

# **MURHB840CTG, MURHB840CTT4G, SURHB8840CTT4G**

## **Power Rectifier**

### **D<sup>2</sup>PAK Power Surface Mount Package**

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

#### **Features**

- Package Designed for Power Surface Mount Applications
- Ultrafast 28 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Epoxy Meets UL 94 V-0 @ 0.125 in
- High Temperature Glass Passivated Junction
- High Voltage Capability
- Low Leakage Specified @ 150°C Case Temperature
- Short Heat Sink Tab Manufactured – Not Sheared!
- Similar in Size to Industrial Standard TO-220 Package
- SURHB8 Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- SURHB8 Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- These Packages are Pb-Free\*

#### **Mechanical Characteristics:**

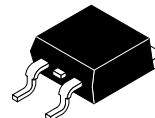
- Case: Epoxy, Molded, Epoxy Meets UL 94, V-0
- Weight: 1.7 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL1 Requirements
- ESD Ratings:
  - ◆ Machine Model, C (> 400 V)
  - ◆ Human Body Model, 3B (> 8000 V)



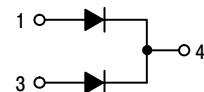
**ON Semiconductor®**

<http://onsemi.com>

## **ULTRAFAST RECTIFIER 8.0 AMPERES, 400 VOLTS**



**D<sup>2</sup>PAK  
CASE 418B  
STYLE 3**



#### **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 <sup>†</sup>
MURHB840CTG	D <sup>2</sup> PAK (Pb-Free)	50 Units/Rail
MURHB840CTT4G	D <sup>2</sup> PAK (Pb-Free)	800 / Tape & Reel
SURHB8840CTT4G	D <sup>2</sup> PAK (Pb-Free)	800 / Tape & Reel

<sup>†</sup>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 ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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## 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 (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, $T_C = 120^\circ\text{C}$ )	$I_{FM}$	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 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.

## THERMAL CHARACTERISTICS (Per Leg)

Rating	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.0	°C/W
Maximum Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	50	°C/W

## ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 1) ( $i_F = 4.0 \text{ A}$ , $T_C = 150^\circ\text{C}$ ) ( $i_F = 4.0 \text{ A}$ , $T_C = 25^\circ\text{C}$ )	$V_F$	1.9 2.2	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	μA
Maximum Reverse Recovery Time ( $i_F = 1.0 \text{ A}$ , $di/dt = 50 \text{ A}/\mu\text{s}$ )	$t_{rr}$	28	ns
Typical Peak Reverse Recovery Current ( $i_F = 1.0 \text{ A}$ , $di/dt = 50 \text{ A}/\mu\text{s}$ )	$I_{RM}$	0.7	A

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

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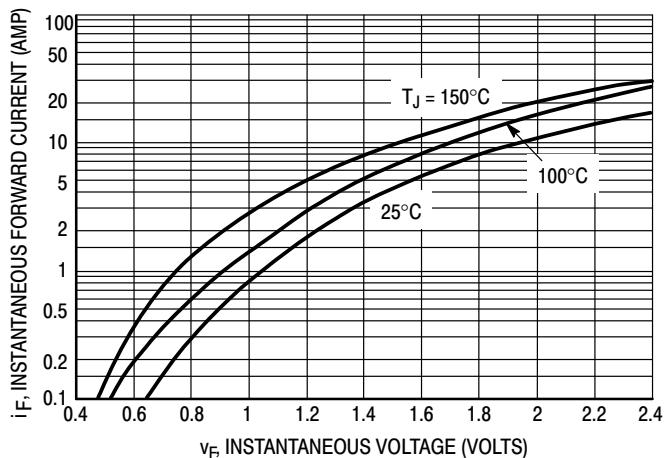


Figure 1. Typical Forward Voltage

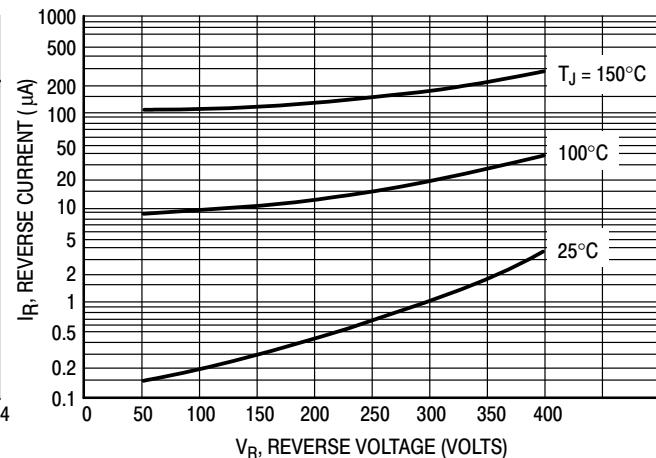


Figure 2. Typical Reverse Current, Per Leg

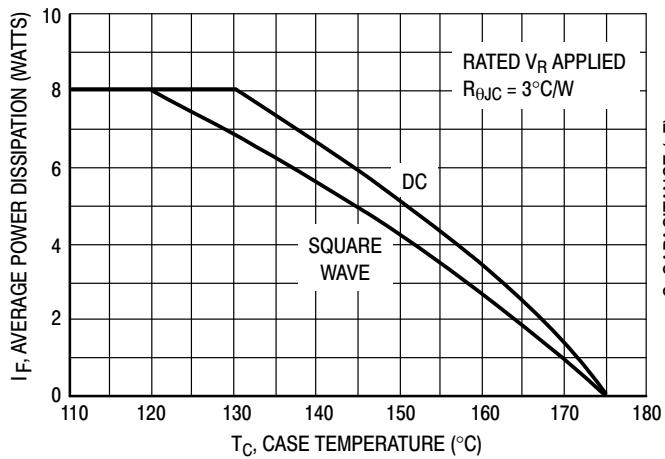


Figure 3. Current Derating, Case

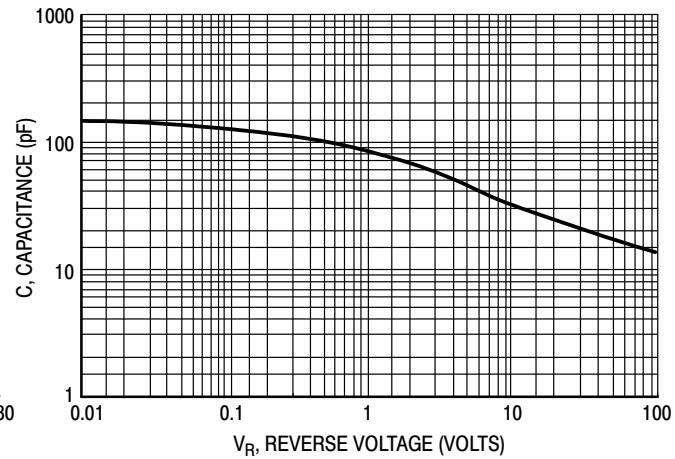


Figure 4. Typical Capacitance, Per Leg

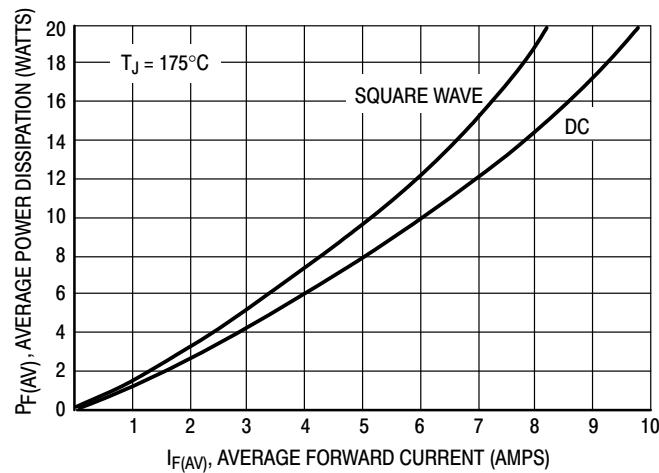
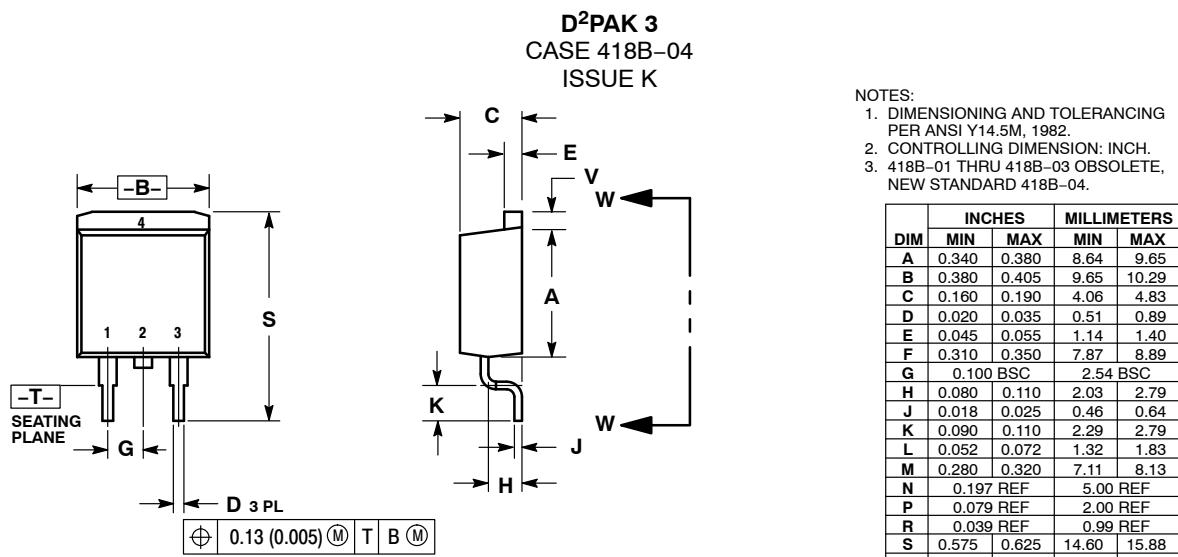


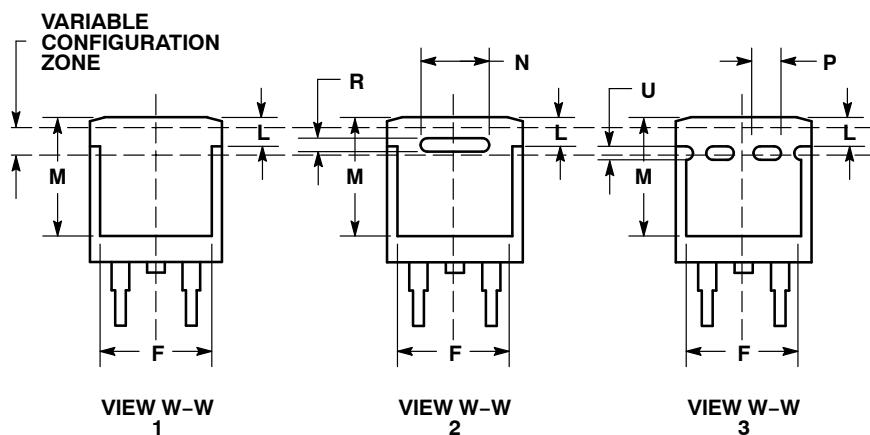
Figure 5. Forward Power Dissipation, Per Leg

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## PACKAGE DIMENSIONS

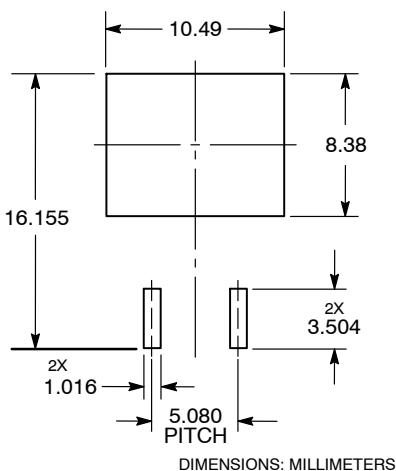


NOTES:  
 1. DIMENSIONING AND TOLERANCING  
 PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: INCH.  
 3. 418B-01 THRU 418B-03 OBSOLETE,  
 NEW STANDARD 418B-04.



STYLE 3:  
 PIN 1. ANODE  
 2. CATHODE  
 3. ANODE  
 4. CATHODE

## SOLDERING FOOTPRINT\*



\*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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