1.0A SURFACE MOUNT SUPER-FAST RECTIFIER

Features

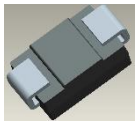
- Glass Passivated Die Construction
- Super-Fast Recovery Time for High Efficiency
- Surge Overload Rating to 35A Peak
- Ideally Suited for Automated Assembly
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **An Automotive-Compliant Part is Available Under Separate Datasheet (MURS160Q)**

Mechanical Data

- Package: SMB
- Package Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish (Lead Free Plating). Solder Plated Terminal - Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band or Cathode Notch
- Weight: 0.093 grams (Approximate)

SMB

Top View



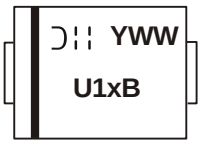
Bottom View

Ordering Information (Notes 4 & 5)

Part Number	Package	Packing	
		Qty.	Carrier
MURS140-13-F	SMB	3000	Tape & Reel
MURS160-13-F	SMB	3000	Tape & Reel

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.
5. Products manufactured with date code 0924 (week 24, 2009) and newer are built with green molding compound.

Marking Information



U1xB = Product Type Marking Code
U1GB = MURS140
U1JB = MURS160
= Manufacturer's Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 2 for 2022)
WW = Week Code (01 to 53)

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

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

Characteristic	Symbol	MURS140	MURS160	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage (Note 6)	V_{RRM} V_{RWM} V_R	400	600	V
RMS Reverse Voltage	$V_{R(RMS)}$	283	424	V
Average Rectified Output Current @ T_T = +135°C	I_O	1.0		A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	35		A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 7)	$R_{\theta JT}$	15	°C/W
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Forward Voltage	@ I_F = 1.0A, T_J = +25°C @ I_F = 1.0A, T_J = +150°C	V_{FM}	1.25 1.05	V
Peak Reverse Current at Rated DC Blocking Voltage (Note 6)	@ T_A = +25°C @ T_A = +150°C	I_{RM}	5.0 150	µA
Reverse Recovery Time (Note 8)		t_{rr}	50	ns
Forward Recovery Time (Note 9)		t_{fr}	50	ns
Typical Total Capacitance (Note 10)		C_T	10	pF

Notes:
6. Short duration pulse test used to minimize self-heating effect.
7. Unit mounted on PC board with 5.0mm^2 (0.013mm thick) copper pads as heat sink.
8. Measured with I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A. See Figure 5.
9. Measured with I_F = 1.0A, dI/dt = 100A/µs, duty cycle ≤ 2.0%.
10. Measured at 1.0MHz and applied reverse voltage of 4V DC.

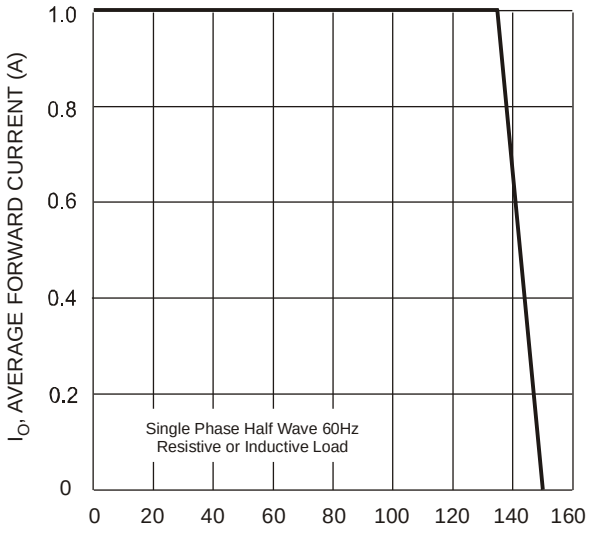


Fig. 1 Forward Current Derating Curve

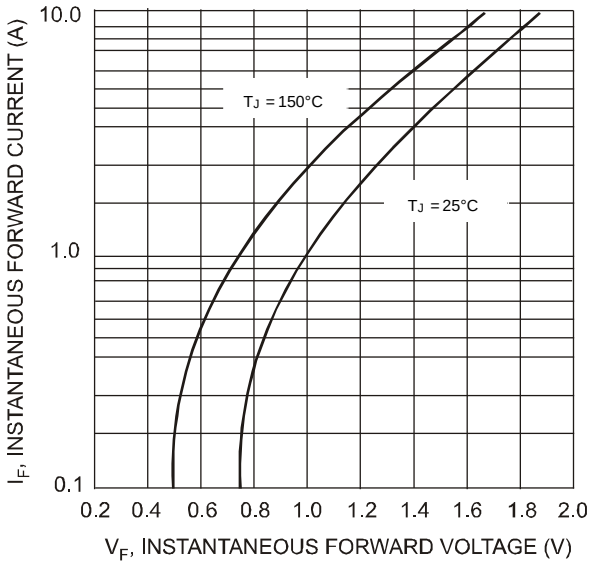


Fig. 2 Typical Forward Characteristics

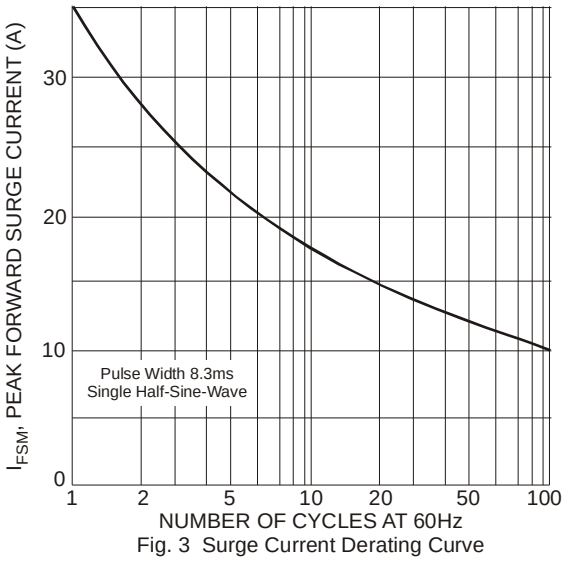


Fig. 3 Surge Current Derating Curve

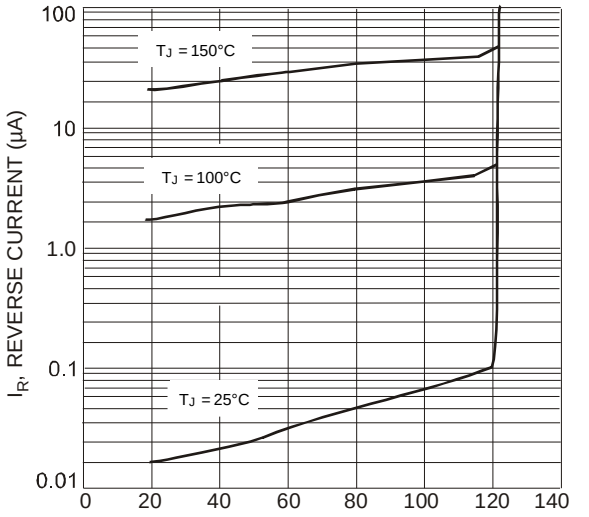
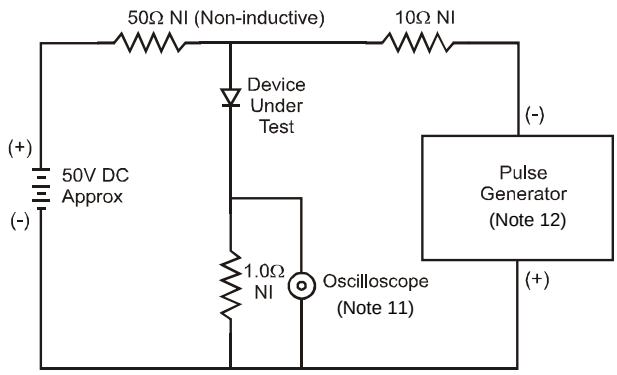


Fig. 4 Typical Reverse Characteristics



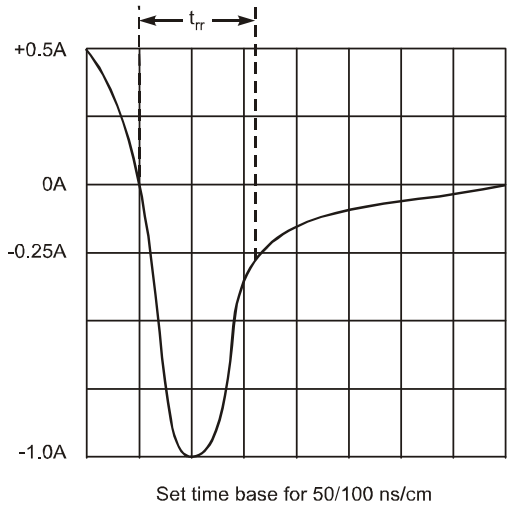


Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

Notes: 11. Rise time = 7.0ns max. Input impedance = 1.0MΩ, 22pF.
12. Rise time = 10ns max. Input impedance = 50Ω.

Package Outline Dimensions

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

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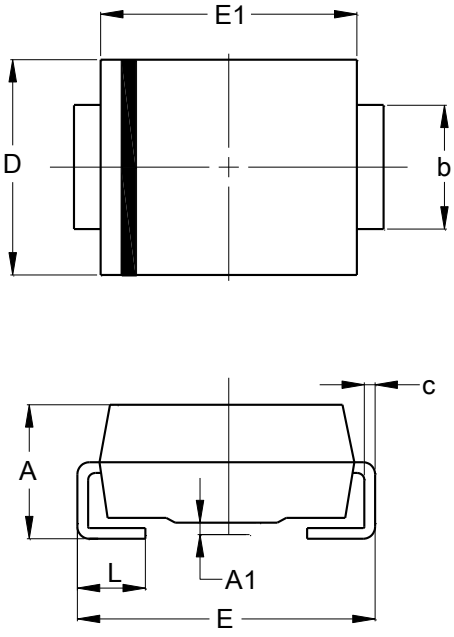
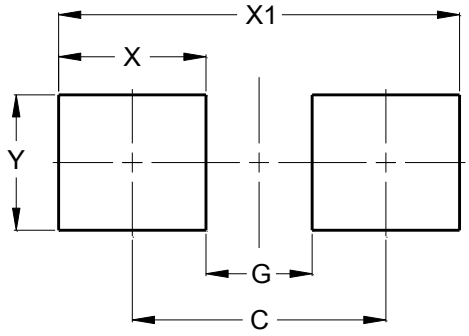


SMB		
Dim	**Min**	**Max**
A	2.00	2.50
A1	0.05	0.20
b	1.96	2.21
c	0.15	0.31
D	3.30	3.94
E	5.00	5.59
E1	4.06	4.57
L	0.76	1.52
All Dimensions in mm		

Suggested Pad Layout

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

SMB



Dimensions	Value (in mm)
C	4.30
G	1.80
X	2.50
X1	6.80
Y	2.30

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