Power Rectifier, Ultra-Fast Recovery, 2 A, 200 V

MURS220, NRVUS220V, SURS8220

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
  (0.77 Volts Max @ 2.0 A, T_J = 150°C)
- NRVUS and SURS8 Prefixes 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:

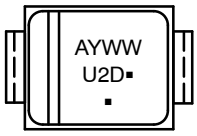
- Case: Epoxy, Molded
- Weight: 95 mg (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped in 12 mm Tape and Reel, 2500 Units per Reel
- Polarity: Polarity Band Indicates Cathode Lead
- Marking: U2D
- ESD Ratings:
  - Charged Device Model > 1000 V
  - Human Body Model = 3B (> 8 kV)

ULTRAFAST RECTIFIERS
2 AMPERES
200 VOLTS



SMB
CASE 403A

MARKING DIAGRAM



U2D	= 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†
MURS220T3G	SMB (Pb−Free)	2,500 / Tape & Reel
NRVUS220VT3G*	SMB (Pb−Free)	2,500 / Tape & Reel
NRVUS220VT3G−GA01*	SMB (Pb−Free)	2,500 / Tape & Reel
SURS8220T3G*	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 Specification Brochure, BRD8011/D.

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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°C	A
Non−Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	40	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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction−to−Lead	$R_{\theta JL}$	13	°C/W
Thermal Resistance, Junction−to−Ambient (Note 1)	$R_{\theta JA}$	66	°C/W

1. Mounted on a 650mm^2, 2 ounce copper pad.

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) (I_F = 2.0 A, T_J = 25°C) (I_F = 2.0 A, T_J = 150°C)	v_F	 0.95 0.77	Volts
Maximum Instantaneous Reverse Current (Note 2) (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}	 35 25	ns
Maximum Forward Recovery Time (I_F = 1.0 A, di/dt = 100 A/μs, 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.

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

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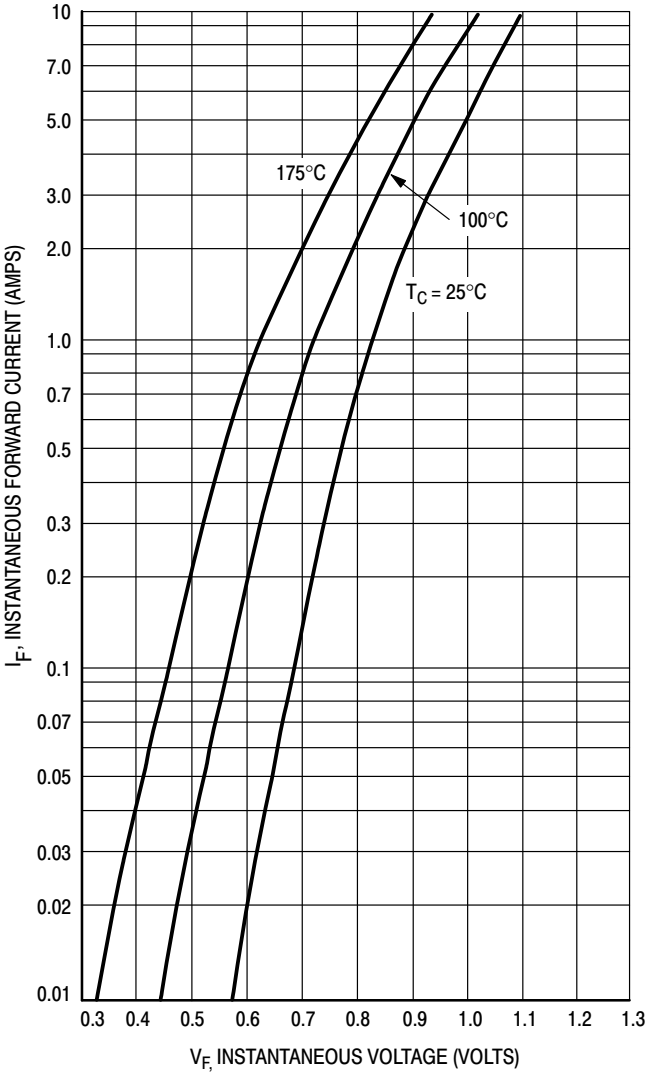


Figure 1. Typical Forward Voltage

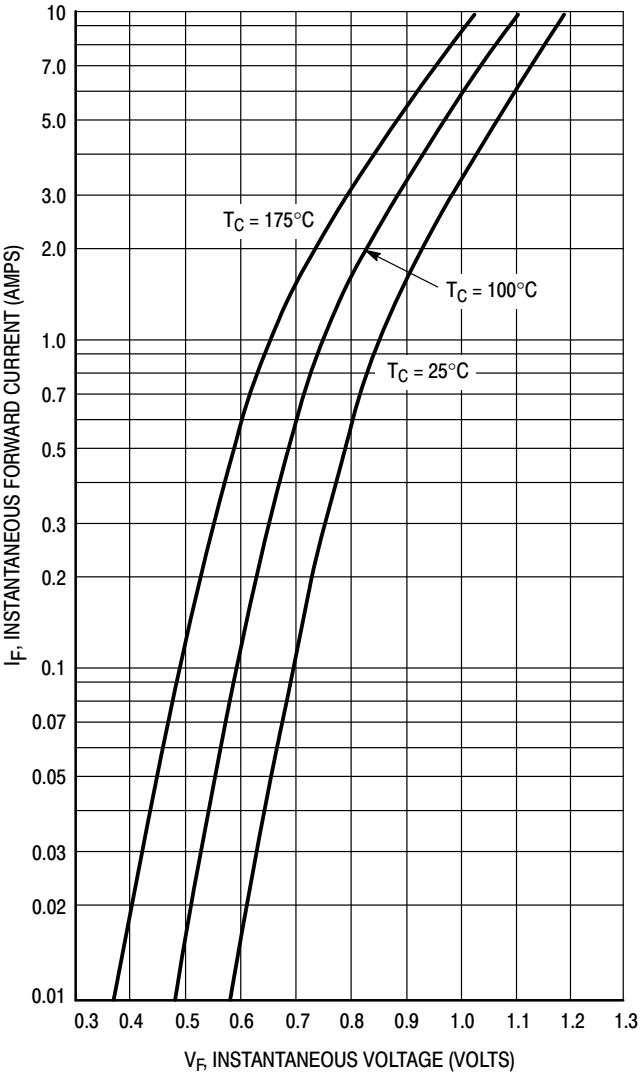


Figure 2. Maximum Forward Voltage

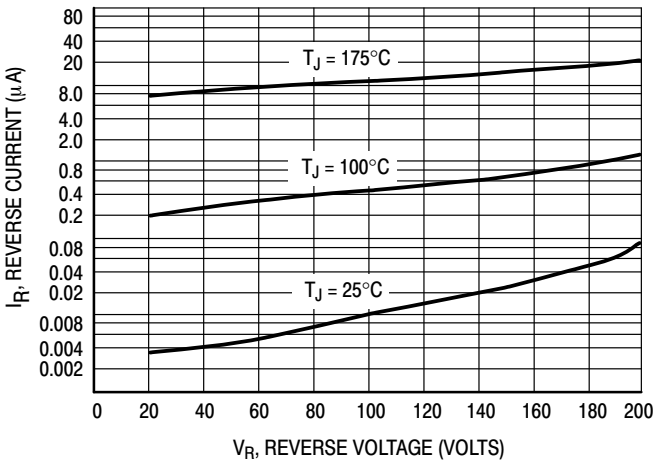


Figure 3. Typical Reverse Current*

* 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.

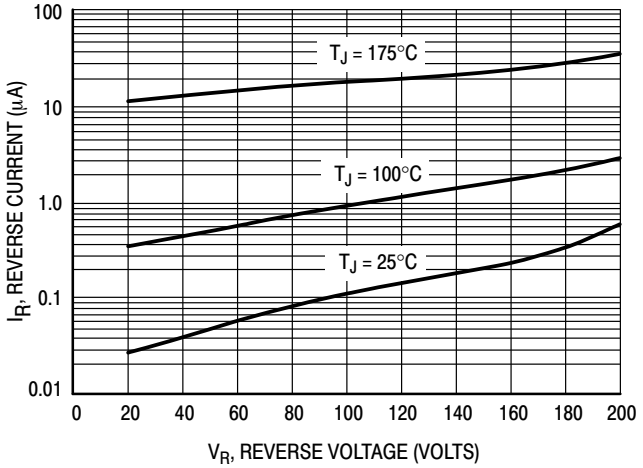


Figure 4. Maximum Reverse Current

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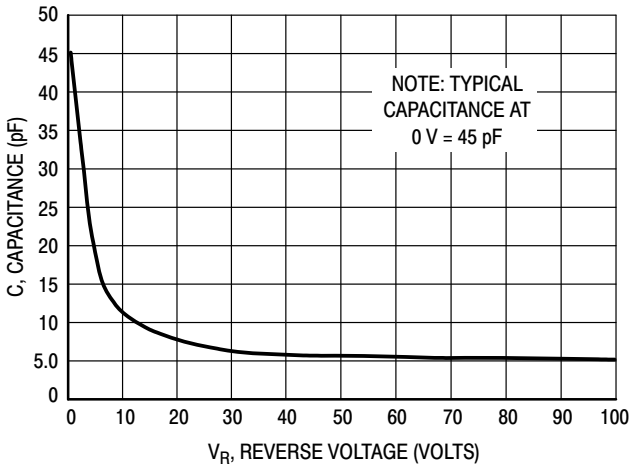


Figure 5. Typical Capacitance

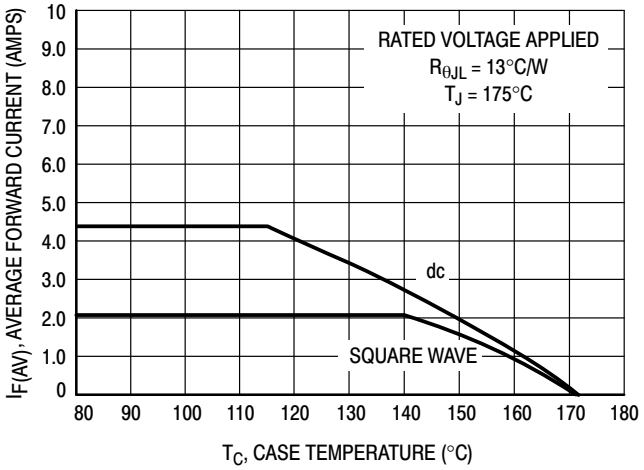


Figure 6. Current Derating, Case

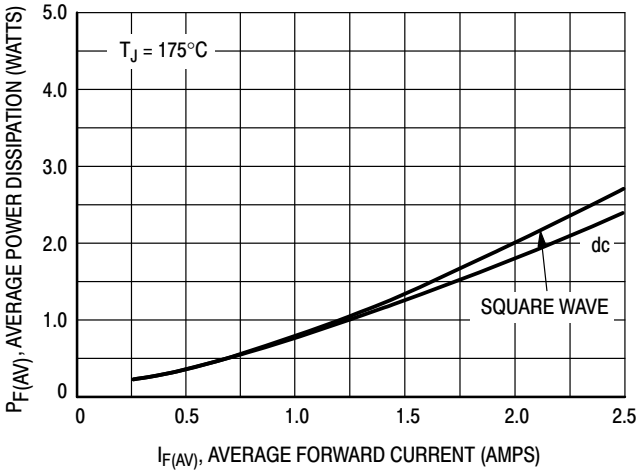


Figure 7. Power Dissipation

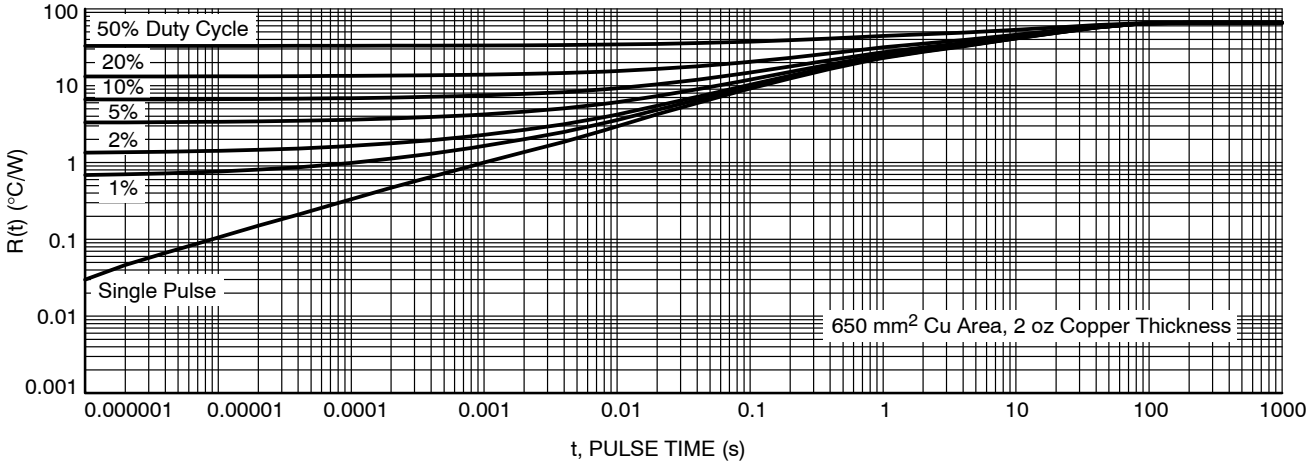


Figure 8. Thermal Response

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CASE 403A−03
ISSUE J

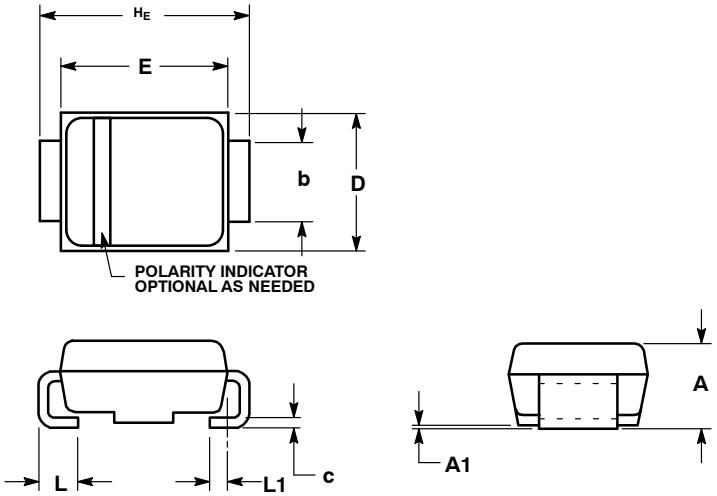
DATE 19 JUL 2012



SCALE 1:1
Polarity Band



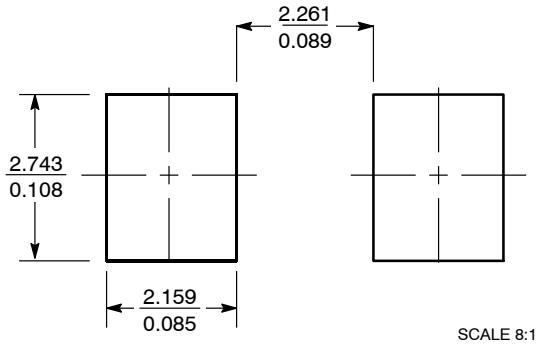
SCALE 1:1
Non−Polarity Band



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

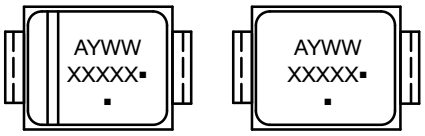
	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	1.95	2.30	2.47	0.077	0.091	0.097
A1	0.05	0.10	0.20	0.002	0.004	0.008
b	1.96	2.03	2.20	0.077	0.080	0.087
c	0.15	0.23	0.31	0.006	0.009	0.012
D	3.30	3.56	3.95	0.130	0.140	0.156
E	4.06	4.32	4.60	0.160	0.170	0.181
H_E	5.21	5.44	5.60	0.205	0.214	0.220
L	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 **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

GENERIC MARKING DIAGRAM*



Polarity Band **Non−Polarity Band**

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. Some products may not follow the Generic Marking.

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