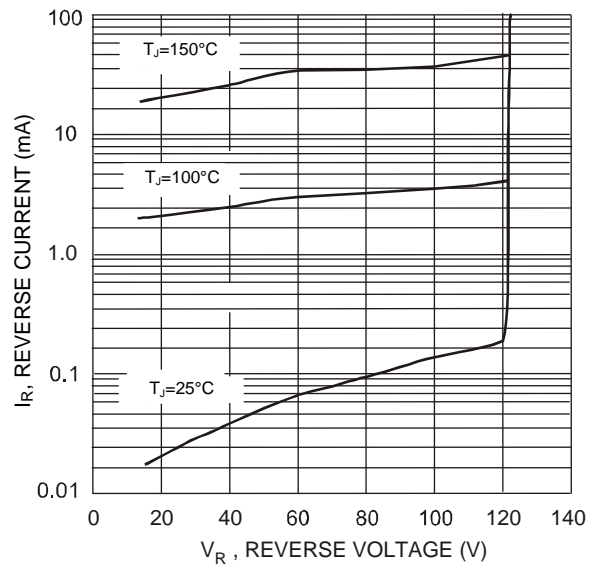
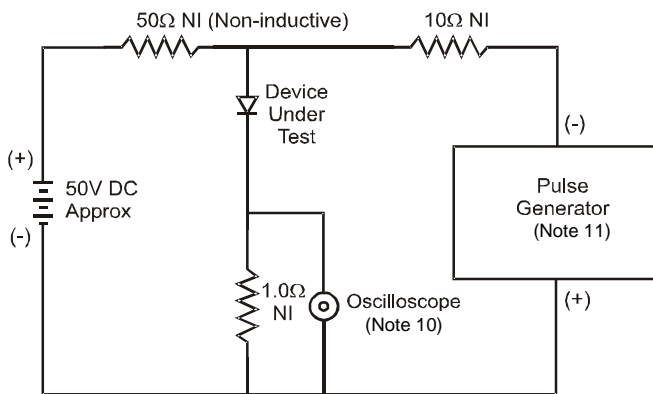
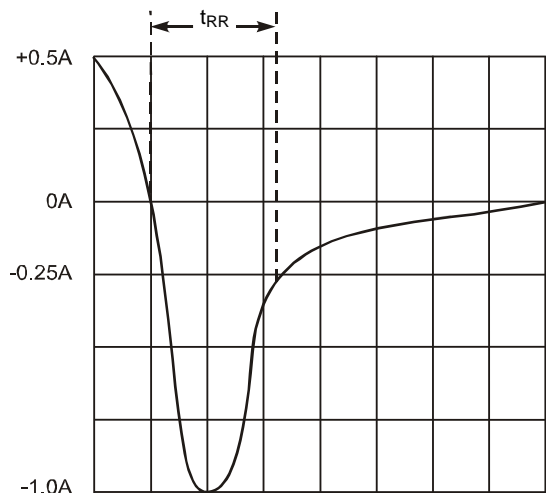


Fig. 4 Typical Reverse Characteristics



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

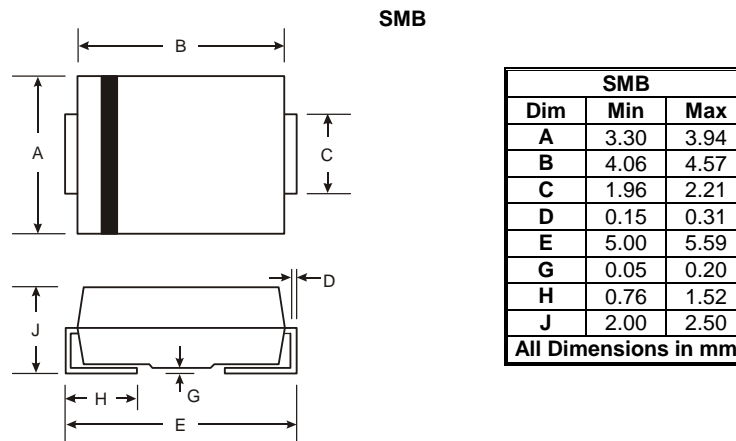


Set Time Base for 50/100 ns/cm

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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