

# MURB1660CT

Preferred Device

## SWITCHMODE™ Power Rectifier

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

Designed for use in switching power supplies, inverters and as free wheeling diodes, these state-of-the-art devices have the following features:

- Package Designed for Power Surface Mount Applications
- Ultrafast 60 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Epoxy Meets UL94, V<sub>O</sub> @ 1/8"
- 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

#### Mechanical Characteristics

- Case: Epoxy, Molded, Epoxy Meets UL94, VO
- 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
- Shipped 50 Units Per Plastic Tube
- Marking: U1660
- 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 <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	600	V
Average Rectified Forward Current (Rated V <sub>R</sub> , T <sub>C</sub> = 150°C) Total Device	I <sub>F(AV)</sub>	8.0 16	A
Peak Repetitive Forward Current (Rated V <sub>R</sub> , Square Wave, 20 kHz, T <sub>C</sub> = 150°C)	I <sub>FM</sub>	16	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I <sub>FSM</sub>	100	A
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +175	°C

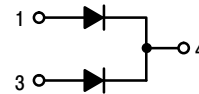
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



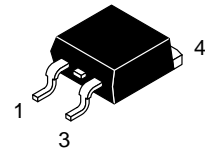
ON Semiconductor®

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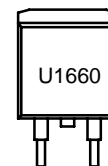
**ULTRAFAST  
RECTIFIER  
16 AMPERES  
600 VOLTS**



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



#### MARKING DIAGRAM



U1660 = Device Code

#### ORDERING INFORMATION

Device	Package	Shipping†
MURB1660CT	D <sup>2</sup> PAK	50 Units/Rail
MURB1660CTT4	D <sup>2</sup> PAK	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	$^{\circ}C/W$
Maximum Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	50	$^{\circ}C/W$
Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	$T_L$	260	$^{\circ}C$

## ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Max	Unit
Maximum Instantaneous Forward Voltage (Note 2) ( $i_F = 8.0$ Amp, $T_C = 150^{\circ}C$ ) ( $i_F = 8.0$ Amp, $T_C = 25^{\circ}C$ )	$v_F$	1.20 1.50	Volts
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, $T_C = 150^{\circ}C$ ) (Rated dc Voltage, $T_C = 25^{\circ}C$ )	$i_R$	500 10	$\mu A$
Maximum Reverse Recovery Time ( $I_F = 1.0$ Amp, $di/dt = 50$ Amp/ $\mu s$ ) ( $I_F = 0.5$ 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  $\mu s$ , Duty Cycle  $\leq 2.0\%$ .

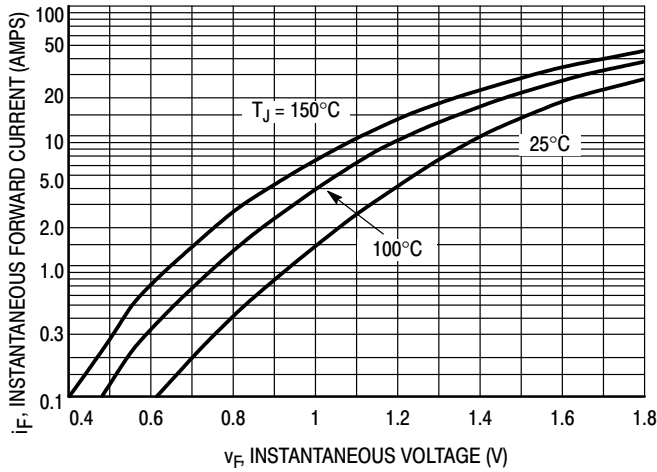


Figure 1. Typical Forward Voltage, Per Leg

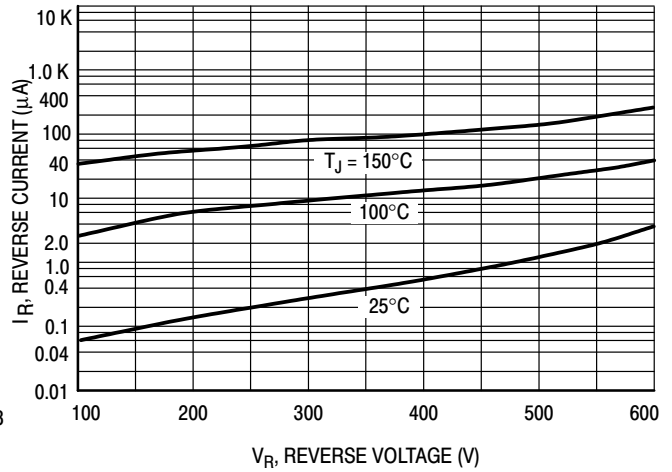


Figure 2. Typical Reverse Current, Per Leg

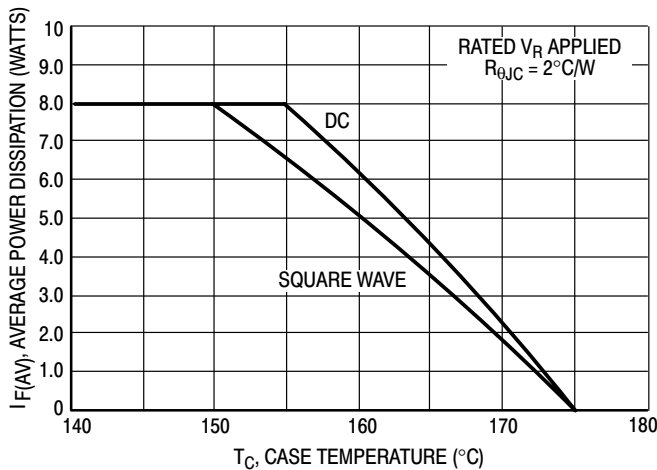


Figure 3. Current Derating, Case, Per Leg

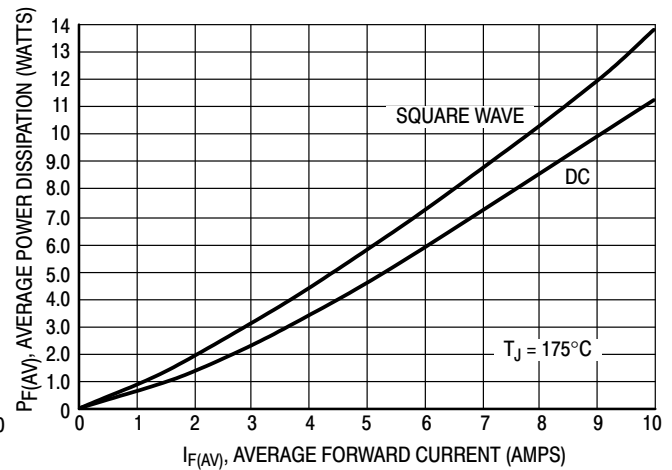


Figure 4. Power Dissipation, Per Leg

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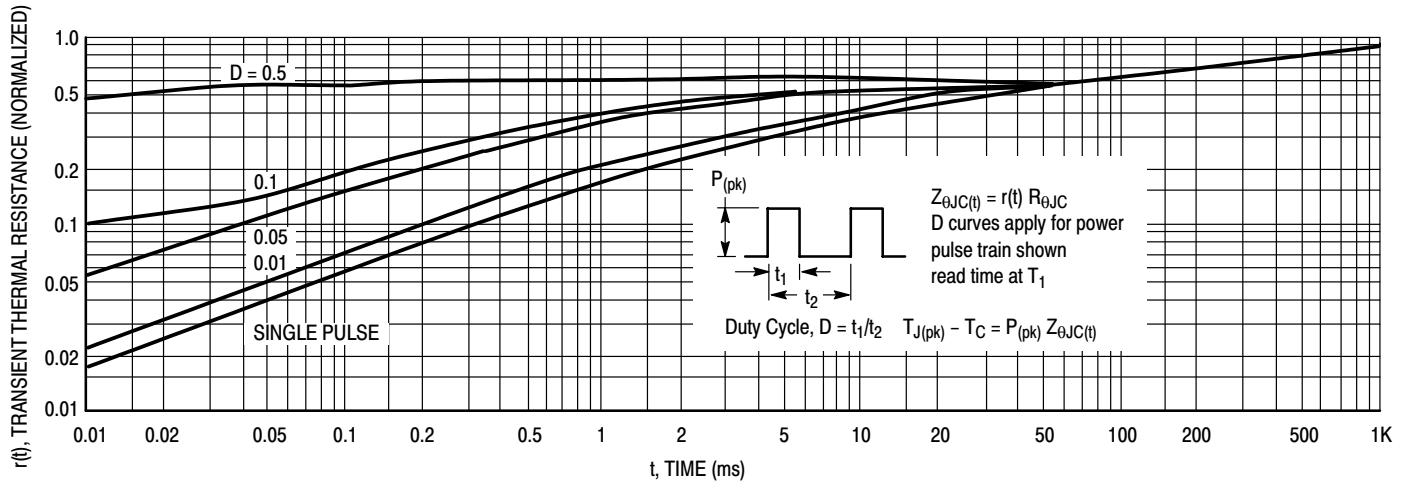


Figure 5. Thermal Response

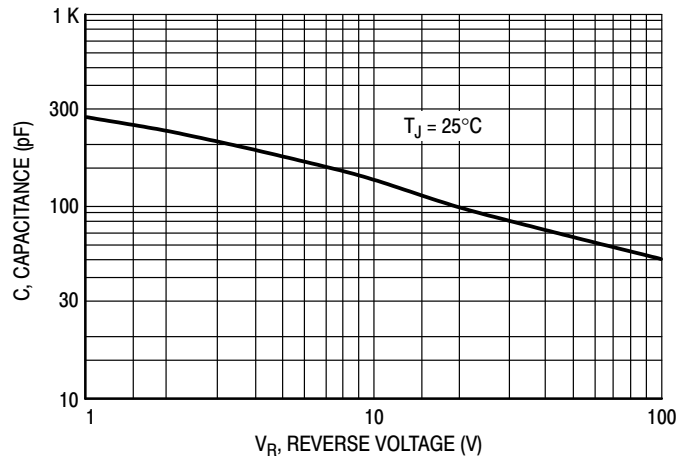
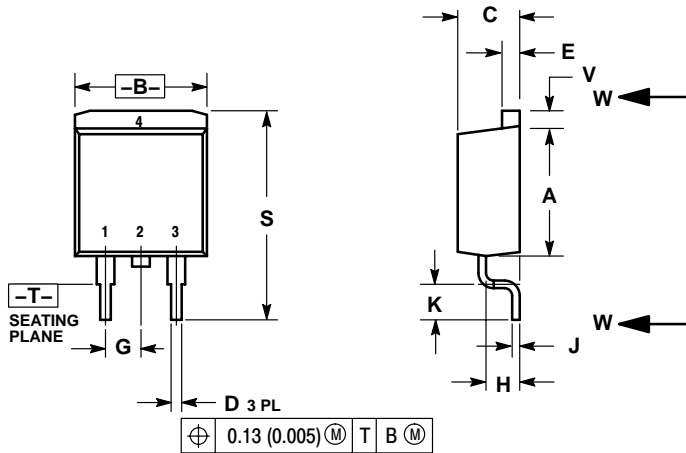


Figure 6. Typical Capacitance, Per Leg

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## PACKAGE DIMENSIONS

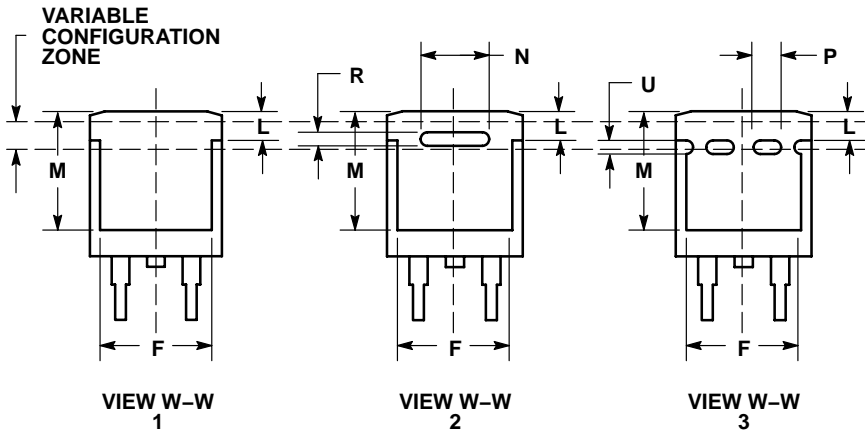
D<sup>2</sup>PAK  
CASE 418B-04  
ISSUE J



- 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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