

# MURB1620CTG, NRVUB1620CTT4G, SURB1620CTT4G

Preferred Device

## SWITCHMODE 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 35 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Epoxy Meets UL 94 V-0 @ 0.125 in
- High Temperature Glass Passivated Junction
- Low Leakage Specified @ 150°C Case Temperature
- Short Heat Sink Tab Manufactured – Not Sheared!
- Similar in Size to Industrial Standard TO-220 Package
- AEC-Q101 Qualified and PPAP Capable
- NRVUB and SURB Prefixes for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- All Packages are Pb-Free\*

#### Mechanical Characteristics:

- Case: Epoxy, Molded, Epoxy Meets UL 94, V-0
- Weight: 1.7Grams (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)

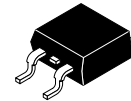
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



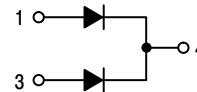
ON Semiconductor®

<http://onsemi.com>

### ULTRAFAST RECTIFIER 16 AMPERES, 200 VOLTS



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



#### MARKING DIAGRAM



A = Assembly Location  
Y = Year  
WW = Work Week  
U1620 = Device Code  
G = Pb-Free Package  
AKA = Diode Polarity

#### ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
MURB1620CTG	D <sup>2</sup> PAK (Pb-Free)	50 Units/Rail
MURB1620CTT4G	D <sup>2</sup> PAK (Pb-Free)	800 / Tape & Reel
NRVUB1620CTT4G	D <sup>2</sup> PAK (Pb-Free)	800 / Tape & Reel
SURB1620CTT4G	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.

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

# MURB1620CTG, NRVUB1620CTT4G, SURB1620CTT4G

## MAXIMUM RATINGS (Per Leg)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	200	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	$^\circ\text{C}$

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)

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3	$^\circ\text{C}/\text{W}$
Maximum Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	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 1) ( $i_F = 8\text{ A}$ , $T_C = 150^\circ\text{C}$ ) ( $i_F = 8\text{ A}$ , $T_C = 25^\circ\text{C}$ )	$v_F$	0.895 0.975	V
Maximum Instantaneous Reverse Current (Note 1) (Rated DC Voltage, $T_C = 150^\circ\text{C}$ ) (Rated DC Voltage, $T_C = 25^\circ\text{C}$ )	$i_R$	250 5	$\mu\text{A}$
Maximum Reverse Recovery Time ( $I_F = 1\text{ A}$ , $di/dt = 50\text{ A}/\mu\text{s}$ ) ( $I_F = 0.5\text{ A}$ , $i_R = 1\text{ A}$ , $I_{REC} = 0.25\text{ A}$ )	$t_{rr}$	35 25	ns

1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

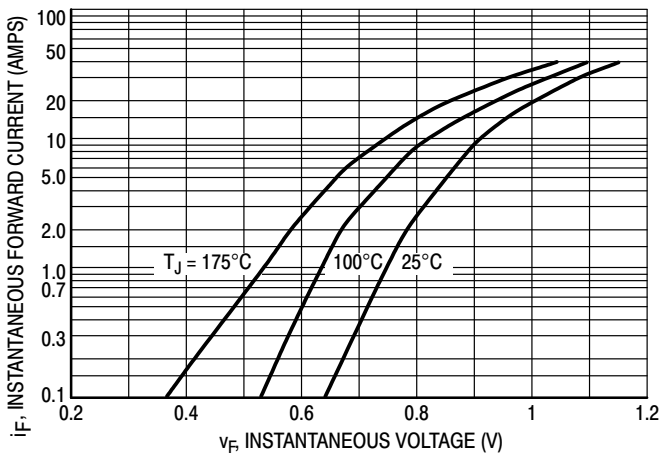


Figure 1. Typical Forward Voltage, Per Leg

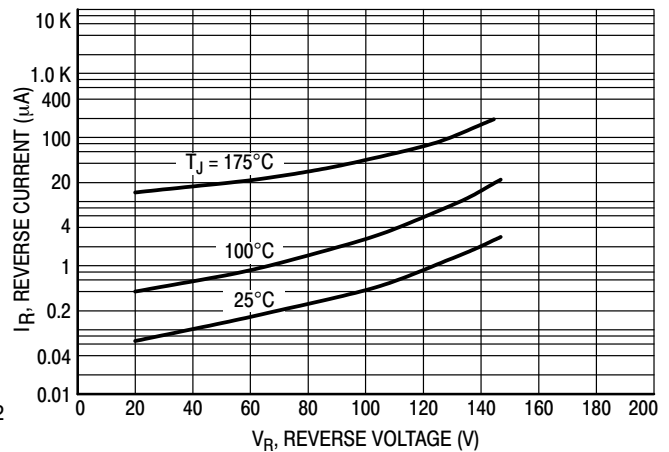


Figure 2. Typical Reverse Current, Per Leg\*

MURB1620CTG, NRVUB1620CTT4G, SURB1620CTT4G

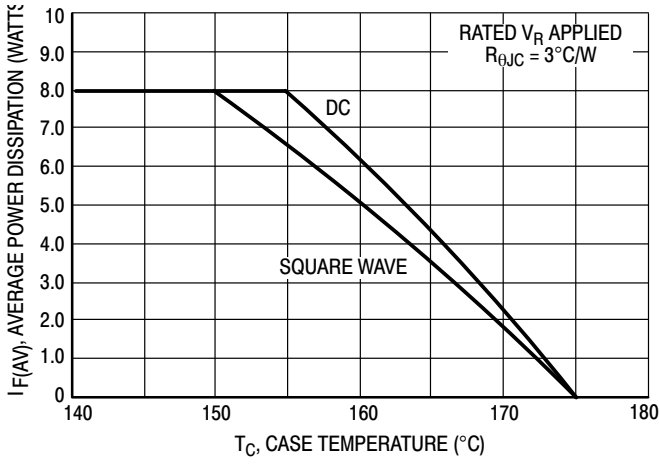


Figure 3. Current Derating Case, Per Leg

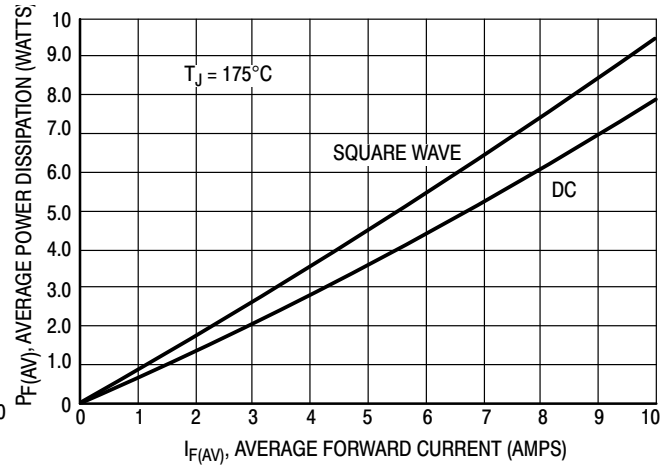


Figure 4. Power Dissipation, Per Leg

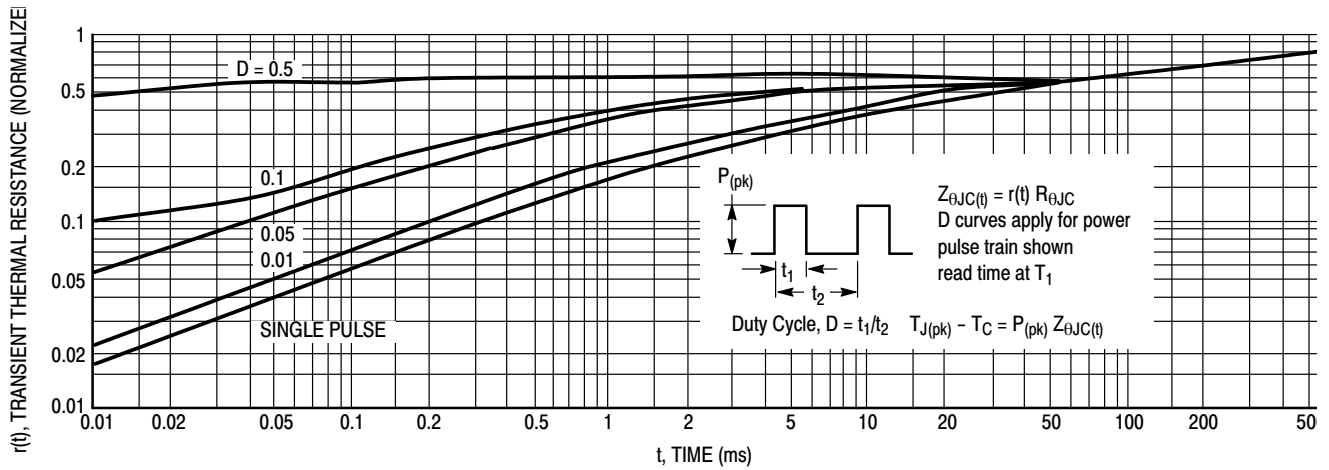


Figure 5. Thermal Response

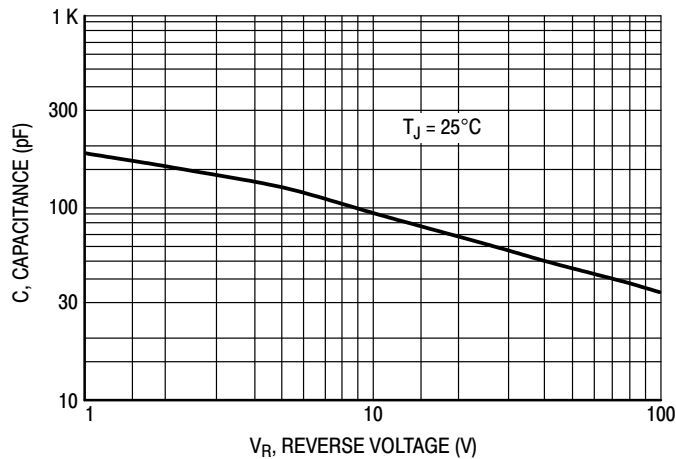
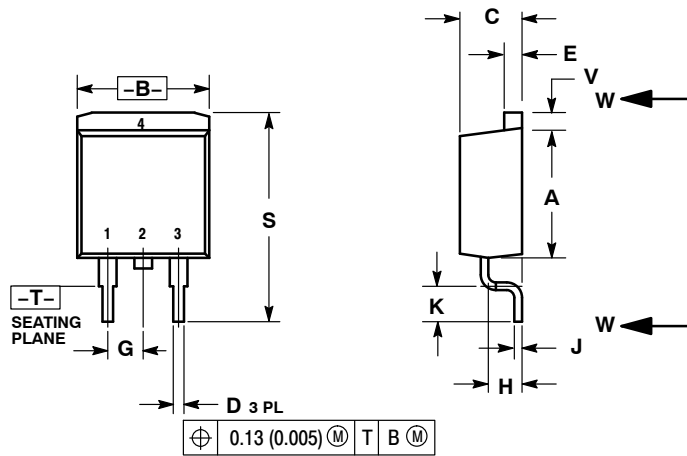


Figure 6. Typical Capacitance, Per Leg

# MURB1620CTG, NRVUB1620CTT4G, SURB1620CTT4G

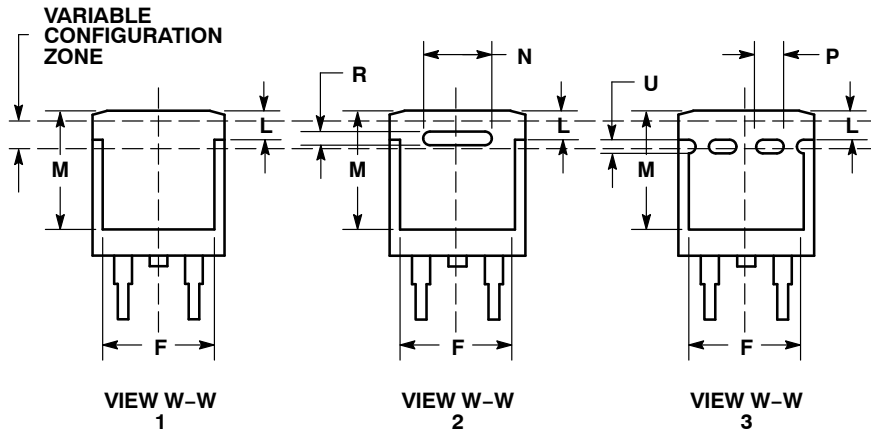
## PACKAGE DIMENSIONS

D<sup>2</sup>PAK 3  
CASE 418B-04  
ISSUE K



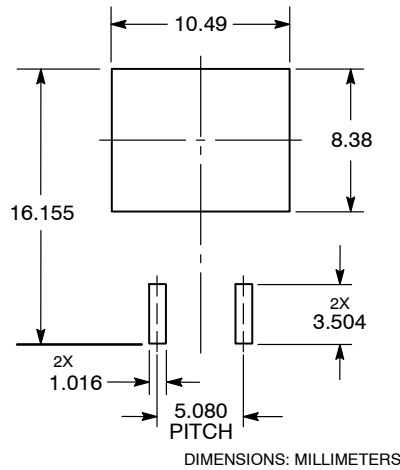
- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.  
3. 418B-01 THRU 418B-03 OBSOLETE, NEW STANDARD 418B-04.

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

### 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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