

# MURHD560T4, MURHD560W1T4

Preferred Device

## MEGAHERTZ™ Power Rectifier

### Features and Benefits

- Ultrafast 30 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- High Temperature Glass Passivated Junction
- High Voltage Capability to 600 Volts
- These are Pb-Free Devices

### Applications

- Power Supplies
- Inverters
- Free Wheeling Diodes

### Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Weight: 0.4 g (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 Ratings: Machine Model = C (>400 V)  
Human Body Model = 3B (>8000 V)

### MAXIMUM RATINGS

| 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 $V_R$ , $T_C = 159^\circ\text{C}$ )                                   | $I_{F(AV)}$                     | 5.0         | A    |
| Non-Repetitive Peak Surge Current<br>(Surge Applied at Rated Load<br>Conditions Halfwave, Single Phase,<br>60 Hz) | $I_{FSM}$                       | 50          | A    |
| Operating Junction and Storage<br>Temperature Range   | $T_J, T_{stg}$                  | -65 to +175 | °C   |

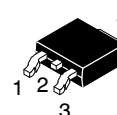
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



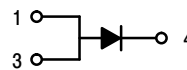
ON Semiconductor®

<http://onsemi.com>

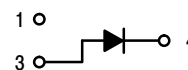
## ULTRAFAST RECTIFIER 5.0 AMPERES 600 VOLTS



DPAK  
CASE 369C  
STYLES 3, 8

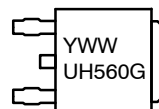


STYLE 3

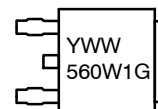


STYLE 8

### MARKING DIAGRAMS



STYLE 3



STYLE 8

UH560 = MURHD560T4  
560W1 = MURHD560W1T4  
Y = Year  
WW = Work Week  
G = Pb-Free Package

### ORDERING INFORMATION

| Device        | Package           | Shipping†             |
|---------------|-------------------|-----------------------|
| MURHD560T4G   | DPAK<br>(Pb-Free) | 2500 /<br>Tape & Reel |
| MURHD560W1T4G | DPAK<br>(Pb-Free) | 2500 /<br>Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

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

# MURHD560T4, MURHD560W1T4

## THERMAL CHARACTERISTICS

| Rating   | Symbol          | Value | Unit          |
|--|-----------------|-------|---------------|
| Maximum Thermal Resistance, Junction to Case             | $R_{\theta JC}$ | 2.5   | $^{\circ}C/W$ |
| Maximum Thermal Resistance, Junction to Ambient (Note 1) | $R_{\theta JA}$ | 49.5  | $^{\circ}C/W$ |

## ELECTRICAL CHARACTERISTICS

|   |          |             |         |
|---|----------|-------------|---------|
| Maximum Instantaneous Forward Voltage (Note 2)<br>( $I_F = 5.0$ Amps, $T_C = 25^{\circ}C$ )<br>( $I_F = 5.0$ Amps, $T_C = 125^{\circ}C$ ) | $V_F$    | 2.7<br>1.65 | V       |
| Maximum Instantaneous Reverse Current (Note 2)<br>(Rated dc Voltage, $T_C = 25^{\circ}C$ )<br>(Rated dc Voltage, $T_C = 125^{\circ}C$ )   | $I_R$    | 10<br>70    | $\mu A$ |
| Maximum Reverse Recovery Time<br>( $I_F = 1.0$ Amp, $di/dt = 50$ Amps/ $\mu s$ , $V_R = 30$ V, $T_J = 25^{\circ}C$ )                      | $t_{rr}$ | 30          | ns      |

- Rating applies when surface mounted on a 1.5 mm FR4 PC board with a 1 oz. thick, 700 mm<sup>2</sup> Cu area.
- Pulse Test: Pulse Width = 300  $\mu s$ , Duty Cycle  $\leq 2.0\%$ .

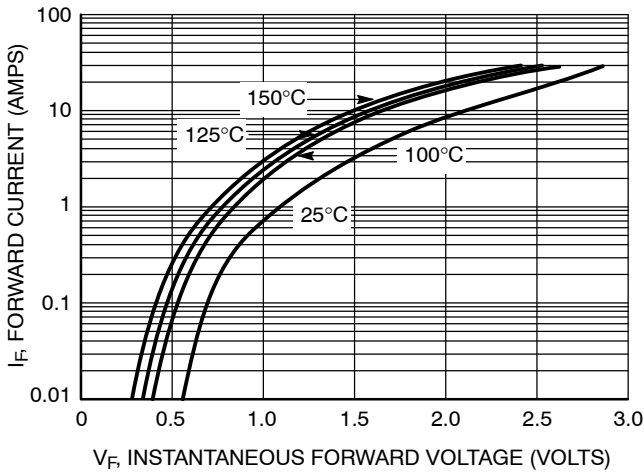


Figure 1. Typical Forward Voltage

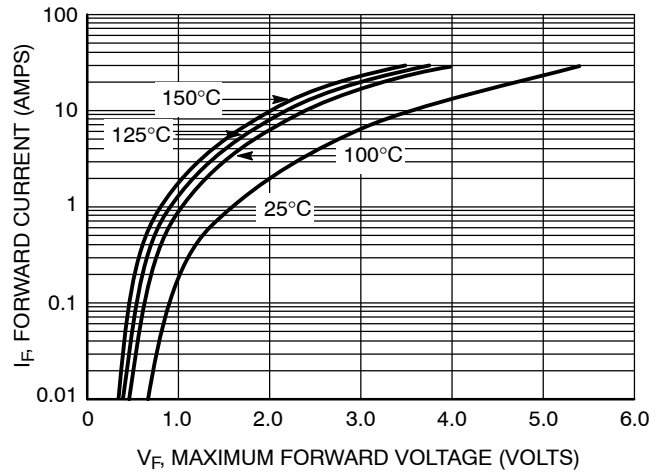


Figure 2. Maximum Forward Voltage

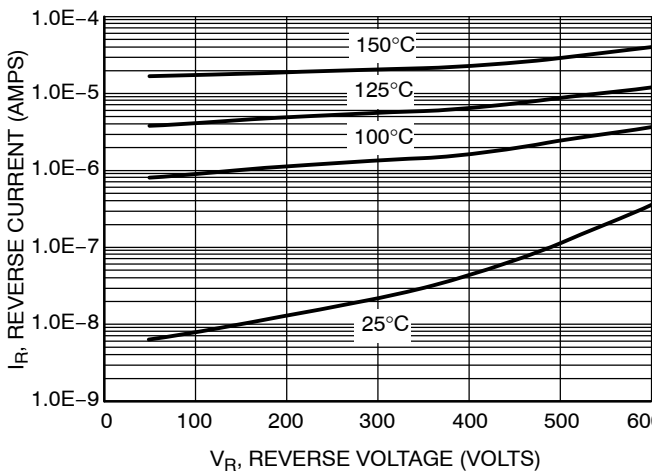


Figure 3. Typical Reverse Current

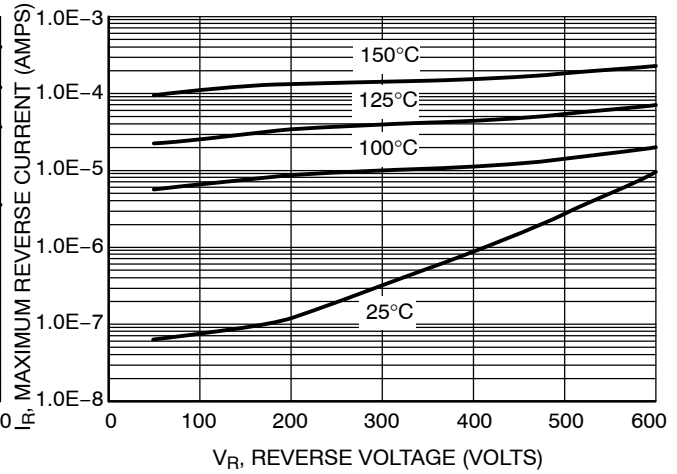


Figure 4. Maximum Reverse Current

# MURHD560T4, MURHD560W1T4

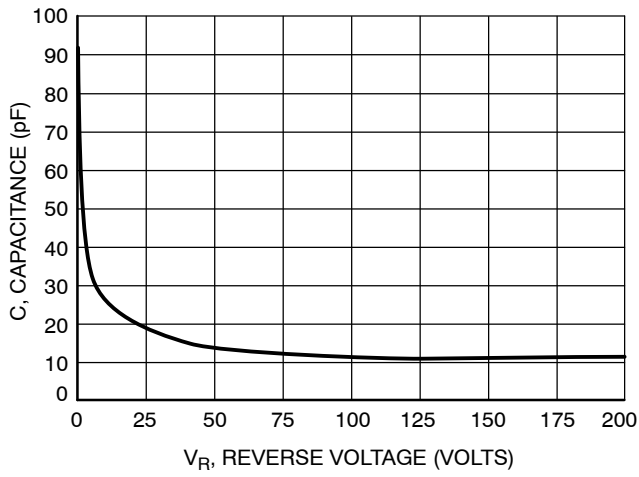


Figure 5. Typical Capacitance

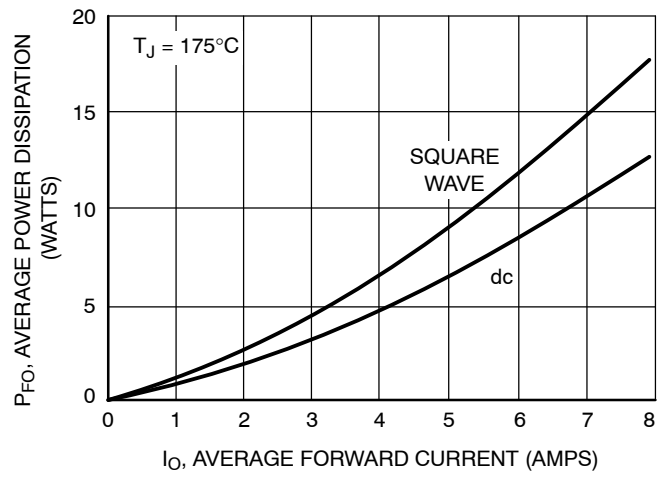


Figure 6. Forward Power Dissipation

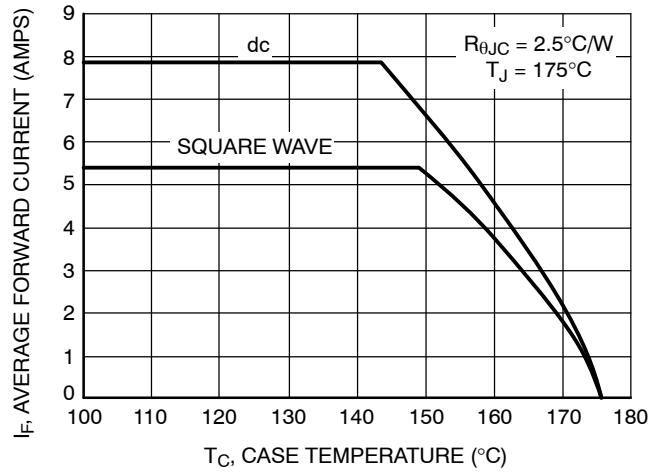


Figure 7. Current Derating

# MURHD560T4, MURHD560W1T4

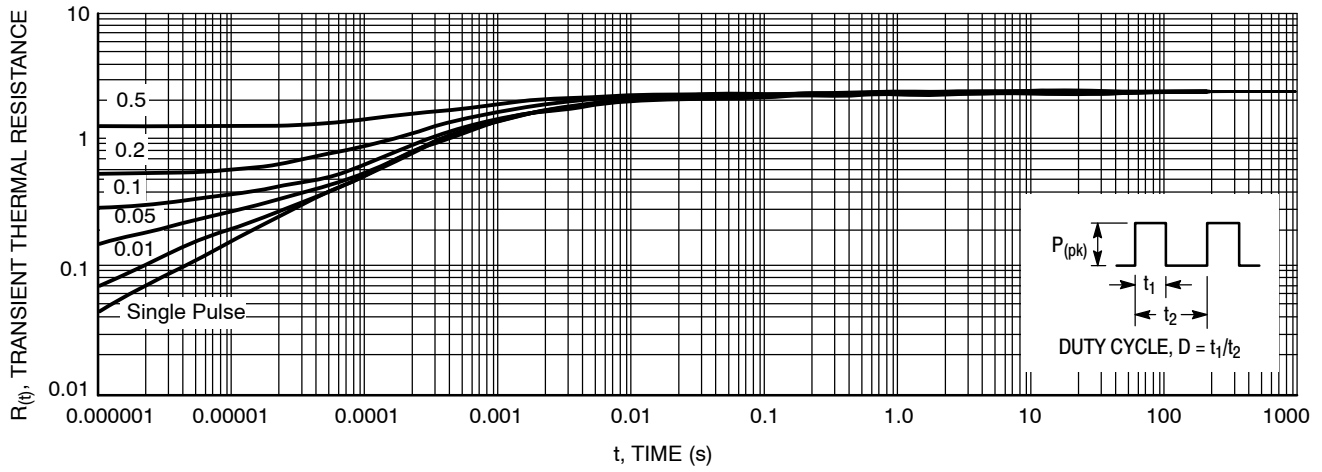


Figure 8. Thermal Response, Junction to Case

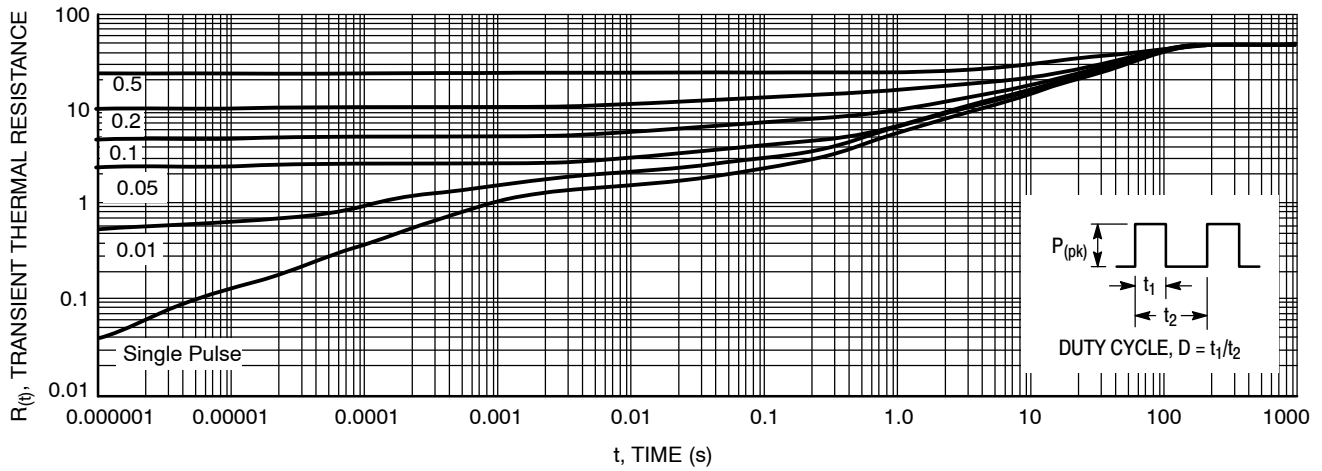
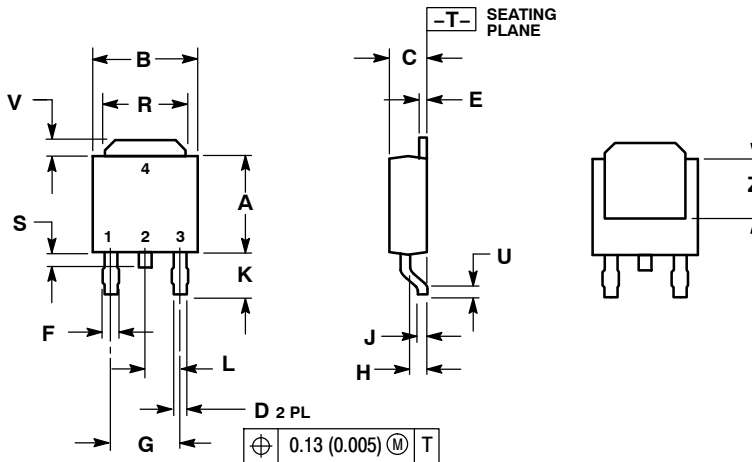


Figure 9. Thermal Response, Junction to Ambient

# MURHD560T4, MURHD560W1T4

## PACKAGE DIMENSIONS

### DPAK (SINGLE GAUGE) CASE 369C-01 ISSUE A



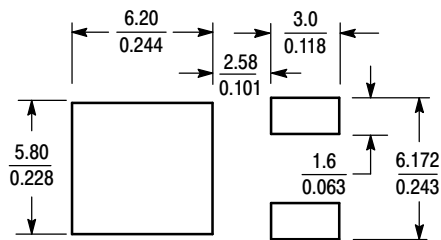
- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

| DIM | INCHES    |       | MILLIMETERS |      |
|-----|-----------|-------|-------------|------|
|     | MIN       | MAX   | MIN         | MAX  |
| A   | 0.235     | 0.245 | 5.97        | 6.22 |
| B   | 0.250     | 0.265 | 6.35        | 6.73 |
| C   | 0.086     | 0.094 | 2.19        | 2.38 |
| D   | 0.027     | 0.035 | 0.69        | 0.88 |
| E   | 0.018     | 0.023 | 0.46        | 0.58 |
| F   | 0.037     | 0.045 | 0.94        | 1.14 |
| G   | 0.180 BSC |       | 4.58 BSC    |      |
| H   | 0.034     | 0.040 | 0.87        | 1.01 |
| J   | 0.018     | 0.023 | 0.46        | 0.58 |
| K   | 0.102     | 0.114 | 2.60        | 2.89 |
| L   | 0.090 BSC |       | 2.29 BSC    |      |
| R   | 0.180     | 0.215 | 4.57        | 5.45 |
| S   | 0.025     | 0.040 | 0.63        | 1.01 |
| U   | 0.020     | ---   | 0.51        | ---  |
| V   | 0.035     | 0.050 | 0.89        | 1.27 |
| Z   | 0.155     | ---   | 3.93        | ---  |

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

- STYLE 8:  
PIN 1. N/C  
2. CATHODE  
3. ANODE  
4. CATHODE

### SOLDERING FOOTPRINT\*



SCALE 3:1 (mm/inches)

\*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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**MURHD560/D**