Switch Mode Power Rectifiers

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

Features

- Ultrafast 35 and 60 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Popular TO-220 Package
- Epoxy Meets UL 94 V-0 @ 0.125 in
- High Temperature Glass Passivated Junction
- High Voltage Capability to 600 V
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating @ Both Case and Ambient Temperatures
- These are Pb-Free Devices*

Mechanical Characteristics:

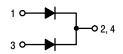
- Case: Epoxy, Molded
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

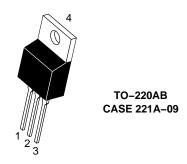


ON Semiconductor®

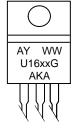
www.onsemi.com

ULTRAFAST RECTIFIERS 16 AMPERES, 100–600 VOLTS





MARKING DIAGRAM



A = Assembly Location

Y = Year WW = Work Week U16xx = Device Code

> xx = 10, 15, 20, 40 or 60 = Pb-Free Package

G = Pb-Free Packa KA = Diode Polarity

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 6 of this data sheet.

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

MAXIMUM RATINGS

		MUR16					
Rating	Symbol	10CT	15CT	20CT	40CT	60CT	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	100	150	200	400	600	٧
Average Rectified Forward Current Per Leg Total Device, (Rated V_R), $T_C = 150$ °C Total Device	1 (/\v)			8.0 16			Α
Peak Rectified Forward Current Per Diode Leg (Rated V_R , Square Wave, 20 kHz), $T_C = 150$ °C	I _{FM}			16			А
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I _{FSM}			100			А
Operating Junction Temperature and Storage Temperature	T _J , T _{stg}		-	65 to +1	75		°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 (Per Diode Leg)

Parameter	Symbol	Value		Unit
Maximum Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.0	2.0	°C/W

ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Characteristic	Symbol	1620	1640	1660	Unit
Maximum Instantaneous Forward Voltage (Note 1) ($i_F = 8.0 \text{ A}, T_C = 150^{\circ}\text{C}$) ($i_F = 8.0 \text{ A}, T_C = 25^{\circ}\text{C}$)	V _F	0.895 0.975	1.00 1.30	1.20 1.50	V
Maximum Instantaneous Reverse Current (Note 1) (Rated DC Voltage, $T_C = 150^{\circ}C$) (Rated DC Voltage, $T_C = 25^{\circ}C$)	İR	250 5.0	_	00	μΑ
Maximum Reverse Recovery Time $ (I_F = 1.0 \text{ A, di/dt} = 50 \text{ A/}\mu\text{s}) $ $ (I_F = 0.5 \text{ A, }I_R = 1.0 \text{ A, }I_{REC} = 0.25 \text{ A}) $	t _{rr}	35 25	_	0	ns

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 μ s, Duty Cycle \leq 2.0%

MUR1610CT, MUR1615CT, MUR1620CT

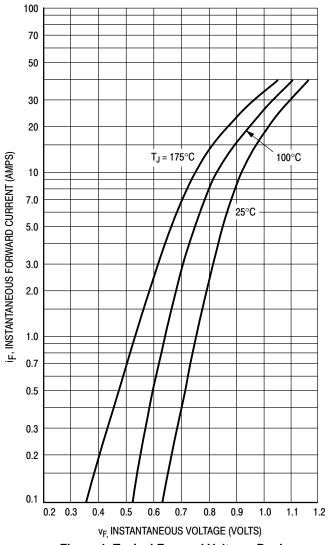


Figure 1. Typical Forward Voltage, Per Leg

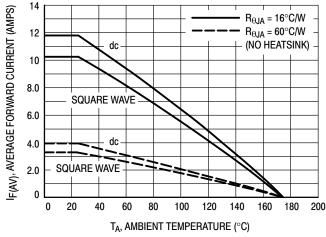


Figure 4. Current Derating, Ambient, Per Leg

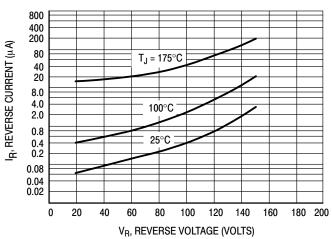


Figure 2. Typical Reverse Current, Per Leg*

* The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R .

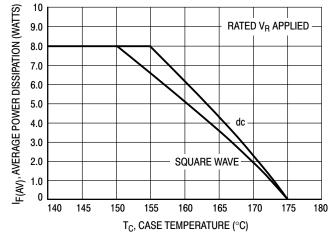


Figure 3. Current Derating, Case, Per Leg

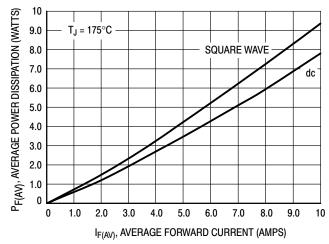


Figure 5. Power Dissipation, Per Leg

MUR1640CT

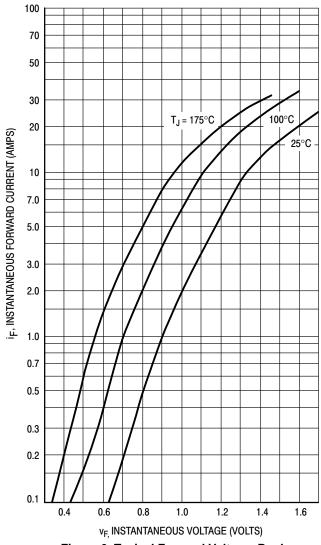


Figure 6. Typical Forward Voltage, Per Leg

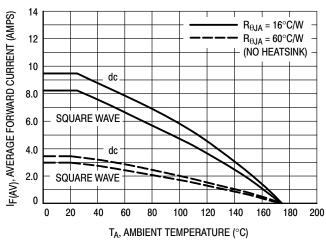


Figure 9. Current Derating, Ambient, Per Leg

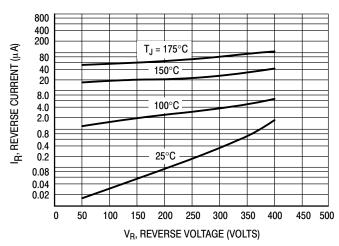


Figure 7. Typical Reverse Current, Per Leg*

^{*} The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these curves if V_R is sufficiently below rated V_R .

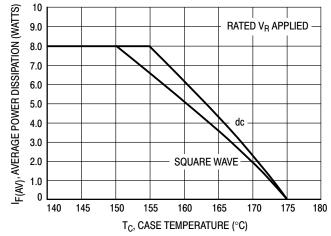


Figure 8. Current Derating, Case, Per Leg

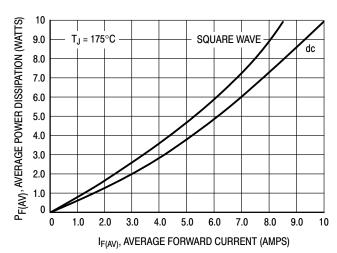


Figure 10. Power Dissipation, Per Leg

MUR1660CT

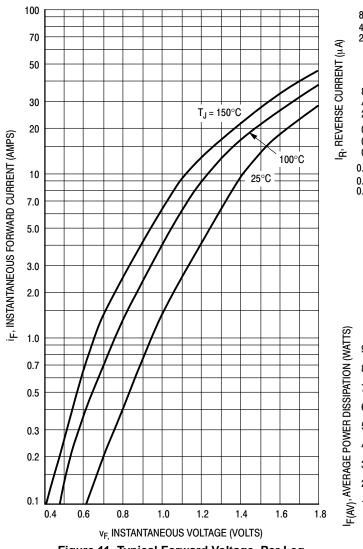


Figure 11. Typical Forward Voltage, Per Leg

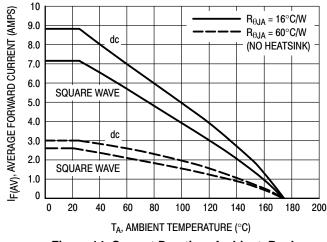


Figure 14. Current Derating, Ambient, Per Leg

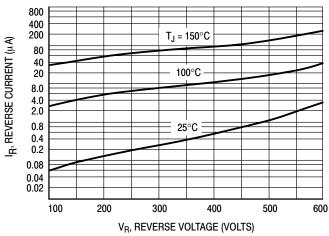


Figure 12. Typical Reverse Current, Per Leg*

* The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R .

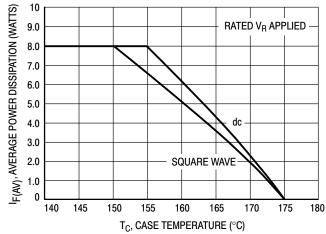


Figure 13. Current Derating, Case, Per Leg

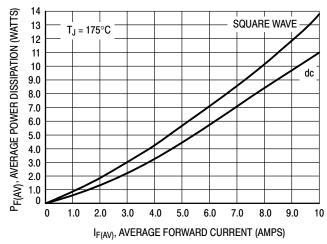


Figure 15. Power Dissipation, Per Leg

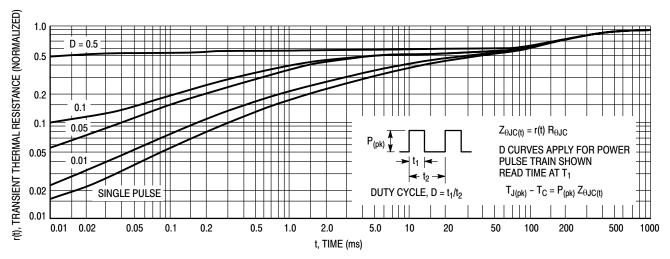


Figure 16. Thermal Response

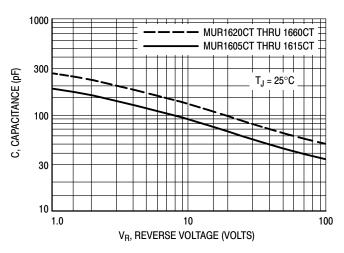


Figure 17. Typical Capacitance, Per Leg

ORDERING INFORMATION

Device	Package	Shipping [†]
MUR1610CTG	TO-220 (Pb-Free)	
MUR1615CTG	TO-220 (Pb-Free)	
MUR1620CTG	TO-220 (Pb-Free)	50 Units / Rail
MUR1640CTG	TO-220 (Pb-Free)	
MUR1660CTG	TO-220 (Pb-Free)	

[†]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.

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onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at

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