

# Switch-mode Power Rectifier

## MUR620CTG

These state-of-the-art Switch-mode power rectifiers are designed for use in switching power supplies, inverters and as free wheeling diodes.

### Features

- Ultrafast 35 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- Popular TO-220 Package
- 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

### MAXIMUM RATINGS

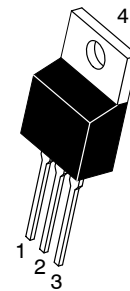
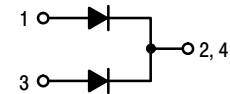
Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	200	V
Average Rectified Forward Voltage (Rated $V_R$ , $T_C = 130^\circ\text{C}$ )	$I_{F(AV)}$	3.0 6.0	A
Peak Repetitive Forward Current per Diode Leg (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 130^\circ\text{C}$ )	$I_{FRM}$	6.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	$I_{FSM}$	75	A
Operating Junction and Storage Temperature Range	$T_J$ , $T_{stg}$	-65 to +175	°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.

\*For additional information on our Pb-Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

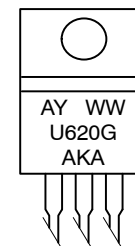
## ULTRAFAST RECTIFIER

### 6.0 AMPERES, 200 VOLTS



TO-220AB  
CASE 221A

### MARKING DIAGRAM



A = Assembly Location  
Y = Year  
WW = Work Week  
U620 = Device Code  
G = Pb-Free Package  
AKA = Diode Polarity

### ORDERING INFORMATION

Device	Package	Shipping
MUR620CTG	TO-220 (Pb-Free)	50 Units/Rail

†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](http://BRD8011/D).

# MUR620CTG

## THERMAL CHARACTERISTICS (Per Diode Leg)

Rating	Symbol	Typical	Maximum	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	5.0–6.0	7.0	$^{\circ}\text{C}/\text{W}$

## ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Rating	Symbol	Typical	Maximum	Unit
Instantaneous Forward Voltage (Note 1) ( $I_F = 3.0\text{ A}$ , $T_C = 150^{\circ}\text{C}$ ) ( $I_F = 3.0\text{ A}$ , $T_C = 25^{\circ}\text{C}$ )	$V_F$	0.80 0.94	0.895 0.975	V
Instantaneous Reverse Current (Note 1) (Rated DC Voltage, $T_C = 150^{\circ}\text{C}$ ) (Rated DC Voltage, $T_C = 25^{\circ}\text{C}$ )	$I_R$	2.0–10 0.01–3.0	250 5.0	$\mu\text{A}$
Reverse Recovery Time ( $I_F = 1.0\text{ A}$ , $di/dt = 50\text{ A}/\mu\text{s}$ )	$t_{rr}$	20–30	35	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  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

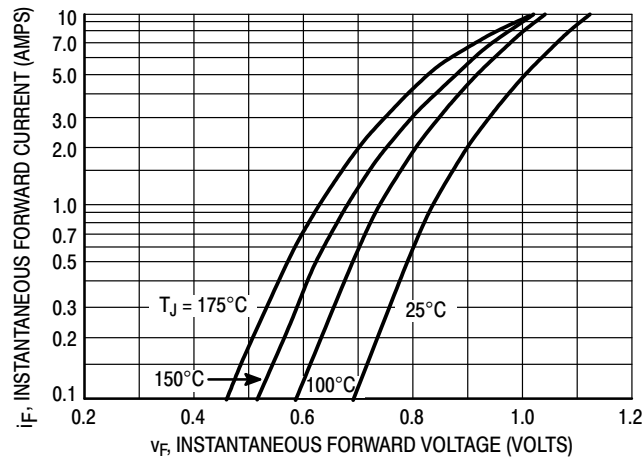


Figure 1. Typical Forward Voltage

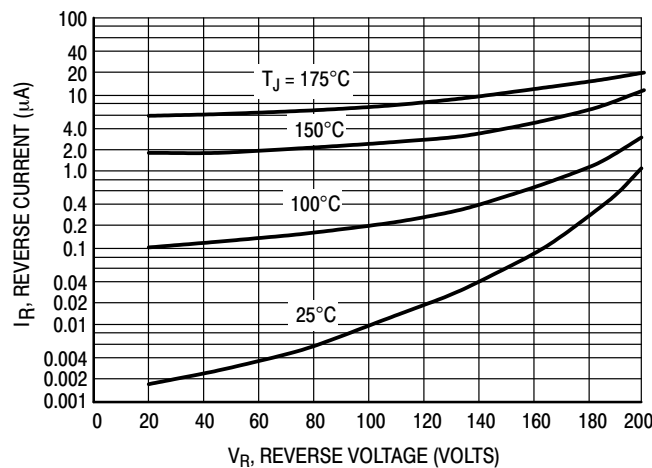


Figure 2. Typical Reverse Current

# MUR620CTG

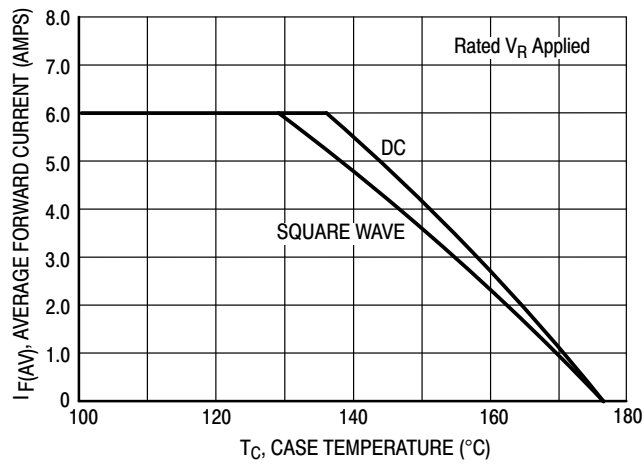


Figure 3. Total Device Current Derating, Case

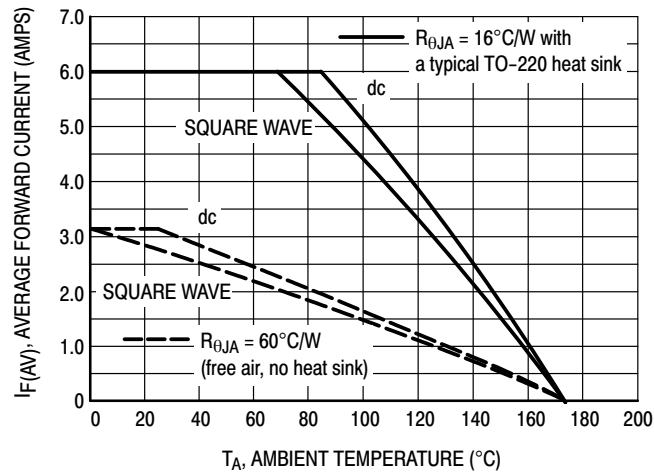


Figure 4. Total Device Current Derating, Ambient

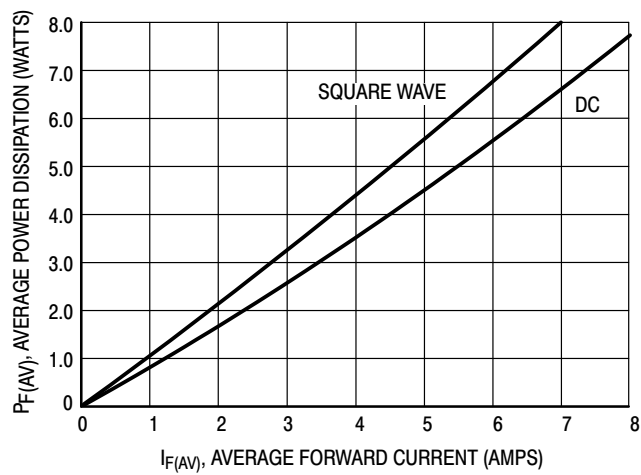
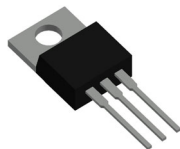


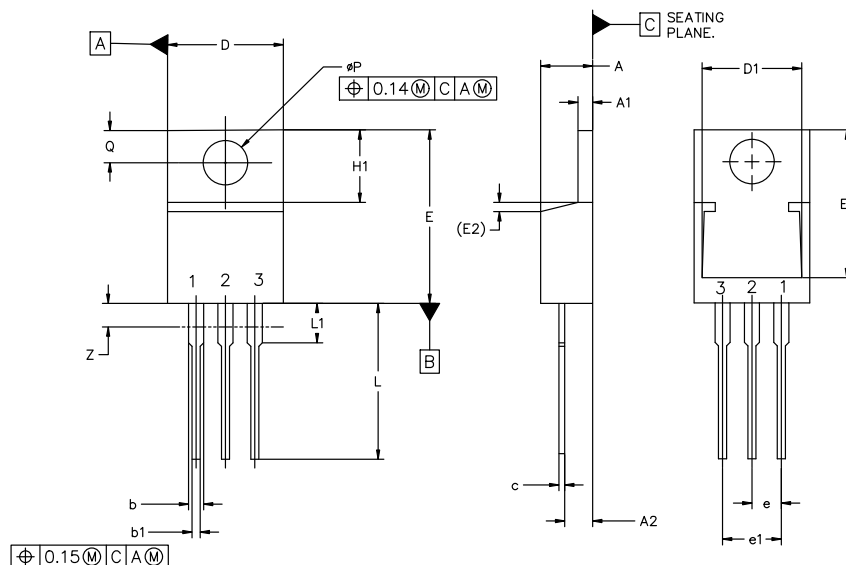
Figure 5. Power Dissipation


**TO-220-3 10.10x15.12x4.45, 2.54P**

CASE 221A

ISSUE AL

DATE 05 FEB 2025



MILLIMETERS			
DIM	MIN	NOM	MAX
A	4.07	4.45	4.83
A1	1.15	1.28	1.41
A2	2.04	2.42	2.79
b	1.15	1.34	1.52
b1	0.64	0.80	0.96
c	0.36	0.49	0.61
D	9.66	10.10	10.53
D1	8.43	8.63	8.83
E	14.48	15.12	15.75
E1	12.58	12.78	12.98
E2	1.27 REF		

MILLIMETERS			
DIM	MIN	NOM	MAX
e	2.42	2.54	2.66
e1	4.83	5.08	5.33
H1	5.97	6.22	6.47
L	12.70	13.49	14.27
L1	2.80	3.45	4.10
Q	2.54	2.79	3.04
øP	3.60	3.85	4.09
Z	---	---	3.48

## NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

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

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

STYLE 3:  
PIN 1. CATHODE  
2. ANODE  
3. GATE  
4. ANODE

STYLE 4:  
PIN 1. MAIN TERMINAL 1  
2. MAIN TERMINAL 2  
3. GATE  
4. MAIN TERMINAL 2

STYLE 5:  
PIN 1. GATE  
2. DRAIN  
3. SOURCE  
4. DRAIN

STYLE 6:  
PIN 1. ANODE  
2. CATHODE  
3. ANODE  
4. CATHODE

STYLE 7:  
PIN 1. CATHODE  
2. ANODE  
3. CATHODE  
4. ANODE

STYLE 8:  
PIN 1. CATHODE  
2. ANODE  
3. EXTERNAL TRIP/DELAY  
4. ANODE

STYLE 9:  
PIN 1. GATE  
2. COLLECTOR  
3. EMITTER  
4. COLLECTOR

STYLE 10:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN  
4. SOURCE

STYLE 11:  
PIN 1. DRAIN  
2. SOURCE  
3. GATE  
4. SOURCE

STYLE 12:  
PIN 1. MAIN TERMINAL 1  
2. MAIN TERMINAL 2  
3. GATE  
4. NOT CONNECTED

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**DESCRIPTION:** TO-220-3 10.10x15.12x4.45, 2.54P

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