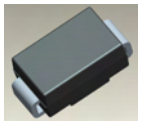
3.0A SURFACE MOUNT SUPER-FAST RECTIFIER

Features

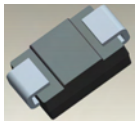
- Glass Passivated Die Construction
- Super-Fast Recovery Time For High Efficiency
- Surge Overload Rating to 75A Peak
- Ideally Suited for Automated Assembly
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

Mechanical Data

- Case: SMC
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band or Cathode Notch
- Weight: 0.21 grams (approximate)



Top View



Bottom View

Ordering Information (Note 3)

Part Number	Case	Packaging
MURS320-13-F	SMC	3000/Tape & Reel, 13-inch

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

Marking Information

U3D = Product type marking code
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year (ex: 6 for 2006)
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 capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage (Note 4)	V_{RRM} V_{RWM} V_R	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	140	V
Average Rectified Output Current @ T_L = 140°C	I_O	3.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	75	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Total Capacitance (Note 5)	C_T	45	pF
Typical Thermal Resistance, Junction to Lead (Note 6)	$R_{\theta JL}$	11	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Forward Voltage @ I_F = 3.0A, T_J = 25°C @ I_F = 3.0A, T_J = 150°C	V_{FM}	0.875 0.71	V
Peak Reverse Current @ T_J = 25°C at Rated DC Blocking Voltage (Note 4) @ T_J = 150°C	I_{RM}	5.0 100	µA
Reverse Recovery Time (Note 7)	t_{rr}	25	ns
Maximum Forward Recovery Time (Note 8)	t_{fr}	25	ns

Notes:
4. Short duration pulse test used to minimize self-heating effect.
5. Measured at 1.0MHz and applied reverse voltage of 0V DC.
6. Unit mounted on PC board with 5.0 mm^2 (0.013 mm thick) copper pads as heat sink.
7. Measured with I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A. See Figure 5.
8. Measured with I_F = 1.0A, di/dt = 100A/µS, Recovery to 1.0V.

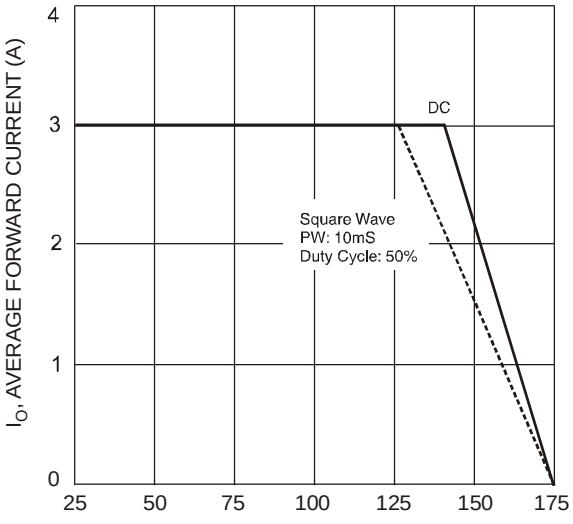


Fig. 1 Forward Current Derating Curve

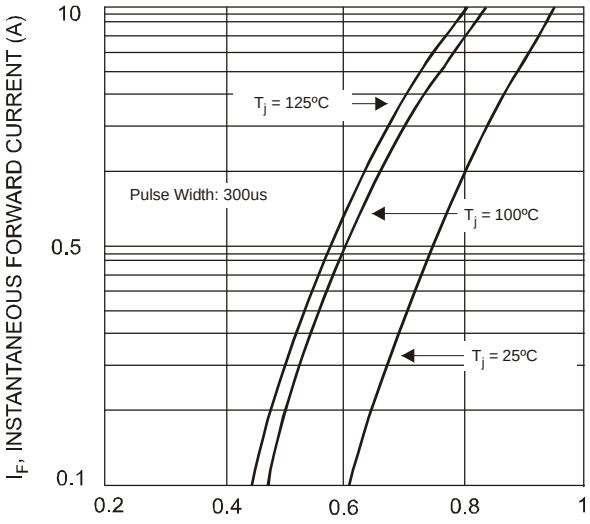


Fig. 2 Typical Forward Characteristics

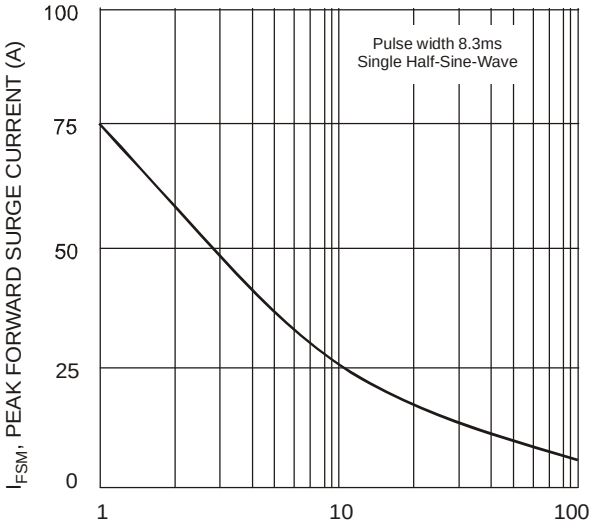


Fig. 3 Surge Current Derating Curve

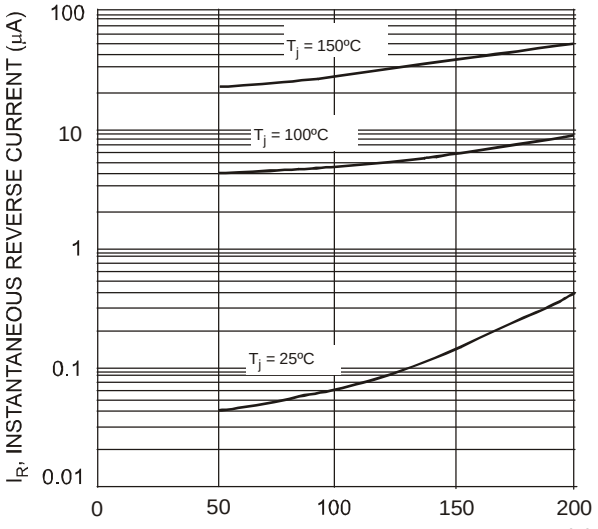
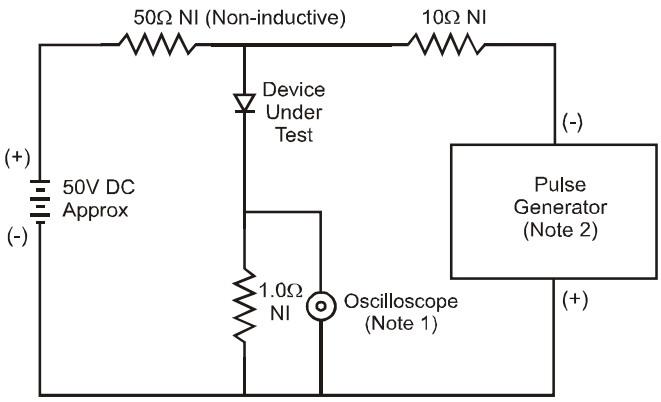


Fig. 4 Typical Reverse Characteristics



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

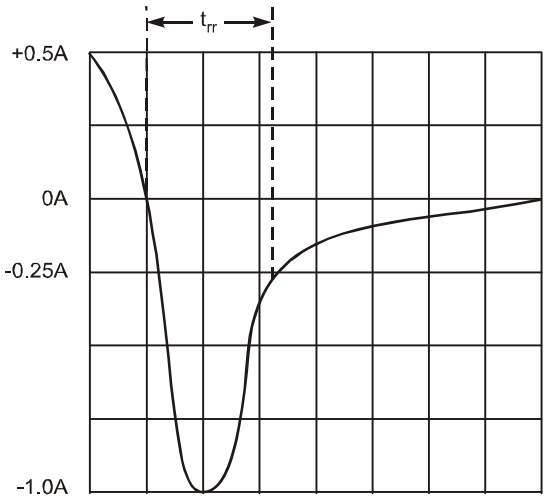


Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

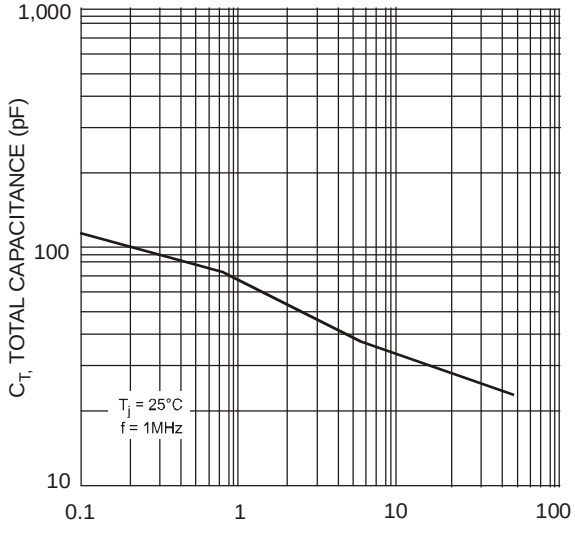
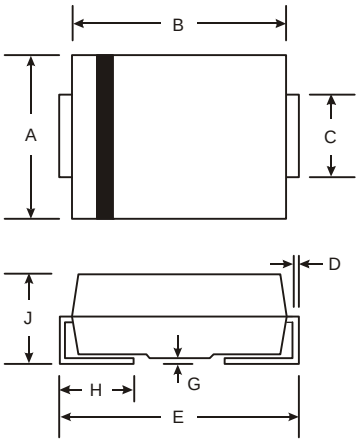


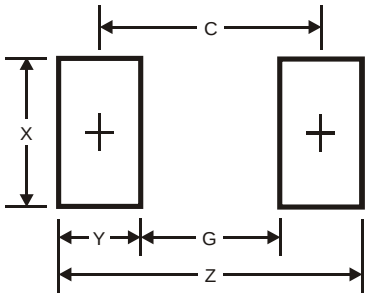
Fig. 6 Typical Total Capacitance

Package Outline Dimensions



SMC		
Dim	**Min**	**Max**
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	9.3
G	4.4
X	3.3
Y	2.5
C	6.8

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