

MURB1660CT

Preferred Device

SWITCHMODE™ Power Rectifier

D²PAK 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 60 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 to 600 V
- Low Leakage Specified @ 150°C Case Temperature
- Short Heat Sink Tab Manufactured – Not Sheared!
- Similar in Size to Industrial Standard TO-220 Package
- Pb-Free Packages are Available

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

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 , $T_C = 150^\circ\text{C}$) Total Device | $I_{F(AV)}$ | 8.0 16 | A |
| Peak Repetitive Forward Current (Rated V_R , Square Wave, 20 kHz, $T_C = 150^\circ\text{C}$) | 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 |

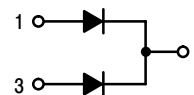
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



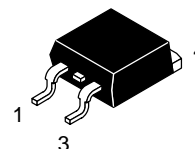
ON Semiconductor®

<http://onsemi.com>

ULTRAFAST RECTIFIER 16 AMPERES, 600 VOLTS



D²PAK
CASE 418B
STYLE 3



MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
U1660 = Specific Device Code
G = Pb-Free Package
AKA = Diode Polarity

ORDERING INFORMATION

| Device | Package | Shipping† |
|---------------|---------------------------------|-----------------|
| MURB1660CT | D ² PAK | 50 Units/Rail |
| MURB1660CTG | D ² PAK (Pb-Free) | 50 Units/Rail |
| MURB1660CTT4 | D ² PAK | 800/Tape & Reel |
| MURB1660CTT4G | D ² PAK (Pb-Free) | 800/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.

MURB1660CT

THERMAL CHARACTERISTICS (Per Leg)

| Rating | Symbol | Value | Unit |
|--|-----------------|-------|-----------------------------|
| Maximum Thermal Resistance, Junction-to-Case | $R_{\theta JC}$ | 2.0 | $^{\circ}\text{C}/\text{W}$ |
| Maximum Thermal Resistance, Junction-to-Ambient (Note 1) | $R_{\theta JA}$ | 50 | $^{\circ}\text{C}/\text{W}$ |
| Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds | T_L | 260 | $^{\circ}\text{C}$ |

ELECTRICAL CHARACTERISTICS (Per Leg)

| Characteristic | Symbol | Max | Unit |
|---|----------|--------------|---------------|
| Maximum Instantaneous Forward Voltage (Note 2) ($i_F = 8.0$ Amp, $T_C = 150^{\circ}\text{C}$) ($i_F = 8.0$ Amp, $T_C = 25^{\circ}\text{C}$) | V_F | 1.20 1.50 | V |
| Maximum Instantaneous Reverse Current (Note 2) (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 ($I_F = 1.0$ Amp, $di/dt = 50$ Amp/ μs) ($I_F = 0.5$ Amp, $i_R = 1.0$ Amp, $I_{REC} = 0.25$ Amp) | t_{rr} | 60 50 | ns |

- See Chapter 7 for mounting conditions.
- Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

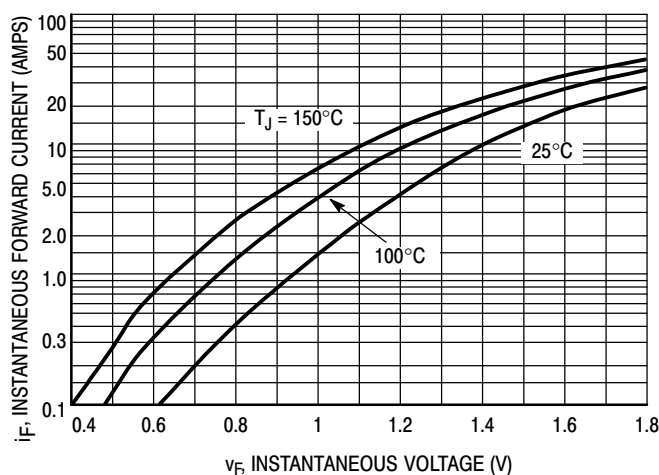


Figure 1. Typical Forward Voltage, Per Leg

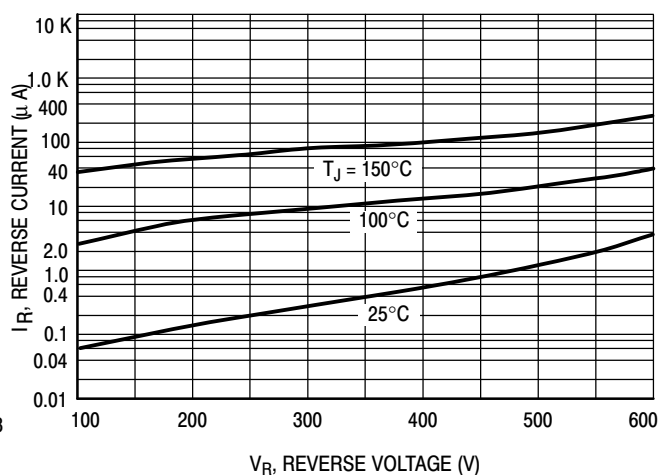


Figure 2. Typical Reverse Current, Per Leg

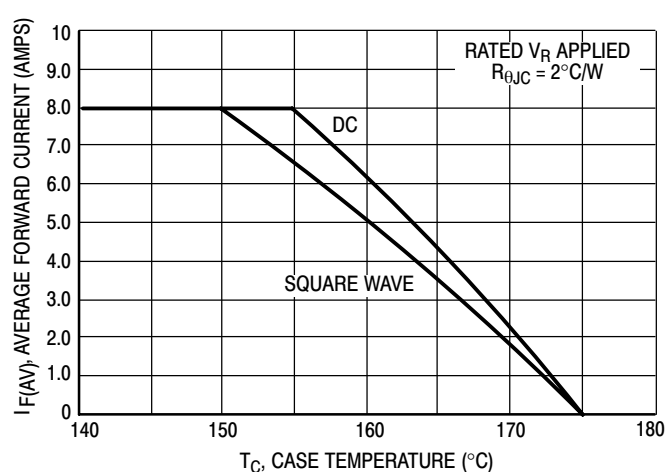


Figure 3. Current Derating, Case, Per Leg

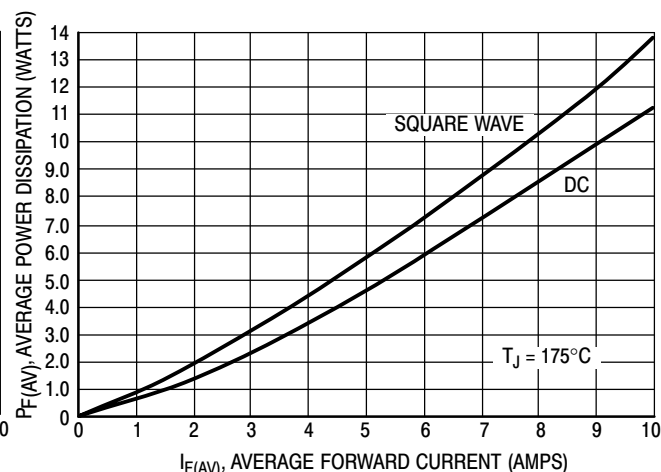


Figure 4. Power Dissipation, Per Leg

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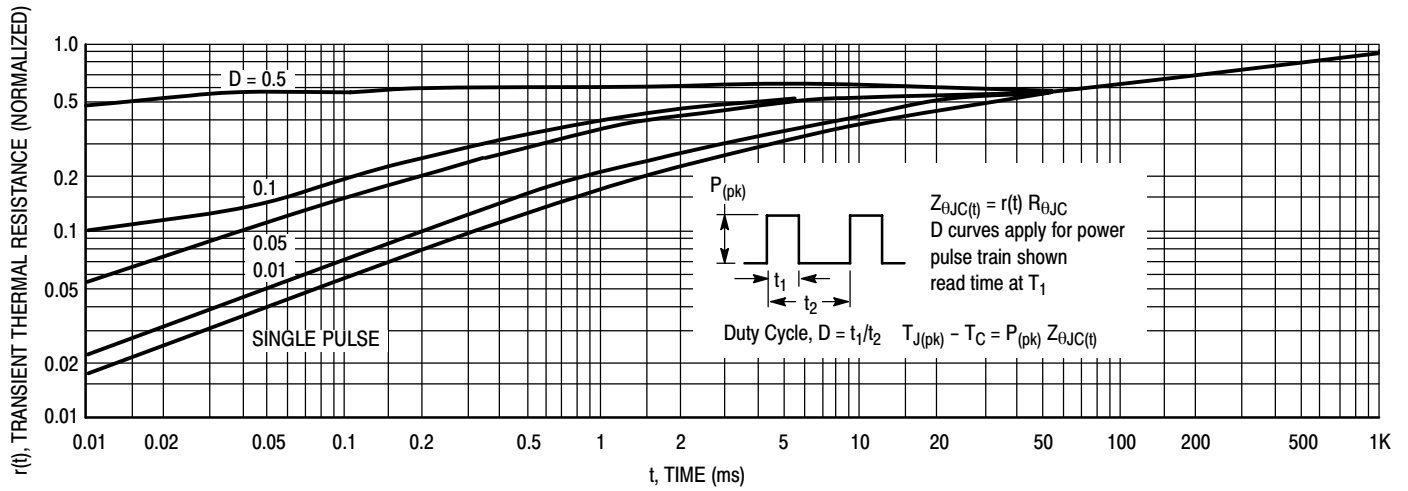


Figure 5. Thermal Response

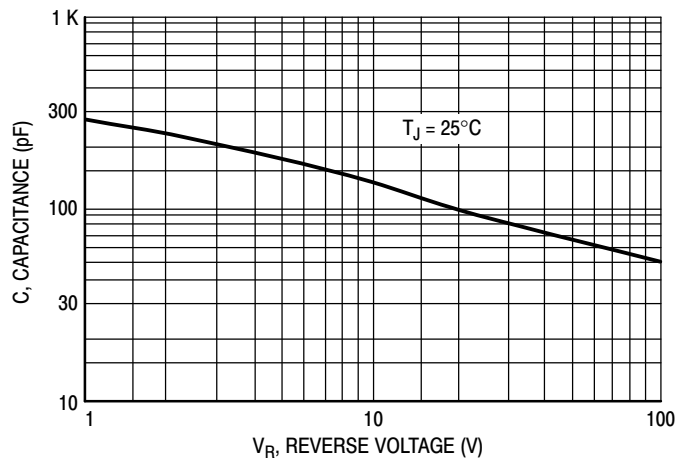
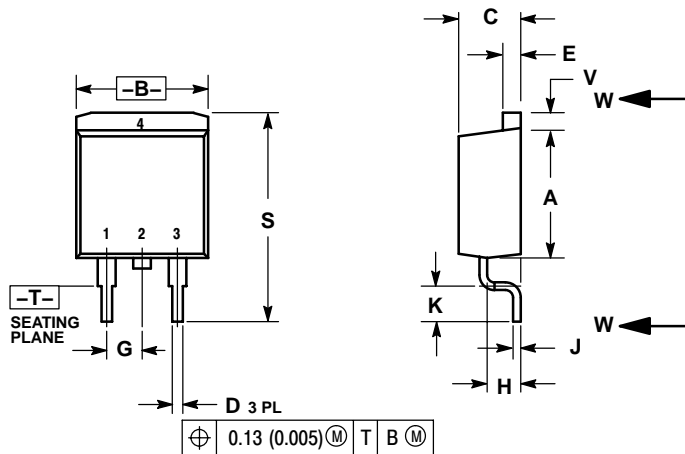


Figure 6. Typical Capacitance, Per Leg

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PACKAGE DIMENSIONS

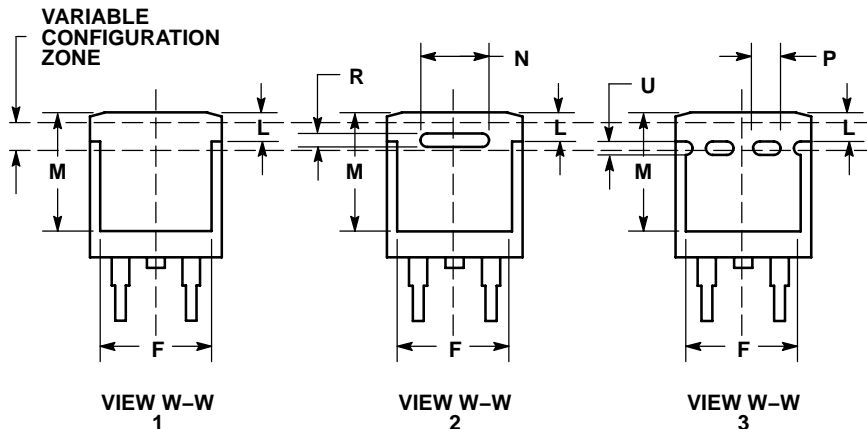
D²PAK
CASE 418B-04
ISSUE J



- 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.

| DIM | INCHES | | MILLIMETERS | |
|-----|-----------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.340 | 0.380 | 8.64 | 9.65 |
| B | 0.380 | 0.405 | 9.65 | 10.29 |
| C | 0.160 | 0.190 | 4.06 | 4.83 |
| D | 0.020 | 0.035 | 0.51 | 0.89 |
| E | 0.045 | 0.055 | 1.14 | 1.40 |
| F | 0.310 | 0.350 | 7.87 | 8.89 |
| G | 0.100 BSC | | 2.54 BSC | |
| H | 0.080 | 0.110 | 2.03 | 2.79 |
| J | 0.018 | 0.025 | 0.46 | 0.64 |
| K | 0.090 | 0.110 | 2.29 | 2.79 |
| L | 0.052 | 0.072 | 1.32 | 1.83 |
| M | 0.280 | 0.320 | 7.11 | 8.13 |
| N | 0.197 REF | | 5.00 REF | |
| P | 0.079 REF | | 2.00 REF | |
| R | 0.039 REF | | 0.99 REF | |
| S | 0.575 | 0.625 | 14.60 | 15.88 |
| V | 0.045 | 0.055 | 1.14 | 1.40 |

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



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