Switch-Mode Power Rectifiers

MUR405, MUR410, MUR415, MUR420, MUR440, MUR460

ULTRAFAST RECTIFIERS
4.0 AMPERES, 50−600 VOLTS





AXIAL LEAD
CASE 267
STYLE 1

These state-of-the-art devices are a series designed for use in switching power supplies, inverters and as free wheeling diodes.

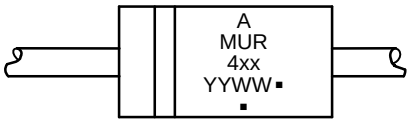
Features

- Ultrafast 25 ns, 50 ns and 75 ns Recovery Times
- 175 °C Operating Junction Temperature
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Reverse Voltage to 600 V
- Shipped in Plastic Bags, 500 per Bag
- Available in Tape and Reel, 1500 per Reel, by Adding a “RLG” Suffix to the Part Number
- MUR460 available in Fan Fold Ammo Pak, 1000 per Box, by adding a “FFG” suffix to the part number
- These are Pb-Free Packages*

Mechanical Characteristics:

- Case: Epoxy, Molded
- 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
- Polarity: Cathode indicated by Polarity Band

MARKING DIAGRAM



A = Assembly Location
MUR4xx = Device Number
x = 05, 10, 15, 20, 40, 60
YY = Year
WW = Work Week
▪ = Pb-Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 3.

* For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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MAXIMUM RATINGS

Rating	Symbol	MUR 405	MUR 410	MUR 415	MUR 420	MUR 440	MUR 460	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	150	200	400	600	V
Average Rectified Forward Current (Square Wave) (Mounting Method #3 Per Note 3)	$I_{F(AV)}$	4.0 @ T_A = 80 °C				4.0 @ T_A = 40 °C		A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, half wave, single phase, 60 Hz)	I_{FSM}	125				110		A
Operating Junction Temperature & Storage Temperature	T_J, T_{stg}	−65 to +175						°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Rating	Symbol	MUR 405	MUR 410	MUR 415	MUR 420	MUR 440	MUR 460	Unit
Maximum Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	See Note 3						°C/W
Maximum Thermal Resistance, Junction-to-Case Body	$\Psi_{\theta JC}$	6.6						°C/W

ELECTRICAL CHARACTERISTICS

Rating	Symbol	MUR 405	MUR 410	MUR 415	MUR 420	MUR 440	MUR 460	Unit
Maximum Instantaneous Forward Voltage (Note 1) (i_F = 3.0 A, T_J = 150 °C) (i_F = 3.0 A, T_J = 25 °C) (i_F = 4.0 A, T_J = 25 °C)	v_F	0.71 0.88 0.89				1.05 1.25 1.28		V
Maximum Instantaneous Reverse Current (Note 1) (Rated dc Voltage, T_J = 150 °C) (Rated dc Voltage, T_J = 25 °C)	i_R	150 5				250 10		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}	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
Controlled Avalanche Energy (Maximum)	W_{aval}				5			mJ
Typical Peak Reverse Recovery Current (I_F = 1.0 A, di/dt = 50 A/μs)	I_{RM}	0.8				1.7		A

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

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ORDERING INFORMATION

Device	Package	Shipping†
MUR410G	Axial Lead*	500 Units / Bag
MUR410RLG	Axial Lead*	1500 / Tape & Reel
MUR415G	Axial Lead*	500 Units / Bag
MUR420G	Axial Lead*	500 Units / Bag
MUR420RLG	Axial Lead*	1500 / Tape & Reel
MUR440RLG	Axial Lead*	1500 / Tape & Reel
MUR460G	Axial Lead*	500 Units / Bag
MUR460FFG	Axial Lead*	1000 Units / Box
MUR460RLG	Axial Lead*	1500 / Tape & Reel

DISCONTINUED (Note 2)

MUR405G	Axial Lead*	500 Units / Bag
MUR415RLG	Axial Lead*	1500 / Tape & Reel
MUR440G	Axial Lead*	500 Units / Bag

† 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.

* These packages are inherently Pb-Free.

2. **DISCONTINUED:** These devices are not recommended for new design. Please contact your **onsemi** representative for information. The most current information on these devices may be available on www.onsemi.com.

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MUR405, MUR410, MUR415, MUR420

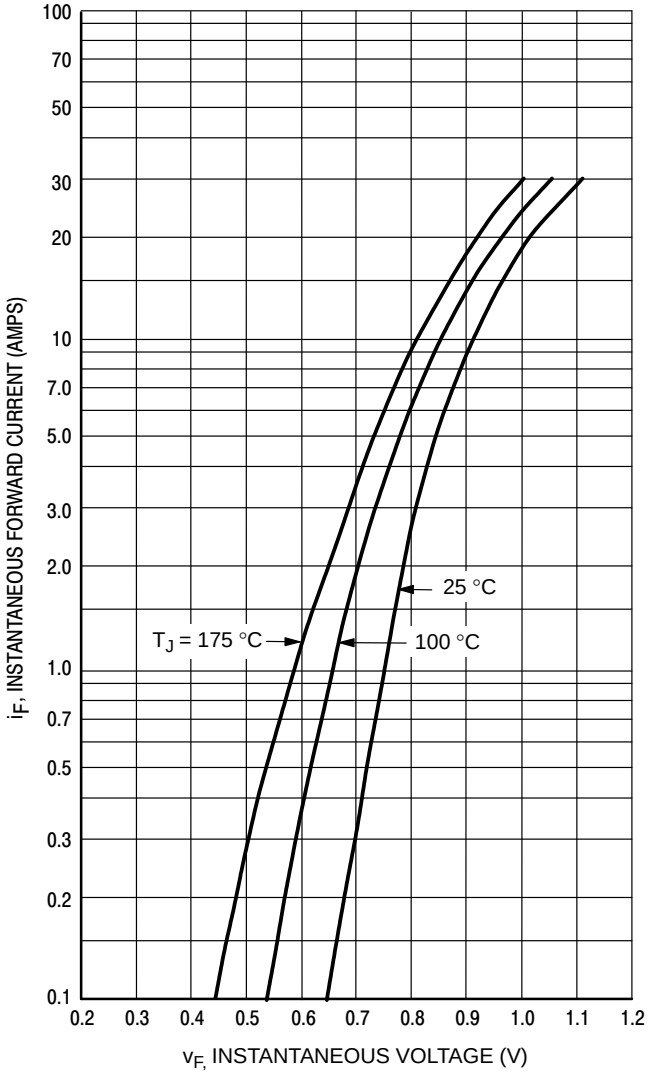


Figure 1. Typical Forward Voltage

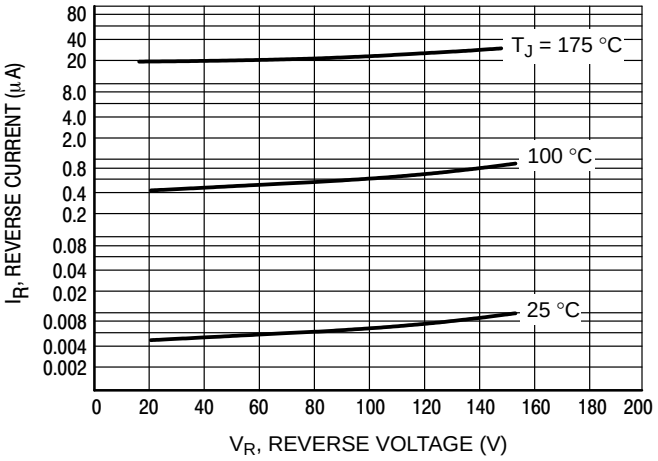


Figure 2. Typical Reverse Current

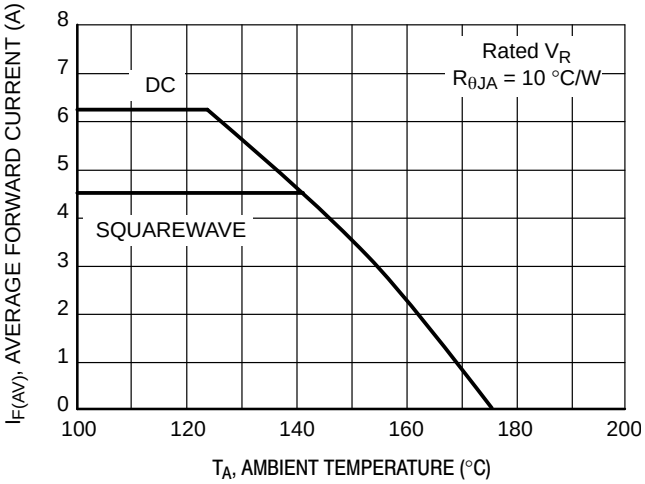


Figure 3. Current Derating (Mounting Method #3 Per Note 3)

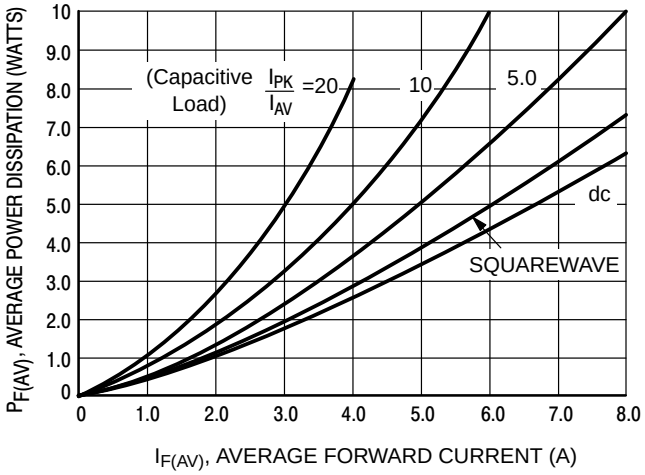


Figure 4. Power Dissipation

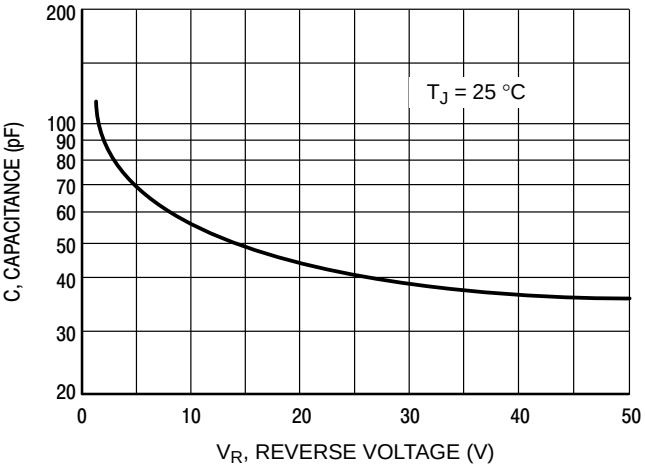


Figure 5. Typical Capacitance

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MUR440, MUR460

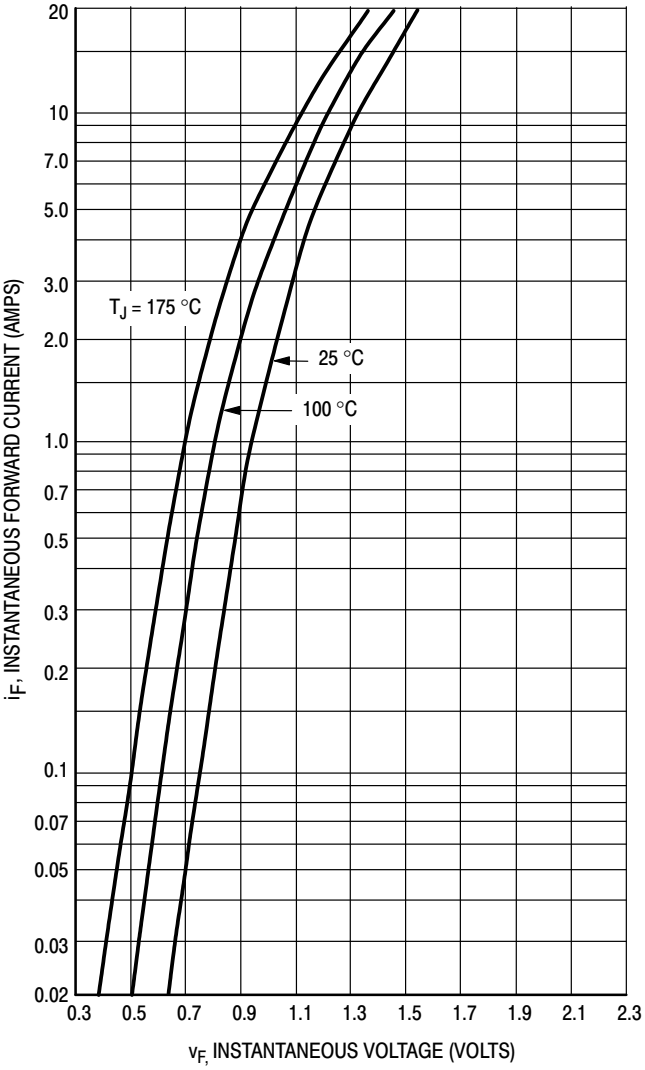


Figure 6. Typical Forward Voltage

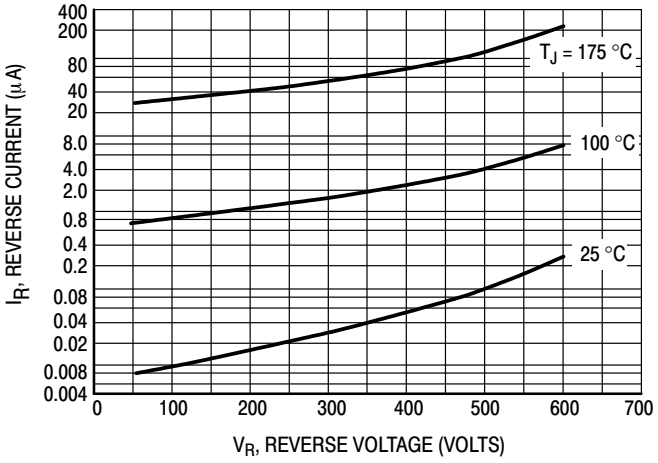


Figure 7. Typical Reverse Current

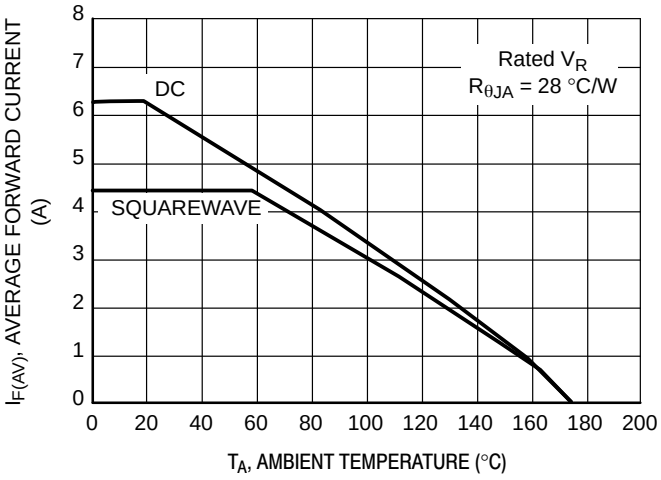


Figure 8. Current Derating (Mounting Method #3 Per Note 3)

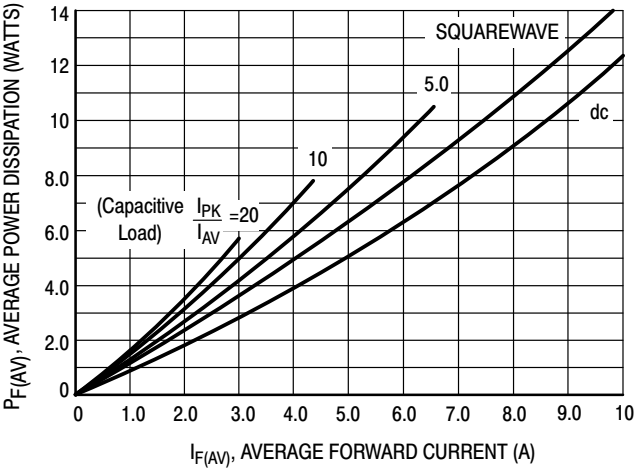


Figure 9. Power Dissipation

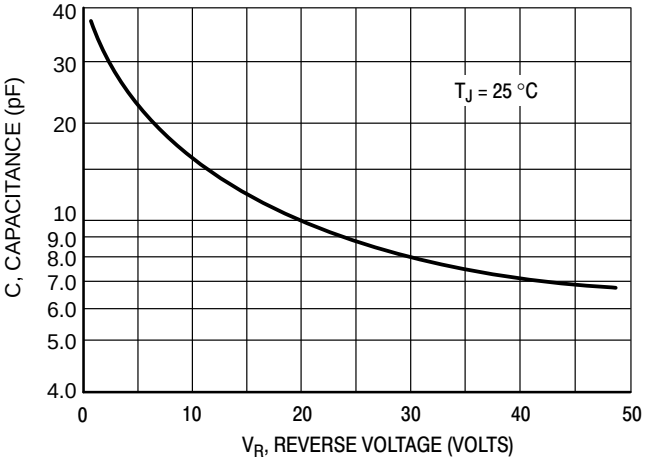


Figure 10. Typical Capacitance

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MUR440, MUR460

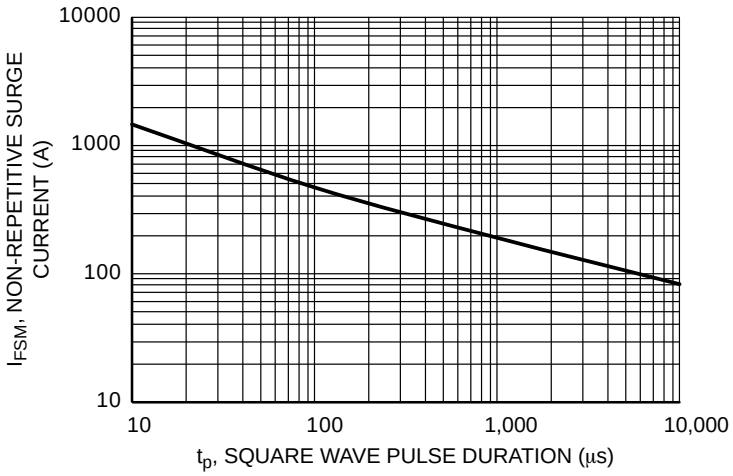


Figure 11. Typical Non-Repetitive Surge Current

* Typical performance based on a limited sample size. **onsemi** does not guarantee ratings not listed in the Maximum Ratings table.

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NOTE 3 — AMBIENT MOUNTING DATA

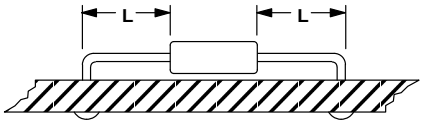
Data shown for thermal resistance junction-to-ambient ($R_{\theta JA}$) for the mountings shown is to be used as typical guideline values for preliminary engineering or in case the tie point temperature cannot be measured.

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

Mounting Method		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

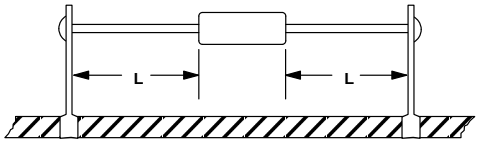
MOUNTING METHOD 1

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



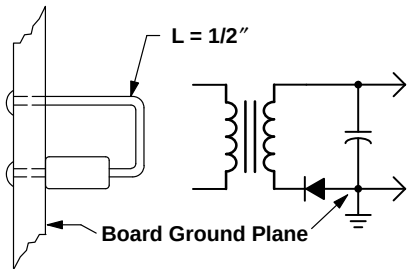
MOUNTING METHOD 2

Vector Push-In Terminals T-28



MOUNTING METHOD 3

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



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REVISION HISTORY

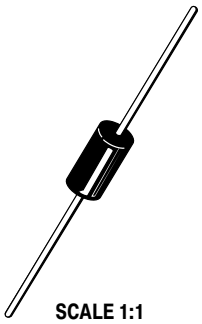
Revision	Description of Changes	Date
17	Rebranded the Data Sheet to **onsemi** format. MUR405G, MUR415RLG, MUR440G OPNs marked as Discontinued.	10/13/2025

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

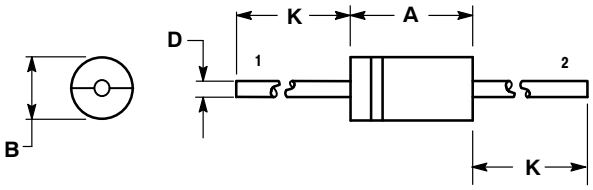
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AXIAL LEAD
CASE 267−05
ISSUE G

DATE 06 JUN 2000



SCALE 1:1



NOTES:
1. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 267−04 OBSOLETE, NEW STANDARD 267−05.

	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

STYLE 2:
NO POLARITY

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