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°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.

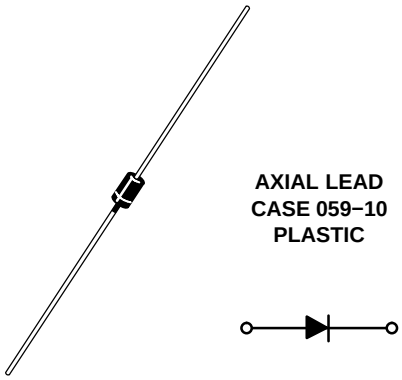
1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

*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.

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) (I_F = 2.0 Amp, T_J = 150°C) (I_F = 2.0 Amp, T_J = 25°C)	v_F	 0.75 0.95	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, T_J = 150°C) (Rated dc Voltage, T_J = 25°C)	i_R	 50 2.0	μA
Maximum Reverse Recovery Time (I_F = 1.0 Amp, di/dt = 50 Amp/μs) (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/μs, I_{REC} to 1.0 V)	t_{fr}	25	ns

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

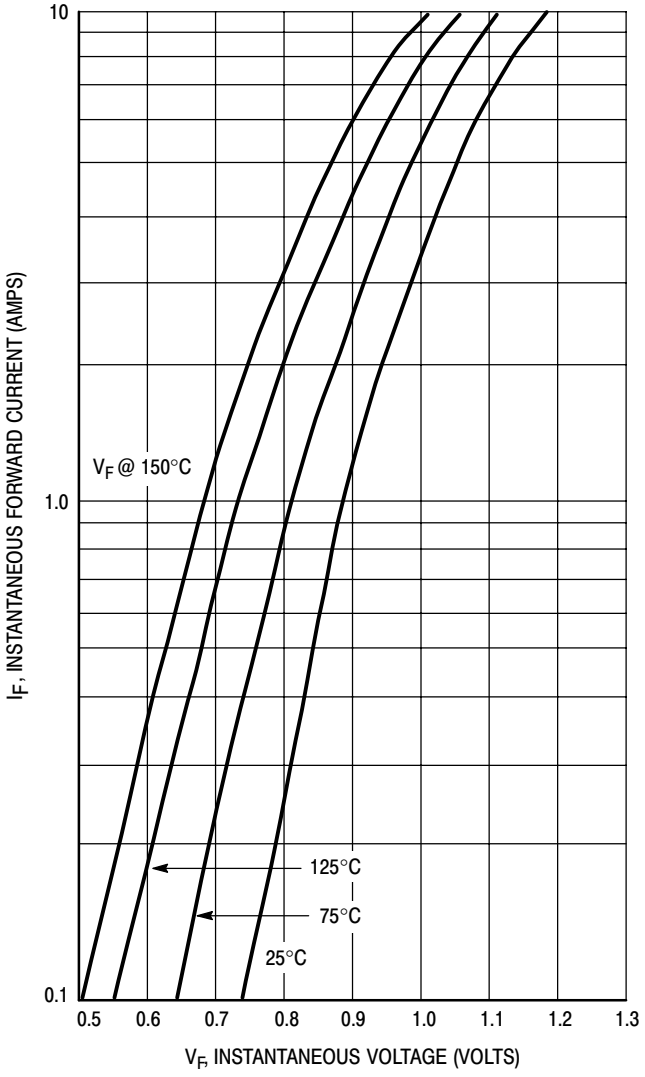


Figure 1. Maximum Forward Voltage

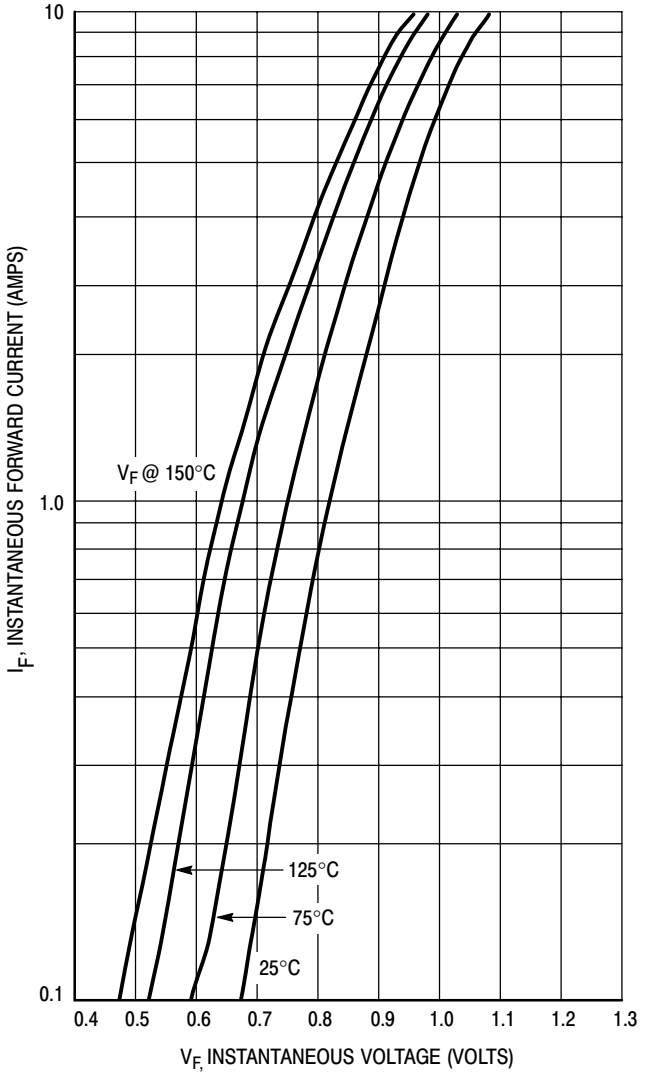


Figure 2. Typical Forward Voltage

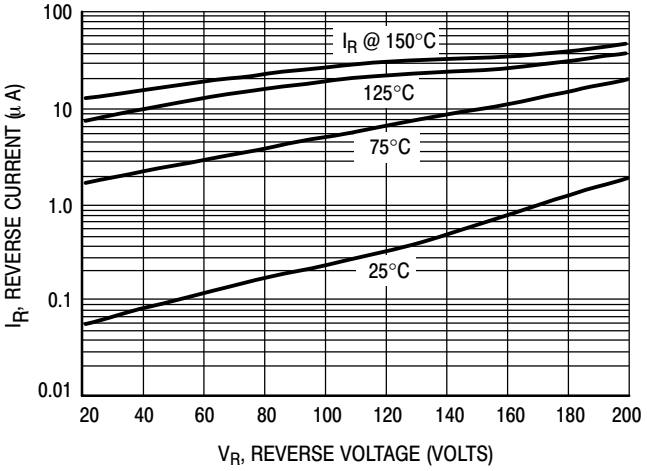


Figure 3. Maximum Reverse Current

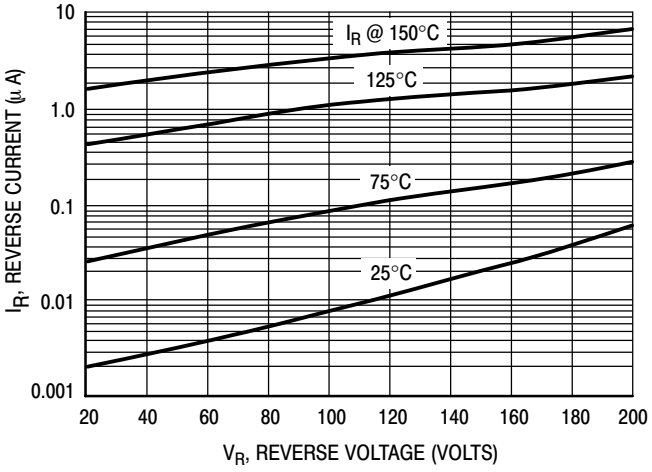


Figure 4. Typical Reverse Current

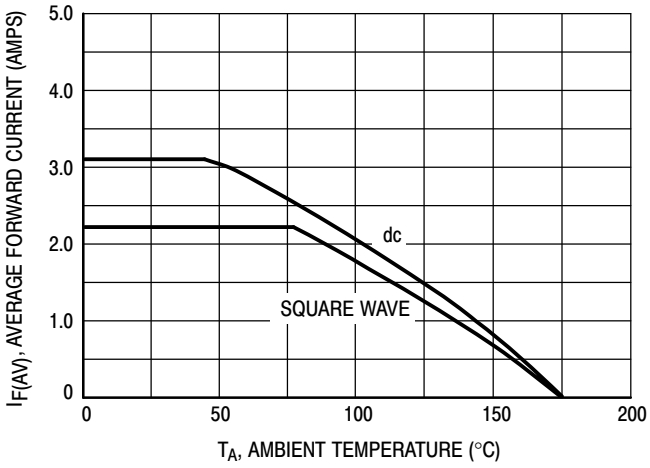


Figure 5. Current Derating

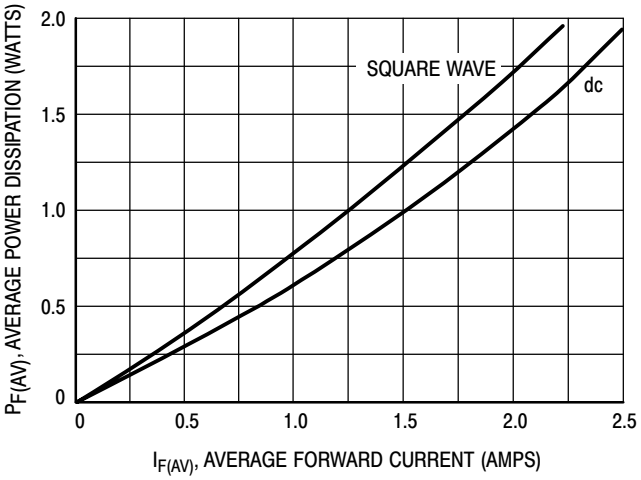


Figure 6. Power Dissipation

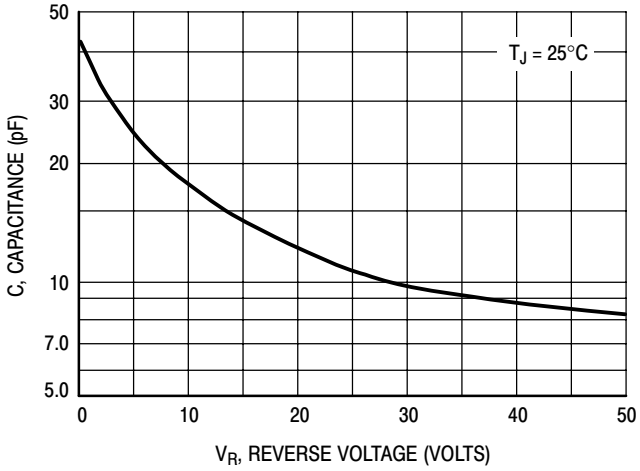


Figure 7. Typical Capacitance

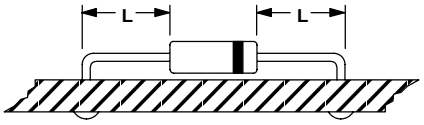
NOTE 3. − AMBIENT MOUNTING DATA

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.

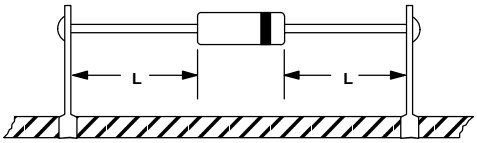
TYPICAL VALUES FOR $R_{\theta JA}$ IN STILL AIR

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

MOUNTING METHOD 1

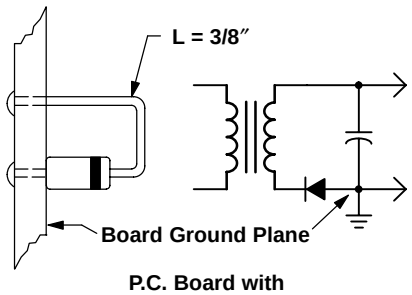


MOUNTING METHOD 2



Vector Pin Mounting

MOUNTING METHOD 3



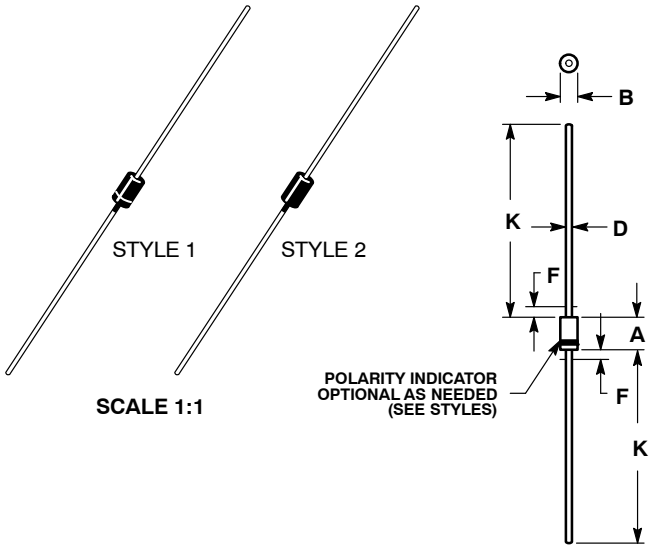
P.C. Board with
1−1/2″ X 1−1/2″ Copper Surface

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

ON Semiconductor®

AXIAL LEAD
CASE 59–10
ISSUE U

DATE 15 FEB 2005



SCALE 1:1

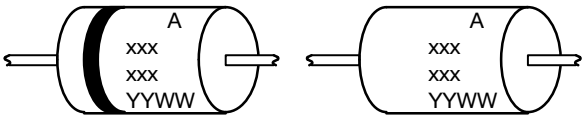
NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO–41 OUTLINE SHALL APPLY
4. POLARITY DENOTED BY CATHODE BAND.
5. LEAD DIAMETER NOT CONTROLLED WITHIN F DIMENSION.

	INCHES		MILLIMETERS	
DIM	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:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

STYLE 2:
NO POLARITY

GENERIC MARKING DIAGRAM*



STYLE 1 STYLE 2

xxx = Specific Device Code
A = Assembly Location
YY = Year
WW = Work Week

*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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DESCRIPTION:	AXIAL LEAD	PAGE 1 OF 1

PUBLICATION ORDERING INFORMATION

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