

# MURH860CT

Preferred Device

## MEGAHERTZ™ Power Rectifier

These state-of-the-art are MEGAHERTZ 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 Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	600	V
Average Rectified Forward Current (Rated $V_R$ , $T_C = 120^\circ\text{C}$ ) Total Device	$I_{F(AV)}$	4.0 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 (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	$I_{FSM}$	100	A
Operating Junction and Storage 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.

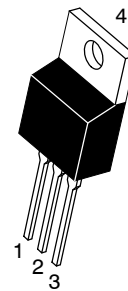
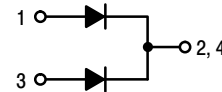
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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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 (Pb-Free)	50 Units/Rail

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

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## ELECTRICAL CHARACTERISTICS (Per Leg)

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

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

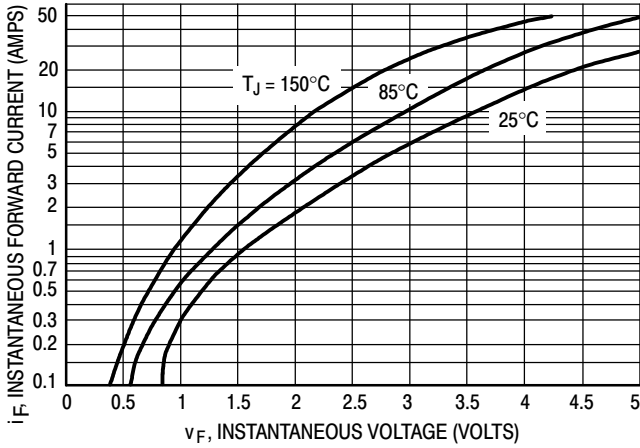


Figure 1. Typical Forward Voltage, Per Leg

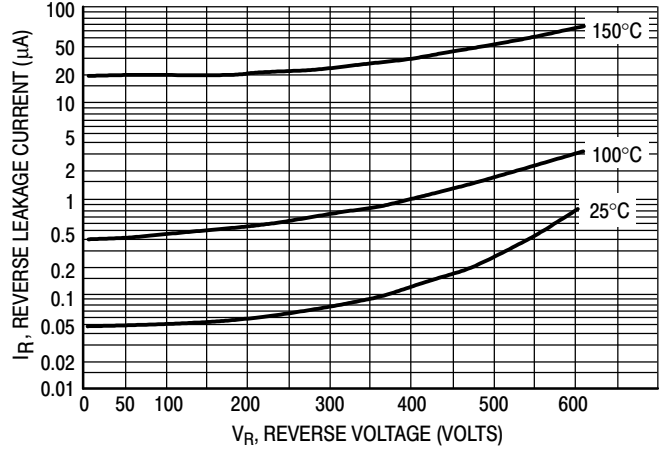


Figure 2. Typical Reverse Leakage Current, Per Leg

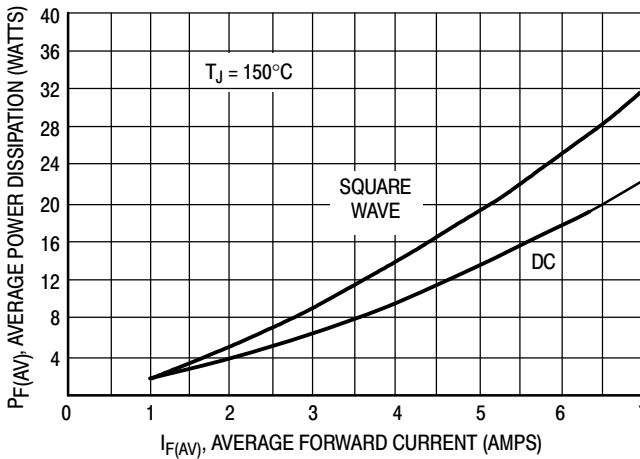


Figure 3. Typical Forward Dissipation, Per Leg

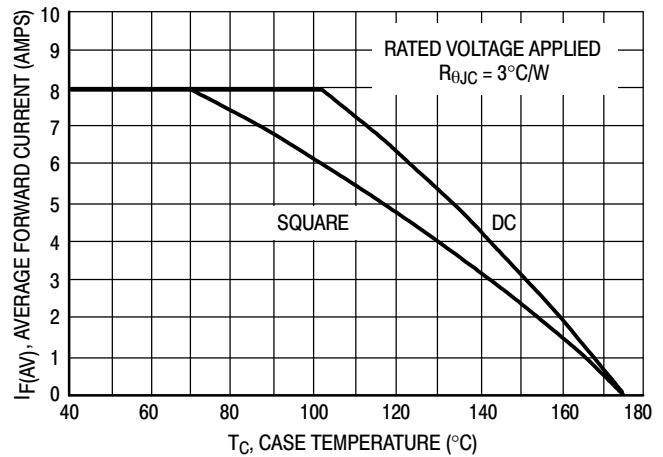


Figure 4. Typical Current Derating, Case, Per Leg

# MURH860CT

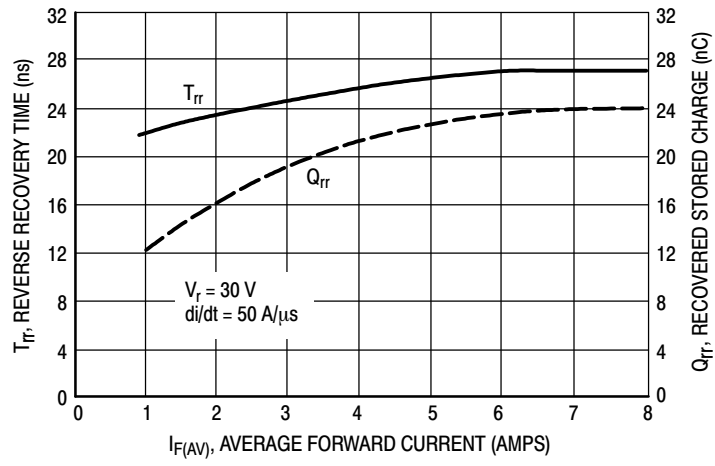


Figure 5. Typical Recovery Characteristics

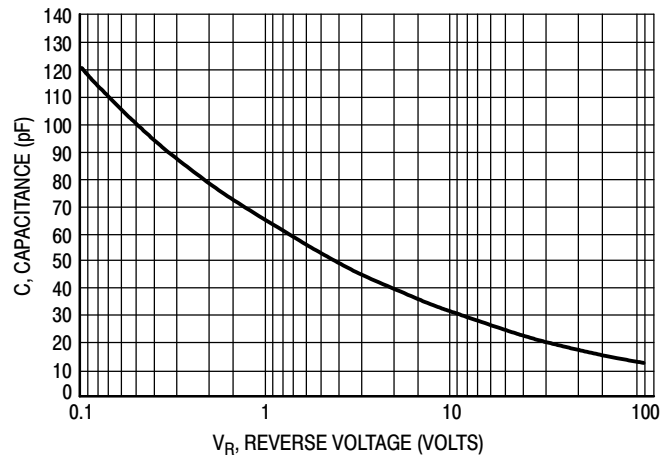
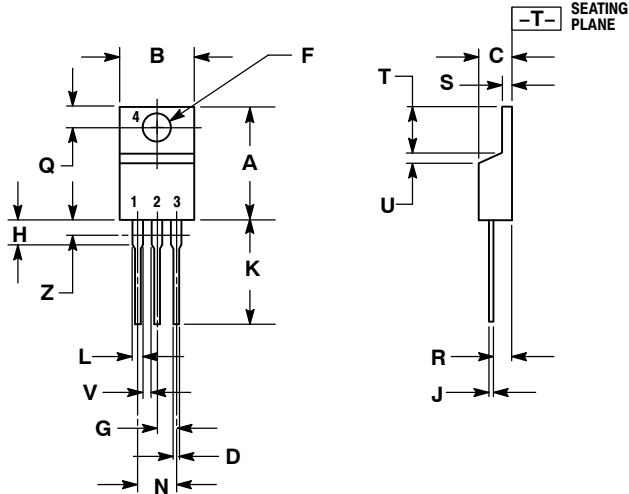


Figure 6. Typical Capacitance, Per Leg

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## 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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