

# Ultra-fast Rectifiers

## MURS360B, NRVUS360VB, SURS8360B

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
- NRVUS and 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 and are RoHS Compliant

### Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets UL 94 V-O @ 0.125 in
- 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 (HBM) 3B (> 8 kV)
  - ◆ Charged Device Model (CDM) > 1000 V

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	600	V
Average Rectified Forward Current	$I_{F(AV)}$	3.0 @ $T_L = 105^\circ\text{C}$	A
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	100	A
Operating Junction and Storage Temperature Range	$T_J,$ $T_{STG}$	- 65 to +175	°C

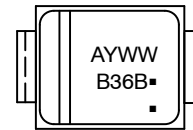
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

## ULTRAFAST RECTIFIERS 3 AMPERES 600 VOLTS



SMB  
CASE 403A

### MARKING DIAGRAM



- B36B = Specific Device Code
- A = Assembly Location
- Y = Year
- WW = Work Week
- = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

Device	Package	Shipping†
MURS360BT3G	SMB (Pb-Free)	2,500 / Tape & Reel
NRVUS360VBT3G NRVUS360VBT3G-GA01	SMB (Pb-Free)	2,500 / Tape & Reel
NRVUS360VDBT3G	SMB (Pb-Free)	2,500 / Tape & Reel
SURS8360BT3G	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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## THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction-to-Lead (Note 1)	$R_{\theta JL}$	14	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	125	$^{\circ}\text{C}/\text{W}$

1. Mounted with minimum recommended pad size, PC Board FR4.

## ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Typ	Max	Unit
Maximum Instantaneous Forward Voltage (Note 2) ( $i_F = 3.0\text{ A}$ , $T_J = 25^{\circ}\text{C}$ ) ( $i_F = 3.0\text{ A}$ , $T_J = 150^{\circ}\text{C}$ )	$V_F$	- 0.83	1.25 1.05	V
Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, $T_J = 25^{\circ}\text{C}$ ) (Rated DC Voltage, $T_J = 150^{\circ}\text{C}$ )	$i_R$	- 95	3.0 150	$\mu\text{A}$
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)	$t_{rr}$	- -	75 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

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.

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

## TYPICAL CHARACTERISTICS

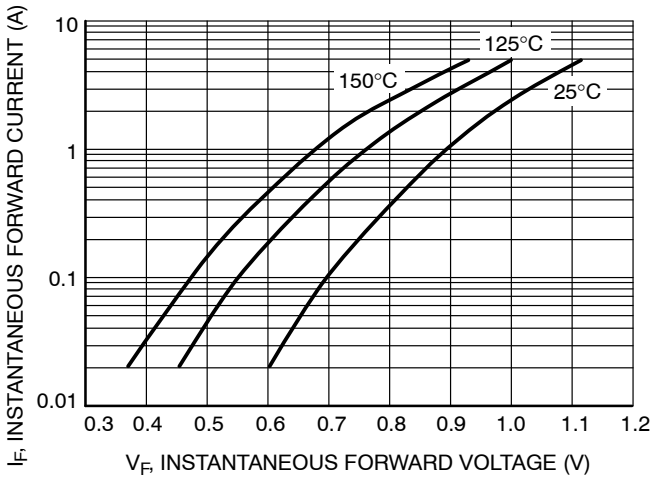


Figure 1. Typical Forward Voltage

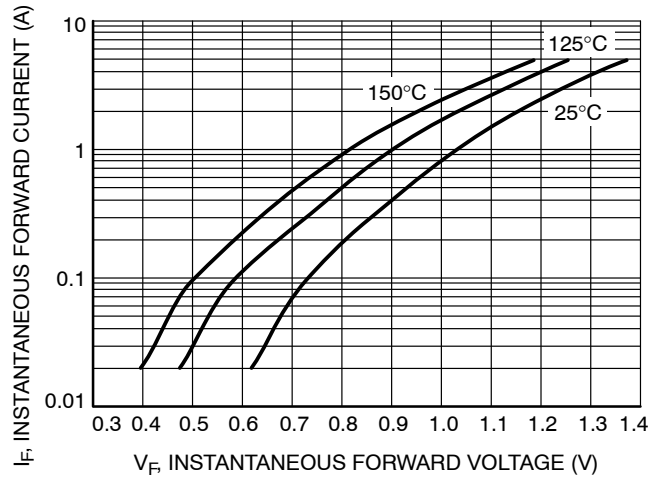


Figure 2. Maximum Forward Voltage

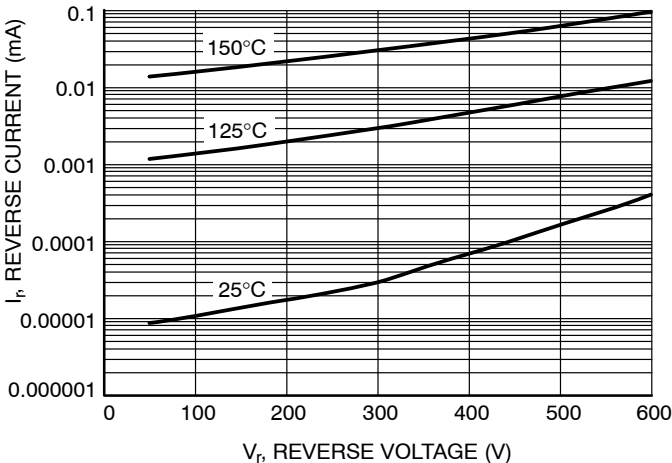


Figure 3. Typical Reverse Current

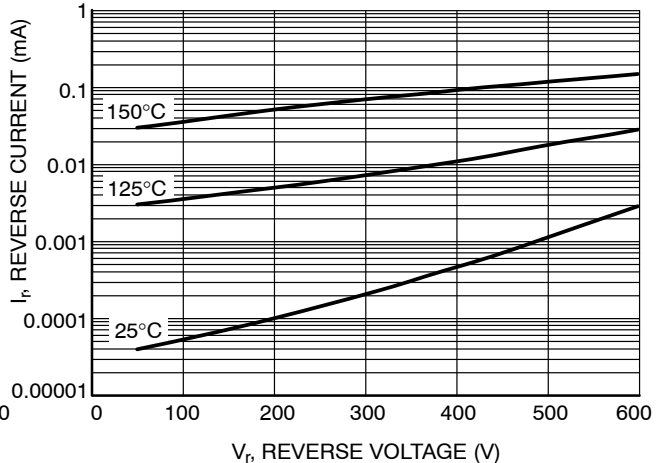


Figure 4. Maximum Reverse Current

TYPICAL CHARACTERISTICS

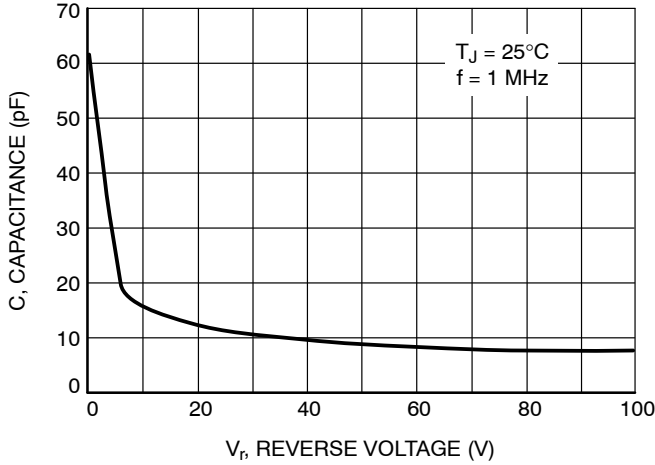


Figure 5. Typical Capacitance

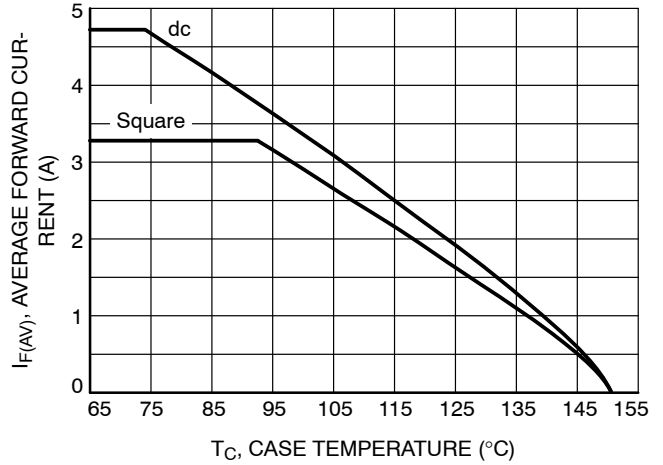


Figure 6. Current Derating, Lead

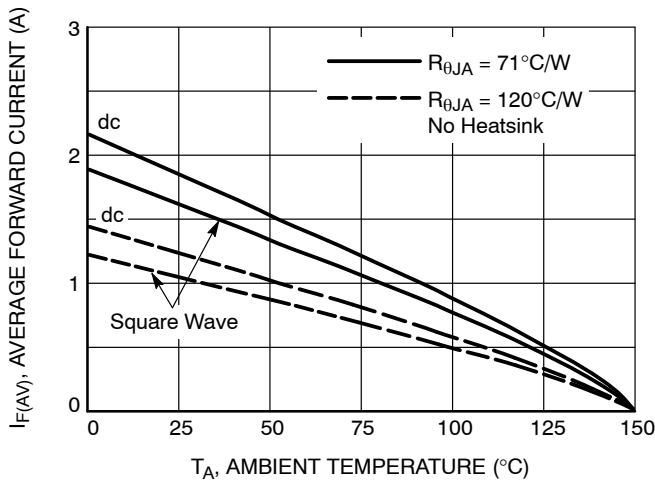


Figure 7. Current Derating, Ambient

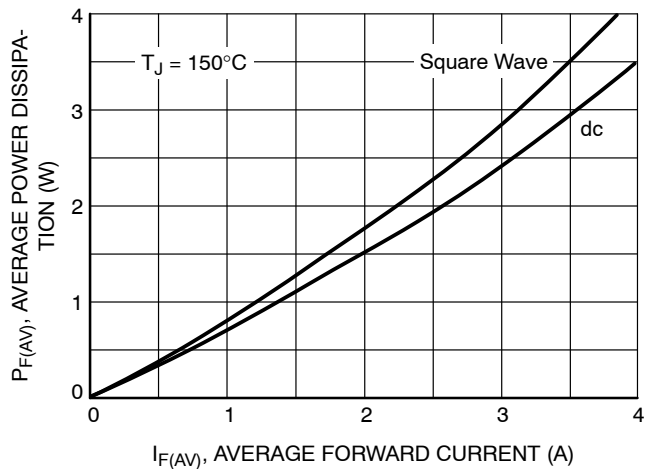


Figure 8. Typical Forward Power Dissipation

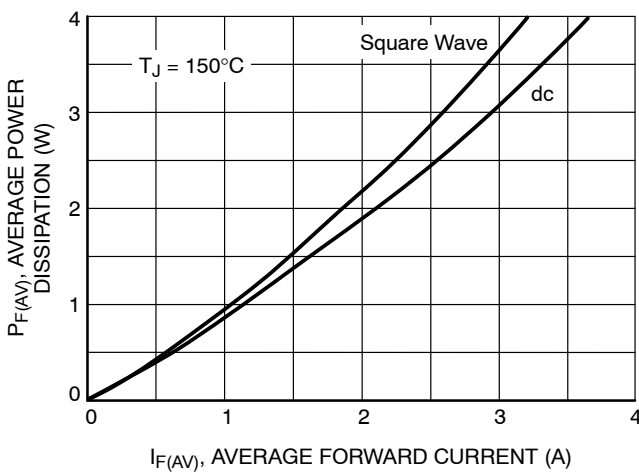


Figure 9. Maximum Forward Power Dissipation

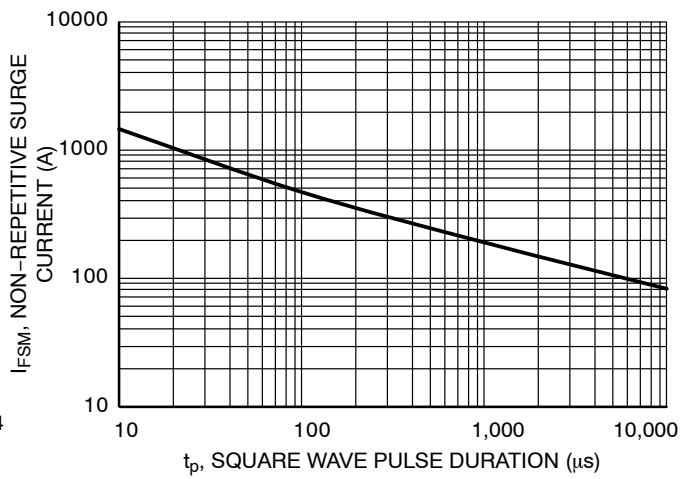


Figure 10. Typical Non-Repetitive Surge Current

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

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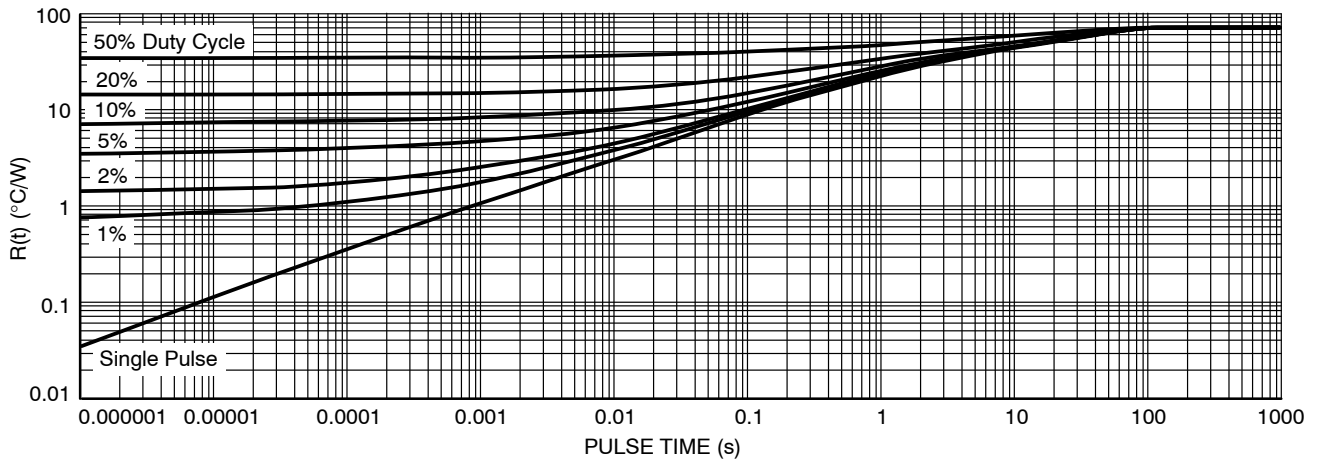


Figure 11. Thermal Response, Junction-to-Ambient

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

ON Semiconductor®



SCALE 1:1

Polarity Band

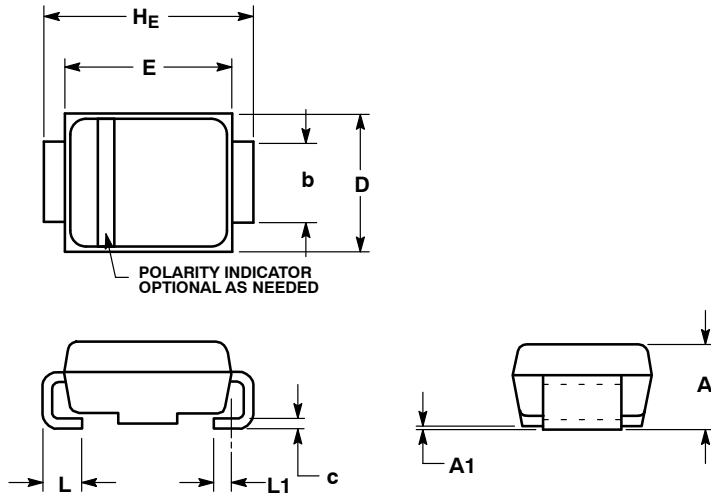


SCALE 1:1

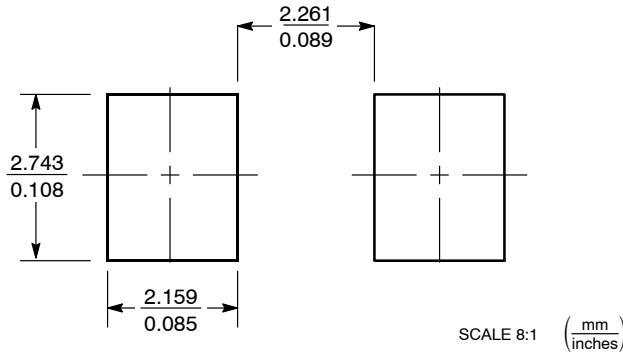
Non-Polarity Band

**SMB**  
CASE 403A-03  
ISSUE J

DATE 19 JUL 2012



**SOLDERING FOOTPRINT\***



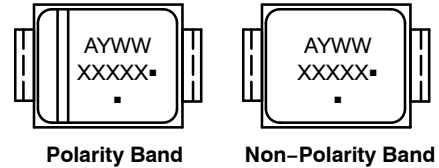
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION b SHALL BE MEASURED WITHIN DIMENSION L1.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.95	2.30	2.47	0.077	0.091	0.097
A1	0.05	0.10	0.20	0.002	0.004	0.008
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		

**GENERIC MARKING DIAGRAM\***



- XXXXX = 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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