**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 Time
- 175°C Operating Junction Temperature
- Popular TO-220 Package
- Epoxy Meets UL94, V<sub>O</sub> @ 1/8"
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Reverse Voltage to 600 Volts

# **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
- Shipped 50 units per plastic tube
- Marking: U805, U810, U815, U820, U840, U860

# **MAXIMUM RATINGS**

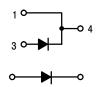
Please See the Table on the Following Page

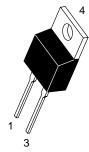


# ON Semiconductor™

http://onsemi.com

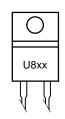
ULTRAFAST RECTIFIERS 8.0 AMPERES 50-600 VOLTS





CASE 221B TO-220AC PLASTIC

#### **MARKING DIAGRAM**



U8xx = Device Code xx = 05, 10, 15, 20, 40 or 60

#### **ORDERING INFORMATION**

Device	Package	Shipping
MUR805	TO-220	50 Units/Rail
MUR810	TO-220	50 Units/Rail
MUR815	TO-220	50 Units/Rail
MUR820	TO-220	50 Units/Rail
MUR840	TO-220	50 Units/Rail
MUR860	TO-220	50 Units/Rail

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

# **MAXIMUM RATINGS**

		MUR						
Rating	Symbol	805	810	815	820	840	860	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	50	100	150	200	400	600	Volts
Average Rectified Forward Current Total Device, (Rated V <sub>R</sub> ), T <sub>C</sub> = 150°C	I <sub>F(AV)</sub>	8.0					Amps	
Peak Repetitive Forward Current (Rated V <sub>R</sub> , Square Wave, 20 kHz), T <sub>C</sub> = 150°C	I <sub>FM</sub>	16				Amps		
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I <sub>FSM</sub>	100				Amps		
Operating Junction Temperature and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +175					°C	
THERMAL CHARACTERISTICS								
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.0 2.0				.0	°C/W	
ELECTRICAL CHARACTERISTICS								
Maximum Instantaneous Forward Voltage (Note 1.) ( $i_F = 8.0 \text{ Amps}, T_C = 150^{\circ}\text{C}$ ) ( $i_F = 8.0 \text{ Amps}, T_C = 25^{\circ}\text{C}$ )	VF	0.895 0.975		1.00 1.30	1.20 1.50	Volts		
Maximum Instantaneous Reverse Current (Note 1.) (Rated dc Voltage, $T_J = 150^{\circ}C$ ) (Rated dc Voltage, $T_J = 25^{\circ}C$ )	i <sub>R</sub>	250 500 5.0 10				μА		
Maximum Reverse Recovery Time $ (I_F = 1.0 \text{ Amp, di/dt} = 50 \text{ Amps/}\mu\text{s}) $ $ (I_F = 0.5 \text{ Amp, } I_R = 1.0 \text{ Amp, } I_{REC} = 0.25 \text{ Amp}) $	t <sub>rr</sub>	35 25 60 50			-	ns		

<sup>1.</sup> Pulse Test: Pulse Width = 300  $\mu$ s, Duty Cycle  $\leq$  2.0%.

# MUR805, MUR810, MUR815, MUR820

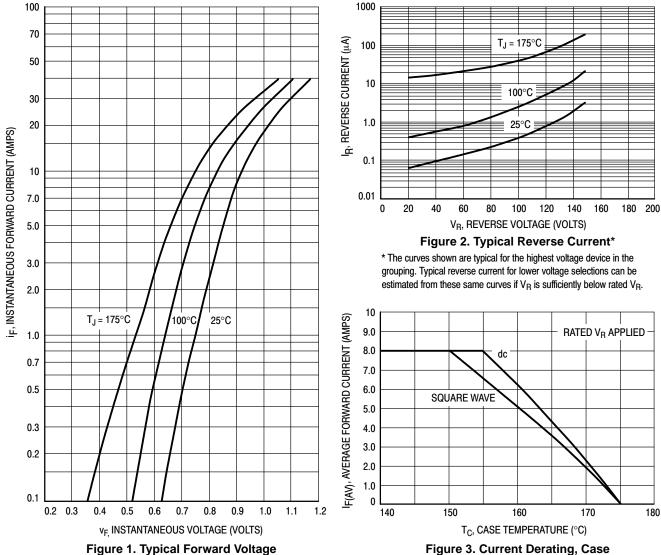


Figure 1. Typical Forward Voltage

10 9.0  $T_{.1} = 175^{\circ}C$ 

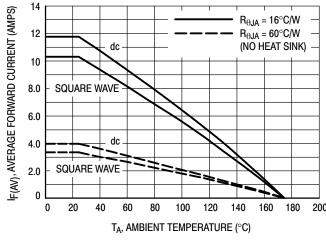


Figure 4. Current Derating, Ambient

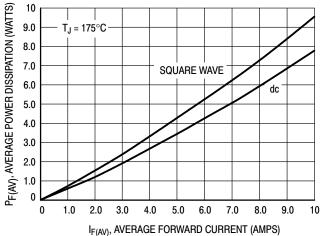


Figure 5. Power Dissipation

# **MUR840**

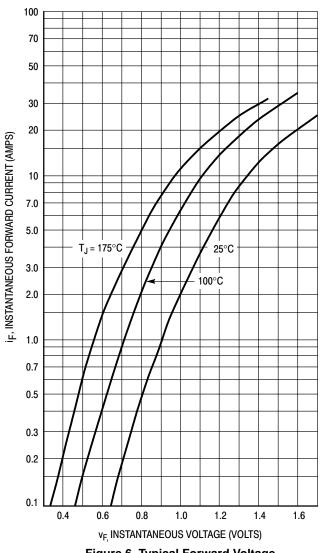


Figure 6. Typical Forward Voltage

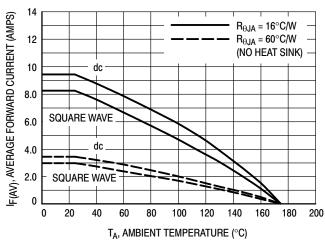


Figure 9. Current Derating, Ambient

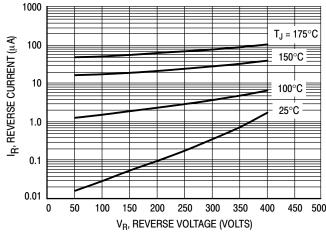


Figure 7. Typical Reverse Current\*

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

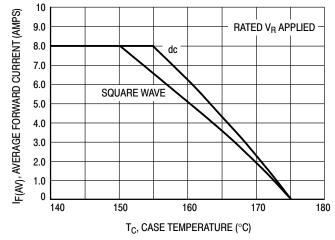


Figure 8. Current Derating, Case

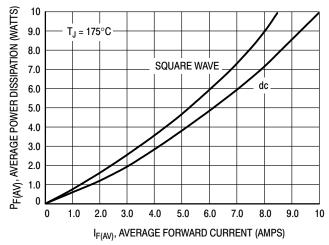
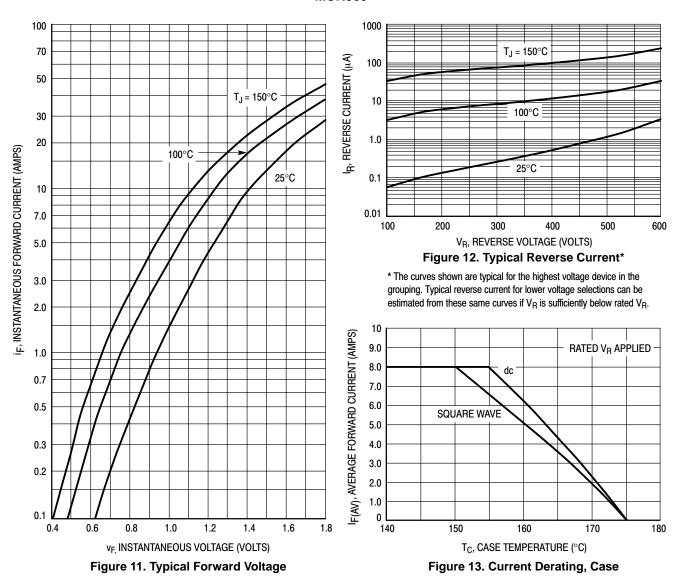


Figure 10. Power Dissipation

# **MUR860**



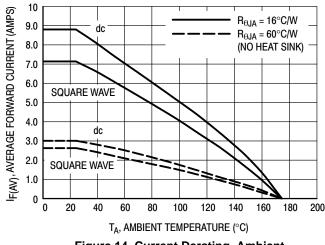


Figure 14. Current Derating, Ambient

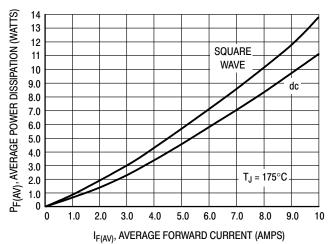


Figure 15. Power Dissipation

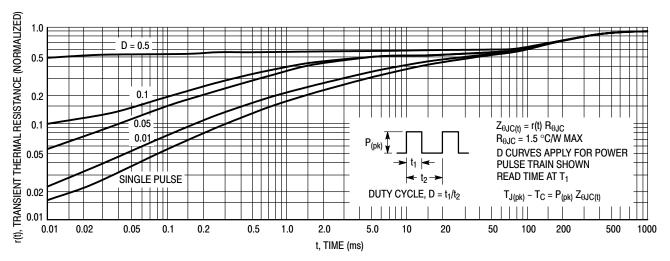


Figure 16. Thermal Response

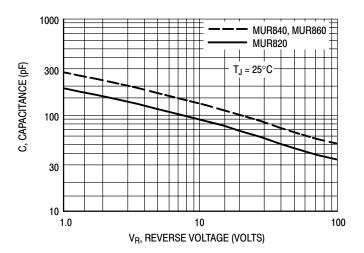
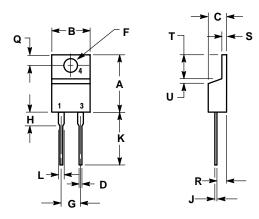


Figure 17. Typical Capacitance

# **PACKAGE DIMENSIONS**

# TO-220 TWO-LEAD

CASE 221B-04 ISSUE D



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

	INC	HES	MILLIMETERS			
DIM	MIN	MAX	MIN	MAX		
Α	0.595	0.620	15.11	15.75		
В	0.380	0.405	9.65	10.29		
С	0.160	0.190	4.06	4.82		
D	0.025	0.035	0.64	0.89		
F	0.142	0.147	3.61	3.73		
G	0.190	0.210	4.83	5.33		
Н	0.110	0.130	2.79	3.30		
J	0.018	0.025	0.46	0.64		
K	0.500	0.562	12.70	14.27		
L	0.045	0.060	1.14	1.52		
Q	0.100	0.120	2.54	3.04		
R	0.080	0.110	2.04	2.79		
S	0.045	0.055	1.14	1.39		
T	0.235	0.255	5.97	6.48		
U	0.000	0.050	0.000	1 27		

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