

# MURH860CT

## Power Rectifier

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

### Features

- Ultrafast 35 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Popular TO-220 Package
- Epoxy Meets UL 94 V-0 @ 0.125 in
- High Temperature Glass Passivated Junction
- High Voltage Capability to 600 V
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating @ Both Case and Ambient Temperatures
- 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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                         | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 600         | V    |
| Average Rectified Forward Current<br>(Rated $V_R$ , $T_C = 120^\circ\text{C}$ ) Total Device                   | $I_{F(AV)}$                     | 4.0<br>8.0  | A    |
| Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 120^\circ\text{C}$ )                | $I_{FM}$                        | 16          | A    |
| Non-Repetitive Peak Surge Current<br>(Surge Applied at Rated Load Conditions<br>Halfwave, Single Phase, 60 Hz) | $I_{FSM}$                       | 100         | A    |
| Operating Junction and Storage<br>Temperature Range                                                            | $T_J, T_{stg}$                  | -65 to +175 | °C   |

### THERMAL CHARACTERISTICS (Per Leg)

| Rating                                    | Symbol          | Value | Unit |
|-------------------------------------------|-----------------|-------|------|
| Max. Thermal Resistance, Junction-to-Case | $R_{\theta JC}$ | 3.0   | °C/W |

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.

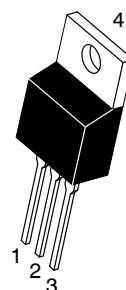
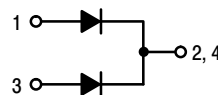
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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## ULTRAFAST RECTIFIER 8.0 AMPERES, 600 VOLTS



TO-220AB  
CASE 221A  
PLASTIC

### MARKING DIAGRAM



A = Assembly Location  
Y = Year  
WW = Work Week  
UH860 = Device Code  
G = Pb-Free Package  
AKA = Diode Polarity

### ORDERING INFORMATION

| Device     | Package             | Shipping      |
|------------|---------------------|---------------|
| MURH860CT  | TO-220              | 50 Units/Rail |
| MURH860CTG | TO-220<br>(Pb-Free) | 50 Units/Rail |

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

# MURH860CT

## ELECTRICAL CHARACTERISTICS (Per Leg)

| Rating                                                                                                                                                        | Symbol   | Value      | Unit          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|---------------|
| Maximum Instantaneous Forward Voltage (Note 1)<br>( $i_F = 4.0\text{ A}$ , $T_C = 150^\circ\text{C}$ )<br>( $i_F = 4.0\text{ A}$ , $T_C = 25^\circ\text{C}$ ) | $v_F$    | 2.5<br>2.8 | V             |
| Maximum Instantaneous Reverse Current (Note 1)<br>(Rated DC Voltage, $T_C = 150^\circ\text{C}$ )<br>(Rated DC Voltage, $T_C = 25^\circ\text{C}$ )             | $i_R$    | 500<br>10  | $\mu\text{A}$ |
| Maximum Reverse Recovery Time<br>( $I_F = 1.0\text{ A}$ , $di/dt = 50\text{ A}/\mu\text{s}$ )                                                                 | $t_{rr}$ | 35         | ns            |

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

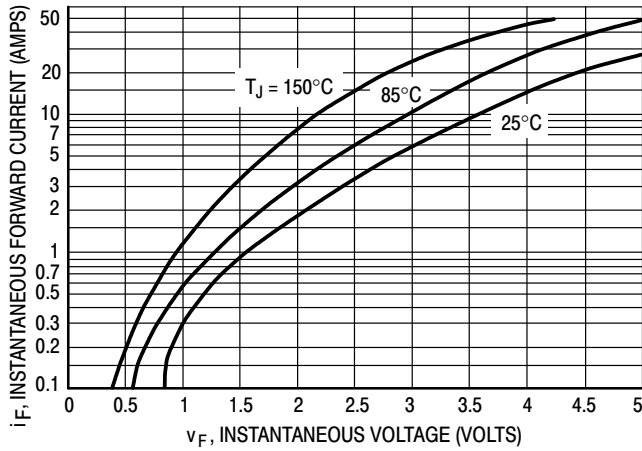


Figure 1. Typical Forward Voltage, Per Leg

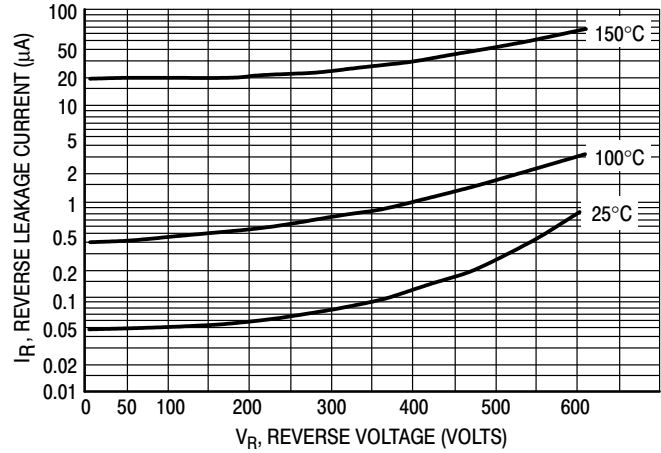


Figure 2. Typical Reverse Leakage Current, Per Leg

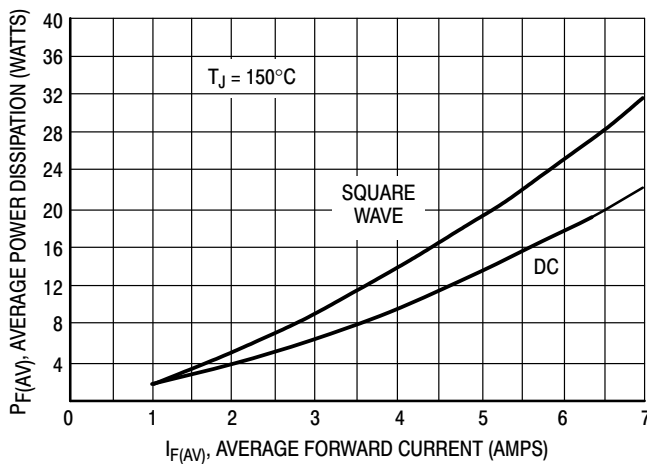


Figure 3. Typical Forward Dissipation, Per Leg

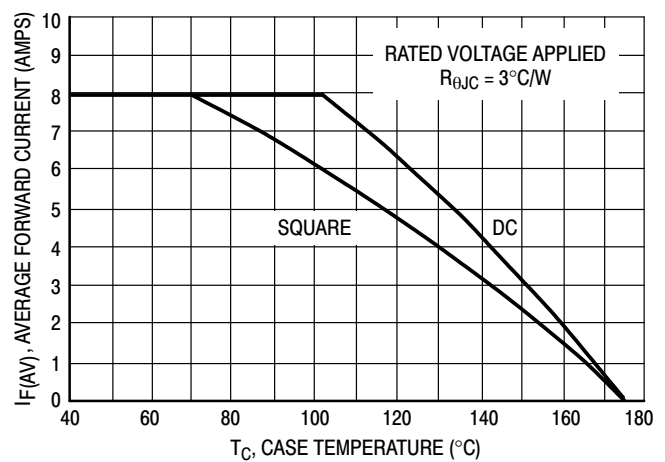
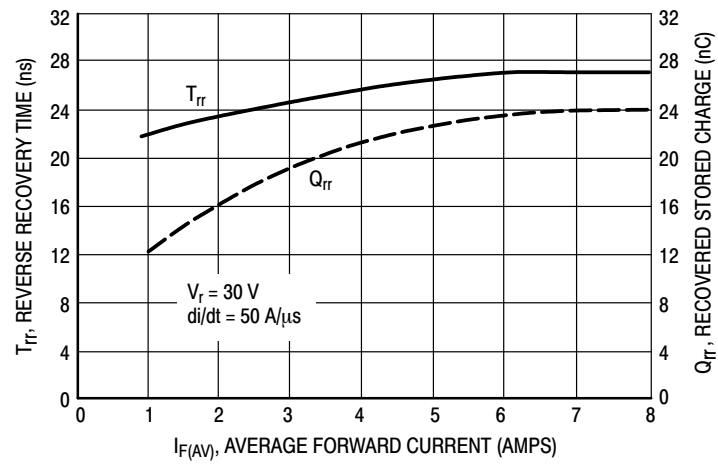
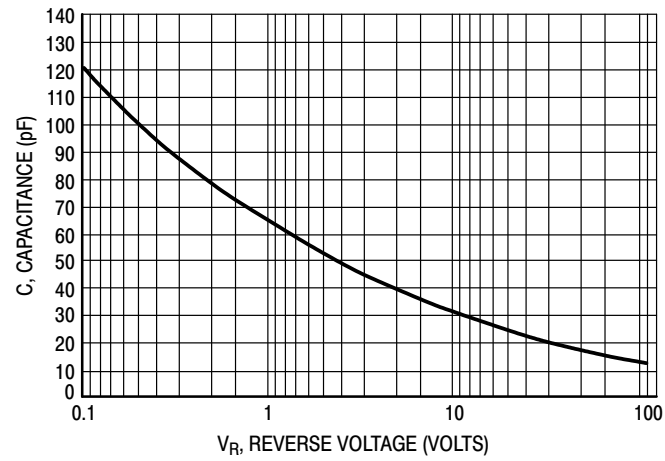


Figure 4. Typical Current Derating, Case, Per Leg

# MURH860CT



**Figure 5. Typical Recovery Characteristics**

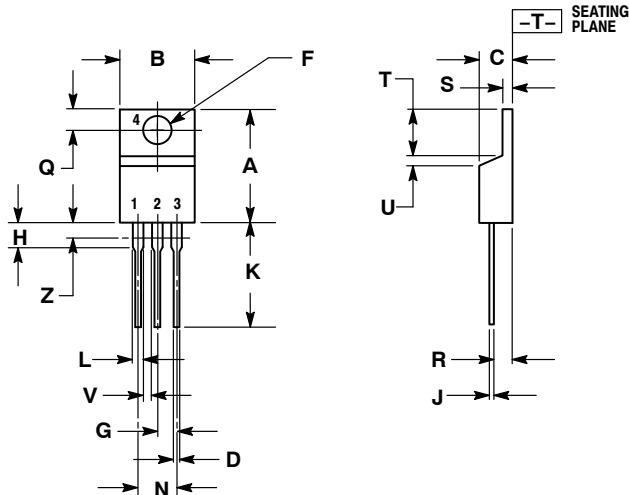


**Figure 6. Typical Capacitance, Per Leg**

# MURH860CT

## PACKAGE DIMENSIONS

TO-220  
CASE 221A-09  
ISSUE AF



### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

| DIM | INCHES |       | MILLIMETERS |       |
|-----|--------|-------|-------------|-------|
|     | MIN    | MAX   | MIN         | MAX   |
| A   | 0.570  | 0.620 | 14.48       | 15.75 |
| B   | 0.380  | 0.405 | 9.66        | 10.28 |
| C   | 0.160  | 0.190 | 4.07        | 4.82  |
| D   | 0.025  | 0.035 | 0.64        | 0.88  |
| F   | 0.142  | 0.161 | 3.61        | 4.09  |
| G   | 0.095  | 0.105 | 2.42        | 2.66  |
| H   | 0.110  | 0.155 | 2.80        | 3.93  |
| J   | 0.014  | 0.025 | 0.36        | 0.64  |
| K   | 0.500  | 0.562 | 12.70       | 14.27 |
| L   | 0.045  | 0.060 | 1.15        | 1.52  |
| N   | 0.190  | 0.210 | 4.83        | 5.33  |
| Q   | 0.100  | 0.120 | 2.54        | 3.04  |
| R   | 0.080  | 0.110 | 2.04        | 2.79  |
| S   | 0.045  | 0.055 | 1.15        | 1.39  |
| T   | 0.235  | 0.255 | 5.97        | 6.47  |
| U   | 0.000  | 0.050 | 0.00        | 1.27  |
| V   | 0.045  | ---   | 1.15        | ---   |
| Z   | ---    | 0.080 | ---         | 2.04  |

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MURH860CT/D

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