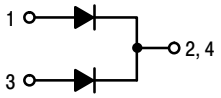
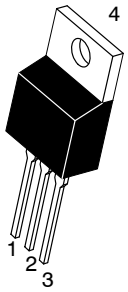
Power Rectifier

MURH840CTG

ULTRAFAST RECTIFIER
8.0 AMPERES, 400 VOLTS
t_{rr} = 28 ns





TO−220AB
CASE 221A

Features and Benefits

- Low Forward Voltage
- Low Power Loss/High Efficiency
- High Surge Capacity
- 175°C Operating Junction Temperature
- 8 A Total (4 A Per Diode Leg)
- These are Pb−Free Devices*

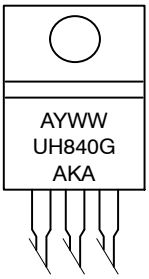
Applications

- Power Supply − Output Rectification
- Power Management
- Instrumentation

Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets UL 94 V−0 @ 0.125 in
- 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
- ESD Rating: Human Body Model 3B
  Machine Model C

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
UH840 = Device Code
G = Pb−Free Package
AKA = Diode Polarity

ORDERING INFORMATION

Device	Package	Shipping
MURH840CTG	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.

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

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	400	V
Average Rectified Forward Current (T_C = 155°C) Per Leg Total Device	$I_{F(AV)}$	 4.0 8.0	A
Peak Repetitive Forward Current per Diode Leg (Square Wave, 20 kHz, T_C = 149°C)	I_{FM}	8.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	100	A
Controlled Avalanche Energy	W_{AVAL}	20	mJ
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.

THERMAL CHARACTERISTICS

Characteristic	Conditions	Symbol	Max	Unit
Maximum Thermal Resistance, Junction−to−Case	Min. Pad	$R_{\theta JC}$	3.0	°C/W
Maximum Thermal Resistance, Junction−to−Ambient	Min. Pad	$R_{\theta JA}$	60	

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typical	Max	Unit
Maximum Instantaneous Forward Voltage (Note 1) (i_F = 4.0 A, T_j = 150°C) (i_F = 4.0 A, T_j = 25°C)	v_F	 − −	 1.12 1.45	 1.9 2.2	V
Maximum Instantaneous Reverse Current (Note 1) (Rated dc Voltage, T_j = 150°C) (Rated dc Voltage, T_j = 25°C)	i_R	 − −	 300 4.0	 500 10	μA
Maximum Reverse Recovery Time (I_F = 1.0 A, di/dt = 50 A/μs)	t_{rr}	 −	 −	 28	ns

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

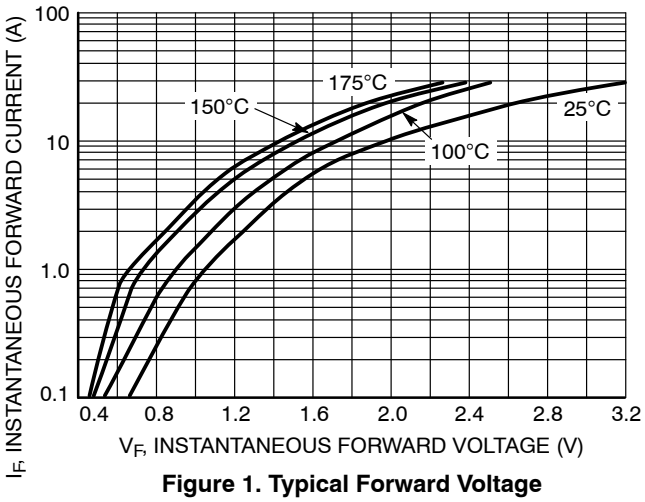


Figure 1. Typical Forward Voltage

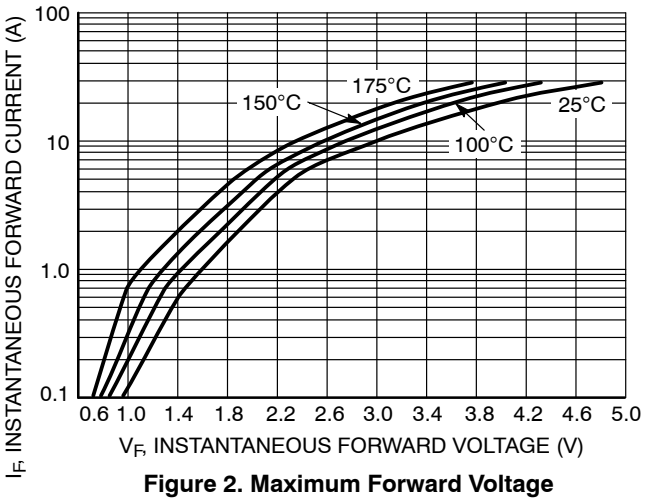


Figure 2. Maximum Forward Voltage

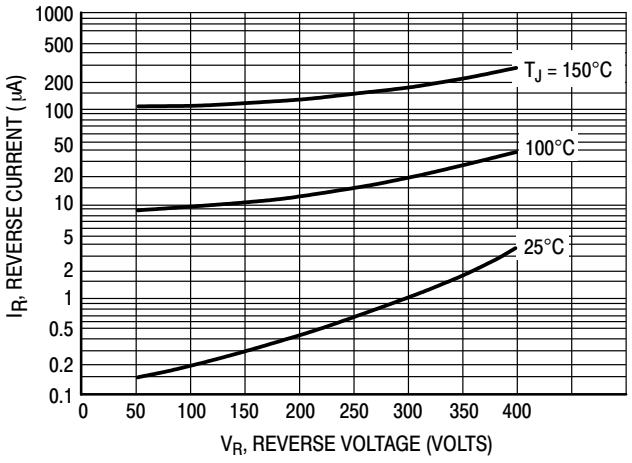


Figure 3. Typical Reverse Current, Per Leg

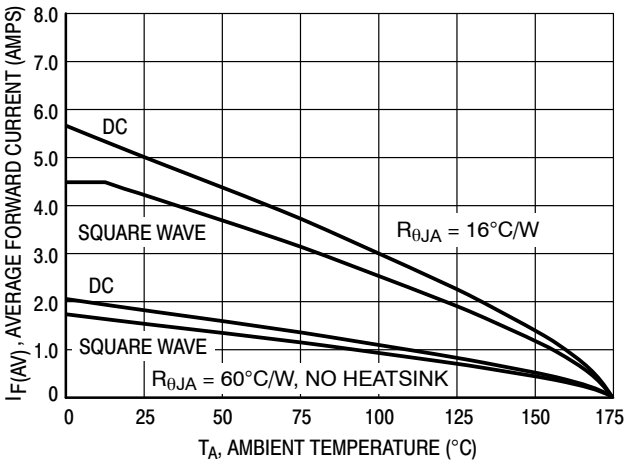


Figure 4. Forward Current Derating, Ambient, Per Leg

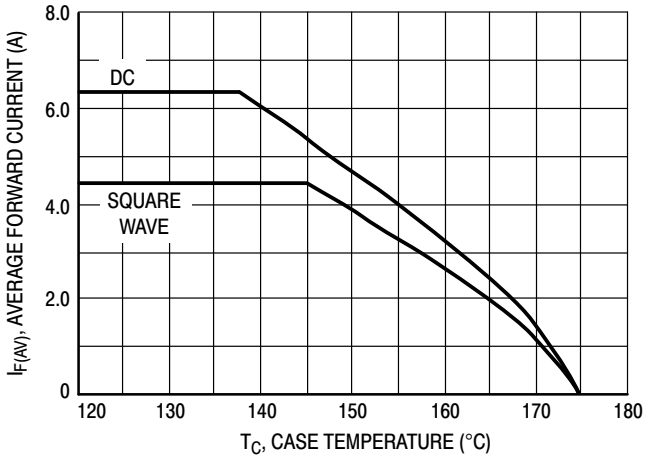


Figure 5. Current Derating, Case, Per Leg

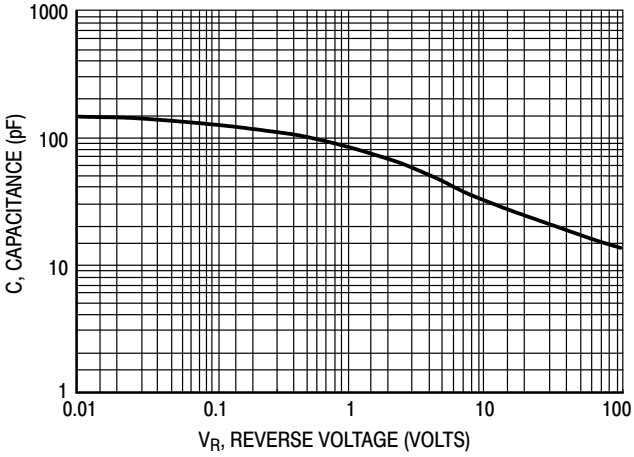


Figure 6. Typical Capacitance, Per Leg

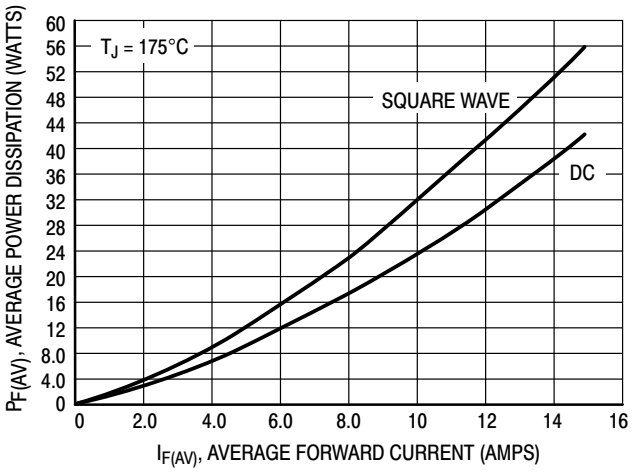
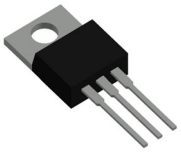
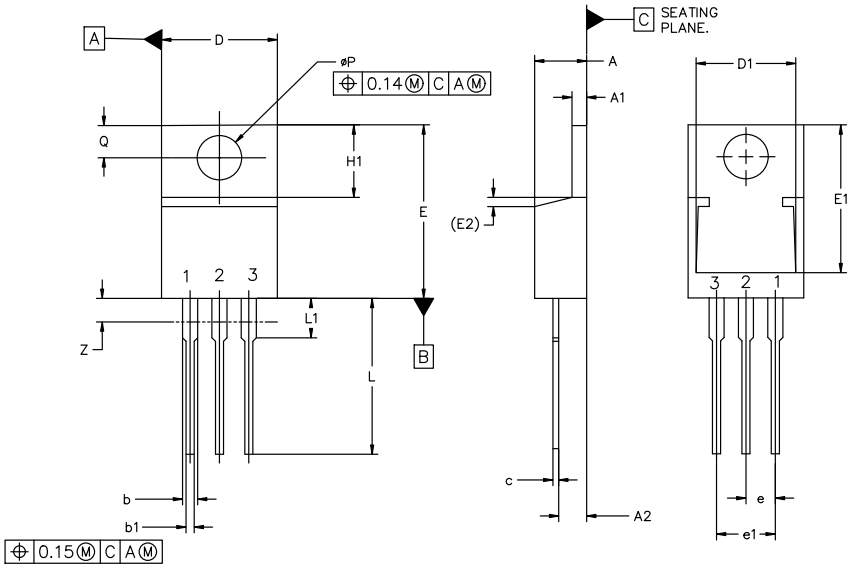


Figure 7. Power Dissipation, Per Leg



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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