MURS205T3G, SURS8205T3G, MURS210T3G, SURS8210T3G

Surface Mount Ultrafast Power Rectifiers

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 (0.74 V Max @ 2.0 A, $T_J = 150°C$)
- AEC−Q101 Qualified and PPAP Capable
- SURS8 Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- These are Pb−Free Packages*

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 95 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
- Polarity: Polarity Band Indicates Cathode Lead
- ESD Ratings:
  - ♦ Machine Model = C (> 400 V)
  - ♦ Human Body Model = 3A (> 4 kV)

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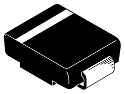
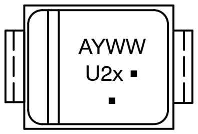
ULTRAFAST RECTIFIERS 2 AMPERES, 50−100 VOLTS



SMB
CASE 403A

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
U2x = Device Code
x= A for MURS205T3G
= B for MURS210T3G
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MURS205T3G	SMB (Pb−Free)	2,500 Tape & Reel
SURS8205T3G	SMB (Pb−Free)	2,500 Tape & Reel
MURS210T3G	SMB (Pb−Free)	2,500 Tape & Reel
SURS8210T3G	SMB (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.

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

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage MURA205T3G, SURS8205T3G MURA210T3G, SURS8210T3G	V_{RRM} V_{RWM} V_R	 50 100	V
Average Rectified Forward Current @ $T_L = 150°C$ @ $T_L = 125°C$	$I_{F(AV)}$	 1.0 2.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	 50	A
Operating Junction Temperature	T_J	−60 to +175	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Lead ($T_L = 25°C$)	$R_{\theta JL}$	13	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 1) ($i_F = 2.0$ A, $T_J = 25°C$) ($i_F = 2.0$ A, $T_J = 150°C$)	v_F	 0.94 0.74	V
Maximum Instantaneous Reverse Current (Note 1) (Rated dc Voltage, $T_J = 25°C$) (Rated dc Voltage, $T_J = 150°C$)	i_R	 2.0 50	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_R to 0.25 A)	t_{rr}	 30 20	ns
Maximum Forward Recovery Time ($i_F = 1.0$ A, di/dt = 100 A/μs, Rec. to 1.0 V)	t_{fr}	20	ns

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

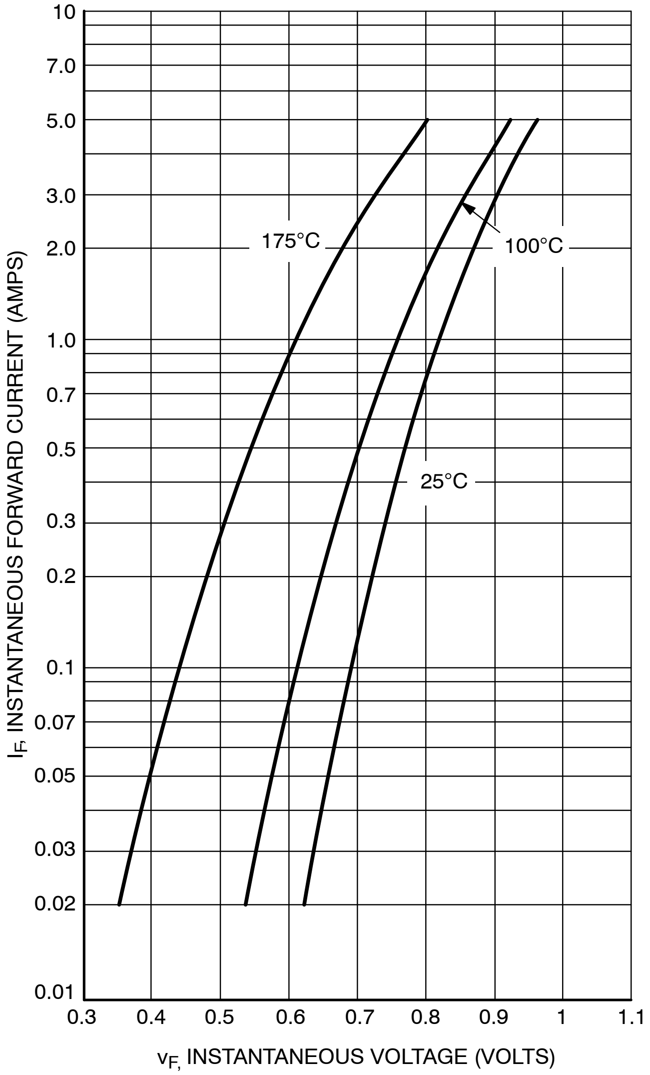


Figure 1. Typical Forward Voltage

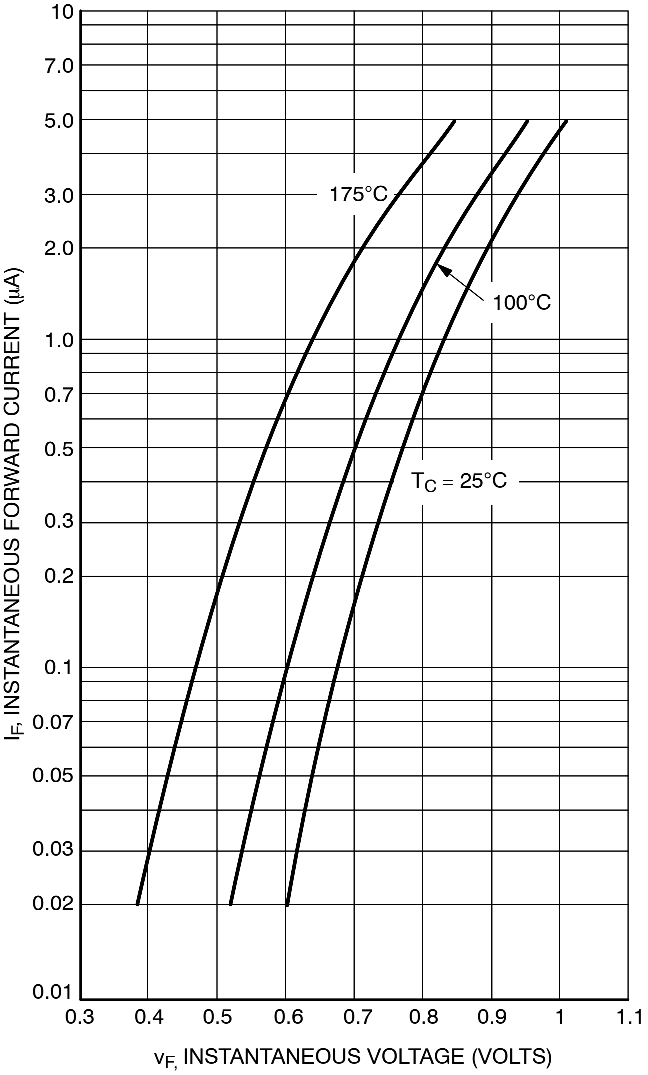


Figure 2. Maximum Forward Voltage

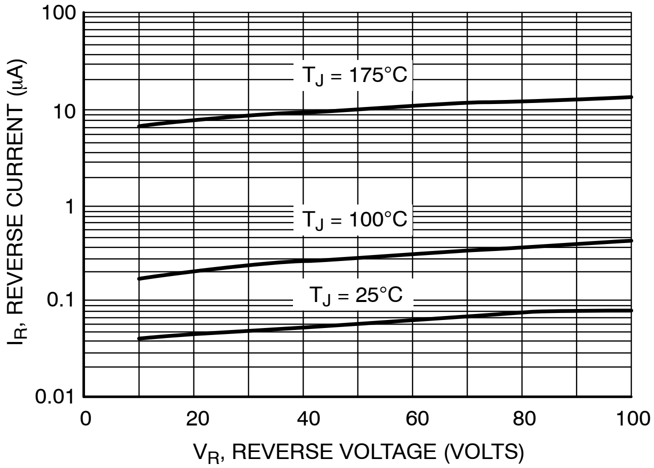


Figure 3. Typical Reverse Current*

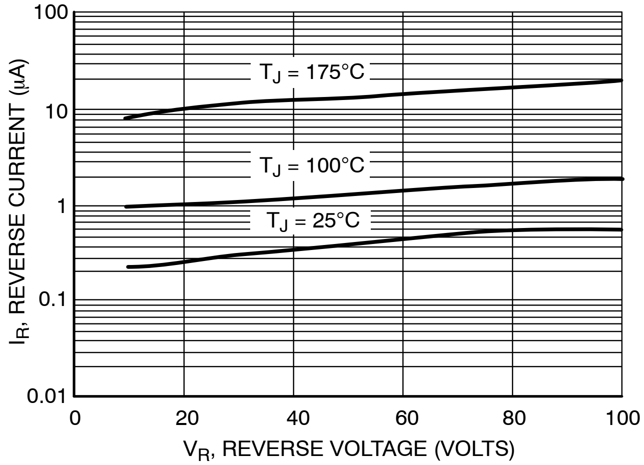


Figure 4. Maximum Reverse Current*

* 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 applied V_R is sufficiently below rated V_R.

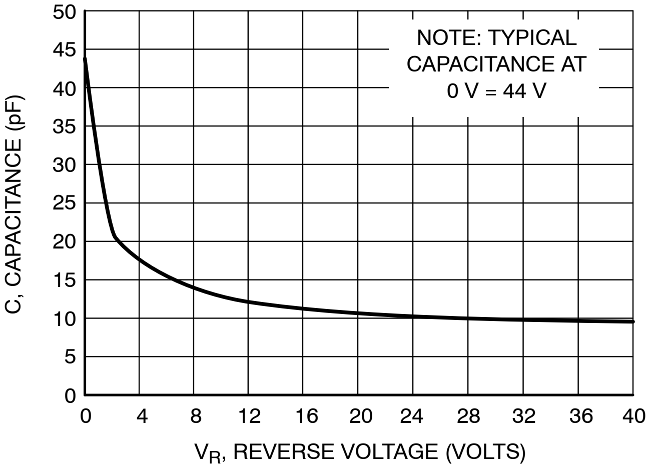


Figure 5. Typical Capacitance

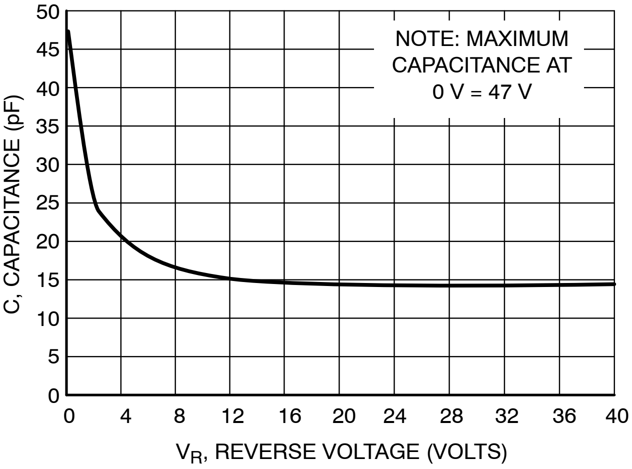


Figure 6. Maximum Capacitance

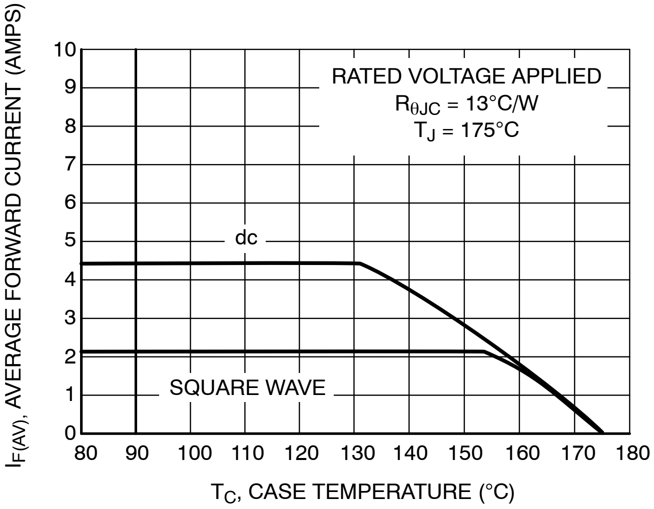


Figure 7. Current Derating, Case

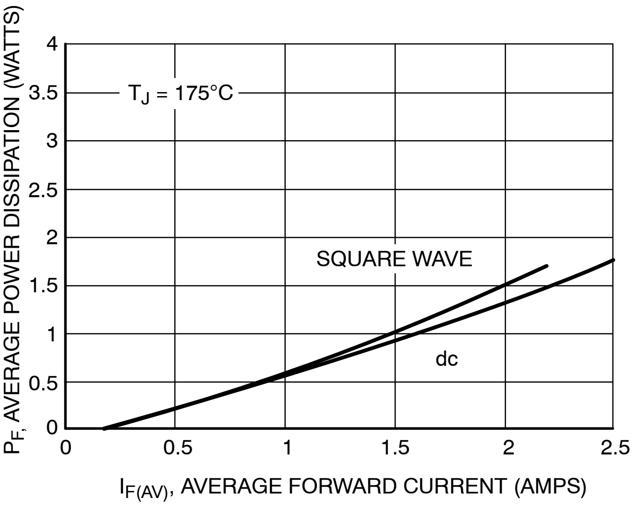
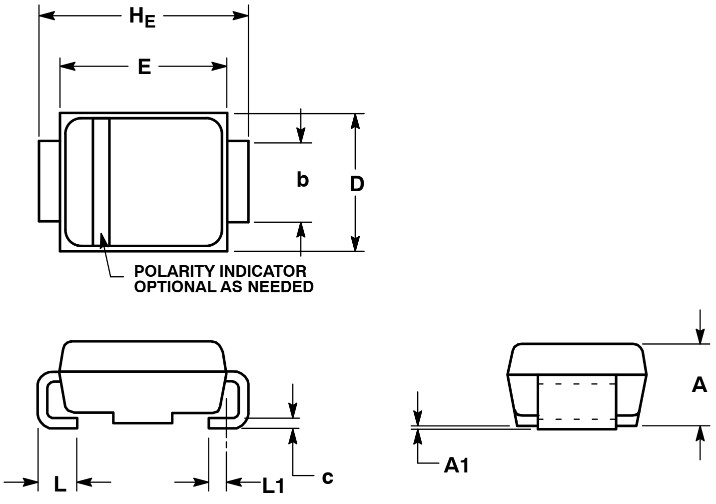


Figure 8. Power Dissipation

PACKAGE DIMENSIONS

SMB

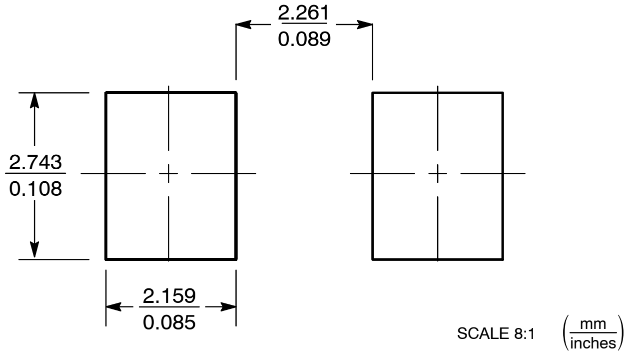
CASE 403A−03
ISSUE H



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.

	MILLIMETERS			INCHES		
DIM	**MIN**	**NOM**	**MAX**	**MIN**	**NOM**	**MAX**
A	1.90	2.20	2.28	0.075	0.087	0.090
A1	0.05	0.10	0.19	0.002	0.004	0.007
b	1.96	2.03	2.20	0.077	0.080	0.087
c	0.15	0.23	0.31	0.006	0.009	0.012
D	3.30	3.56	3.95	0.130	0.140	0.156
E	4.06	4.32	4.60	0.160	0.170	0.181
H_E	5.21	5.44	5.60	0.205	0.214	0.220
L	0.76	1.02	1.60	0.030	0.040	0.063
L1	0.51 REF			0.020 REF		

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.

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