

# MUR3020WT, MUR3060WT

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 35 and 60 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- Popular TO-247 Package
- High Voltage Capability to 600 Volts
- Low Forward Drop
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating Specified @ Both Case and Ambient Temperatures
- Epoxy Meets UL94, V<sub>O</sub> @ 1/8"
- High Temperature Glass Passivated Junction

### Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 4.3 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 30 units per plastic tube
- Marking: U3020, U3060

### MAXIMUM RATINGS

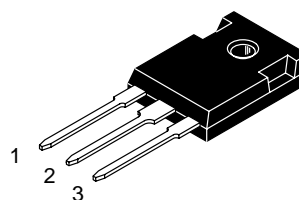
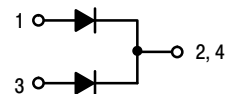
Please See the Table on the Following Page



ON Semiconductor™

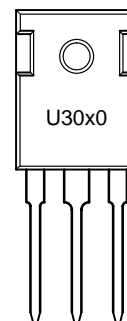
<http://onsemi.com>

**ULTRAFAST  
RECTIFIERS  
30 AMPERES  
200-600 VOLTS**



TO-247 PSI  
CASE 340L  
PLASTIC

### MARKING DIAGRAM



U30x0 = Device Code  
x = 2 or 6

### ORDERING INFORMATION

Device	Package	Shipping
MUR3020WT	TO-247	30 Units/Rail
MUR3060WT	TO-247	30 Units/Rail

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

# MUR3020WT, MUR3060WT

## MAXIMUM RATINGS (Per Leg)

Rating	Symbol	MUR3020WT	MUR3060WT	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	200	600	Volts
Average Rectified Forward Current @ 145°C Total Device	$I_{F(AV)}$	15 30		Amps
Peak Repetitive Surge Current (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 145^\circ\text{C}$ )	$I_{FM}$	30		Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz)	$I_{FSM}$	200	150	Amps
Operating Junction and Storage Temperature	$T_J, T_{stg}$	- 65 to +175		°C

## THERMAL CHARACTERISTICS (Per Leg)

Maximum Thermal Resistance — Junction to Case — Junction to Ambient	$R_{\theta JC}$ $R_{\theta JA}$	1.5 40		°C/W
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## ELECTRICAL CHARACTERISTICS (Per Leg)

Maximum Instantaneous Forward Voltage (Note 1.) ( $I_F = 15$ Amp, $T_C = 150^\circ\text{C}$ ) ( $I_F = 15$ Amp, $T_C = 25^\circ\text{C}$ )	$V_F$	0.85 1.05	1.4 1.7	Volts
Maximum Instantaneous Reverse Current (Note 1.) (Rated DC Voltage, $T_J = 150^\circ\text{C}$ ) (Rated DC Voltage, $T_J = 25^\circ\text{C}$ )	$i_R$	500 10	1000 10	$\mu\text{A}$
Maximum Reverse Recovery Time ( $i_F = 1.0$ A, $di/dt = 50$ Amps/ $\mu\text{s}$ )	$t_{rr}$	35	60	ns

1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

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## MUR3020WT

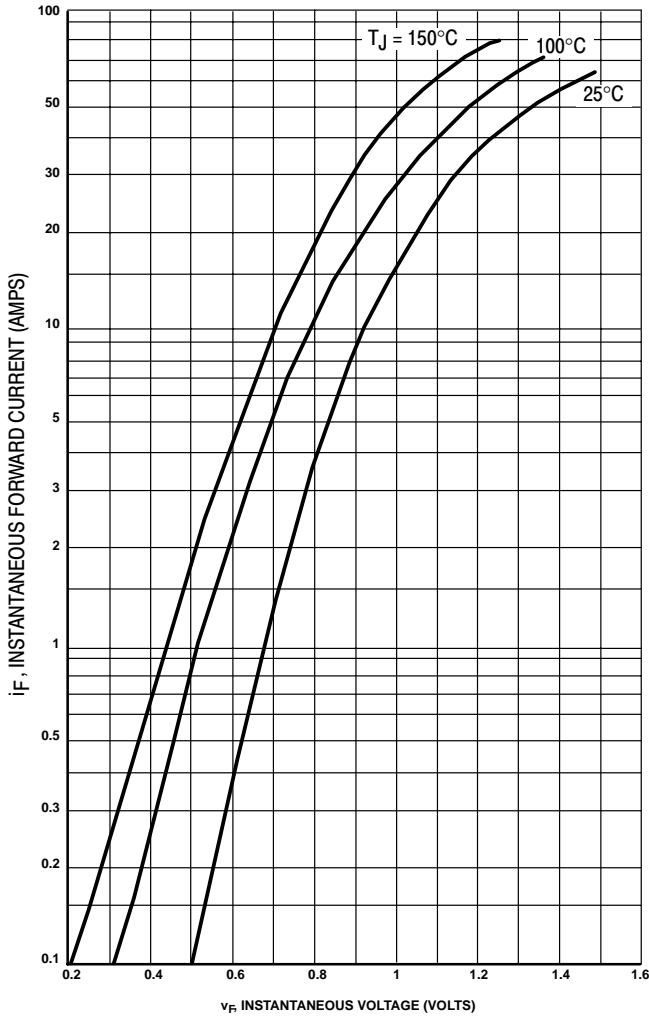
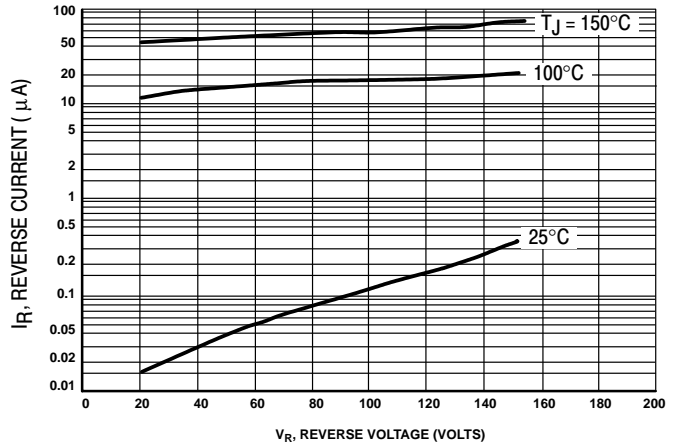


Figure 1. Typical Forward Voltage (Per Leg)



\*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 2. Typical Reverse Current (Per Leg)\*

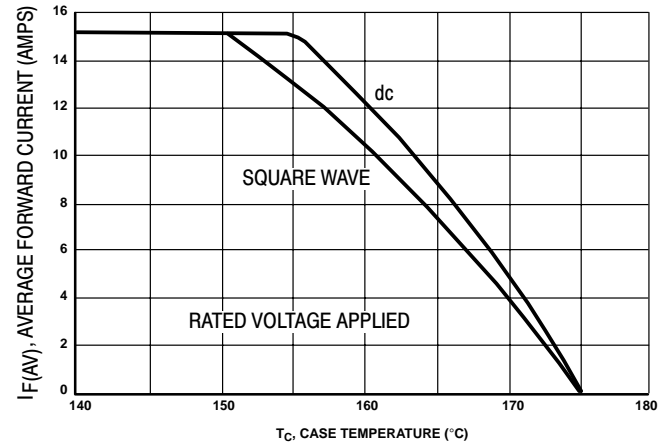


Figure 3. Current Derating, Case (Per Leg)

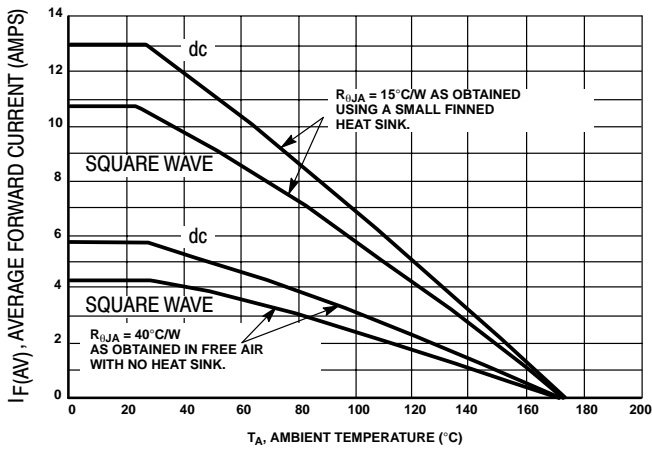


Figure 4. Current Derating, Ambient (Per Leg)

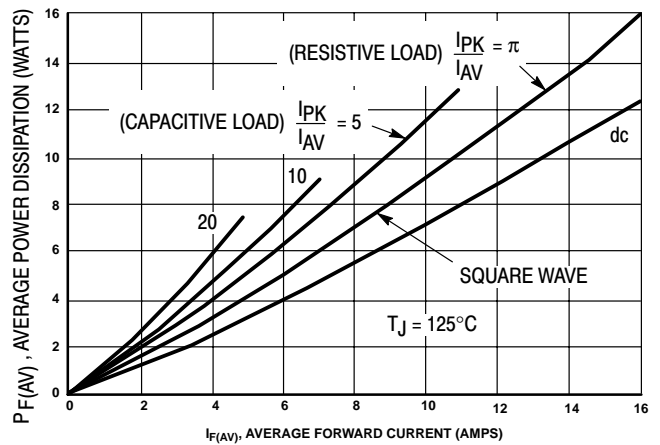


Figure 5. Power Dissipation (Per Leg)

MUR3060WT

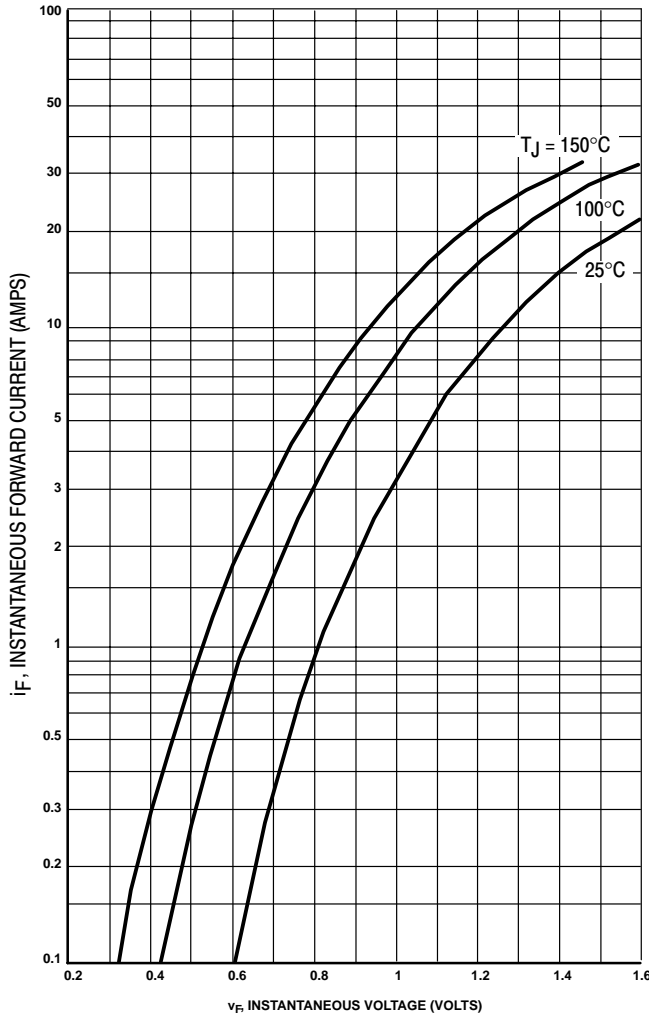
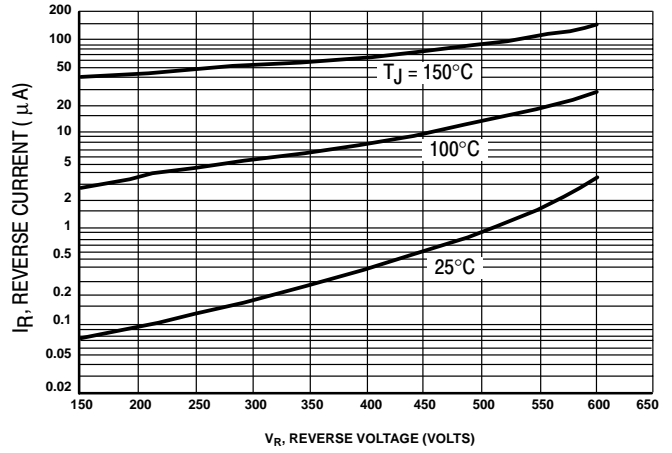


Figure 6. Typical Forward Voltage (Per Leg)



\*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 7. Typical Reverse Current (Per Leg)\*

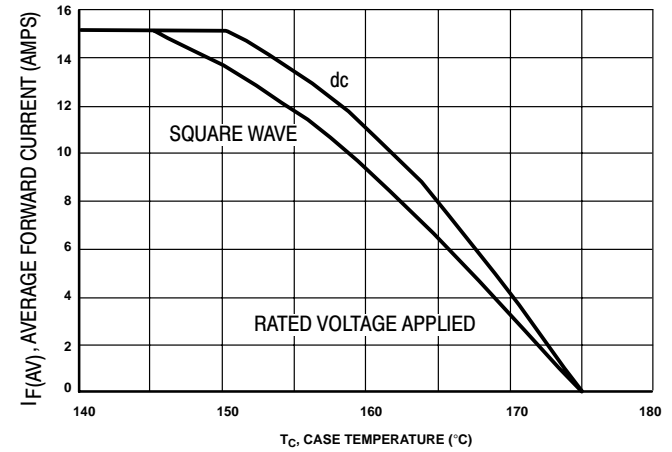


Figure 8. Current Derating, Case (Per Leg)

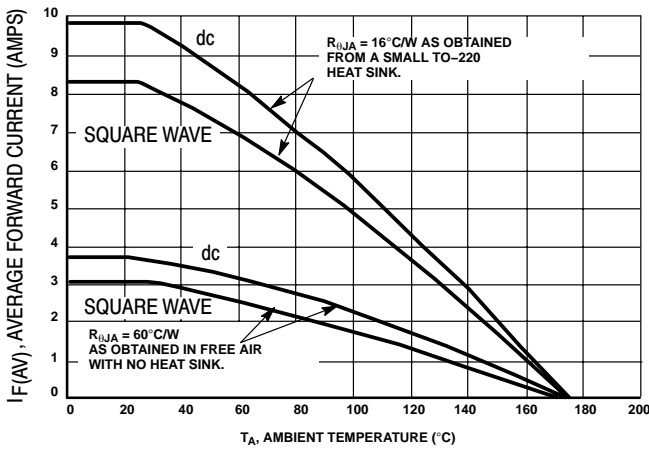


Figure 9. Current Derating, Ambient (Per Leg)

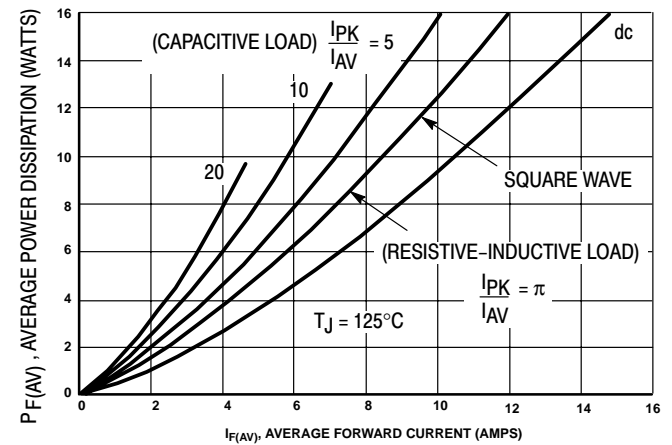


Figure 10. Power Dissipation (Per Leg)

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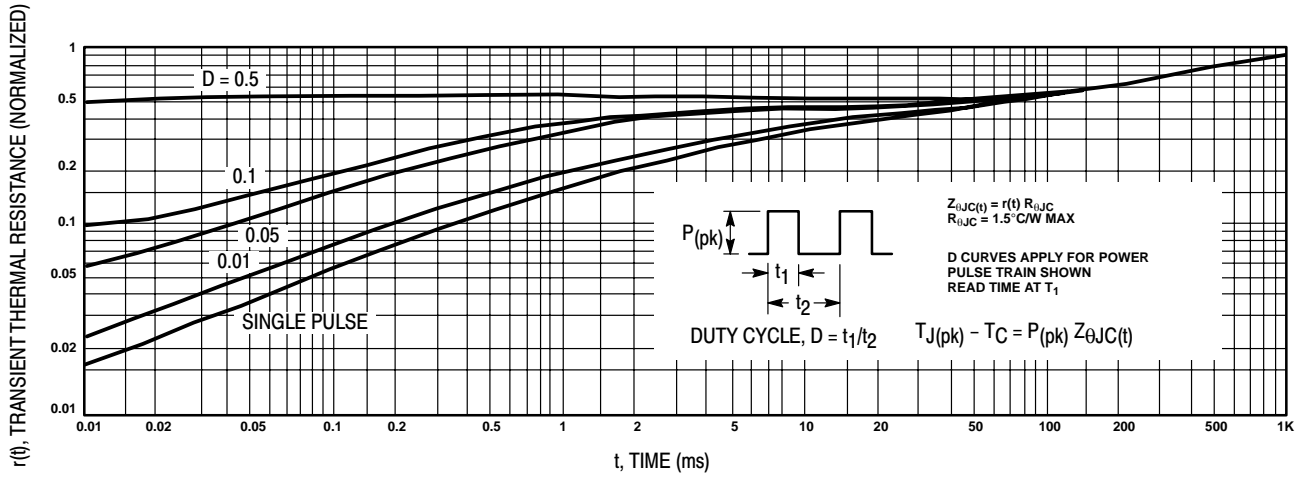


Figure 11. Thermal Response

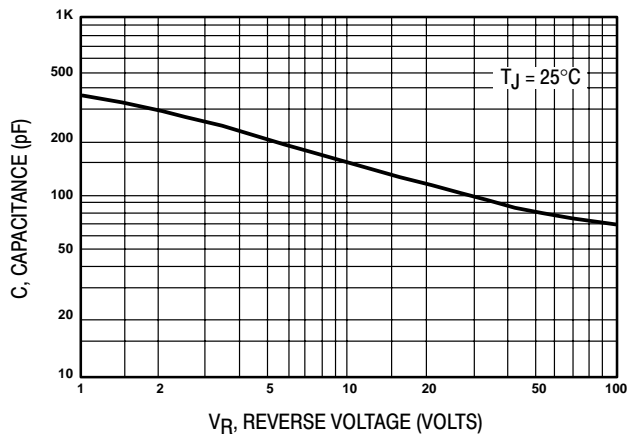


Figure 12. Typical Capacitance (Per Leg)