ON Semiconductor

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www.onsemi.com

MUR450PF

Preferred Device

SWITCHMODE™ Power Rectifier

These state−of−the−art devices are designed for power factor correction in discontinuous and critical conduction mode.

Features

- 520 V Rating Meets 80% Derating Requirements of Major OEMs
- Low Forward Voltage Drop
- Low Leakage
- Ultrafast 95 Nanosecond Recovery Time
- Reduces Forward Conduction Loss
- These are Pb−Free Devices*

Applications

- DCM PFC Designs
- Switching Power Supplies
- Power Inverters

Mechanical Characteristics:

- Case: Epoxy, Molded
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Weight: 1.1 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

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	520	V
Average Rectified Forward Current (Rated V_R, T_C = 65°C)	$I_{F(AV)}$	4.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, 60 Hz)	I_{FSM}	85	A
Operating Junction Temperature Range	T_J	−65 to +175	°C
Storage Temperature Range	T_{stg}	−65 to +175	°C
ESD Ratings: Machine Model = C Human Body Model = 3B	ESD	> 400 > 8000	V

THERMAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	See Note 2	°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.

*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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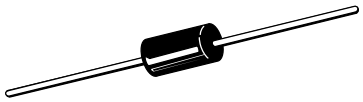
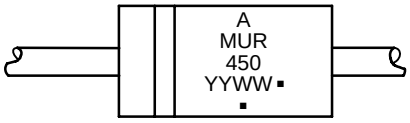
http://onsemi.com

ULTRAFAST RECTIFIER 4.0 AMPERES, 520 VOLTS



AXIAL LEAD
CASE 267
STYLE 1

MARKING DIAGRAM



A = Assembly Location
MUR450 = Device Number
YY = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MUR450PF	Axial Lead**	500 Units/Bag
MUR450PFG	Axial Lead**	500 Units/Bag
MUR450PFRL	Axial Lead**	1500/Tape & Reel
MUR450PFRLG	Axial Lead**	1500/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.

**This package is inherently Pb−Free.

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

ELECTRICAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage Drop (Note 1) (I_F = 4 Amps, T_J = 25°C) (I_F = 4 Amps, T_J = 150°C)	V_F	 1.15 0.98	V
Maximum Instantaneous Reverse Current (Note 1) (V_R = 520 V, T_J = 25°C) (V_R = 520 V, T_J = 150°C)	I_R	 5.0 400	μA
Maximum Reverse Recovery Time (I_F = 1 Amp, di/dt = 50 Amps/μs, V_R = 30 V, T_J = 25°C)	t_{rr}	 95	ns

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

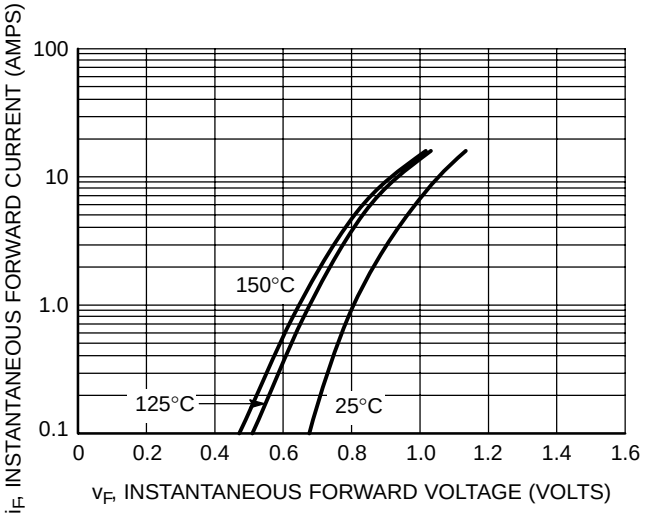


Figure 1. Typical Forward Voltage

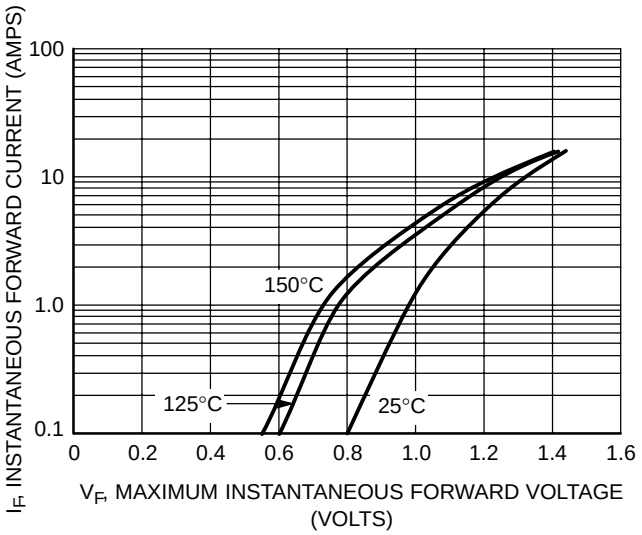


Figure 2. Maximum Forward Voltage

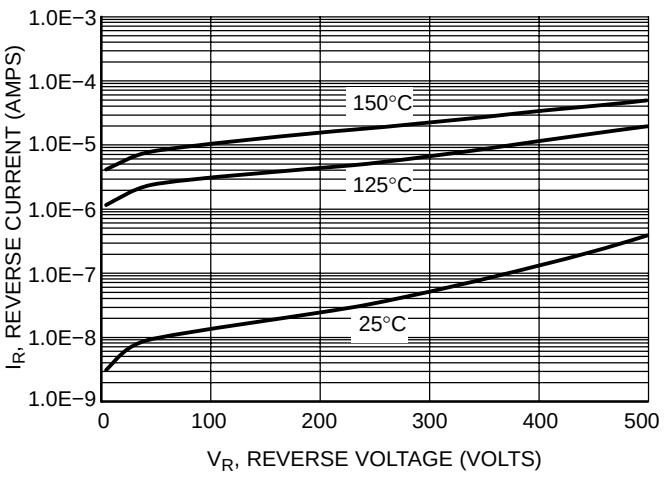


Figure 3. Typical Reverse Current

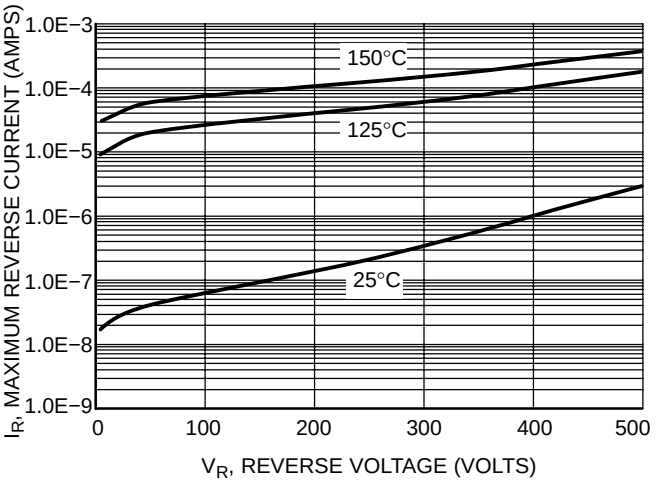


Figure 4. Maximum Reverse Current

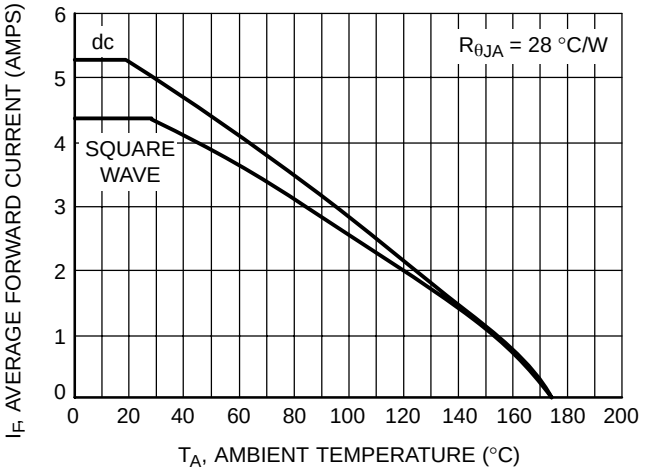


Figure 5. Current Derating

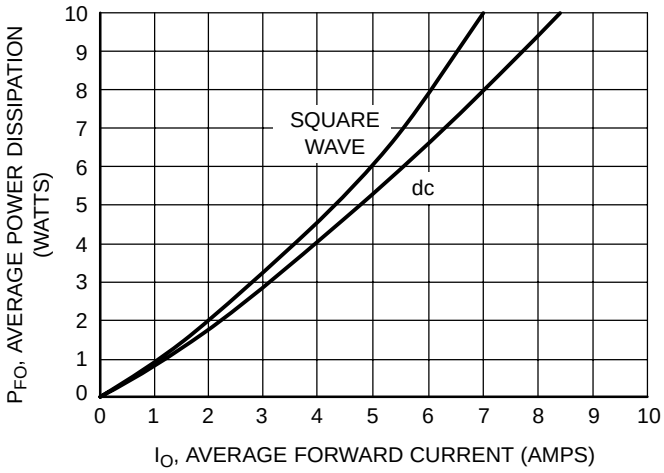


Figure 6. Forward Power Dissipation

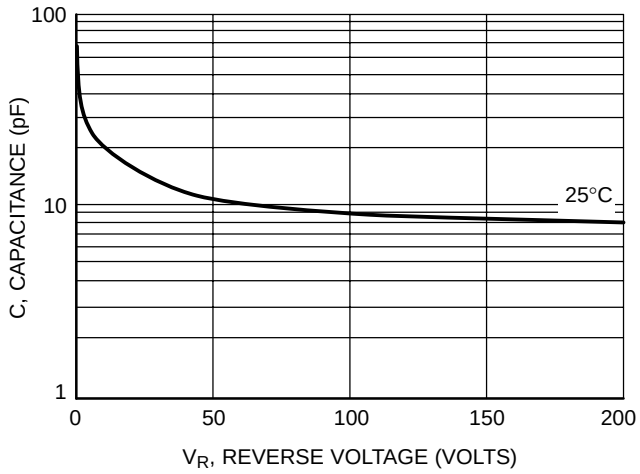


Figure 7. Capacitance

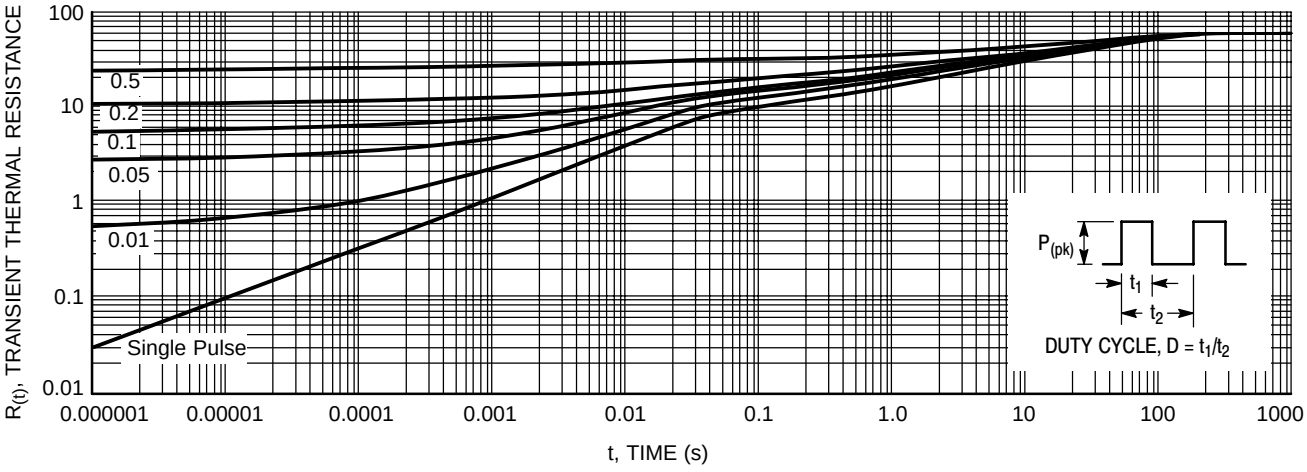


Figure 8. Thermal Response

NOTE 2 — AMBIENT MOUNTING DATA

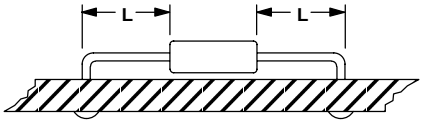
Data shown for thermal resistance, junction−to−ambient ($R_{\theta JA}$) for the mountings shown is to be used as typical guideline values for preliminary engineering or in case the tie point temperature cannot be measured.

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

Mounting Method		Lead Length, L (IN)				Units
		1/8	1/4	1/2	3/4	
1	$R_{\theta JA}$	50	51	53	55	°C/W
2		58	59	61	63	°C/W
3		28				°C/W

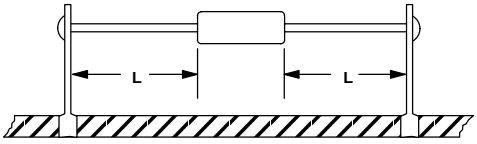
MOUNTING METHOD 1

P.C. Board Where Available Copper Surface area is small.



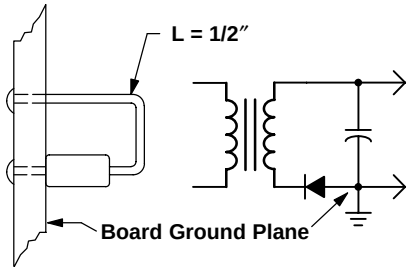
MOUNTING METHOD 2

Vector Push−In Terminals T−28



MOUNTING METHOD 3

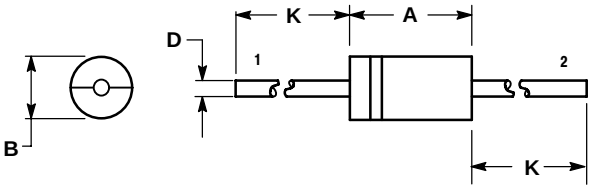
P.C. Board with 1−1/2″ x 1−1/2″ Copper Surface



MUR450PF

PACKAGE DIMENSIONS

AXIAL LEAD
CASE 267−05
(DO−201AD)
ISSUE G



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.287	0.374	7.30	9.50
B	0.189	0.209	4.80	5.30
D	0.047	0.051	1.20	1.30
K	1.000	---	25.40	---

STYLE 1:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

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PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
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ON Semiconductor Website: **www.onsemi.com**

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

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MUR450PF/D

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