Surface Mount Ultrafast Power Rectifiers

MURS320T3G, SURS8320T3G, SURS8320T3G-VF01, MURS340T3G, SURS8340T3G, MURS360T3G, SURS8360T3G, SURS8360T3G-VF01

ULTRAFAST RECTIFIERS 3.0 AMPERES 200–600 VOLTS

SMC 2–LEAD CASE 403AC

This series employs the state−of−the−art epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for high voltage, high frequency rectification, or as free wheeling and protection diodes, in surface mount applications where compact size and weight are critical to the system.

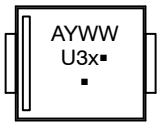
Features

- Small Compact Surface Mountable Package with J−Bend Leads
- Rectangular Package for Automated Handling
- High Temperature Glass Passivated Junction
- Low Forward Voltage Drop (0.71 to 1.05 Volts Max @ 3.0 A, T_J = 150°C)
- SURS8 Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable*
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Weight: 217 mg (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped in 16 mm Tape and Reel, 2500 units per reel
- Polarity: Polarity Band on Plastic Body Indicates Cathode Lead
- Device Meets MSL1 Requirements
- ESD Ratings:
  - Human Body Model, 3B (> 8 kV)
  - Charged Device Model, > 1000 V (Class C5)

MARKING DIAGRAM



U3 = Specific Device Code
x = D (320T3)
= G (340T3)
= J (360T3)
A = Assembly Location**
Y = Year
WW = Work Week

**The Assembly Location code (A) is front side optional. In cases where the Assembly Location is stamped in the package, the front side assembly code may be blank.

ORDERING INFORMATION

Device	Package	Shipping†
MURS320T3G	SMC (Pb−Free)	2,500 / Tape & Reel
MURS340T3G	SMC (Pb−Free)	2,500 / Tape & Reel
MURS360T3G	SMC (Pb−Free)	2,500 / Tape & Reel
SURS8320T3G*, SURS8320T3G−VF01*	SMC (Pb−Free)	2,500 / Tape & Reel
SURS8340T3G*	SMC (Pb−Free)	2,500 / Tape & Reel
SURS8360T3G, SURS8360T3G−VF01*	SMC (Pb−Free)	2,500 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MAXIMUM RATINGS

Rating	Symbol	MURS320T3G/ SURS8320T3G/ SURS8320T3G−VF01	MURS340T3G/ SURS8340T3G	MURS360T3G/ SURS8360T3G/ SURS8360T3G−VF01	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	400	600	V
Average Rectified Forward Current	$I_{F(AV)}$	3.0 @ T_L = 140°C 4.0 @ T_L = 130°C	3.0 @ T_L = 130°C 4.0 @ T_L = 115°C	3.0 @ T_L = 130°C 4.0 @ T_L = 115°C	A
Non−Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	100			A
Operating Junction Temperature	T_J	−65 to +175			°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Thermal Resistance, Junction−to−Lead	$R_{\theta JL}$	11	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 1) (i_F = 3.0 A, T_J = 25°C) (i_F = 4.0 A, T_J = 25°C) (i_F = 3.0 A, T_J = 150°C)	v_F	 0.875 0.89 0.71	 1.25 1.28 1.05	 1.25 1.28 1.05	V
Maximum Instantaneous Reverse Current (Note 1) (Rated dc Voltage, T_J = 25°C) (Rated dc Voltage, T_J = 150°C)	i_R	 5.0 150	 10 250	 10 250	μA
Maximum Reverse Recovery Time (i_F = 1.0 A, di/dt = 50 A/μs) (i_F = 0.5 A, i_R = 1.0 A, I_{REC} to 0.25 A)	t_{rr}	 35 25	 75 50	 75 50	ns
Maximum Forward Recovery Time (i_F = 1.0 A, di/dt = 100 A/μs, Recovery to 1.0 V)	t_{fr}	 25	 50	 50	ns
Typical Peak Reverse Recovery Current (I_F = 1.0 A, di/dt = 50 A/μs)	I_{RM}	0.8			A

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

MURS320T3G/SURS8320T3G/SURS8320T3G−VF01

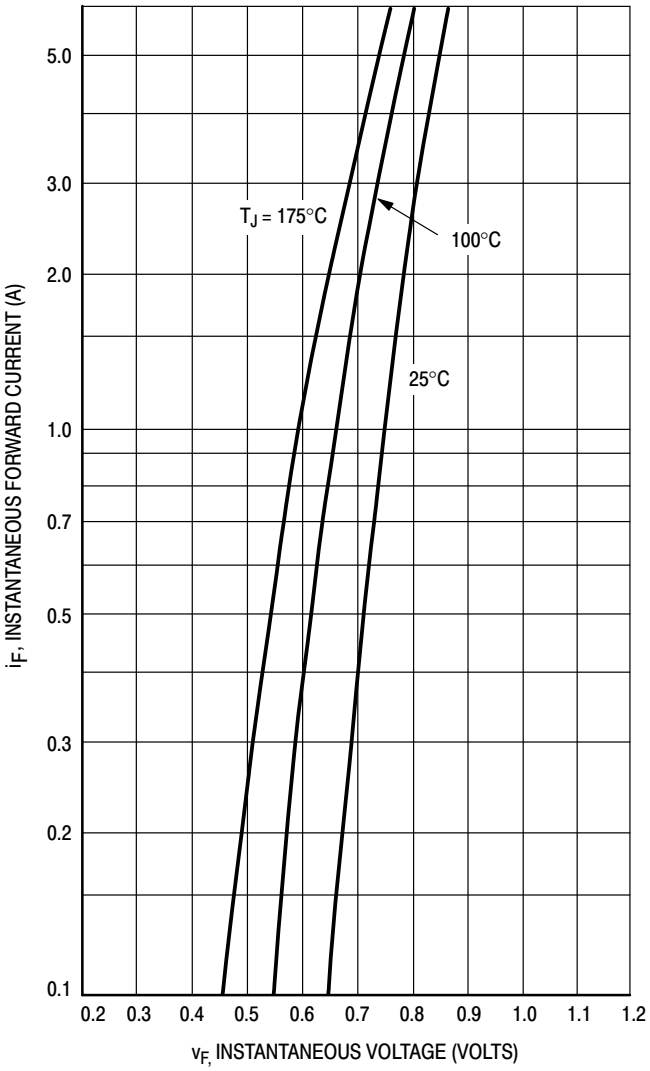


Figure 1. Typical Forward Voltage

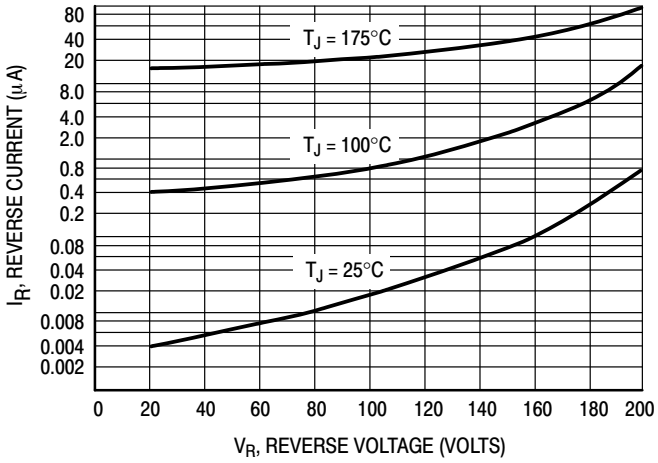


Figure 2. Typical Reverse Current*

* The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R.

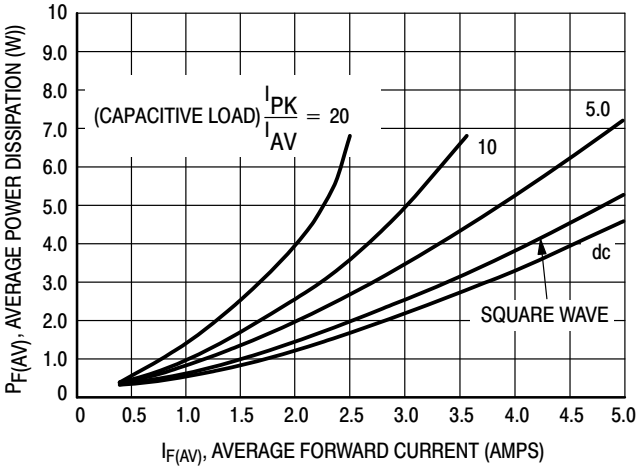


Figure 3. Power Dissipation

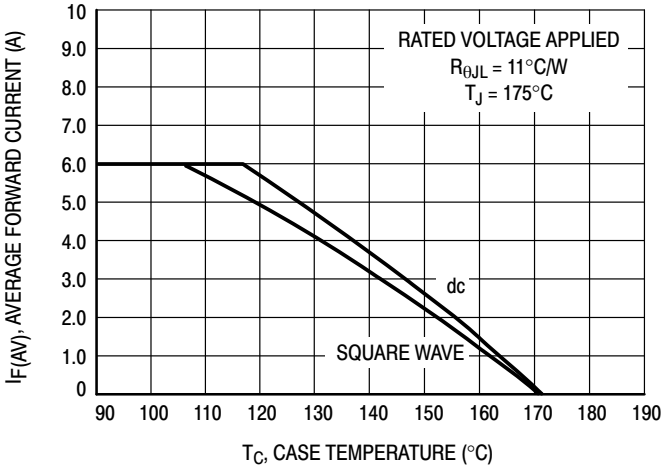


Figure 4. Current Derating, Case

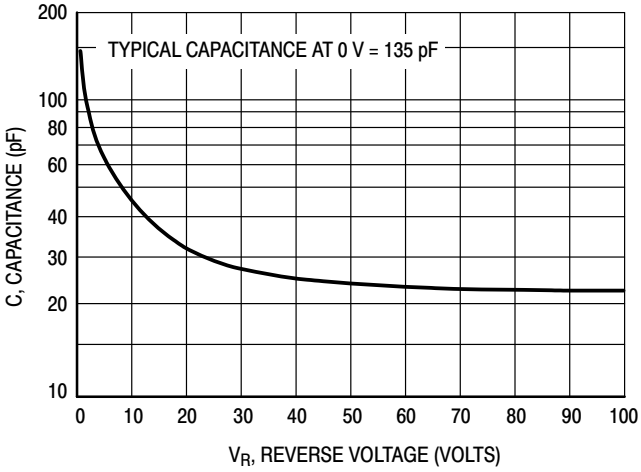


Figure 5. Typical Capacitance

TYPICAL CHARACTERISTICS

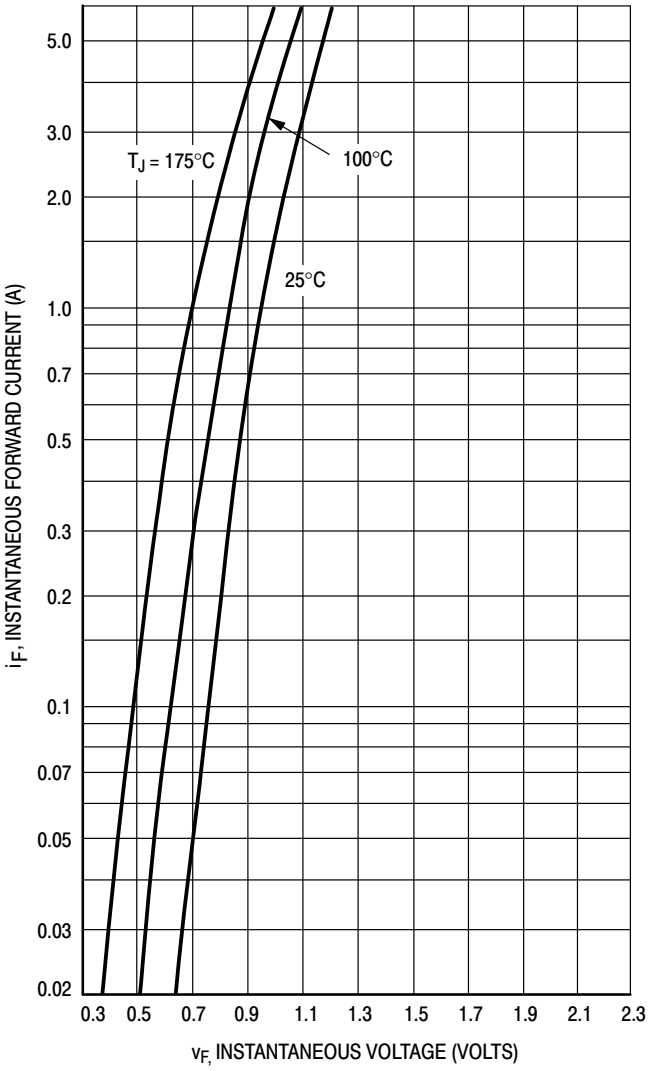


Figure 6. Typical Forward Voltage

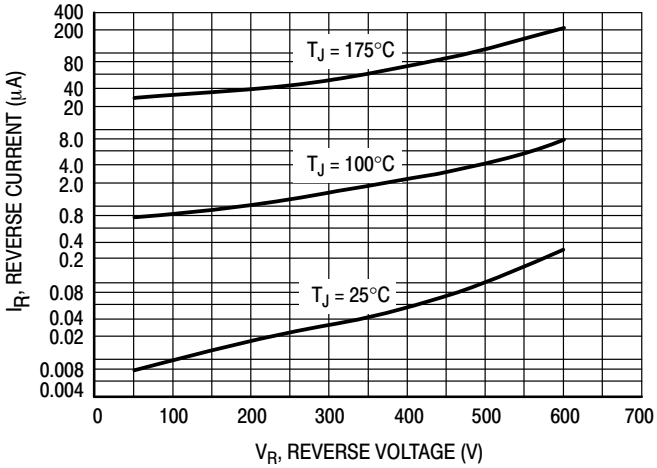


Figure 7. Typical Reverse Current*

* The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R.

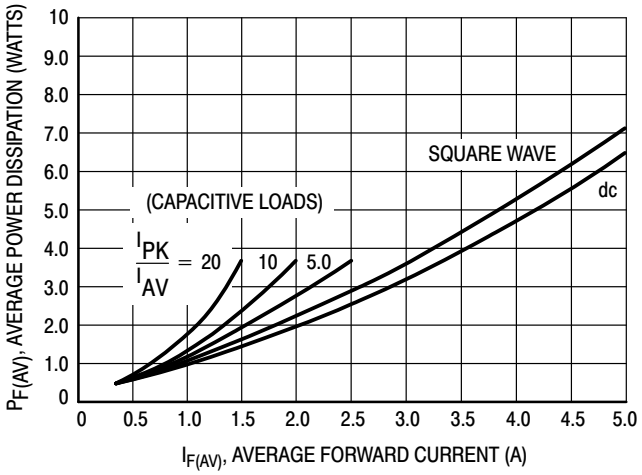


Figure 8. Power Dissipation

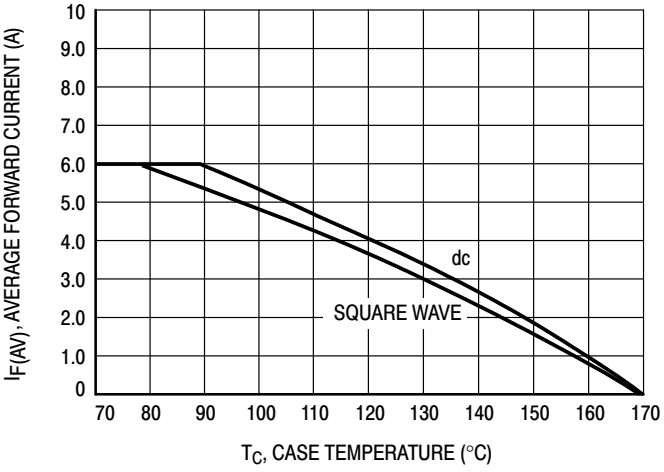


Figure 9. Current Derating, Case

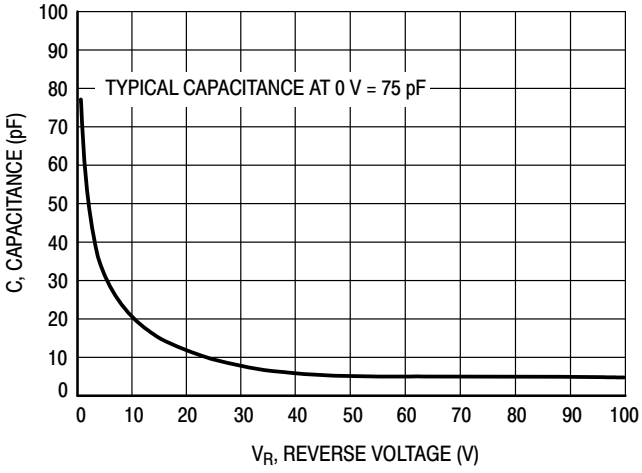


Figure 10. Typical Capacitance

MURS320T3G, SURS8320T3G, SURS8320T3G−VF01, MURS340T3G, SURS8340T3G, MURS360T3G, SURS8360T3G, SURS8360T3G−VF01

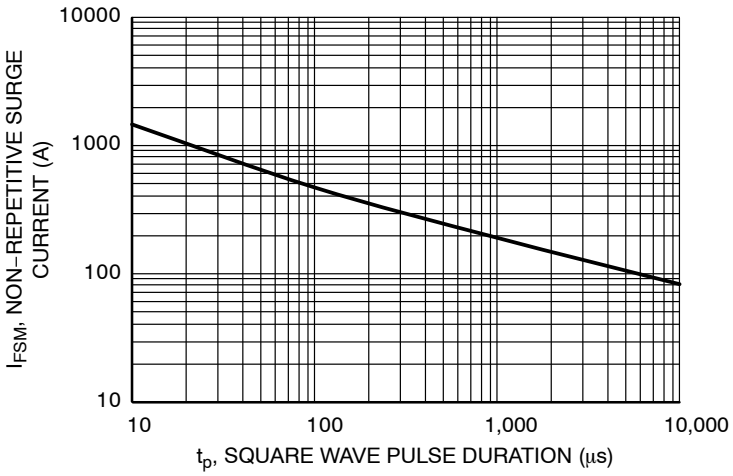


Figure 11. Typical Non−Repetitive Surge Current

*Typical performance based on a limited sample size. **onsemi** does not guarantee ratings not listed in the Maximum Ratings table.

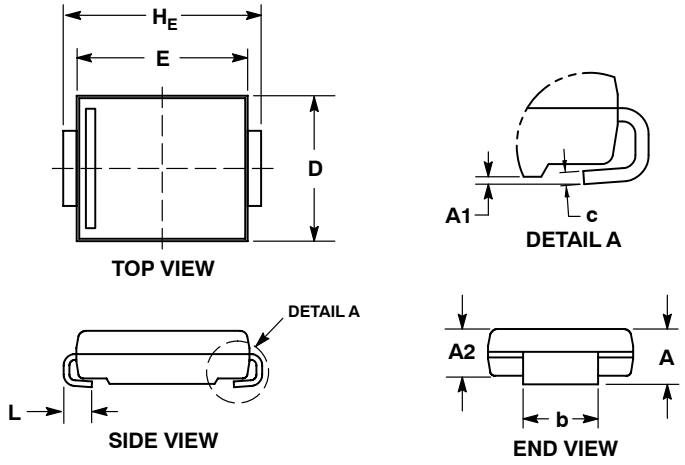
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

ON Semiconductor®

SCALE 1:1

SMC 2−LEAD
CASE 403AC
ISSUE B

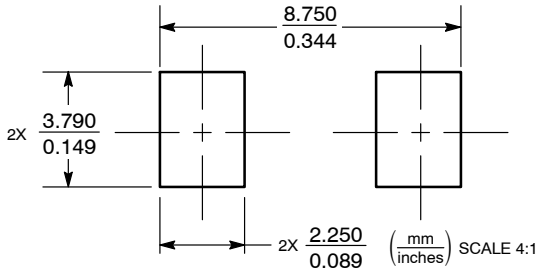
DATE 27 JUL 2017



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.254mm PER SIDE.
4. DIMENSIONS D AND E TO BE DETERMINED AT DATUM H.
5. DIMENSION b SHALL BE MEASURED WITHIN THE AREA DETERMINED BY DIMENSION L.

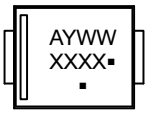
	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	1.95	2.61	0.077	0.103
A1	0.05	0.20	0.002	0.008
A2	1.90	2.41	0.075	0.095
b	2.90	3.20	0.114	0.126
c	0.15	0.41	0.006	0.016
D	5.55	6.25	0.219	0.246
E	6.60	7.15	0.260	0.281
H_E	7.75	8.15	0.305	0.321
L	0.75	1.60	0.030	0.063

RECOMMENDED SOLDERING FOOTPRINT*



*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

GENERIC MARKING DIAGRAM*



XXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present.

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DESCRIPTION:	**SMC 2−LEAD**		**PAGE 1 OF 1**

PUBLICATION ORDERING INFORMATION

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