

# MUR220

Preferred Device

## SWITCHMODE™ Power Rectifier

... designed for use in switching power supplies, inverters and as free wheeling diodes, these state-of-the-art devices have the following features:

- Ultrafast 25 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction

### Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 220°C Max. for 10 Seconds, 1/16" from case
- Shipped in plastic bags, 1000 per bag
- Available Tape and Reeled, 5000 per reel, by adding a "RL" suffix to the part number
- Polarity: Cathode Indicated by Polarity Band
- Marking: MUR220

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	200 —	Volts
Average Rectified Forward Current (Note 1.) (Square Wave Mounting Method #3 Per Note 3.)	$I_{F(AV)}$	2.0 @ $T_A = 90^\circ\text{C}$	Amps
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	$I_{FSM}$	35	Amps
Operating Junction Temperature and Storage Temperature Range	$T_J, T_{Stg}$	-65 to +175	°C

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



ON Semiconductor®

<http://onsemi.com>

ULTRAFAST  
RECTIFIER  
2 AMPERES  
200 VOLTS



AXIAL LEAD  
CASE 059-10  
PLASTIC

### MARKING DIAGRAM



MUR220 = Device Code

### ORDERING INFORMATION

Device	Package	Shipping
MUR220	Axial Lead	1000 Units/Bag
MUR220RL	Axial Lead	5000/Tape & Reel

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

# MUR220

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	See Note 3.	$^{\circ}C/W$

## ELECTRICAL CHARACTERISTICS

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

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

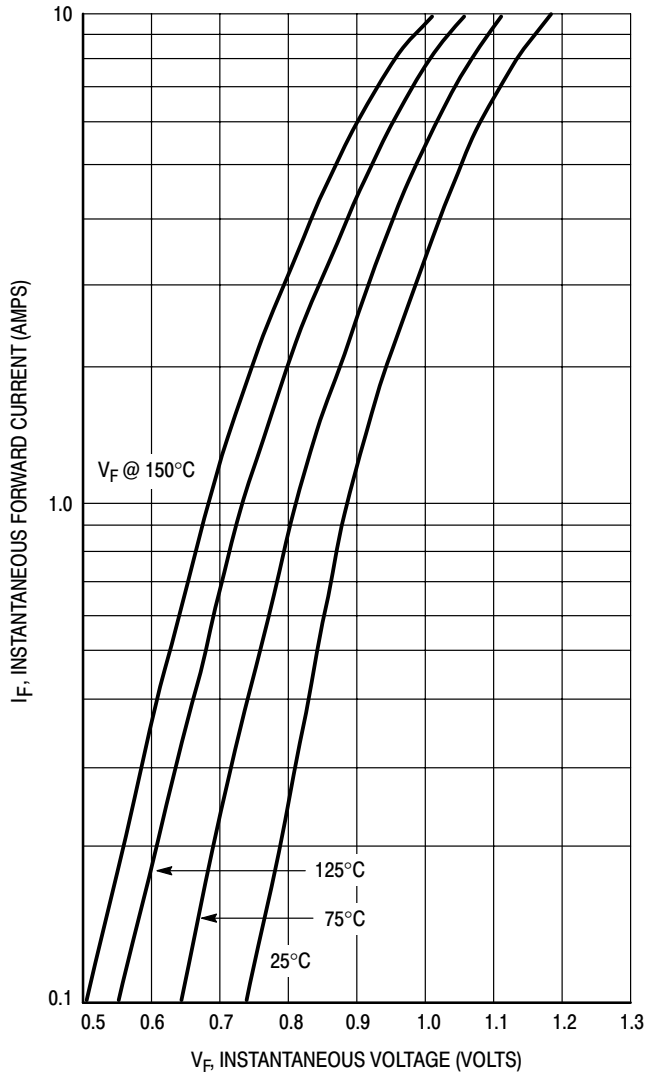


Figure 1. Maximum Forward Voltage

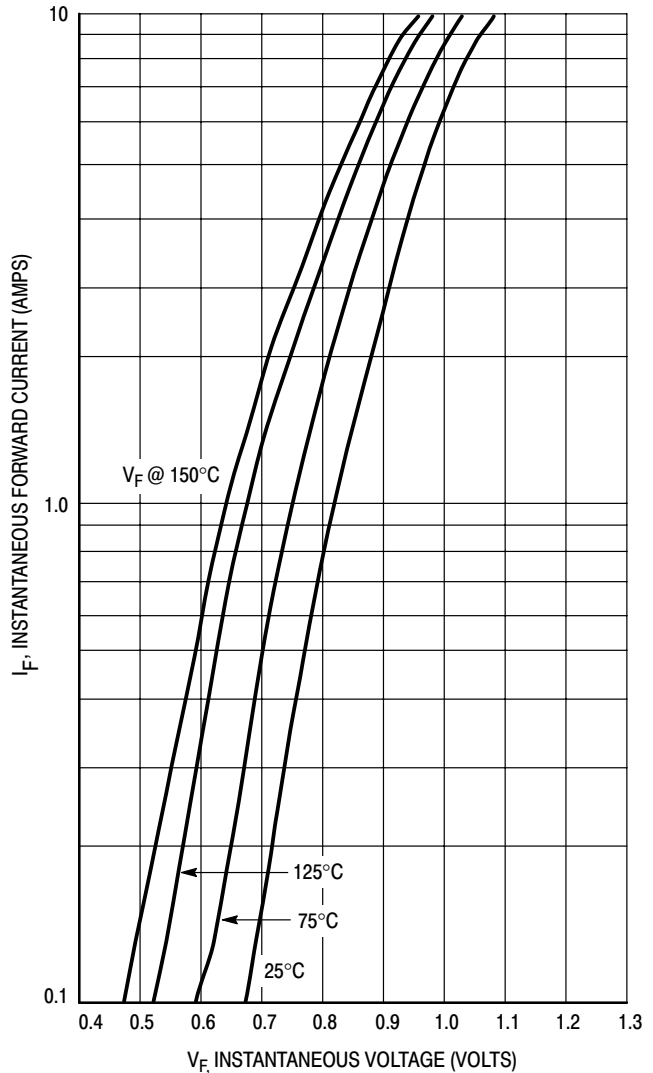
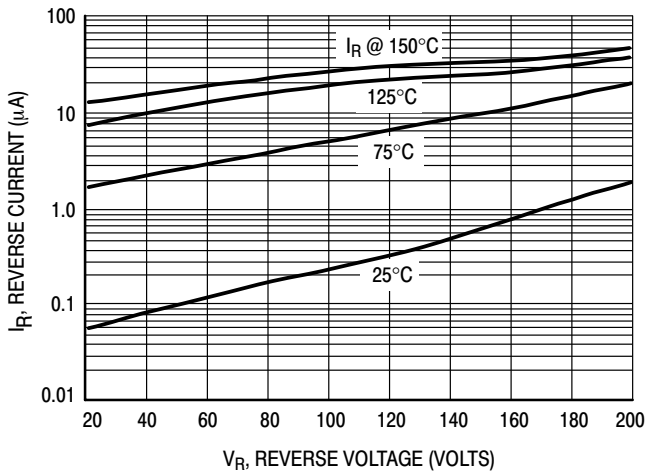
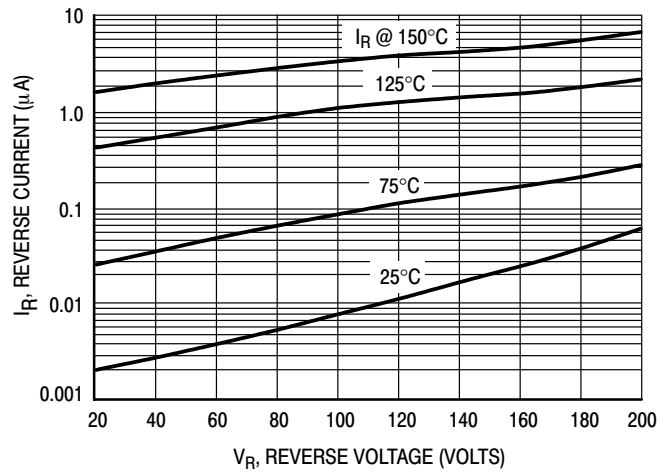


Figure 2. Typical Forward Voltage

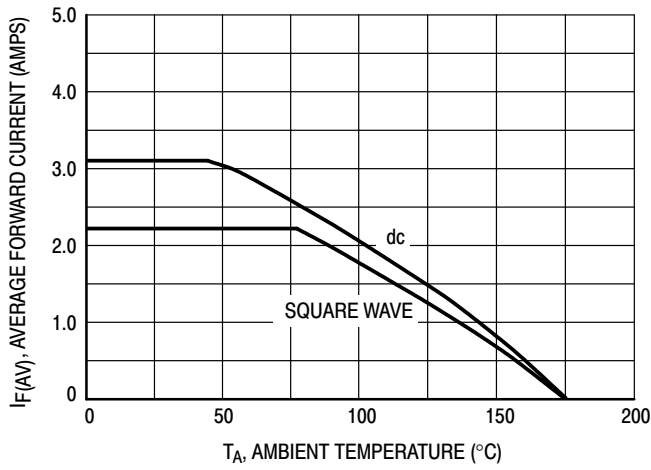
# MUR220



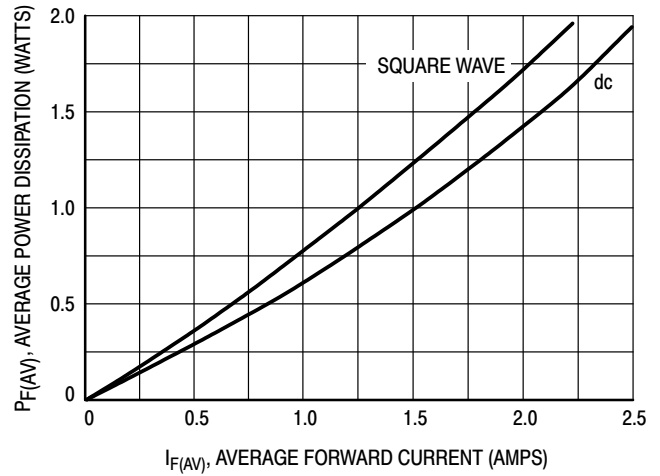
**Figure 3. Maximum Reverse Current**



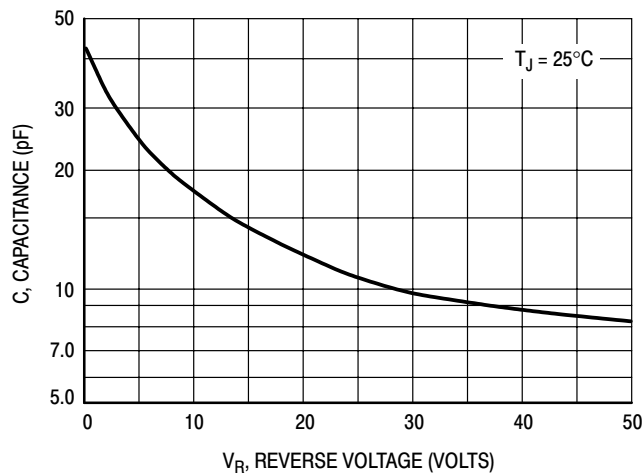
**Figure 4. Typical Reverse Current**



**Figure 5. Current Derating**



**Figure 6. Power Dissipation**



**Figure 7. Typical Capacitance**

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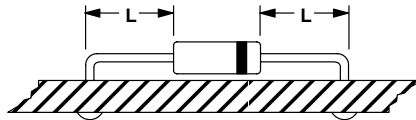
## NOTE 3. – AMBIENT MOUNTING DATA

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.

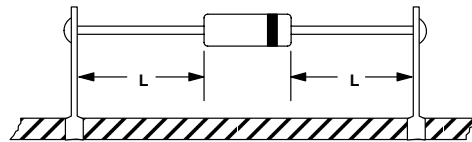
### TYPICAL VALUES FOR $R_{\theta JA}$ IN STILL AIR

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

#### MOUNTING METHOD 1

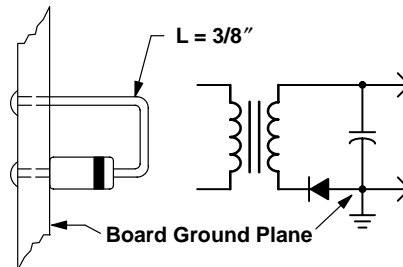


#### MOUNTING METHOD 2



#### Vector Pin Mounting

#### MOUNTING METHOD 3

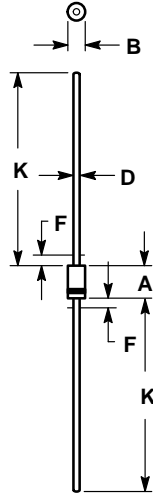


#### P.C. Board with 1-1/2" X 1-1/2" Copper Surface

# MUR220

## PACKAGE DIMENSIONS

### MINI MOSORB CASE 59-10 ISSUE S



#### NOTES:


1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 59-04 OBSOLETE, NEW STANDARD 59-09.
4. 59-03 OBSOLETE, NEW STANDARD 59-10.
5. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO-41 OUTLINE SHALL APPLY
6. POLARITY DENOTED BY CATHODE BAND.
7. 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	---

**Notes**

**Notes**

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