



# THE DATASHEET OF MUR220G



# MUR220

Preferred Device

## SWITCHMODE™ Power Rectifier

These state-of-the-art devices are designed for use in switching power supplies, inverters and as free wheeling diodes.

### Features

- Ultrafast 25 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- These are Pb-Free Devices\*

### Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 0.4 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Polarity: Cathode Indicated by Polarity Band

### 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 (Note 1) (Square Wave Mounting Method #3 Per Note 3)	$I_{F(AV)}$	2.0 @ $T_A = 90^\circ\text{C}$	A
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	$I_{FSM}$	35	A
Operating Junction Temperature and Storage Temperature Range	$T_J, T_{stg}$	– 65 to +175	°C

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	(Note 3)	°C/W

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.

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

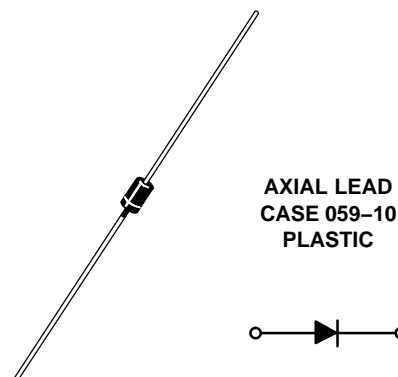
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



ON Semiconductor®

<http://onsemi.com>

## ULTRAFAST RECTIFIER 2.0 AMPERES – 200 VOLTS



AXIAL LEAD  
CASE 059-10  
PLASTIC

### MARKING DIAGRAM



A = Assembly Location  
MUR220 = Device Code  
YY = Year  
WW = Work Week  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

Device	Package	Shipping†
MUR220	Axial Lead**	1000 Units / Bulk
MUR220G	Axial Lead**	1000 Units / Bulk
MUR220RL	Axial Lead**	5000 / Tape & Reel
MUR220RLG	Axial Lead**	5000 / 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.

\*\*This package is inherently Pb-Free.

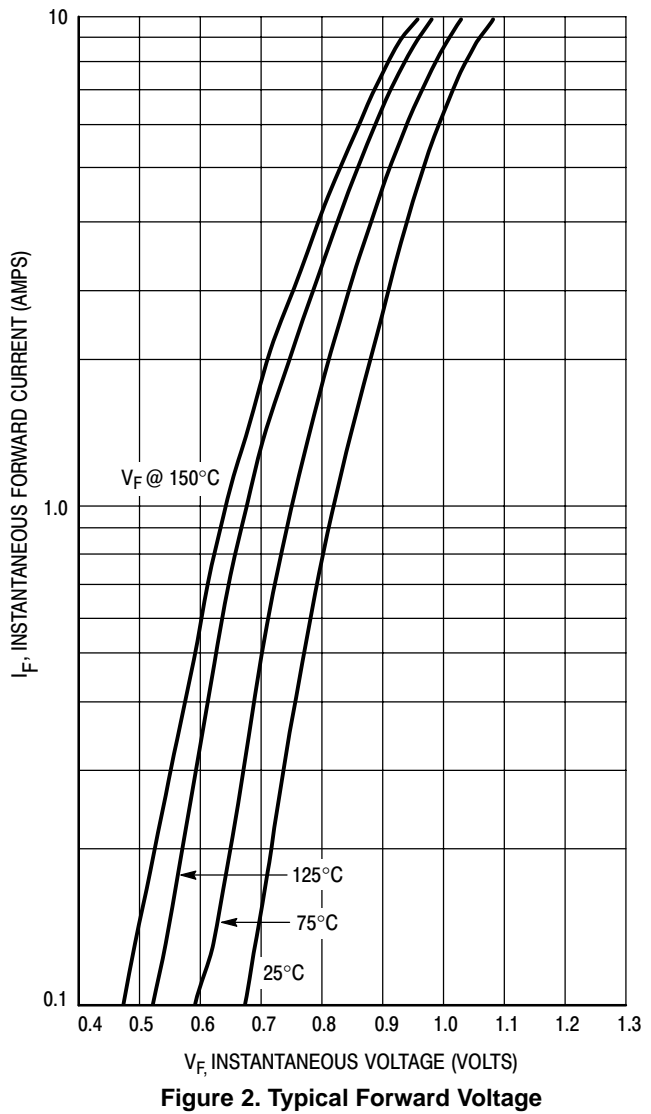
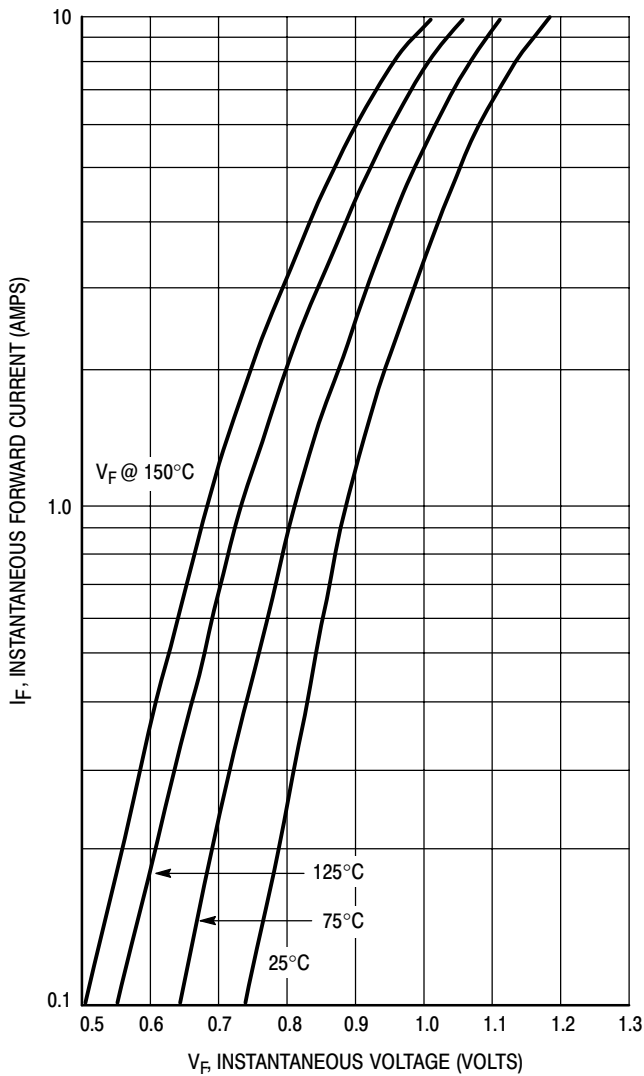
Preferred devices are recommended choices for future use and best overall value.

# MUR220

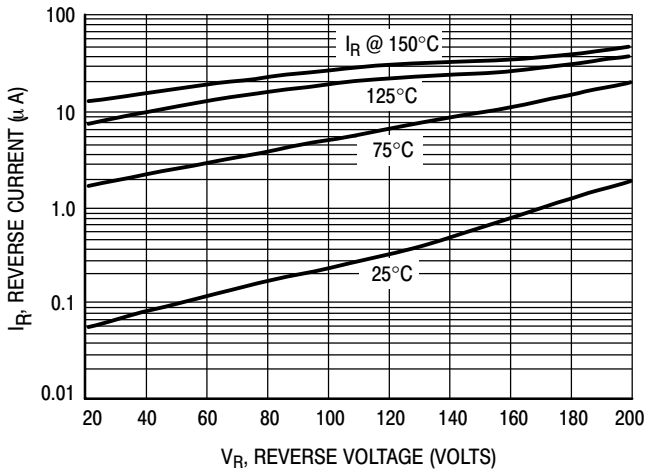
## ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) ( $I_F = 2.0$ Amp, $T_J = 150^\circ\text{C}$ ) ( $I_F = 2.0$ Amp, $T_J = 25^\circ\text{C}$ )	$V_F$	0.75 0.95	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, $T_J = 150^\circ\text{C}$ ) (Rated dc Voltage, $T_J = 25^\circ\text{C}$ )	$i_R$	50 2.0	$\mu\text{A}$
Maximum Reverse Recovery Time ( $I_F = 1.0$ Amp, $di/dt = 50$ Amp/ $\mu\text{s}$ ) ( $I_F = 0.5$ Amp, $I_R = 1.0$ Amp, $I_{REC} = 0.25$ A)	$t_{rr}$	35 25	ns
Maximum Forward Recovery Time ( $I_F = 1.0$ A, $di/dt = 100$ A/ $\mu\text{s}$ , $I_{REC}$ to 1.0 V)	$t_{fr}$	25	ns

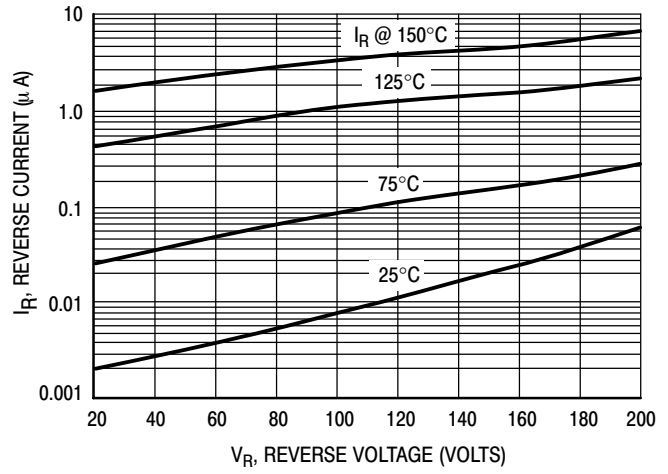
2. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .



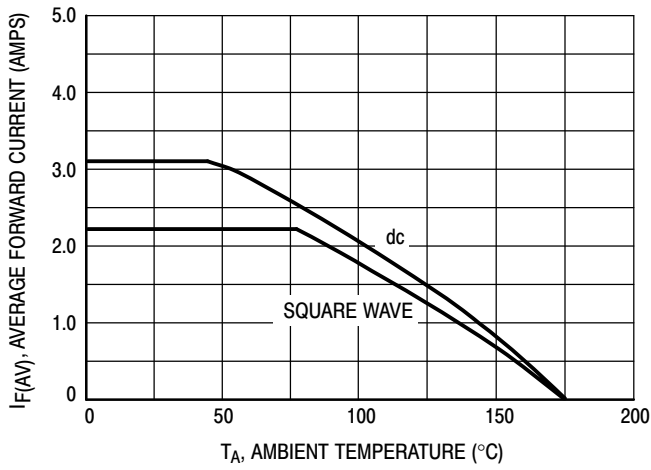
# MUR220



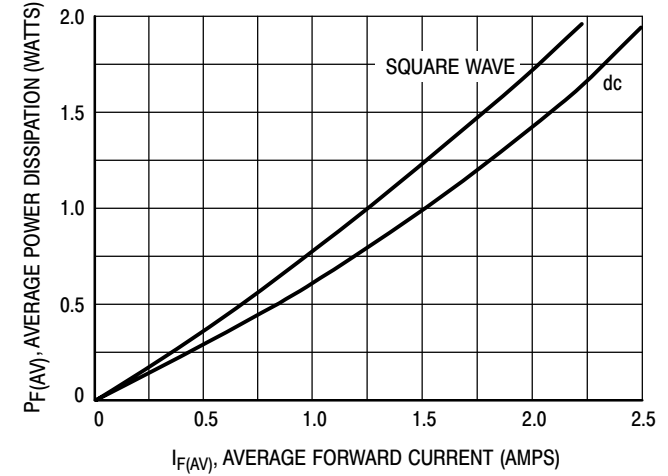
**Figure 3. Maximum Reverse Current**



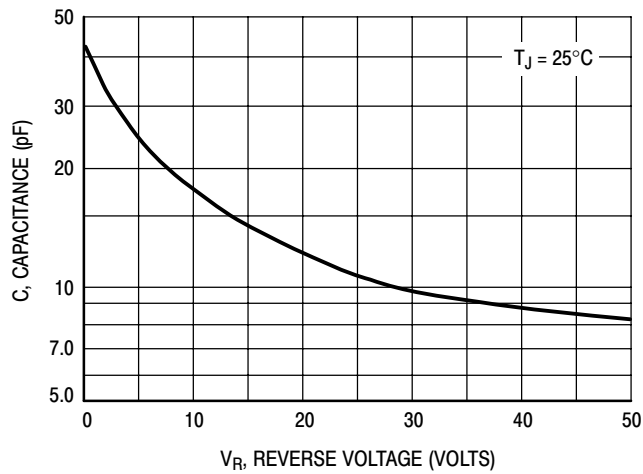
**Figure 4. Typical Reverse Current**



**Figure 5. Current Derating**



**Figure 6. Power Dissipation**



**Figure 7. Typical Capacitance**

# MUR220

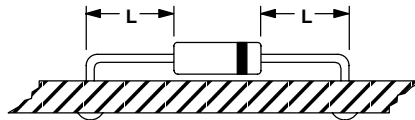
## NOTE 3. – AMBIENT MOUNTING DATA

Data shown for Thermal Resistance, Junction-to-Ambient ( $R_{\theta JA}$ ) for the mountings shown is to be used as typical guideline values for preliminary engineering or in case the tie point temperature cannot be measured.

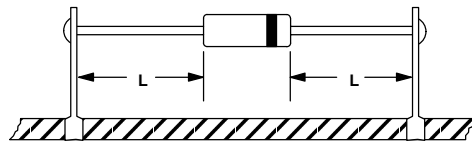
### TYPICAL VALUES FOR $R_{\theta JA}$ IN STILL AIR

Mounting Method	$R_{\theta JA}$	Lead Length, L			Units
		1/8	1/4	1/2	
1		52	65	72	$^{\circ}\text{C}/\text{W}$
2		67	80	87	$^{\circ}\text{C}/\text{W}$
3		50			$^{\circ}\text{C}/\text{W}$

#### MOUNTING METHOD 1

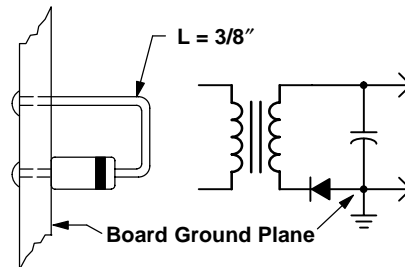


#### MOUNTING METHOD 2



#### Vector Pin Mounting

#### MOUNTING METHOD 3

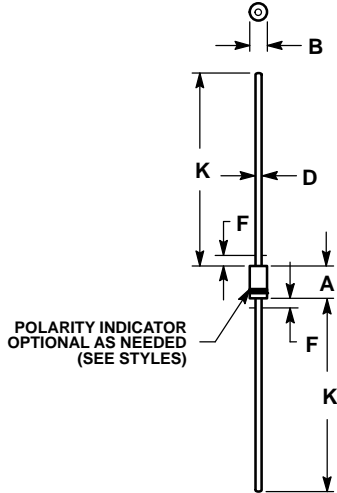


#### P.C. Board with 1-1/2" X 1-1/2" Copper Surface

# MUR220

## PACKAGE DIMENSIONS

### AXIAL LEAD CASE 59-10 ISSUE U



#### NOTES:


1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO-41 OUTLINE SHALL APPLY
4. POLARITY DENOTED BY CATHODE BAND.
5. LEAD DIAMETER NOT CONTROLLED WITHIN F DIMENSION.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.161	0.205	4.10	5.20
B	0.079	0.106	2.00	2.70
D	0.028	0.034	0.71	0.86
F	----	0.050	----	1.27
K	1.000	----	25.40	----

#### STYLE 1:

1. CATHODE (POLARITY BAND)
2. ANODE

SWITCHMODE is a trademark of Semiconductor Components Industries, LLC.

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

#### PUBLICATION ORDERING INFORMATION

##### LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor  
P.O. Box 5163, Denver, Colorado 80217 USA  
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada  
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada  
Email: [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

N. American Technical Support: 800-282-9855 Toll Free  
USA/Canada  
Europe, Middle East and Africa Technical Support:  
Phone: 421 33 790 2910  
Japan Customer Focus Center  
Phone: 81-3-5773-3850

ON Semiconductor Website: [www.onsemi.com](http://www.onsemi.com)

Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local  
Sales Representative

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View MUR220G](#) on WIN SOURCE
- ⊖ [ON Semiconductor](#) Information

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management