

# MURH860CTG

## 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
- 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 (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 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.

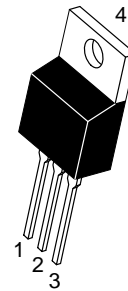
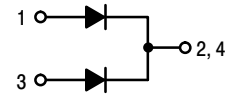
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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## ULTRAFAST RECTIFIER 8.0 AMPERES, 600 VOLTS



**TO-220AB  
CASE 221A**

### 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
MURH860CTG	TO-220 (Pb-Free)	50 Units/Rail

# MURH860CTG

## 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  $\leq 2.0\%$

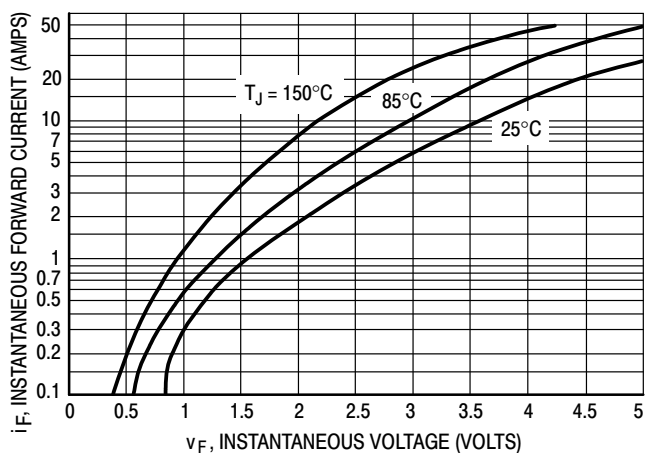


Figure 1. Typical Forward Voltage, Per Leg

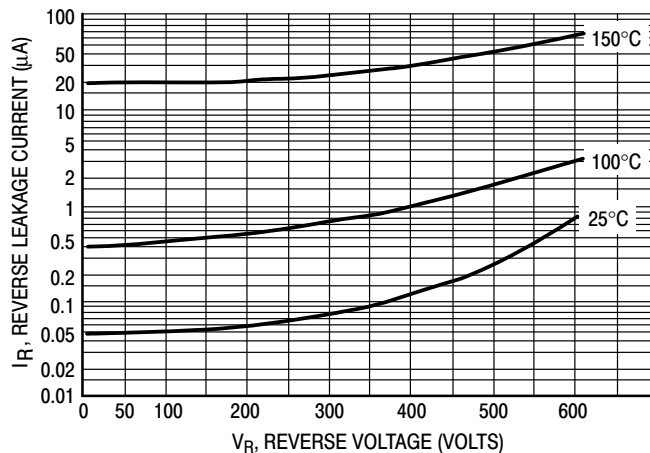


Figure 2. Typical Reverse Leakage Current, Per Leg

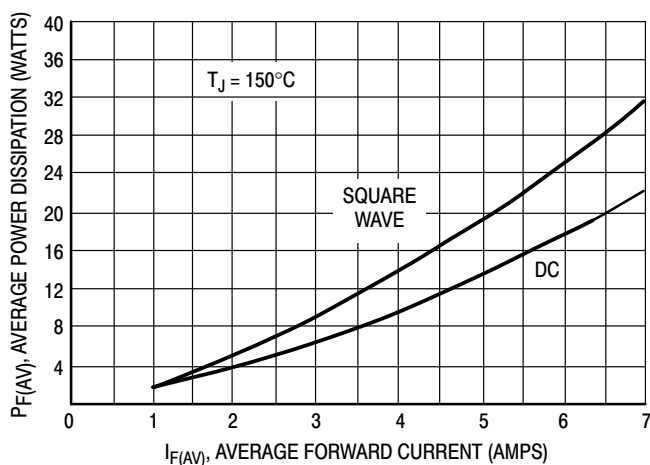


Figure 3. Typical Forward Dissipation, Per Leg

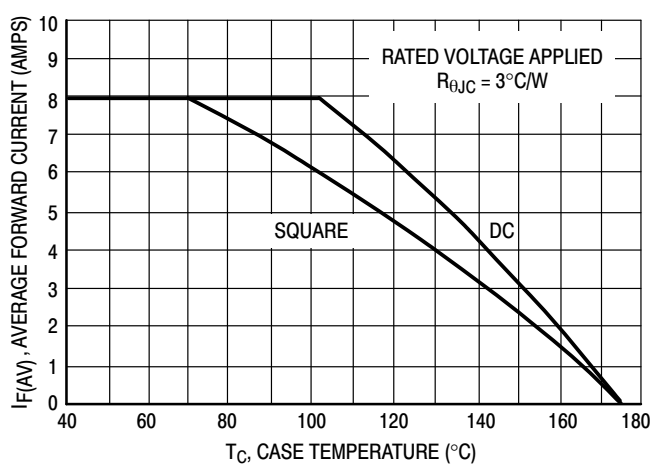


Figure 4. Typical Current Derating, Case, Per Leg

# MURH860CTG

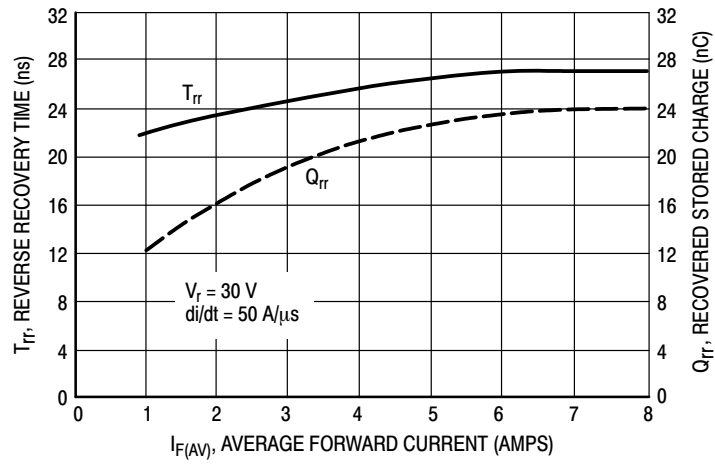


Figure 5. Typical Recovery Characteristics

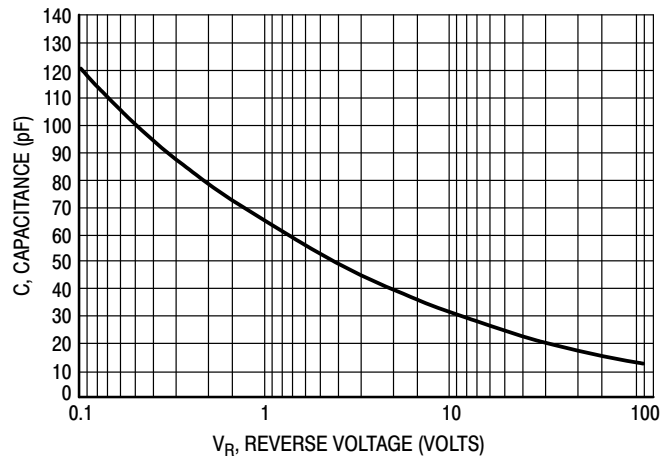
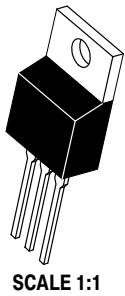


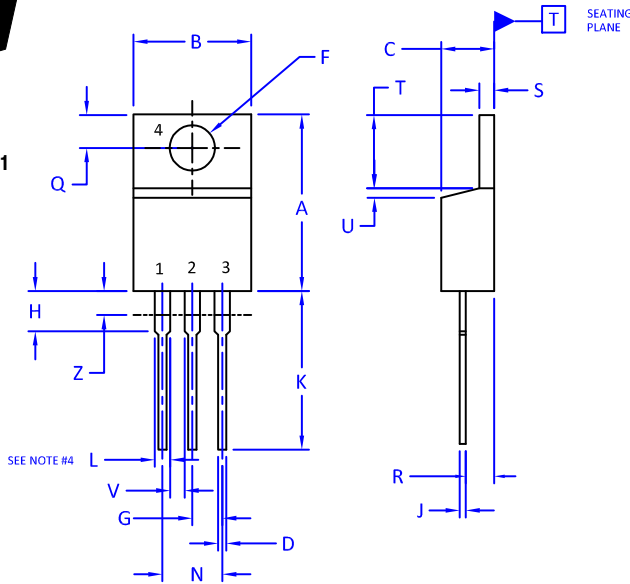
Figure 6. Typical Capacitance, Per Leg

# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



## TO-220 CASE 221A ISSUE AK

DATE 13 JAN 2022



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 2009.
2. CONTROLLING DIMENSION: INCHES
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.
4. MAX WIDTH FOR F102 DEVICE = 1.35MM

DIM	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.570	0.620	14.48	15.75
B	0.380	0.415	9.66	10.53
C	0.160	0.190	4.07	4.83
D	0.025	0.038	0.64	0.96
F	0.142	0.161	3.60	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.161	2.80	4.10
J	0.014	0.024	0.36	0.61
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	1.41
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

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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