ON Semiconductor

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MUR210

Preferred Device

SWITCHMODE™ Power Rectifier

SWITCHMODE power rectifiers are state−of−the−art devices that are designed for use in switching power supplies, inverters and as free wheeling diodes.

Features

- Ultrafast 20 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 and Mounting Surface Temperature for Soldering Purposes: 220°C Max for 10 Seconds, 1/16″ from Case
- 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	100 –	V
Average Rectified Forward Current (Square Wave Mounting Method #3) (Note 1)	$I_{F(AV)}$	2.0 @ T_A = 100°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	Value	Unit
Maximum Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	See Note 3	°C/W

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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.

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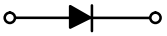
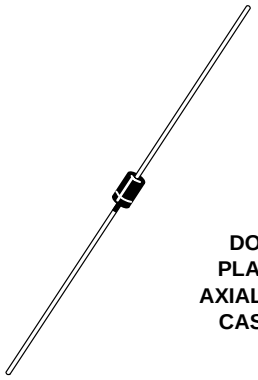
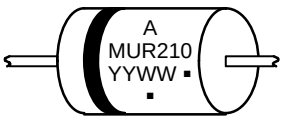
ULTRAFAST RECTIFIERS 2 AMPERES, 100 VOLTS





DO−41
PLASTIC
AXIAL LEAD
CASE 59

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MUR210	Axial Lead*	1000 Units/Bag
MUR210G	Axial Lead*	1000 Units/Bag
MUR210RL	Axial Lead*	5000/Tape & Reel
MUR210RLG	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 A, T_J = 150°C) (I_F = 2.0 A, T_J = 25°C)	V_F	 0.74 0.94	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 A, di/dt = 50 A/μs) (I_F = 0.5 A, I_R = 1.0 A, I_{REC} = 0.25 A)	t_{rr}	 30 20	ns
Maximum Forward Recovery Time (I_F = 1.0 A, di/dt = 100 A/μs, I_{REC} to 1.0 V)	t_{fr}	20	ns

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

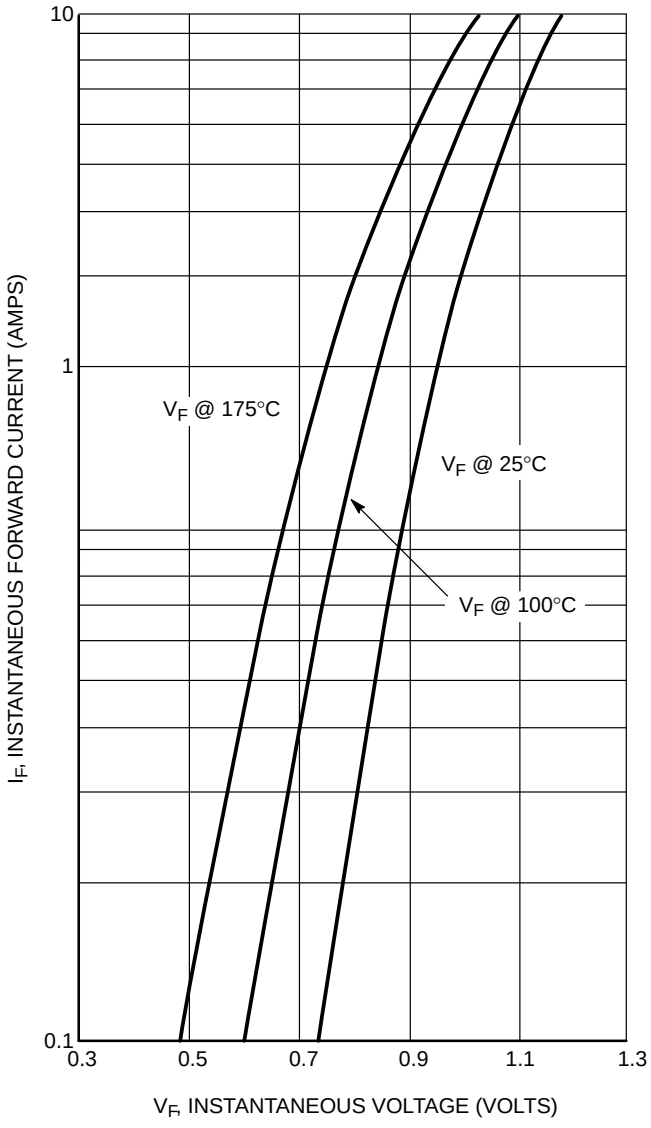


Figure 1. Maximum Forward Voltage

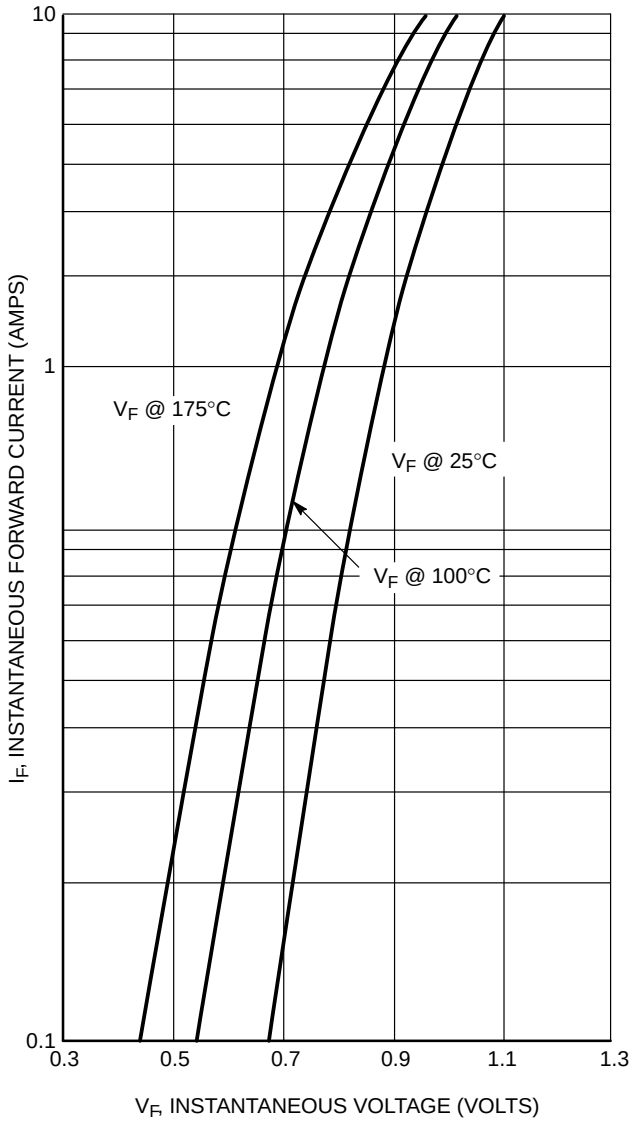


Figure 2. Typical Forward Voltage

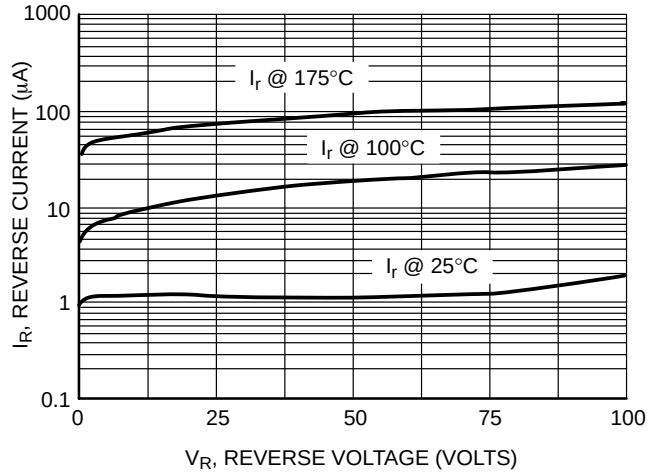


Figure 3. Maximum Reverse Current

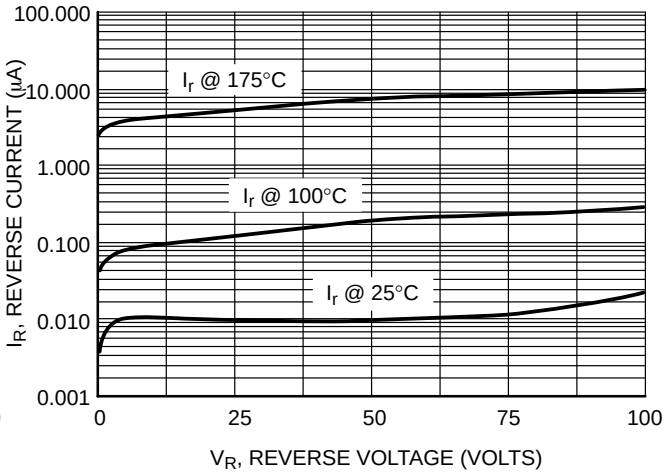


Figure 4. Typical Reverse Current

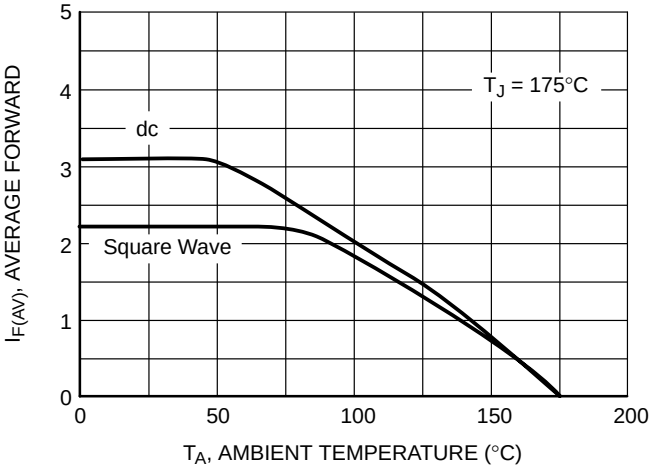


Figure 5. Current Derating

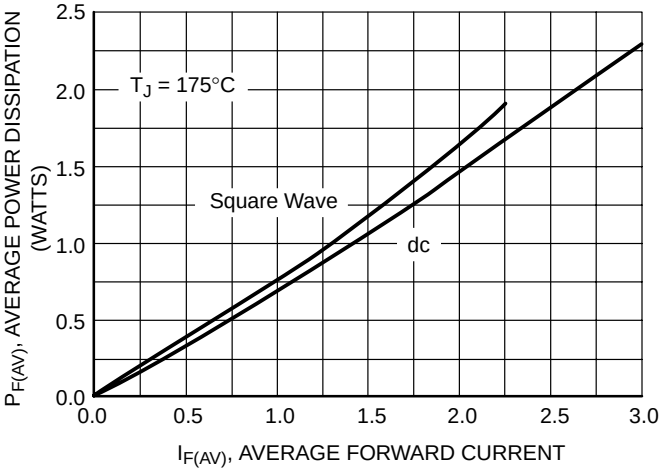


Figure 6. Power Dissipation

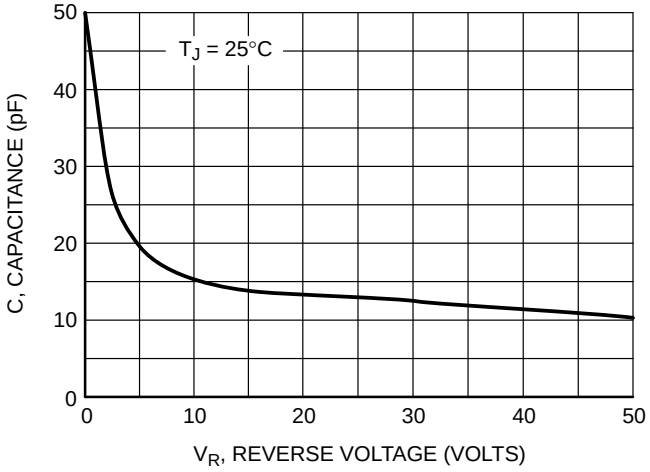


Figure 7. Maximum Capacitance

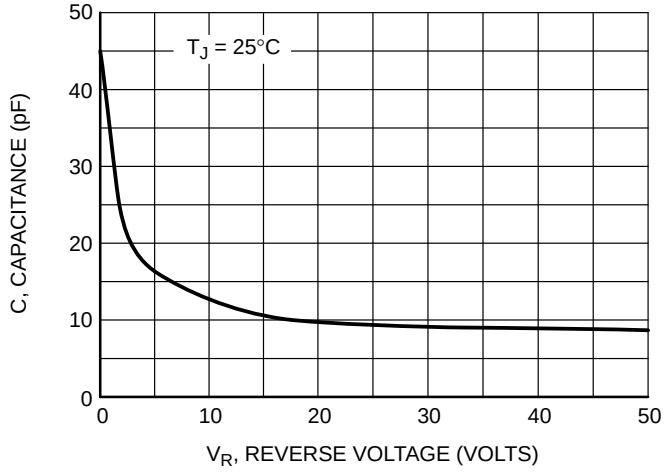


Figure 8. Typical Capacitance

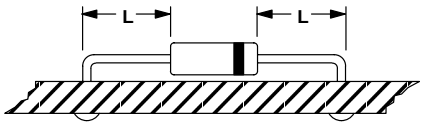
NOTE 3 − AMBIENT MOUNTING DATA

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.

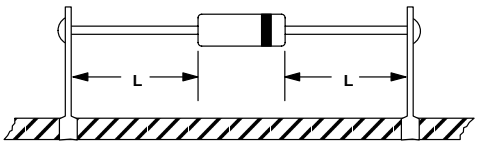
TYPICAL VALUES FOR $R_{\theta JA}$ IN STILL AIR

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

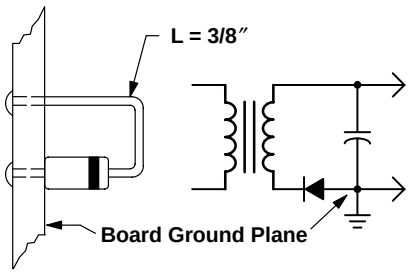


MOUNTING METHOD 2



Vector Pin Mounting

MOUNTING METHOD 3

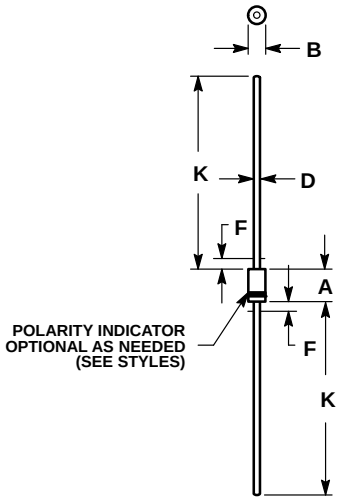


P.C. Board with
1−1/2″ X 1−1/2″ Copper Surface

MUR210

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.

	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	−−−

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PUBLICATION ORDERING INFORMATION

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MUR210/D

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