

# MURS230T3G, NRVUS230T3G, MURS240T3G, NRVUS240T3G



**ON Semiconductor®**

<http://onsemi.com>

## 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 (0.95 Volts Max @ 2.0 A, T<sub>J</sub> = 150°C)
- AEC-Q101 Qualified and PPAP Capable
- NRVUS Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- Pb-Free Packages\*

### Mechanical Characteristics:

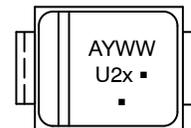
- Case: Epoxy, Molded
- Weight: 95 mg (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Polarity: Polarity Band Indicates Cathode Lead
- ESD Rating:
  - ◆ Human Body Model = 3A (> 4 kV)
  - ◆ Machine Model = C (> 400 V)

## ULTRAFAST RECTIFIERS 2 AMPERES, 300–400 VOLTS



**SMB  
CASE 403A**

### MARKING DIAGRAM



- A = Assembly Location
- Y = Year
- WW = Work Week
- U2x = Device Code
  - x = F for MURS230T3
  - = G for MURS240T3
- = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

Device	Package	Shipping†
MURS230T3G	SMB (Pb-Free)	2,500 / Tape & Reel
NRVUS230T3G	SMB (Pb-Free)	2,500 / Tape & Reel
MURS240T3G	SMB (Pb-Free)	2,500 / Tape & Reel
NRVUS240T3G	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.

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

# MURS230T3G, NRVUS230T3G, MURS240T3G, NRVUS240T3G

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage MURS230T3G/NRVUS230T3G MURS240T3G/NRVUS240T3G	$V_{RRM}$ $V_{RWM}$ $V_R$	300 400	V
Average Rectified Forward Current @ $T_L = 150^\circ\text{C}$ @ $T_L = 125^\circ\text{C}$	$I_{F(AV)}$	1.0 2.0	A
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	35	A
Operating Junction Temperature Range	$T_J$	-65 to +175	$^\circ\text{C}$

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

Rating	Symbol	Max	Unit
Thermal Resistance, Junction-to-Lead ( $T_L = 25^\circ\text{C}$ )	$R_{\theta JL}$	13	$^\circ\text{C/W}$

## ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 1) ( $i_F = 2.0\text{ A}$ , $T_J = 25^\circ\text{C}$ ) ( $i_F = 2.0\text{ A}$ , $T_J = 150^\circ\text{C}$ )	$V_F$	1.30 1.05	V
Maximum Instantaneous Reverse Current (Note 1) (Rated DC Voltage, $T_J = 25^\circ\text{C}$ ) (Rated DC Voltage, $T_J = 150^\circ\text{C}$ )	$i_R$	5.0 150	$\mu\text{A}$
Maximum Reverse Recovery Time ( $i_F = 1.0\text{ A}$ , $di/dt = 50\text{ A}/\mu\text{s}$ ) ( $i_F = 0.5\text{ A}$ , $i_R = 1.0\text{ A}$ , $I_R$ to 0.25 A)	$t_{rr}$	65 50	ns
Maximum Forward Recovery Time ( $i_F = 1.0\text{ A}$ , $di/dt = 100\text{ A}/\mu\text{s}$ , Rec. to 1.0 V)	$t_{fr}$	50	ns

1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

MURS230T3G, NRVUS230T3G, MURS240T3G, NRVUS240T3G

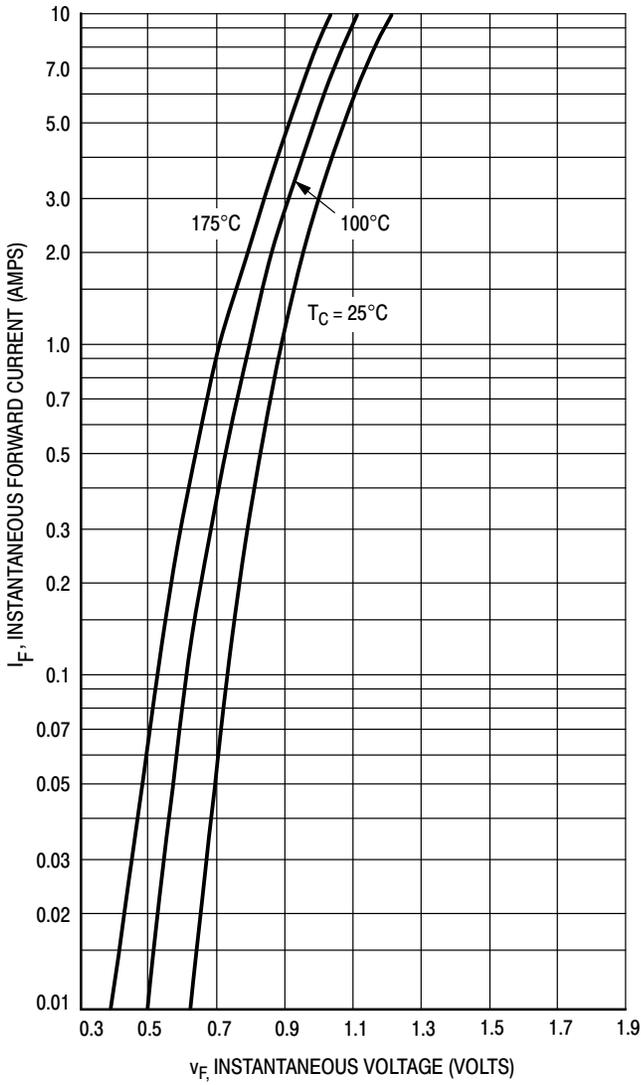


Figure 1. Typical Forward Voltage

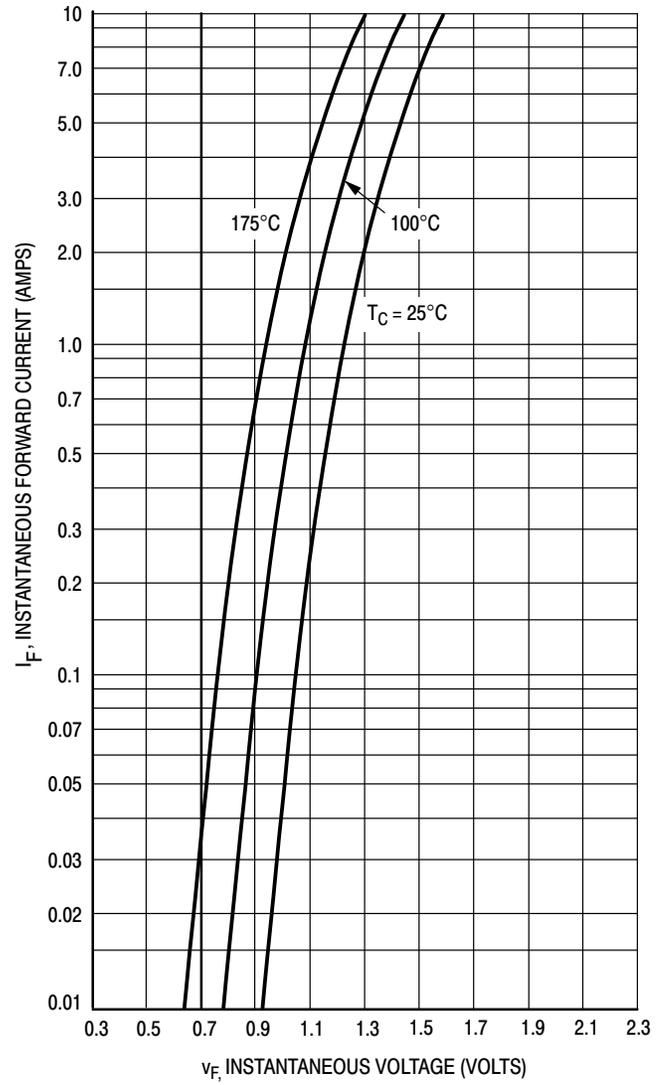


Figure 2. Maximum Forward Voltage

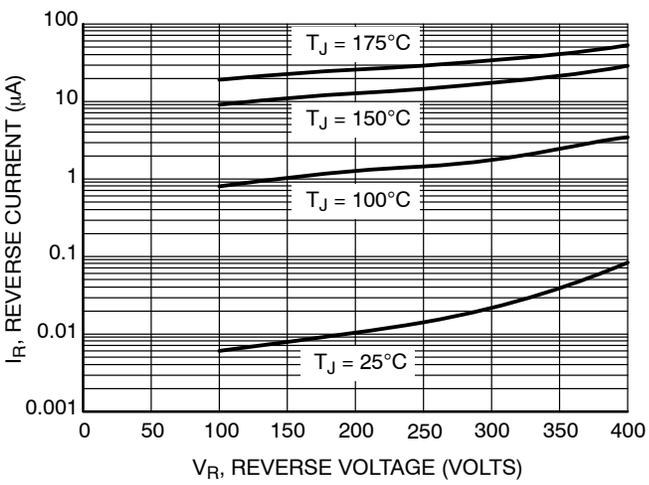


Figure 3. Typical Reverse Current\*

\* 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 applied  $V_R$  is sufficiently below rated  $V_R$ .

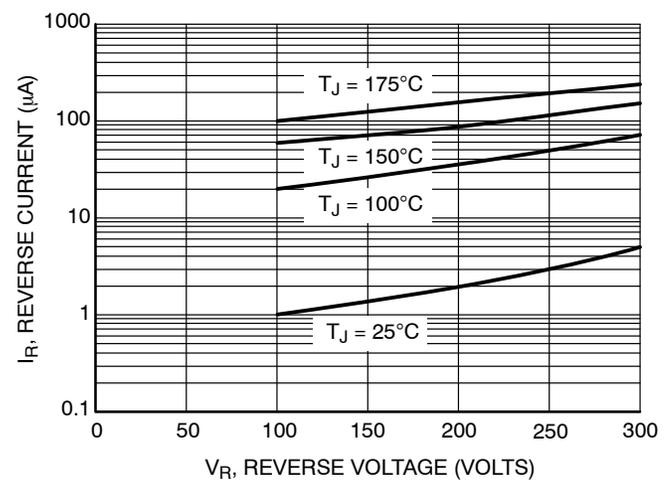


Figure 4. Maximum Reverse Current for MURS230T3G, NRVUS230T3G

MURS230T3G, NRVS230T3G, MURS240T3G, NRVS240T3G

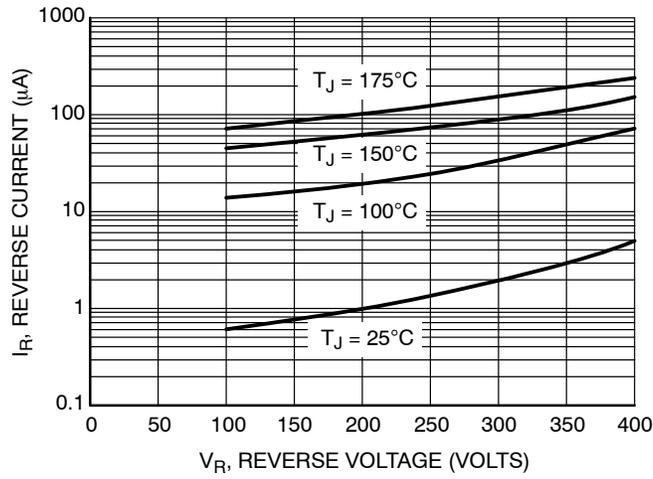


Figure 5. Maximum Reverse Current for MURS240T3G, NRVS240T3G

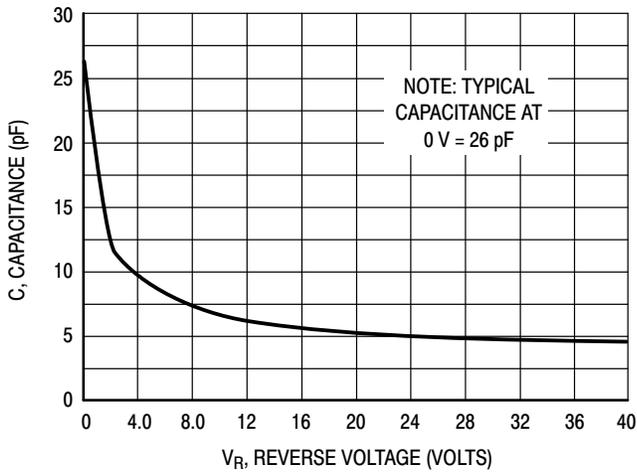


Figure 6. Typical Capacitance

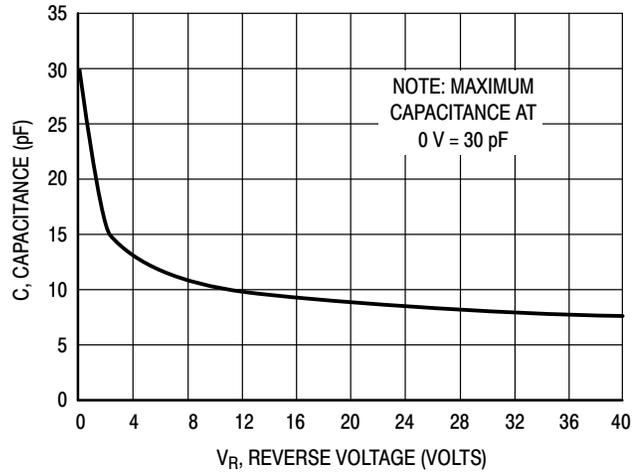


Figure 7. Maximum Capacitance

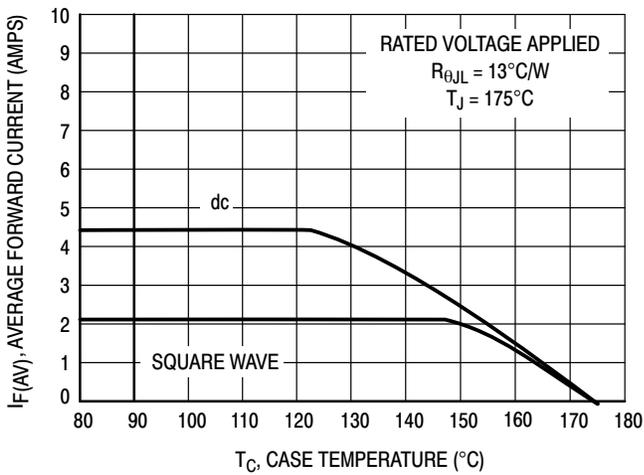


Figure 8. Current Derating, Case

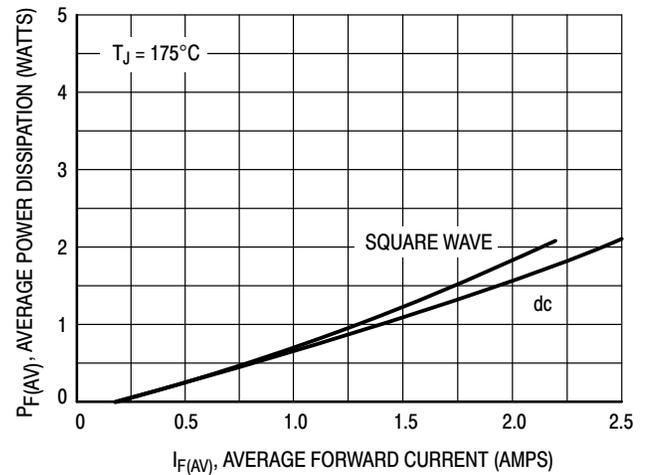
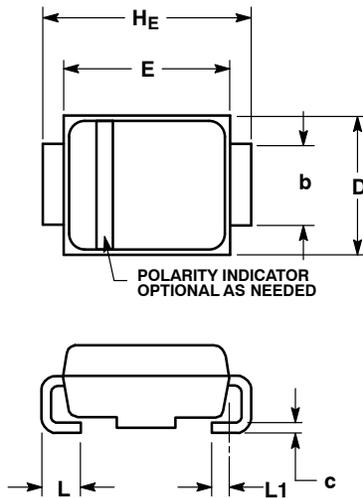


Figure 9. Power Dissipation

# MURS230T3G, NRVUS230T3G, MURS240T3G, NRVUS240T3G

## PACKAGE DIMENSIONS

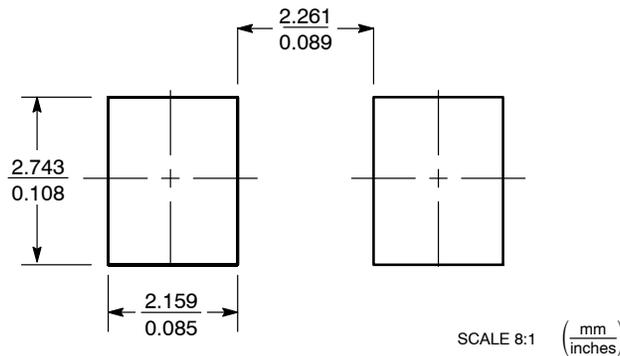
### SMB CASE 403A-03 ISSUE H



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

DIM	MILLIMETERS			INCHES		
	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
HE	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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