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MUR1620CTRG, MURB1620CTRG, NRVUB1620CTRT4G

SWITCHMODE Power Rectifier

These state−of−the−art devices are designed for use in negative switching power supplies, inverters and as free wheeling diodes. Also, used in conjunction with common cathode dual Ultrafast Rectifiers, makes a single phase full−wave bridge.

Features

- Common Anode Dual Rectifier (8.0 A per Leg or 16 A per Package)
- Ultrafast 35 Nanosecond Reverse Recovery Times
- Exhibits Soft Recovery Characteristics
- High Temperature Glass Passivated Junction
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating @ Both Case and Ambient Temperatures
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Complement to MUR1620CT and MURB1620CT Common Cathode Device
- ESD Ratings:
  - Machine Model = C (> 400 V)
  - Human Body Model = 3B (> 16,000 V)
- NRVU Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- All Packages are Pb−Free*

Mechanical Characteristics:

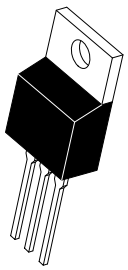
- Case: Epoxy, Molded
- Weight: MUR1620CTR: 1.9 Grams (Approximately)
  MURB1620CTR: 1.7 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

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

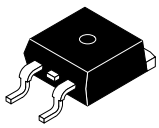
ON Semiconductor®

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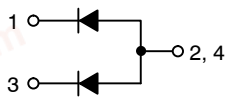
ULTRAFAST RECTIFIER 16 AMPERES, 200 VOLTS



TO−220AB
CASE 221A
STYLE 7



D²PAK
CASE 418AJ



MARKING DIAGRAMS



TO−220AB



D²PAK

U1620R	= Device Code
KAK	= Diode Polarity
A	= Assembly Location
Y	= Year
WW	= Work Week
G	= Pb−Free Package

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

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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 = 160°C) Per Leg Per Total Device	$I_{F(AV)}$	 8.0 16	A
Peak Repetitive Surge Current (Rated V_R, Square Wave, 20 kHz, T_C = 140°C) Per Diode	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.

THERMAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	2.0	°C/W
Thermal Resistance, Junction−to−Ambient (D^2PAK)	$R_{\theta JA}$	45	°C/W

ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 1) (i_F = 8.0 Amps, T_C = 25°C) (i_F = 8.0 Amps, T_C = 150°C)	v_F	 1.2 1.1	V
Maximum Instantaneous Reverse Current (Note 1) (Rated dc Voltage, T_C = 25°C) (Rated dc Voltage, T_C = 150°C)	i_R	 5.0 500	μA
Maximum Reverse Recovery Time (I_F = 1.0 Amp, di/dt = 50 Amps/μs)	t_{rr}	 85	ns

1. Pulse Test: Pulse Width = 5.0 ms, Duty Cycle ≤ 10%.

ORDERING INFORMATION

Device	Package	Shipping†
MUR1620CTRG	TO−220 (Pb−Free)	50 Units / Rail
MURB1620CTRG	D^2PAK−3 (Pb−Free)	50 Units / Rail
MURB1620CTRT4G	D^2PAK−3 (Pb−Free)	800 / Tape & Reel
NRVUB1620CTRT4G	D^2PAK−3 (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 Specifications Brochure, BRD8011/D.

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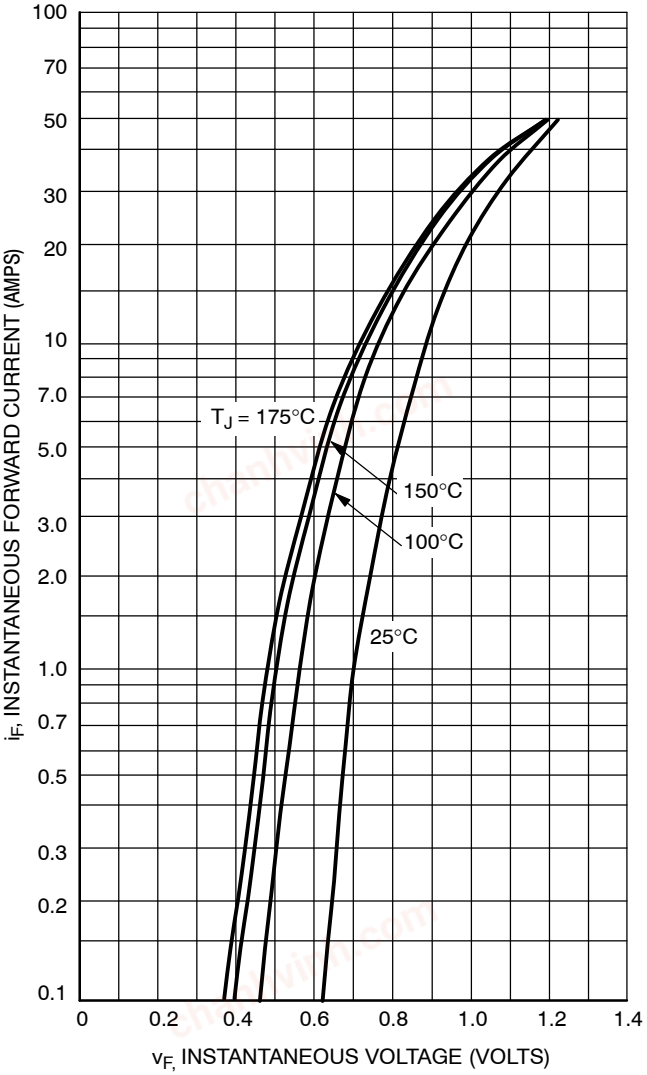


Figure 1. Typical Forward Voltage (Per Leg)

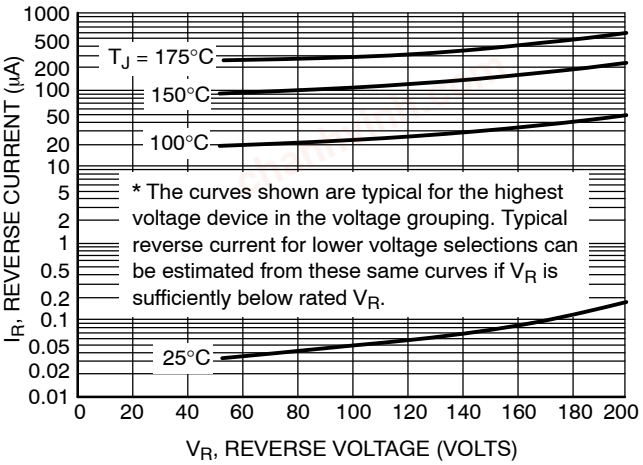


Figure 2. Typical Reverse Current* (Per Leg)

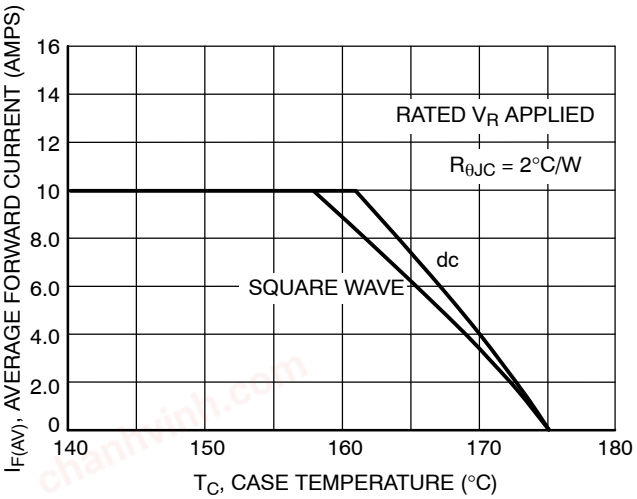


Figure 3. Current Derating, Case (Per Leg)

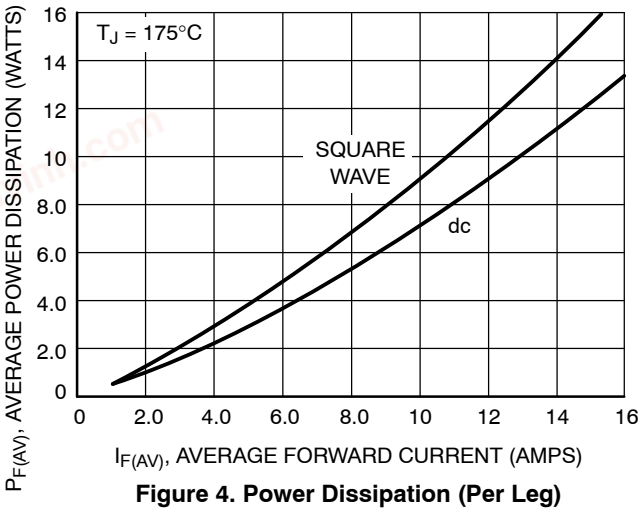


Figure 4. Power Dissipation (Per Leg)

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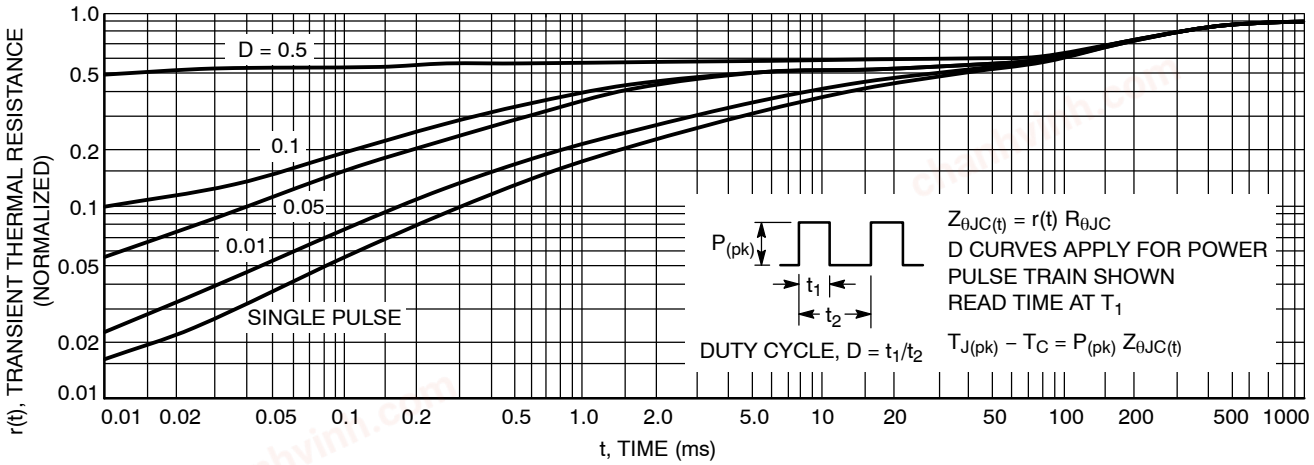


Figure 5. Thermal Response

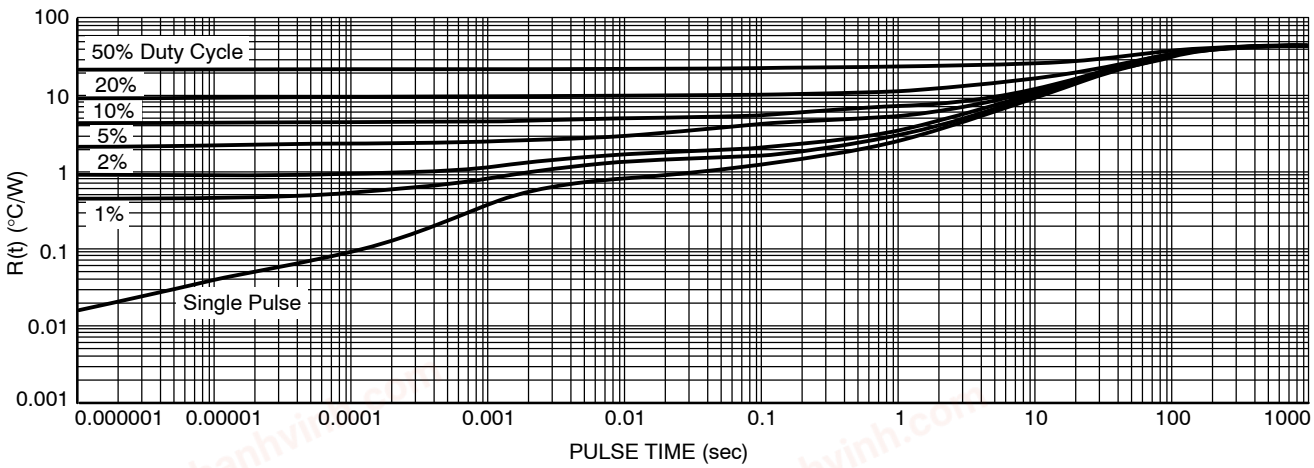


Figure 6. Thermal Response, Junction−to−Ambient

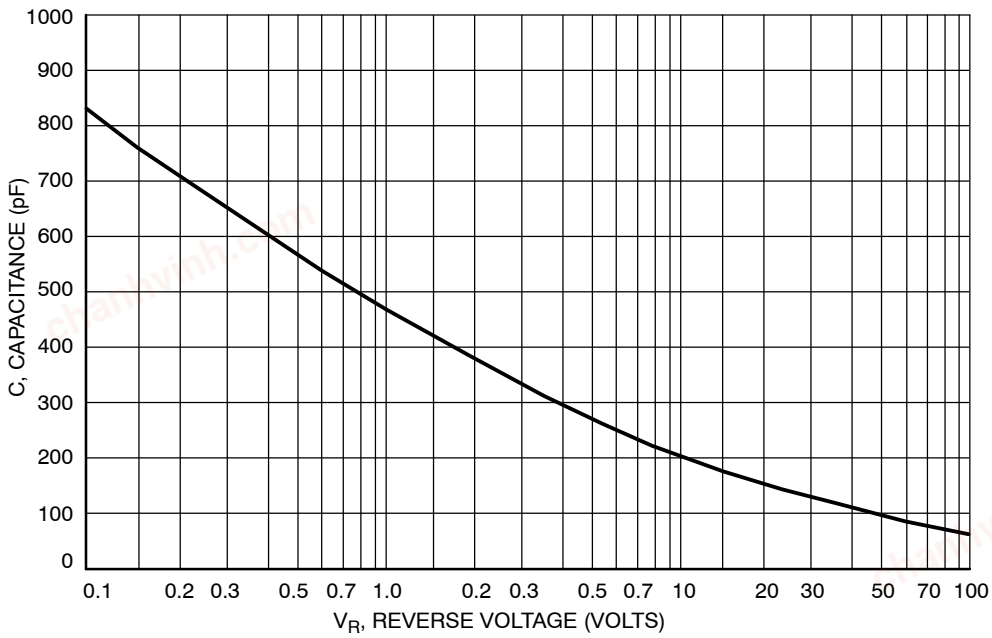
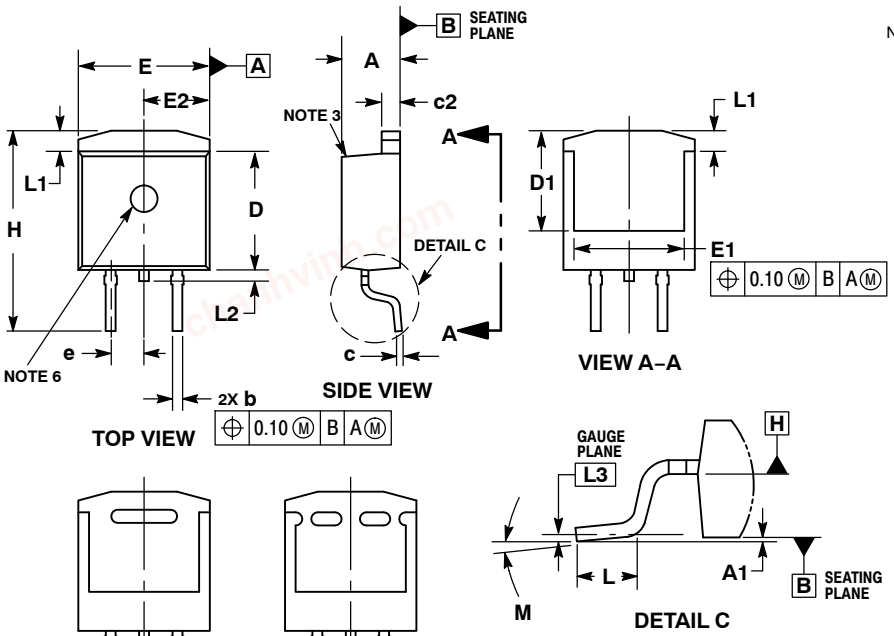


Figure 7. Typical Capacitance (Per Leg)

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PACKAGE DIMENSIONS

D²PAK–3 (TO–263, 3–LEAD)
CASE 418AJ
ISSUE A

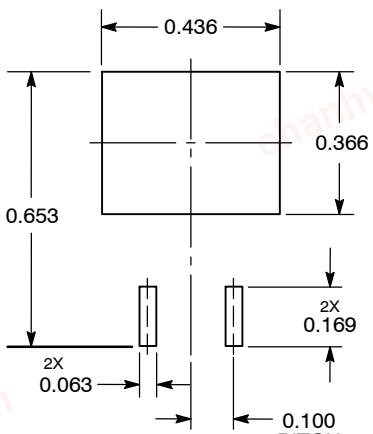


VIEW A–A
OPTIONAL CONSTRUCTIONS

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. CHAMFER OPTIONAL
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH. MOLD FLASH SHALL NOT EXCEED 0.005 PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY AT DATUM H.
5. THERMAL PAD CONTOUR IS OPTIONAL WITHIN DIMENSIONS E, L1, D1 AND E1.
6. OPTIONAL MOLD FEATURE

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.160	0.190	4.06	4.83
A1	0.000	0.010	0.00	0.25
b	0.020	0.039	0.51	0.99
c	0.012	0.029	0.30	0.74
c2	0.045	0.065	1.14	1.65
D	0.330	0.380	8.38	9.65
D1	0.260	----	6.60	----
E	0.380	0.420	9.65	10.67
E1	0.245	----	6.22	----
e	0.100 BSC		2.54 BSC	
H	0.575	0.625	14.60	15.88
L	0.070	0.110	1.78	2.79
L1	----	0.066	----	1.68
L2	----	0.070	----	1.78
L3	0.010 BSC		0.25 BSC	
M	0°	8°	0°	8°

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: INCHES

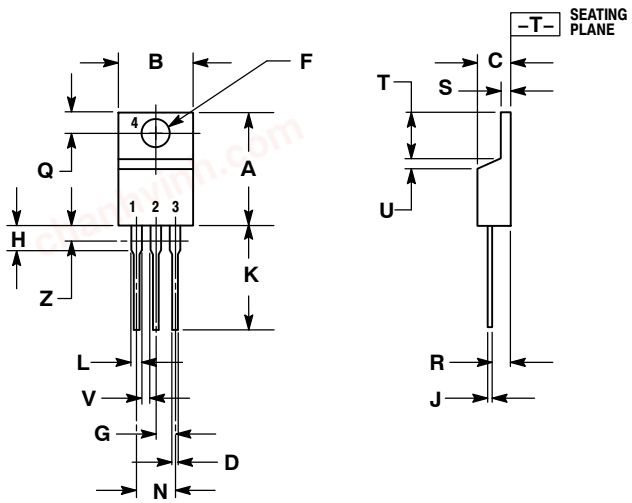
*For additional information on our Pb–Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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MUR1620CTRG, MURB1620CTRG, NRVUB1620CTRT4G

PACKAGE DIMENSIONS

TO−220
CASE 221A−09
ISSUE AG



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.036	0.64	0.91
F	0.142	0.161	3.61	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.161	2.80	4.10
J	0.014	0.025	0.36	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

STYLE 7:
PIN 1. CATHODE
2. ANODE
3. CATHODE
4. ANODE

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