

# 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

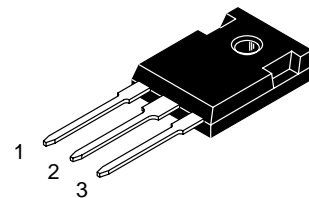
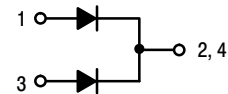
Please See the Table on the Following Page



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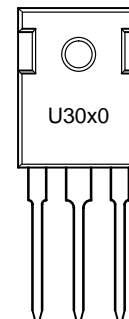
<http://onsemi.com>

**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  $\leq 2.0\%$ .

# MUR3020WT, MUR3060WT

## MUR3020WT

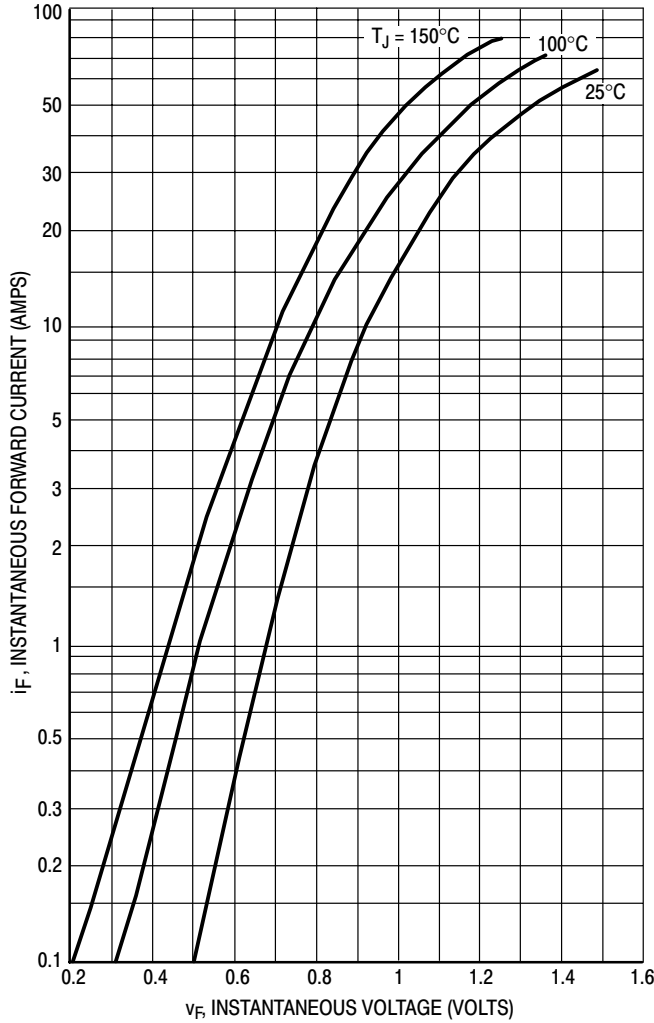
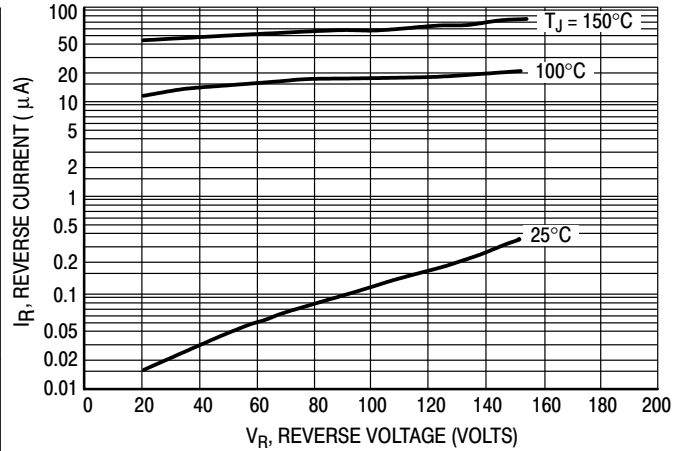


Figure 1. Typical Forward Voltage (Per Leg)



\*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)\*

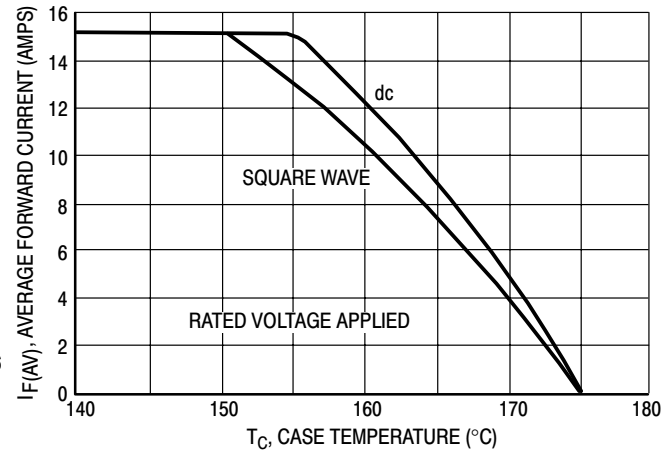


Figure 3. Current Derating, Case (Per Leg)

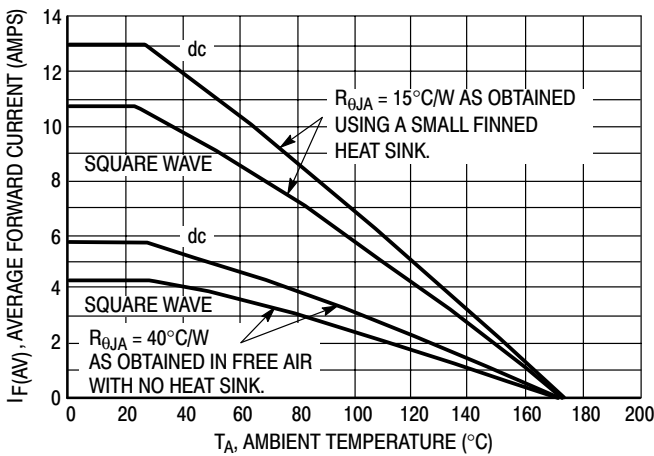


Figure 4. Current Derating, Ambient (Per Leg)

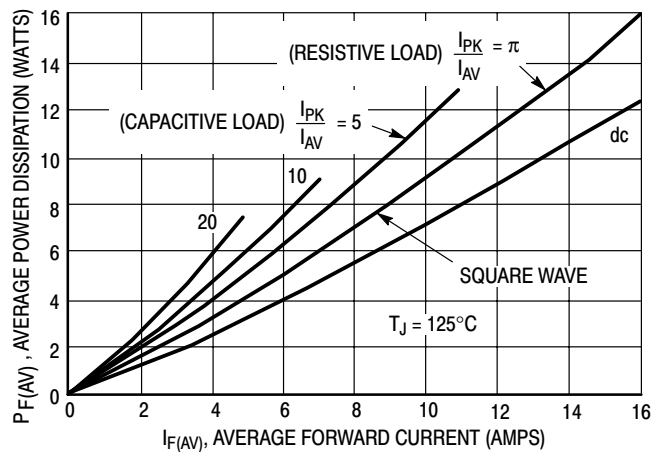


Figure 5. Power Dissipation (Per Leg)

# MUR3020WT, MUR3060WT

## MUR3060WT

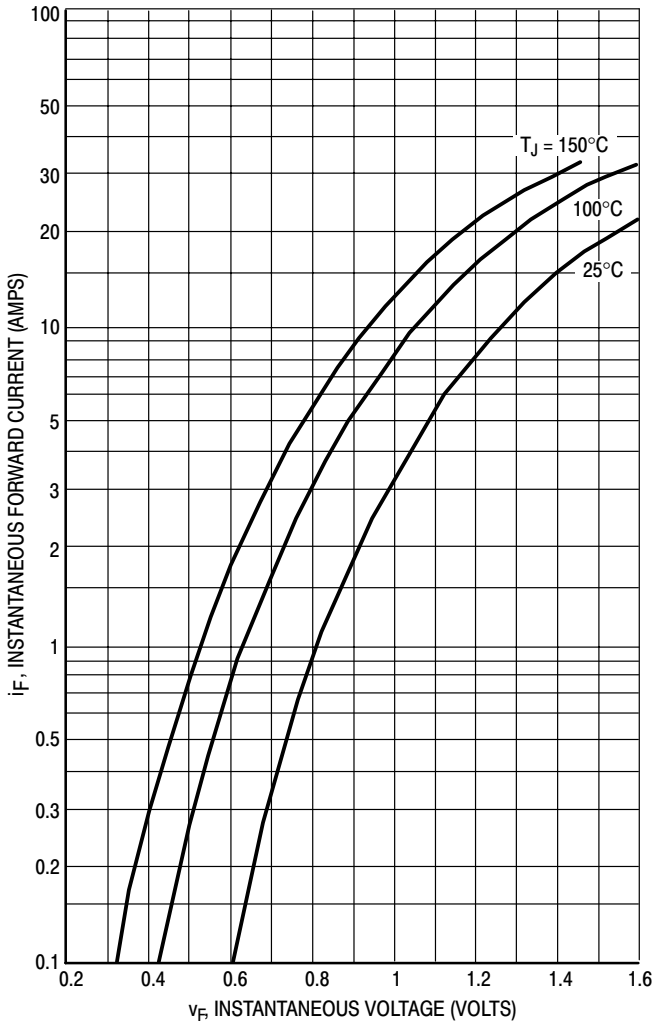
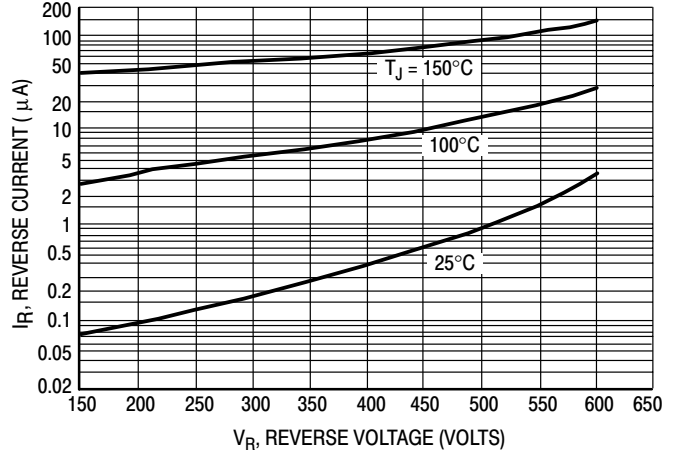


Figure 6. Typical Forward Voltage (Per Leg)



\*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)\*

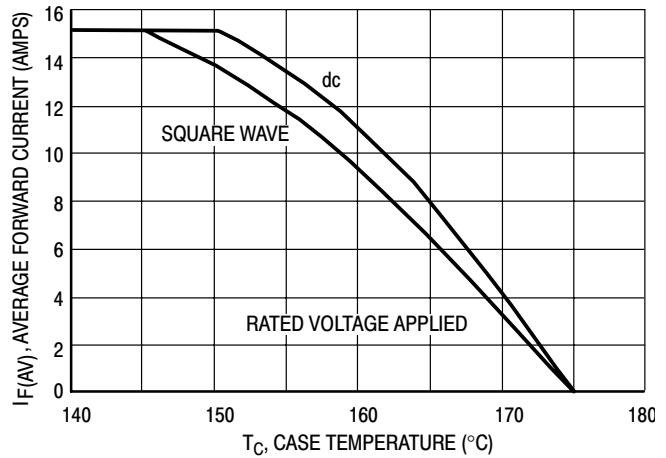


Figure 8. Current Derating, Case (Per Leg)

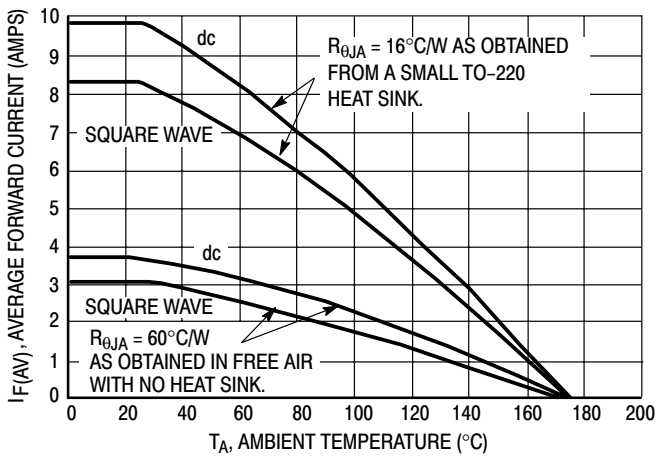


Figure 9. Current Derating, Ambient (Per Leg)

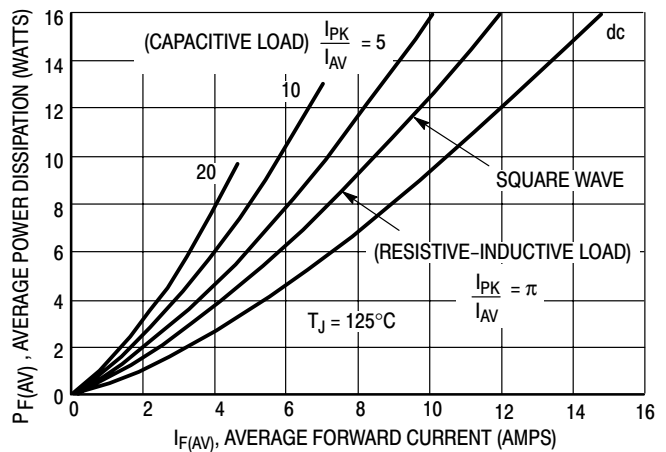


Figure 10. Power Dissipation (Per Leg)

# MUR3020WT, MUR3060WT

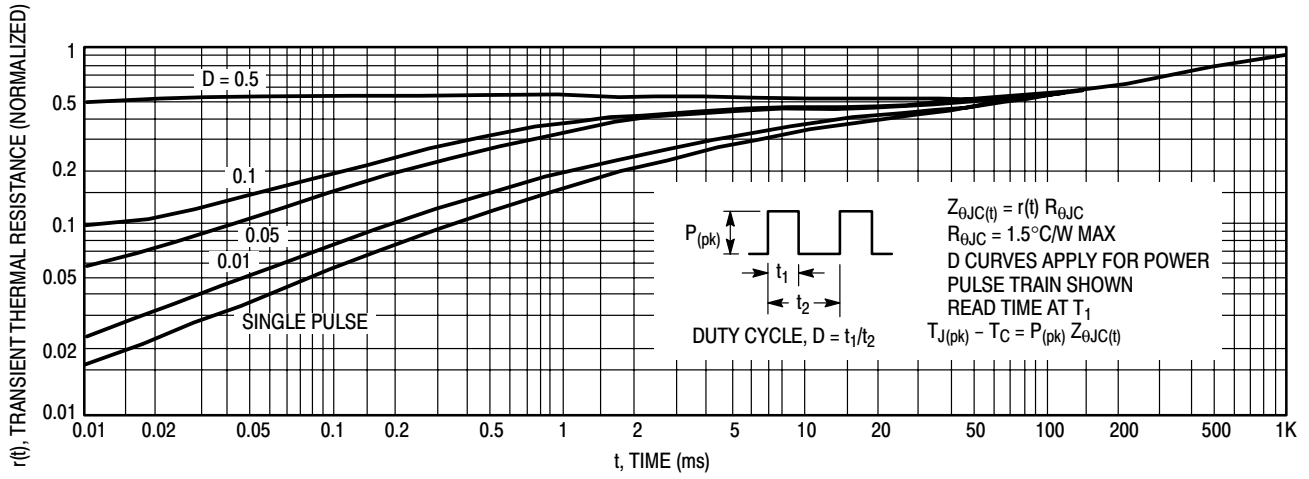


Figure 11. Thermal Response

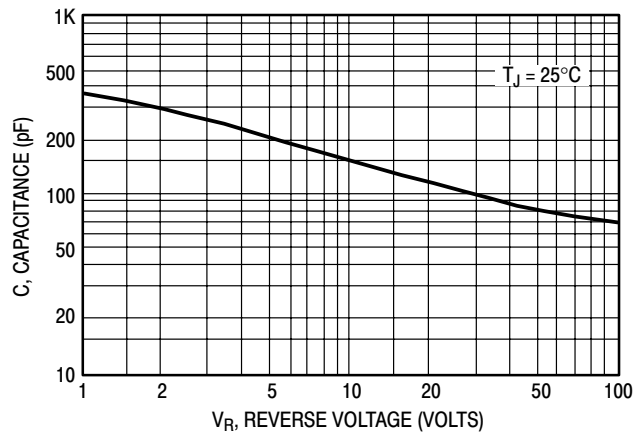
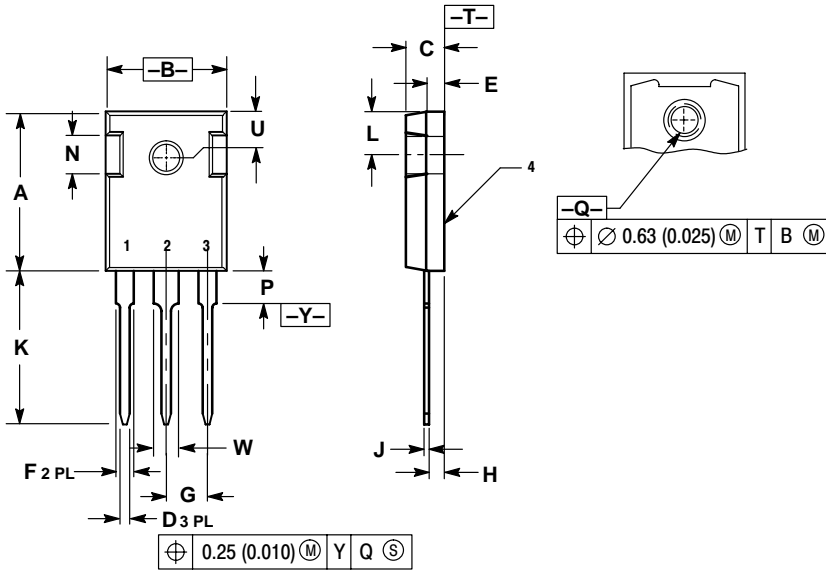


Figure 12. Typical Capacitance (Per Leg)

# MUR3020WT, MUR3060WT

## PACKAGE DIMENSIONS

TO-247 PSI  
CASE 340L-02  
ISSUE D



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

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	20.32	21.08	0.800	0.830
B	15.75	16.26	0.620	0.640
C	4.70	5.30	0.185	0.209
D	1.00	1.40	0.040	0.055
E	2.20	2.60	0.087	0.102
F	1.65	2.13	0.065	0.084
G	5.45 BSC		0.215 BSC	
H	1.50	2.49	0.059	0.098
J	0.40	0.80	0.016	0.031
K	20.06	20.83	0.790	0.820
L	5.40	6.20	0.212	0.244
N	4.32	5.49	0.170	0.216
P	---	4.50	---	0.177
Q	3.55	3.65	0.140	0.144
U	6.15 BSC		0.242 BSC	
W	2.87	3.12	0.113	0.123

STYLE 1:  
PIN 1. GATE  
2. DRAIN  
3. SOURCE  
4. DRAIN

STYLE 2:  
PIN 1. ANODE  
2. CATHODE (S)  
3. ANODE 2  
4. CATHODES (S)


STYLE 3:  
PIN 1. BASE  
2. COLLECTOR  
3. EMITTER  
4. COLLECTOR

STYLE 4:  
PIN 1. GATE  
2. COLLECTOR  
3. EMITTER  
4. COLLECTOR

## Notes

# MUR3020WT, MUR3060WT

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