

# MURF1620CT

Preferred Device

## SWITCHMODE™ Power Rectifier

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

### Features

- Ultrafast 35 Nanosecond Recovery Times
- 150°C Operating Junction Temperature
- Epoxy Meets UL 94 V-0 @ 0.125 in
- High Temperature Glass Passivated Junction
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating @ Both Case and Ambient Temperatures
- Electrically Isolated. No Isolation Hardware Required.
- Pb-Free Package is Available\*

### 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 (Per Leg)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	200	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
Average Rectified Forward Current Per Diode, (Rated $V_R$ ), $T_C = 150^\circ\text{C}$	$I_{F(AV)}$	8	A
Total Device		16	
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz), $T_C = 150^\circ\text{C}$	$I_{FM}$	16	A
Non-repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	100	A
Operating Junction and Storage Temperature	$T_J, T_{stg}$	- 65 to +150	°C
RMS Isolation Voltage ( $t = 0.3$ second, R.H. $\leq 30\%$ , $T_A = 25^\circ\text{C}$ ) (Note 1) Per Figure 3	$V_{iso1}$	4500	V

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

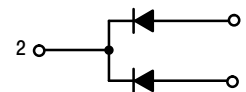
1. Proper strike and creepage distance must be provided.



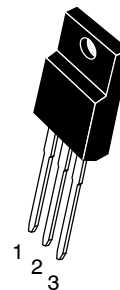
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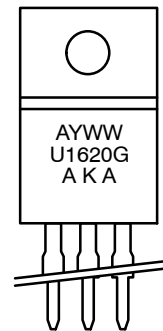
## ULTRAFAST RECTIFIER 16 AMPERES, 200 VOLTS



### MARKING DIAGRAM



ISOLATED TO-220  
CASE 221D  
STYLE 3



A = Assembly Location  
Y = Year  
WW = Work Week  
U1620 = Device Code  
G = Pb-Free Package  
AKA = Diode Polarity

### ORDERING INFORMATION

Device	Package	Shipping
MURF1620CT	TO-220	50 Units/Rail
MURF1620CTG	TO-220 (Pb-Free)	50 Units/Rail

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

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

# MURF1620CT

## THERMAL CHARACTERISTICS (Per Leg)

Rating	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	4.2	$^{\circ}C/W$
Lead Temperature for Soldering Purposes: 1/8" from the Case for 5 seconds	$T_L$	260	$^{\circ}C$

## ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) ( $i_F = 8.0 \text{ A}$ , $T_C = 150^{\circ}C$ ) ( $i_F = 8.0 \text{ A}$ , $T_C = 25^{\circ}C$ )	$V_F$	0.895 0.975	V
Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, $T_C = 150^{\circ}C$ ) (Rated DC Voltage, $T_C = 25^{\circ}C$ )	$i_R$	250 5.0	$\mu A$
Maximum Reverse Recovery Time ( $I_F = 1.0 \text{ A}$ , $di/dt = 50 \text{ A}/\mu s$ ) ( $I_F = 0.5 \text{ A}$ , $i_R = 1.0 \text{ A}$ , $I_{REC} = 0.25 \text{ A}$ )	$t_{rr}$	35 25	ns

2. Pulse Test: Pulse Width = 300  $\mu s$ , Duty Cycle  $\leq 2.0\%$ .

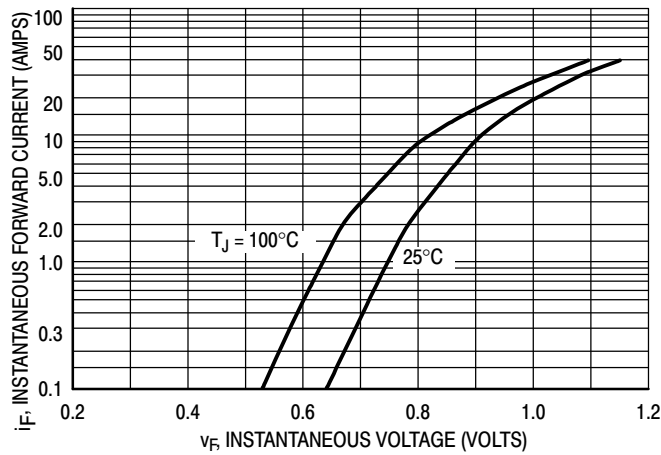


Figure 1. Typical Forward Voltage, Per Leg

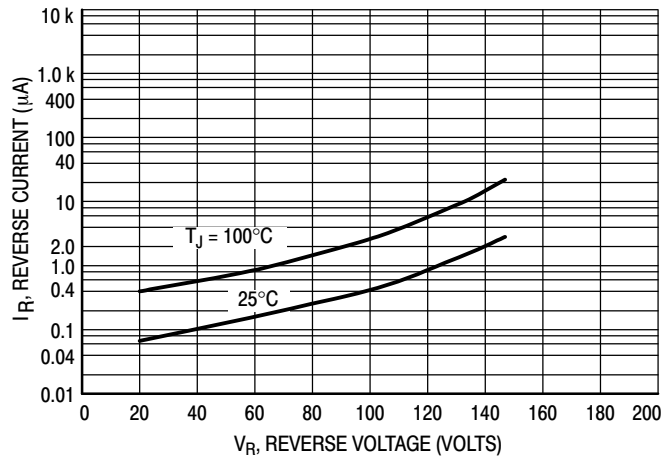
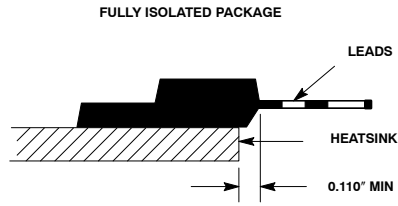


Figure 2. Typical Reverse Current, Per Leg\*

# MURF1620CT

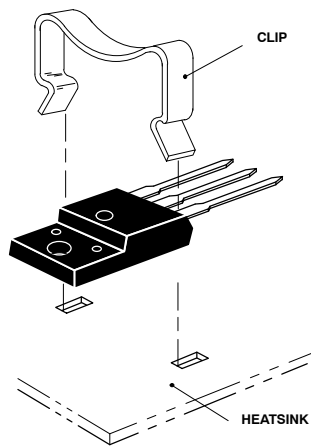
## TEST CONDITION FOR ISOLATION TEST\*



**Figure 3. Mounting Position**

\* Measurement made between leads and heatsink with all leads shorted together.

## MOUNTING INFORMATION



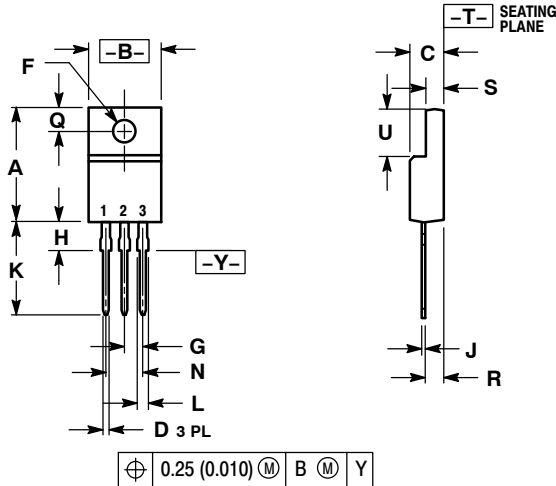
**Clip-Mounted**

**Figure 4. Typical Mounting Technique**

# MURF1620CT

## PACKAGE DIMENSIONS

TO-220 FULLPAK  
CASE 221D-03  
ISSUE J



NOTES:


1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH
3. 221D-01 THRU 221D-02 OBSOLETE, NEW STANDARD 221D-03.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.617	0.635	15.67	16.12
B	0.392	0.419	9.96	10.63
C	0.177	0.193	4.50	4.90
D	0.024	0.039	0.60	1.00
F	0.116	0.129	2.95	3.28
G	0.100 BSC		2.54 BSC	
H	0.118	0.135	3.00	3.43
J	0.018	0.025	0.45	0.63
K	0.503	0.541	12.78	13.73
L	0.048	0.058	1.23	1.47
N	0.200 BSC		5.08 BSC	
Q	0.122	0.138	3.10	3.50
R	0.099	0.117	2.51	2.96
S	0.092	0.113	2.34	2.87
U	0.239	0.271	6.06	6.88

STYLE 3:

1. ANODE
2. CATHODE
3. ANODE

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