

# MURS220T3G, NRVUS220VT3G, SURS8220T3G

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	200	V
Average Rectified Forward Current	$I_{F(AV)}$	2.0 @ $T_L = 145^\circ\text{C}$	A
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	40	A
Operating Junction Temperature Range	$T_J$	-65 to +175	$^\circ\text{C}$

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

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

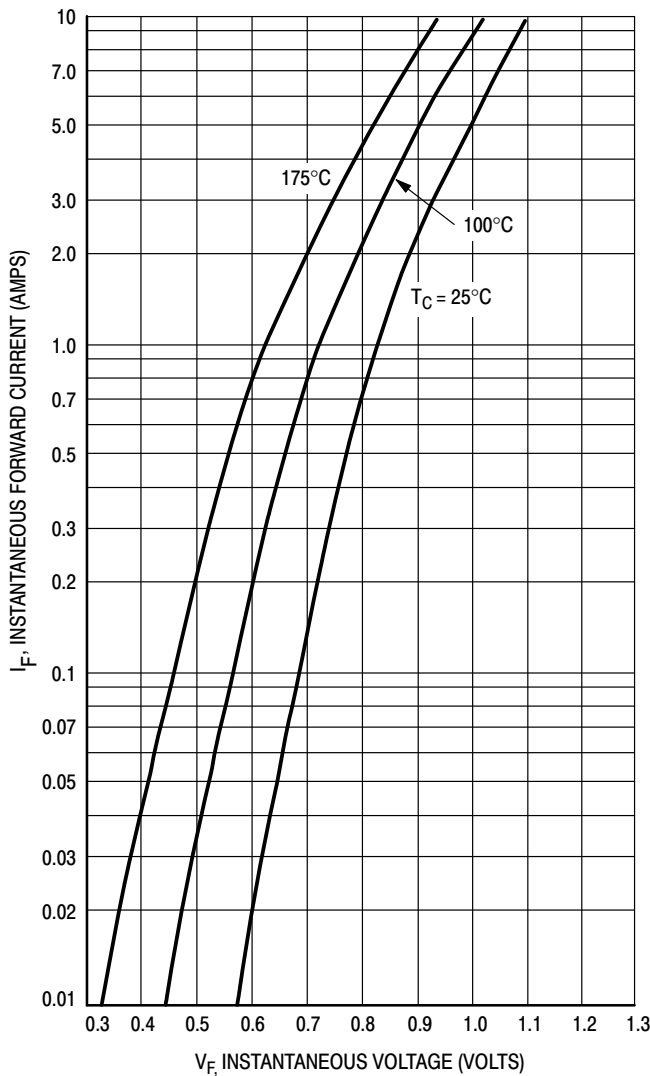
## ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 1) ( $I_F = 2.0\text{ A}$ , $T_J = 25^\circ\text{C}$ ) ( $I_F = 2.0\text{ A}$ , $T_J = 150^\circ\text{C}$ )	$V_F$	0.95 0.77	Volts
Maximum Instantaneous Reverse Current (Note 1) (Rated dc Voltage, $T_J = 25^\circ\text{C}$ ) (Rated dc Voltage, $T_J = 150^\circ\text{C}$ )	$I_R$	2.0 50	$\mu\text{A}$
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)	$t_{rr}$	35 25	ns
Maximum Forward Recovery Time ( $I_F = 1.0\text{ A}$ , $di/dt = 100\text{ A}/\mu\text{s}$ , Rec. to 1.0 V)	$t_{fr}$	25	ns

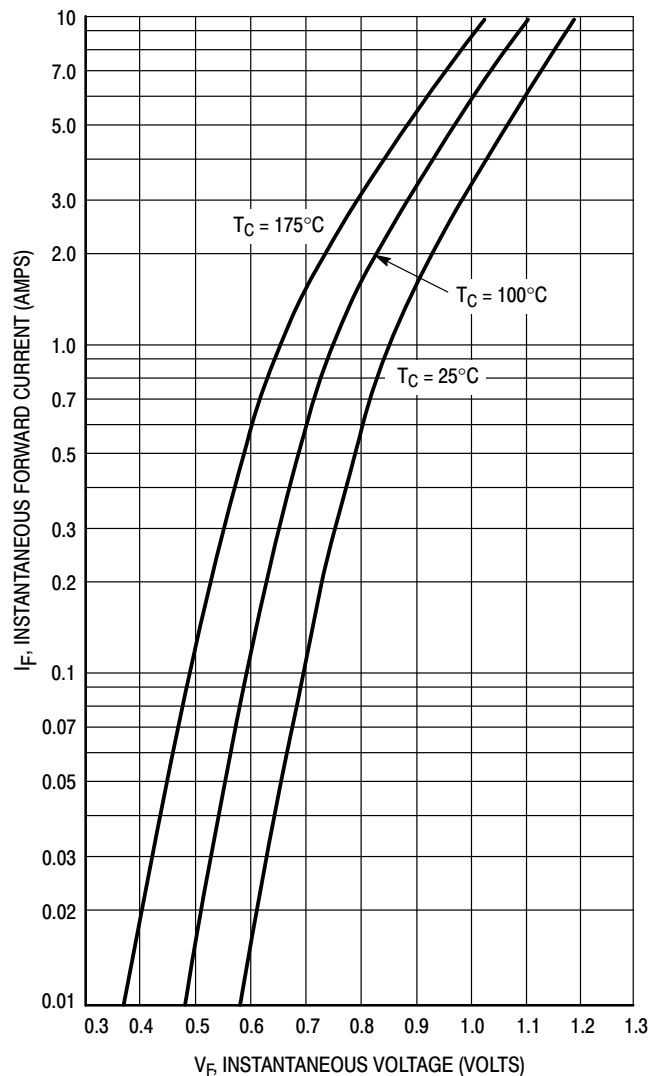
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

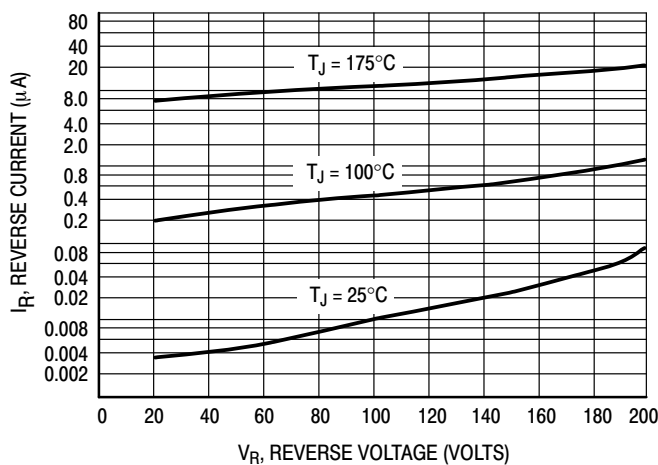
# MURS220T3G, NRVUS220VT3G, SURS8220T3G



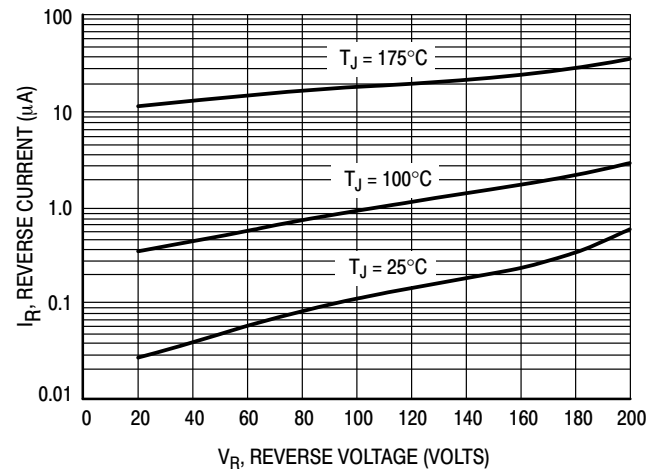
**Figure 1. Typical Forward Voltage**



**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  $V_R$ .

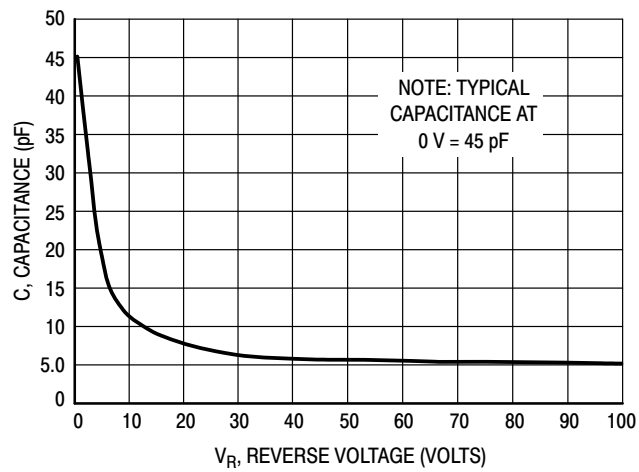


Figure 5. Typical Capacitance

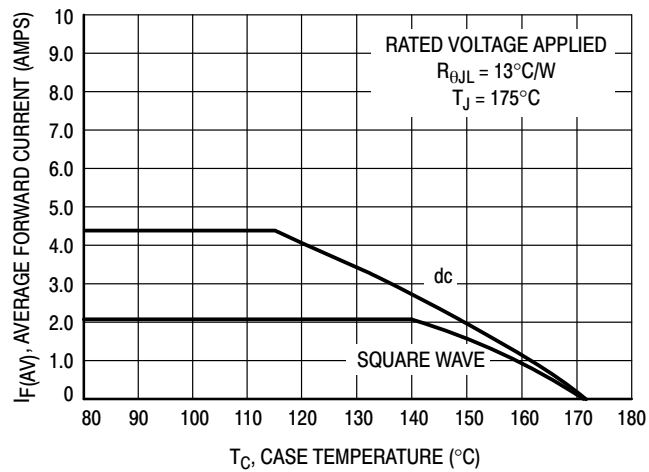


Figure 6. Current Derating, Case

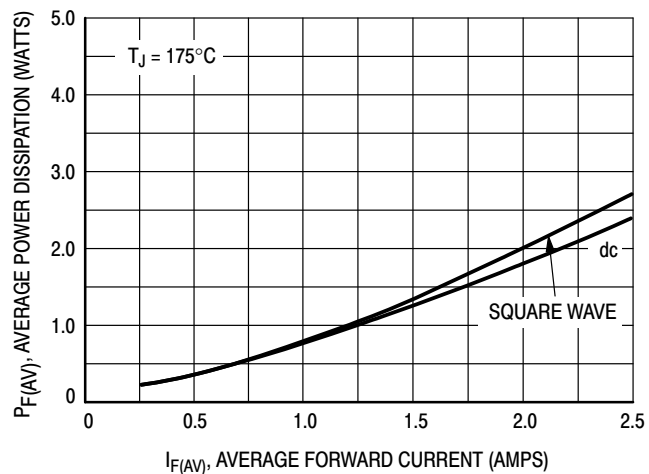


Figure 7. Power Dissipation

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

ON Semiconductor®



SCALE 1:1

Polarity Band

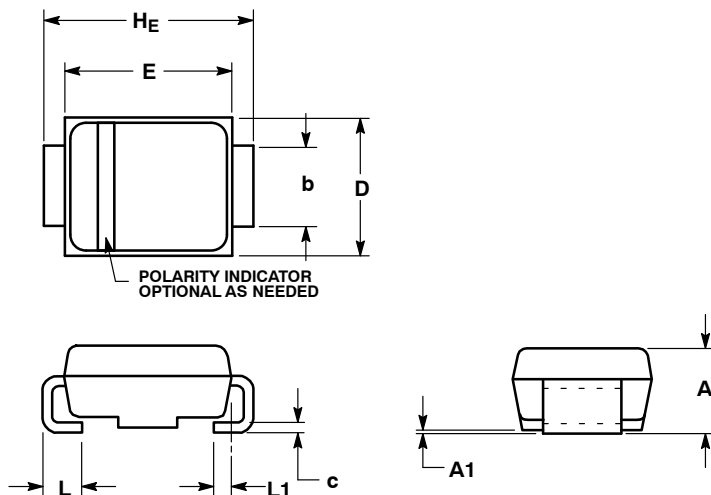


SCALE 1:1

Non-Polarity Band

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

DATE 19 JUL 2012

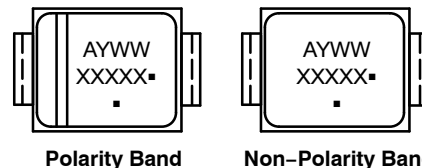


### NOTES:

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		

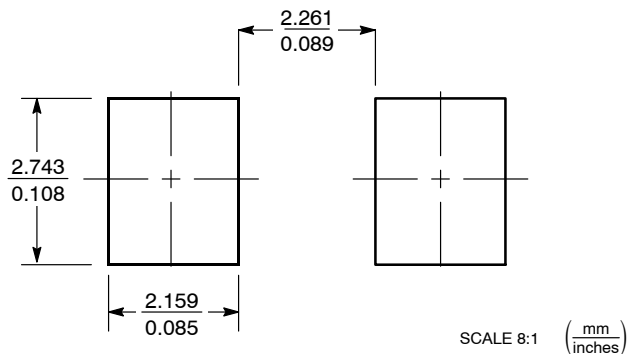
### GENERIC MARKING DIAGRAM\*



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.

### 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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