

# MUR2020R

Preferred Device

## SWITCHMODE™ Ultrafast Power Rectifier

... designed for use in negative switching power supplies, inverters and as free wheeling diode. Also, used in conjunction with a standard cathode dual Ultrafast Rectifier, makes a single phase full-wave bridge. These state-of-the-art devices have the following features:

- Reverse Polarity Rectifier
- Ultrafast 95 Nanosecond Reverse Recovery Times
- Exhibits Soft Recovery Characteristics
- High Temperature Glass Passivated Junction
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating @ Case Temperature
- Epoxy Meets UL94, V<sub>O</sub> @ 1/8"

### 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: U2020R

### MAXIMUM RATINGS (Per Leg)

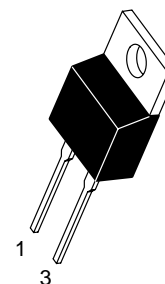
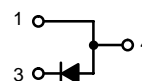
Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	200	Volts
Average Rectified Forward Voltage, (Rated V <sub>R</sub> ), T <sub>C</sub> = 125°C	I <sub>F(AV)</sub>	20	Amps
Peak Repetitive Forward Current (Rated V <sub>R</sub> ), T <sub>C</sub> = 125°C	I <sub>FRM</sub>	40	Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I <sub>FSM</sub>	250	Amps
Operating Junction Temperature and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +175	°C



ON Semiconductor™

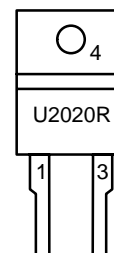
<http://onsemi.com>

## ULTRAFAST RECTIFIER 20 AMPERES 200 VOLTS



TO-220AC  
CASE 221B  
PLASTIC

### MARKING DIAGRAM



### ORDERING INFORMATION

Device	Package	Shipping
MUR2020R	TO-220AC	50 Units/Rail

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

# MUR2020R

## THERMAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Thermal Resistance – Junction to Case	$R_{\theta JC}$	2.0	$^{\circ}C/W$

## ELECTRICAL CHARACTERISTICS (Per Leg)

Maximum Instantaneous Forward Voltage (Note 1.) ( $I_F = 20$ Amps, $T_C = 25^{\circ}C$ ) ( $I_F = 20$ Amps, $T_C = 150^{\circ}C$ )	$V_F$	1.1 1.0	Volts
Maximum Instantaneous Reverse Current (Note 1.) (Rated dc Voltage, $T_C = 25^{\circ}C$ ) (Rated dc Voltage, $T_C = 150^{\circ}C$ )	$I_R$	50 1	$\mu A$ mA
Maximum Reverse Recovery Time ( $I_F = 1.0$ Amp, $di/dt = 50$ Amps/ $\mu s$ ) ( $I_F = 1.0$ Amp, $di/dt = 100$ Amps/ $\mu s$ )	$t_{rr}$	95 75	ns

1. Pulse Test: Pulse Width = 5.0 ms, Duty Cycle  $\leq 10\%$ .

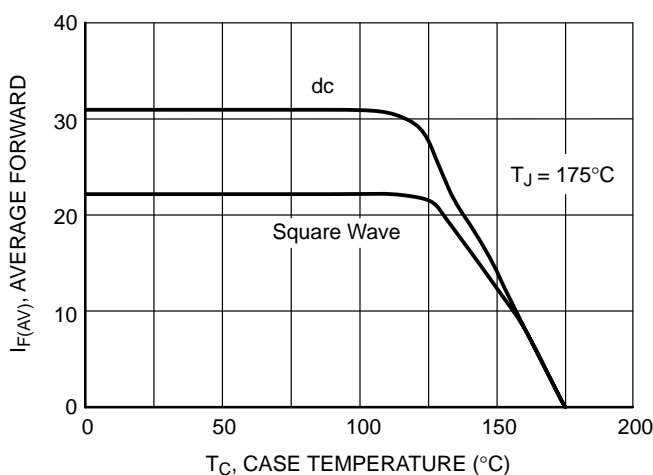


Figure 1. Current Derating

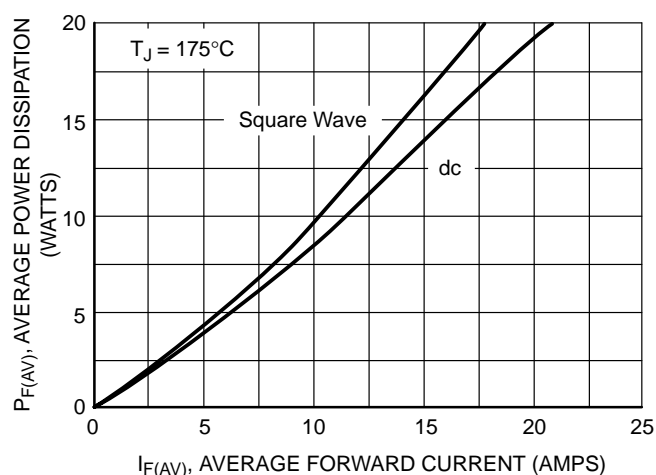


Figure 2. Power Dissipation

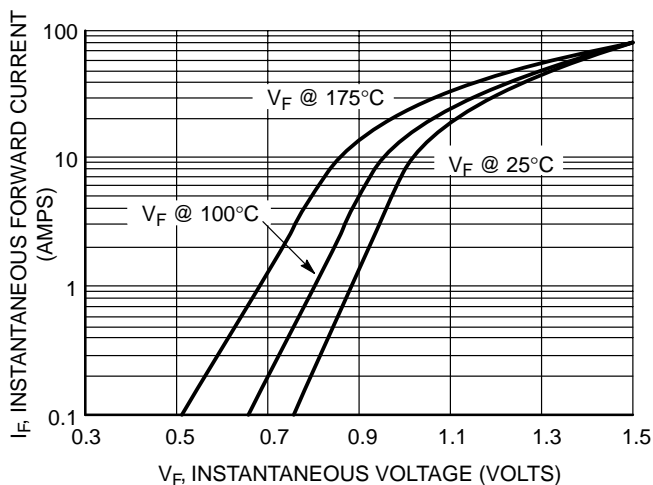


Figure 3. Maximum Forward Voltage

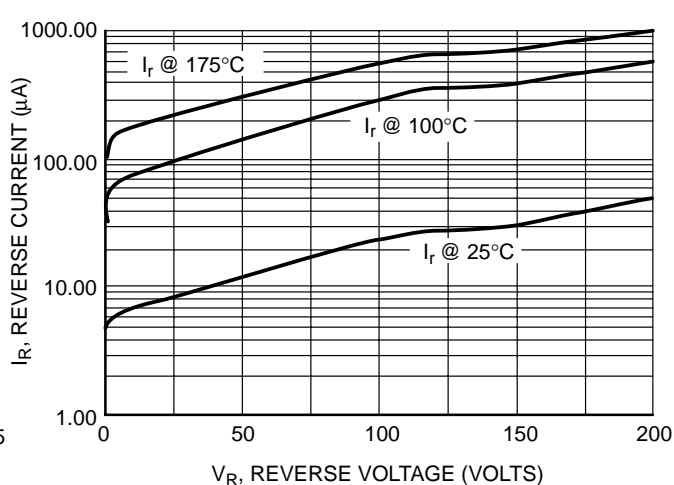


Figure 4. Maximum Reverse Current

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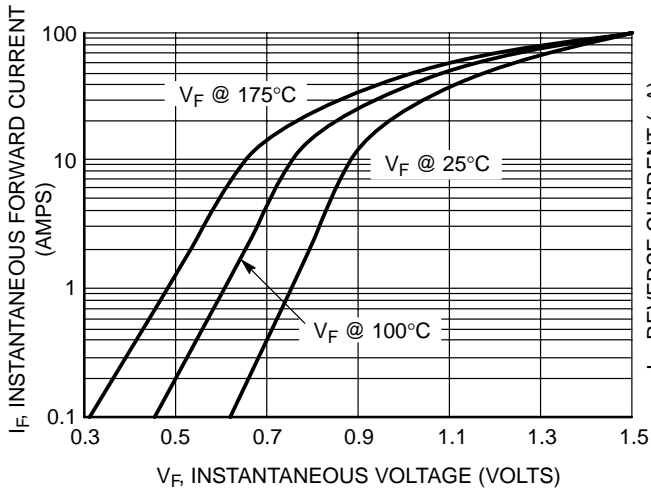


Figure 5. Typical Forward Voltage

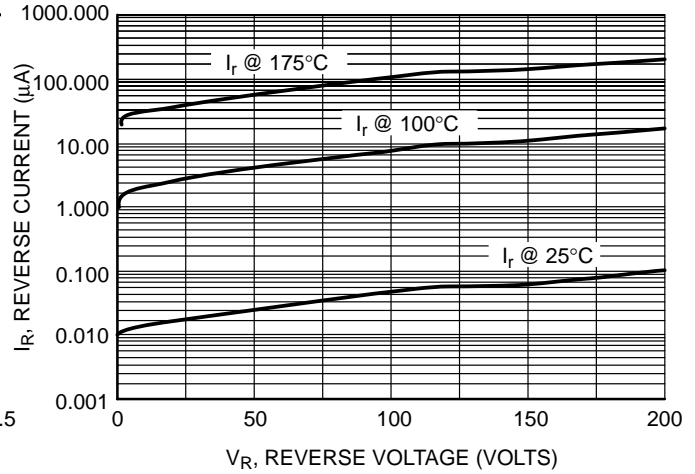


Figure 6. Typical Reverse Current

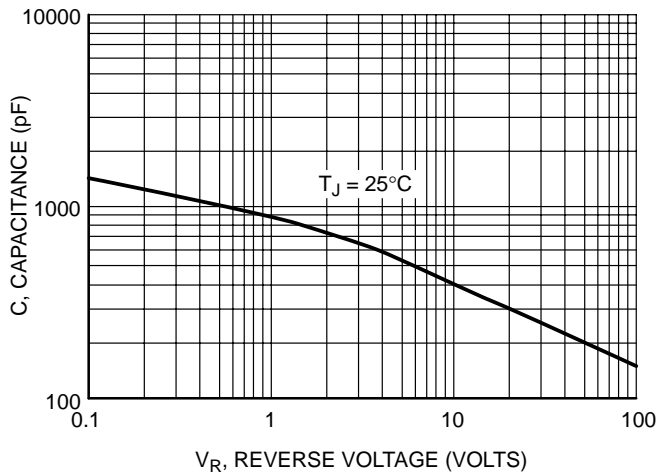


Figure 8. Maximum Capacitance

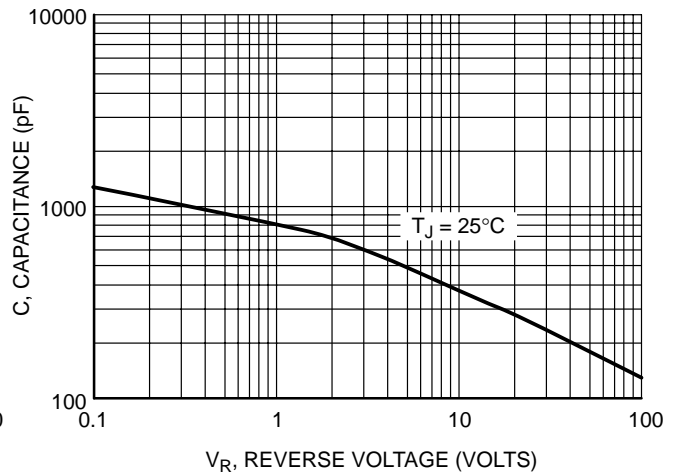


Figure 9. Typical Capacitance

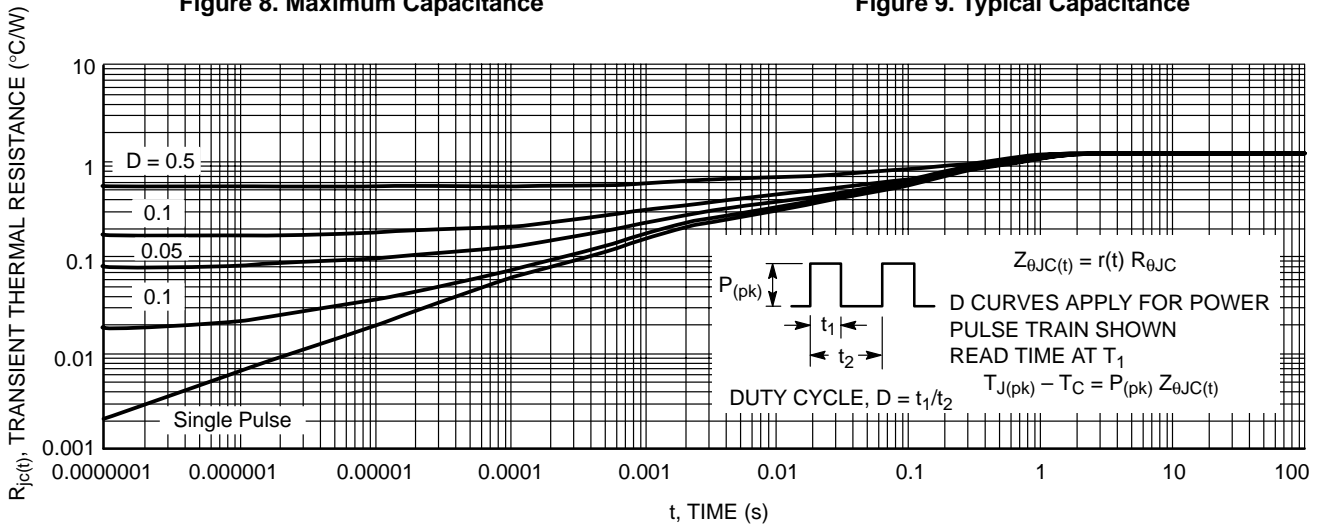
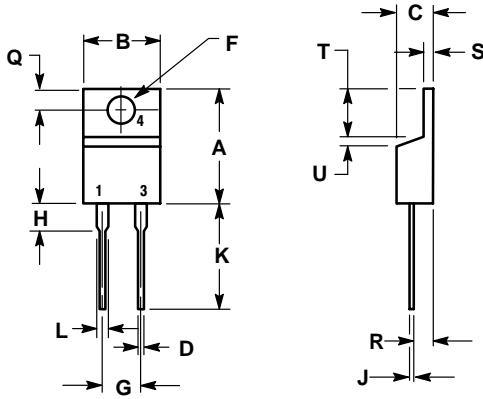


Figure 7. Thermal Response

# MUR2020R

## 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.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.595	0.620	15.11	15.75
B	0.380	0.405	9.65	10.29
C	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
H	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

STYLE 2:

1. ANODE
2. N/A
3. CATHODE
4. ANODE

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