Green

MURS120

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 (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

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 e3
- Lead Free Plating (Matte Tin Finish).
- Polarity: Cathode Band or Cathode Notch
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.093 grams (approximate)

Top View Bottom View

Maximum Ratings @T_A = 25℃ unless otherwise specified

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage (Note 7) @ I_R = 5uA	V_{RRM} V_{RWM} V_R	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	141	V
Average Rectified Output Current @ T_T = 135°C	I_O	1.0	A
Non-Repetitive Peak Forward Surge Current8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	40	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Total Capacitance (Note 2)	C_T	27	pF
Typical Thermal Resistance, Junction to Terminal (Note 1)	$R_{\theta JT}$	15	℃/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	°C

Electrical Characteristics @T_A = 25℃ unless otherwise specified

Characteristic		Symbol	Value	Unit
Forward Voltage	@ I_F = 1.0A, T_J = 25℃ @ I_F = 1.0A, T_J = 150℃	V_{FM}	0.875 0.710	V
Peak Reverse Current at Rated DC Blocking Voltage	@ T_A = 25°C @ T_A = 150°C	I_{RM}	2.0 50	μA
Reverse Recovery Time (Note 3)		t_{rr}	25	ns
Forward Recovery Time (Note 4)		t_{fr}	25	ns

Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.
2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
3. Unit mounted on PC board with 5.0 mm^2 (0.013 mm thick) copper pads as heat sink.
4. Measured at 1.0MHz and applied reverse voltage of 4V DC.
5. Measured with I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A. See Figure 5.
6. Measured with I_F = 1.0A, di/dt = 100A/μs, Duty Cycle ≤ 2.0%.
7. Short duration pulse test used to minimize self-heating effect.

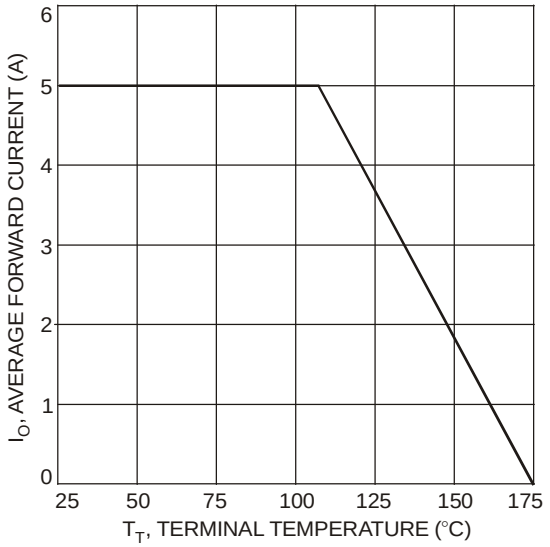


Fig. 1 Forward Current Derating Curve

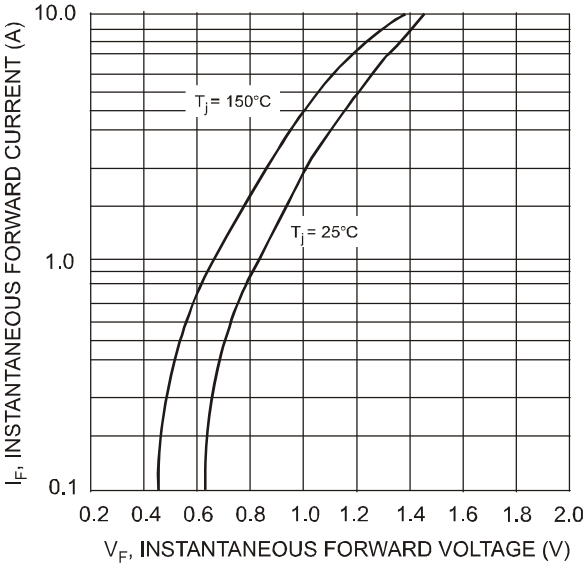


Fig. 2 Typical Forward Characteristics

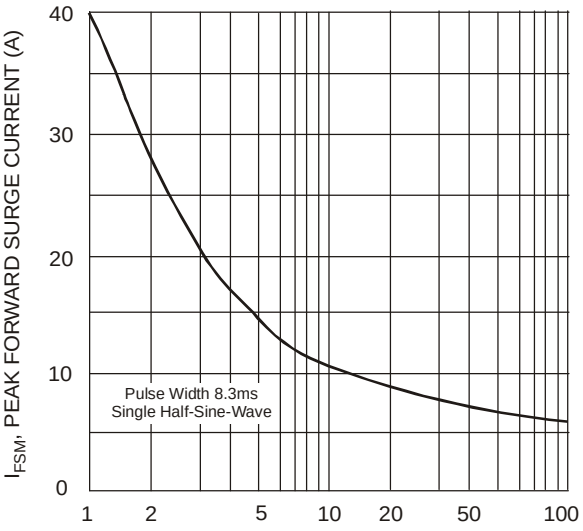


Fig. 3 Surge Current Derating Curve

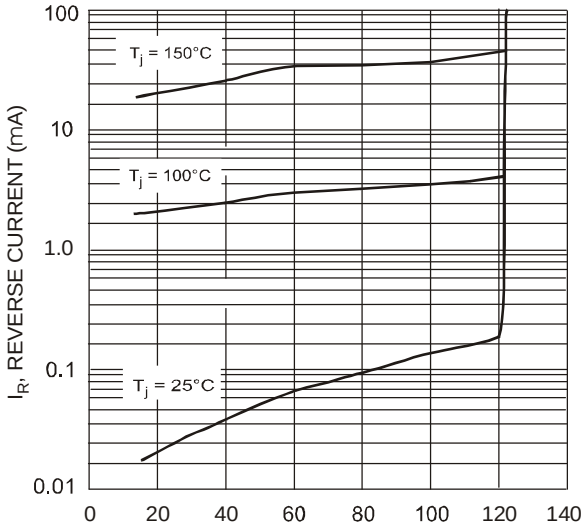
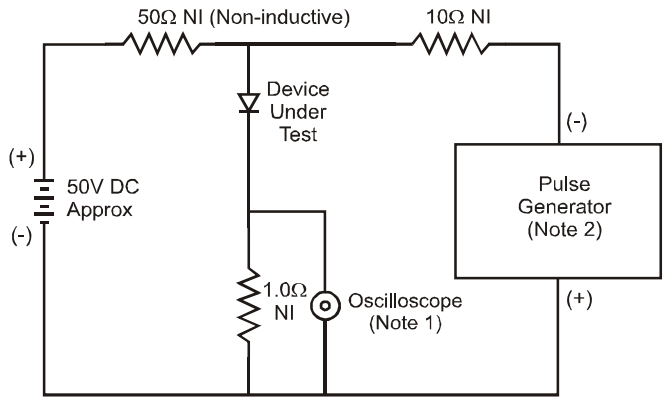


Fig. 4 Typical Reverse Characteristics



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

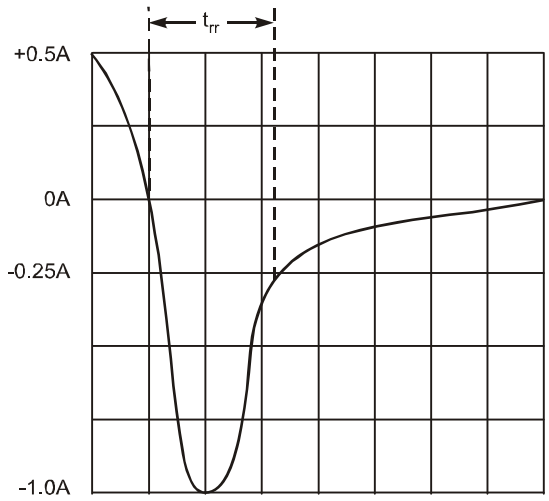


Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

Ordering Information (Note 7)

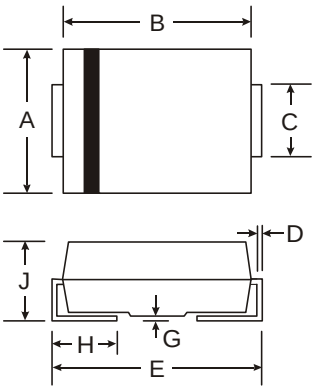
Part Number	Case	Packaging
MURS120 -13-F	SMB	3000/Tape & Reel

Notes: 7. For packaging details, go to our website at http://www.diodes.com.

Marking Information

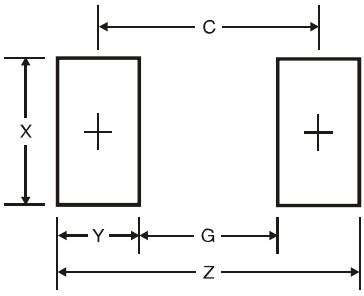
U1DB = Product type marking code
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year (ex: 2 for 2002)
WW = Week code (01 - 53)

Package Outline Dimensions



SMB		
Dim	Min	Max
A	3.30	3.94
B	4.06	4.57
C	1.96	2.21
D	0.15	0.31
E	5.00	5.59
G	0.05	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

Suggested Pad Layout



SMB Dimensions	Value (in mm)
Z	6.7
G	1.8
X	2.3
Y	2.5
C	4.3

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