

MUR405, MUR410, MUR415, MUR420, MUR440, MUR460

MUR420 and MUR460 are Preferred Devices

Switchmode™ Power Rectifiers

... 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, 50 and 75 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Reverse Voltage to 600 Volts

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 1.1 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, 5,000 per bag
- Available Tape and Reeled, 1500 per reel, by adding a "RL" suffix to the part number
- Polarity: Cathode indicated by Polarity Band
- Marking: MUR405, MUR410, MUR415, MUR420, MUR440, MUR460

MAXIMUM RATINGS

Please See the Table on the Following Page



ON Semiconductor™

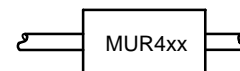
<http://onsemi.com>

ULTRAFAST RECTIFIERS 4.0 AMPERES 50–600 VOLTS



AXIAL LEAD
CASE 267-03
STYLE 1

MARKING DIAGRAM



MUR4xx = Device Code
xx = 05, 10, 15, 20, 40, 60

ORDERING INFORMATION

Device	Package	Shipping
MUR405	Axial Lead	5000 Units/Bag
MUR405RL	Axial Lead	1500/Tape & Reel
MUR410	Axial Lead	5000 Units/Bag
MUR410RL	Axial Lead	1500/Tape & Reel
MUR415	Axial Lead	5000 Units/Bag
MUR415RL	Axial Lead	1500/Tape & Reel
MUR420	Axial Lead	5000 Units/Bag
MUR420RL	Axial Lead	1500/Tape & Reel
MUR440	Axial Lead	5000 Units/Bag
MUR440RL	Axial Lead	1500/Tape & Reel
MUR460	Axial Lead	5000 Units/Bag
MUR460RL	Axial Lead	1500/Tape & Reel

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

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MAXIMUM RATINGS

Rating	Symbol	MUR						Unit
		405	410	415	420	440	460	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	150	200	400	600	Volts
Average Rectified Forward Current (Square Wave) (Mounting Method #3 Per Note 2.)	$I_{F(AV)}$	4.0 @ $T_A = 80^\circ\text{C}$				4.0 @ $T_A = 40^\circ\text{C}$		Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, half wave, single phase, 60 Hz)	I_{FSM}	125				70		Amps
Operating Junction Temperature & Storage Temperature	T_J, T_{stg}	- 65 to +175						$^\circ\text{C}$

THERMAL CHARACTERISTICS

Maximum Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	See Note 2.	$^\circ\text{C}/\text{W}$
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ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 1.) ($i_F = 3.0$ Amps, $T_J = 150^\circ\text{C}$) ($i_F = 3.0$ Amps, $T_J = 25^\circ\text{C}$) ($i_F = 4.0$ Amps, $T_J = 25^\circ\text{C}$)	v_F	0.710 0.875 0.890	1.05 1.25 1.28	Volts
Maximum Instantaneous Reverse Current (Note 1.) (Rated dc Voltage, $T_J = 150^\circ\text{C}$) (Rated dc Voltage, $T_J = 25^\circ\text{C}$)	i_R	150 5.0	250 10	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, $I_{REC} = 0.25$ Amp)	t_{rr}	35 25	75 50	ns
Maximum Forward Recovery Time ($I_F = 1.0$ A, $di/dt = 100$ A/ μs , Recovery to 1.0 V)	t_{fr}	25	50	ns

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

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MUR405, MUR410, MUR415, MUR420

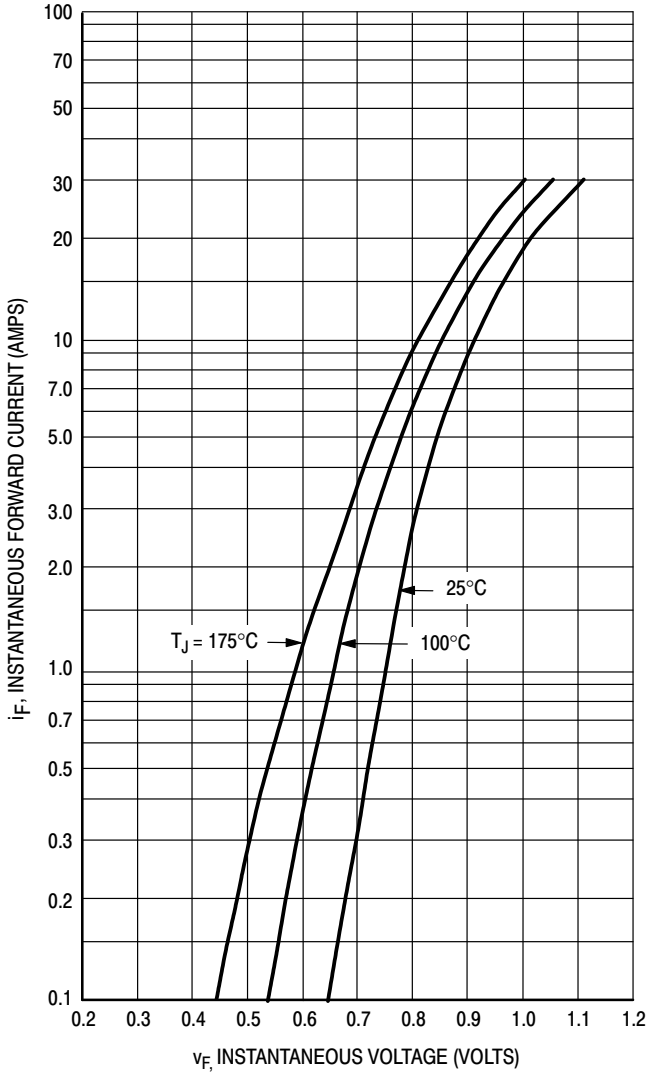


Figure 1. Typical Forward Voltage

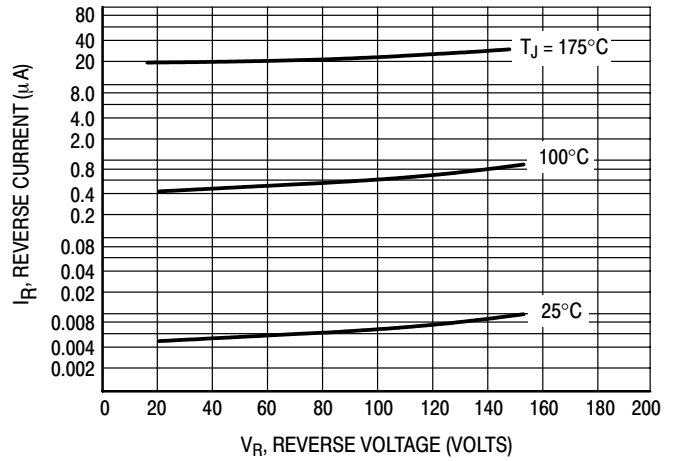


Figure 2. Typical Reverse Current

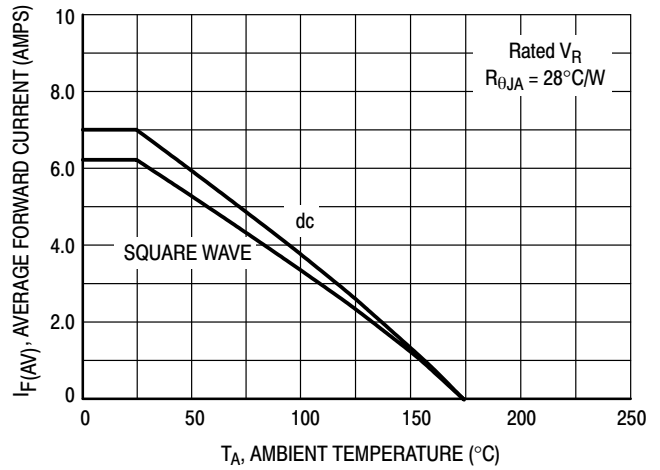


Figure 3. Current Derating
(Mounting Method #3 Per Note 1)

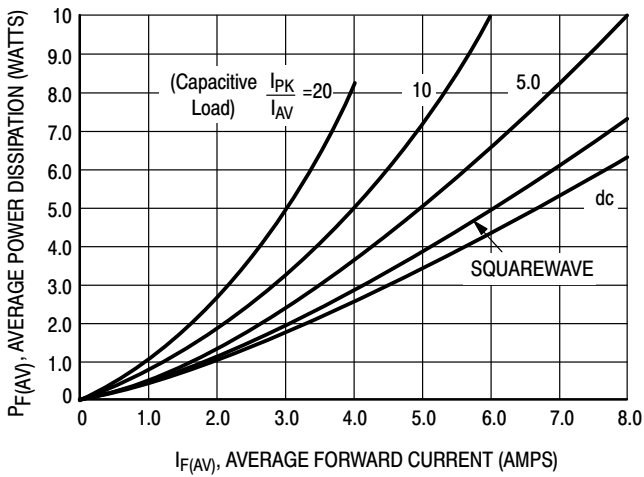


Figure 4. Power Dissipation

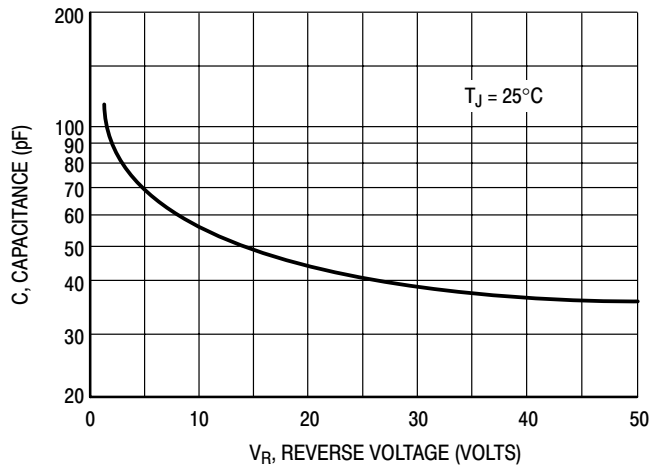


Figure 5. Typical Capacitance

MUR440, MUR460

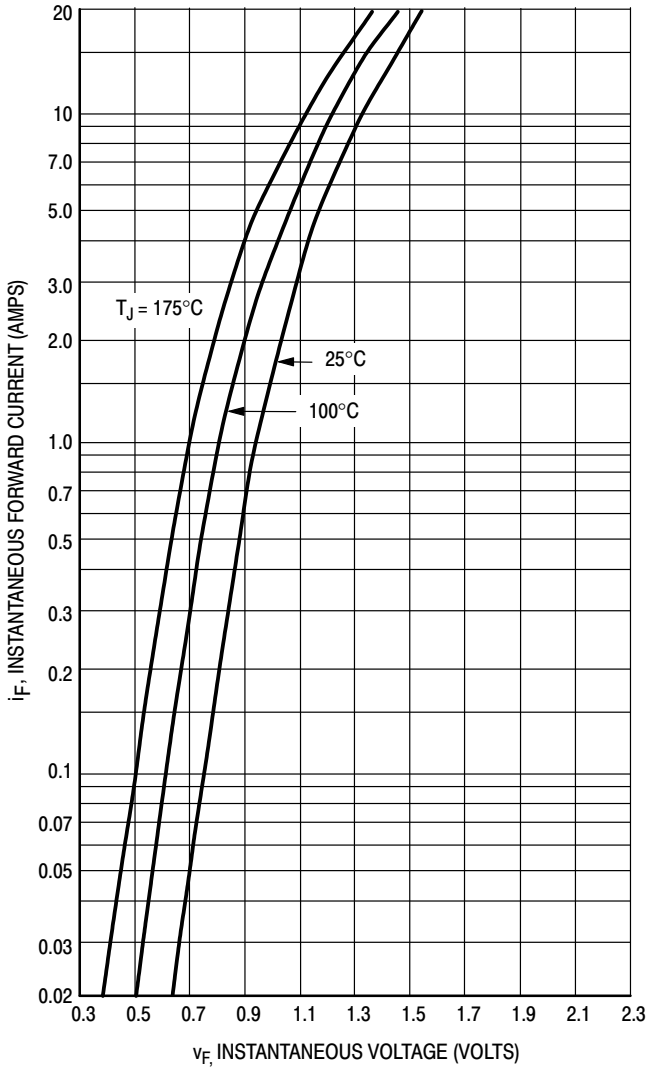


Figure 6. Typical Forward Voltage

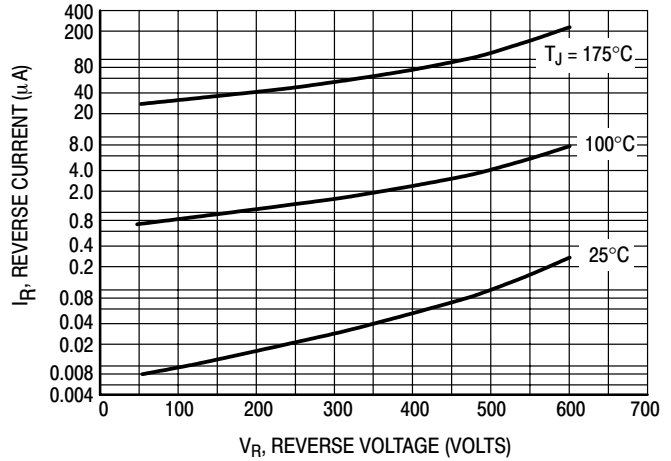


Figure 7. Typical Reverse Current

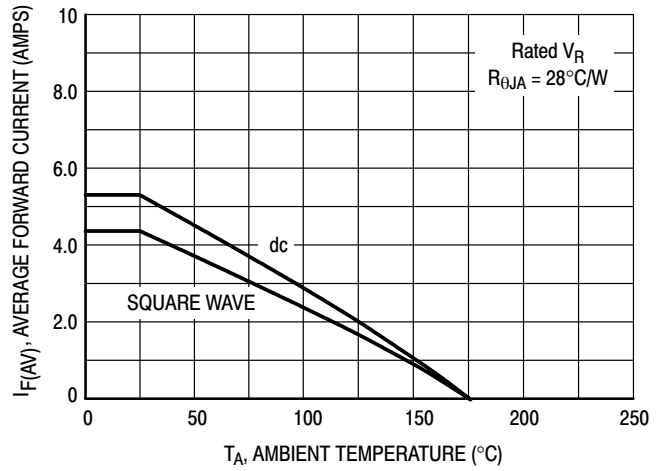


Figure 8. Current Derating
(Mounting Method #3 Per Note 1)

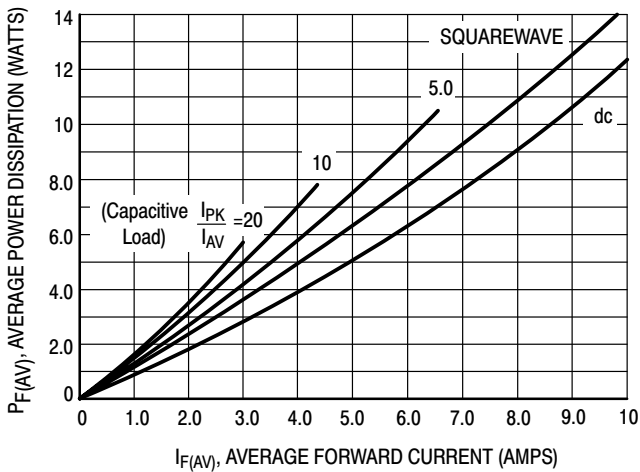


Figure 9. Power Dissipation

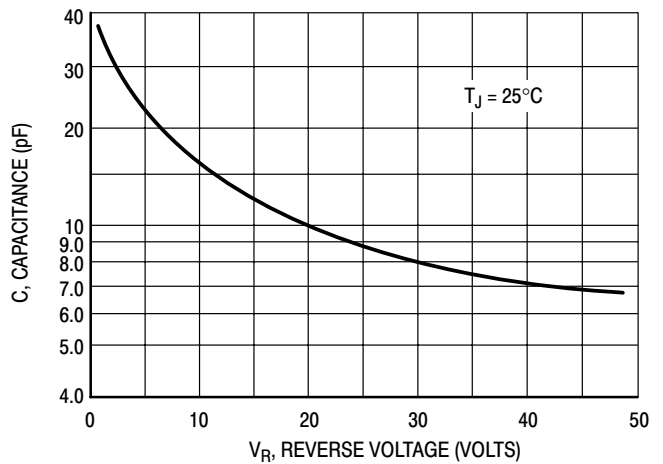


Figure 10. Typical Capacitance

NOTE 2. — AMBIENT MOUNTING DATA

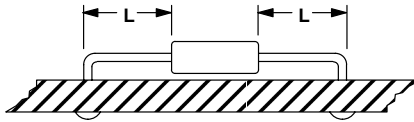
Data shown for thermal resistance junction-to-ambient ($R_{\theta JA}$) for the mountings shown is to be used as typical guideline values for preliminary engineering or in case the tie point temperature cannot be measured.

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

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

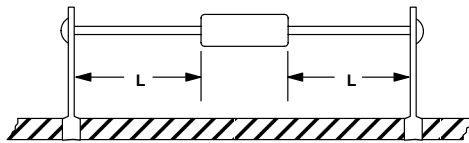
MOUNTING METHOD 1

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



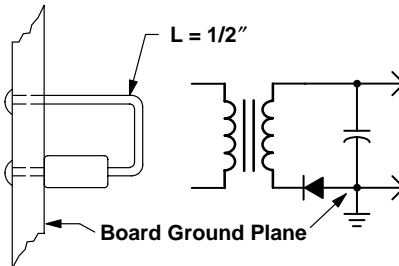
MOUNTING METHOD 2

Vector Push-In Terminals T-28



MOUNTING METHOD 3

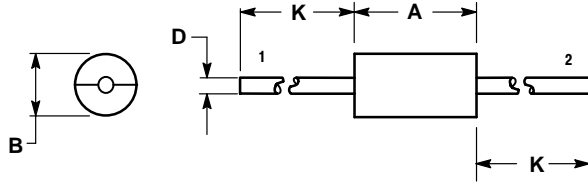
P.C. Board with 1-1/2" x 1-1/2" Copper Surface



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PACKAGE DIMENSIONS

AXIAL LEAD CASE 267-03 ISSUE E



NOTES:

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


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.370	0.380	9.40	9.65
B	0.190	0.210	4.83	5.33
D	0.048	0.052	1.22	1.32
K	1.000	---	25.40	---

STYLE 1:

- PIN 1: CATHODE (POLARITY BAND)
- ANODE

Notes

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