MURD620CT, NRVUD620CT, SRVUD620CT, SNRVUD620CT

Switch-mode Power Rectifier

DPAK Surface Mount Package

These state−of−the−art devices are designed for use in switching power supplies, inverters and as free wheeling diodes.

Features

- Ultrafast 35 Nanosecond Recovery Time
- Low Forward Voltage Drop
- Low Leakage
- ESD Rating:
  - Human Body Model = 3B (> 8 kV)
  - Machine Model = C (> 400 V)
- NRVUD, SRVUD and SNRVUD Prefixes for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

Mechanical Characteristics:

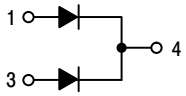
- Case: Epoxy, Molded
- Weight: 0.4 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

ON Semiconductor®

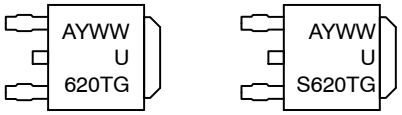
www.onsemi.com

ULTRAFAST RECTIFIER
6.0 AMPERES
200 VOLTS

DPAK
CASE 369C



MARKING DIAGRAMS



A = Assembly Location*
Y = Year
WW = Work Week
U620T = Device Code (MURD/NRVUD/SNRVUD620CT)
US620T = Device Code (SRVUD620CT)
G = Pb−Free Package

* The Assembly Location Code (A) is front side optional. In cases where the Assembly Location is stamped in the package bottom (molding ejecter pin), the front side assembly code may be blank.

ORDERING INFORMATION

Device	Package	Shipping†
MURD620CTG	DPAK (Pb−Free)	75 Units / Rail
NRVUD620CTG	DPAK (Pb−Free)	75 Units / Rail
MURD620CTT4G	DPAK (Pb−Free)	2,500 / Tape & Reel
NRVUD620CTT4G	DPAK (Pb−Free)	2,500 / Tape & Reel
SRVUD620CTT4G	DPAK (Pb−Free)	2,500 / Tape & Reel
SNRVUD620CTT4G	DPAK (Pb−Free)	2,500 / Tape & Reel
NRVUD620CTG−VF01	DPAK (Pb−Free)	2,500 / 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.

MAXIMUM RATINGS

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 = 140°C) Per Diode Per Device	$I_{F(AV)}$	 3.0 6.0	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz, T_C = 145°C) Per Diode	I_F	 6.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, 60 Hz)	I_{FSM}	 50	A
Operating Junction and Storage Temperature Range	T_J, T_{stg}	−65 to +175	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (Per Diode)

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	9	°C/W
Thermal Resistance, Junction−to−Ambient (Note 1)	$R_{\theta JA}$	80	°C/W

1. Rating applies when surface mounted on the minimum pad sizes recommended.

ELECTRICAL CHARACTERISTICS (Per Diode)

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage Drop (Note 2) (i_F = 3 Amps, T_C = 25°C) (i_F = 3 Amps, T_C = 125°C) (i_F = 6 Amps, T_C = 25°C) (i_F = 6 Amps, T_C = 125°C)	v_F	 1 0.96 1.2 1.13	V
Maximum Instantaneous Reverse Current (Note 2) (T_J = 25°C, Rated dc Voltage) (T_J = 125°C, Rated dc Voltage)	i_R	 5 250	μA
Maximum Reverse Recovery Time (I_F = 1 Amp, di/dt = 50 Amps/μs, V_R = 30 V, T_J = 25°C) (I_F = 0.5 Amp, i_R = 1 Amp, I_{REC} = 0.25 A, V_R = 30 V, T_J = 25°C)	t_{rr}	 35 25	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

TYPICAL CHARACTERISTICS

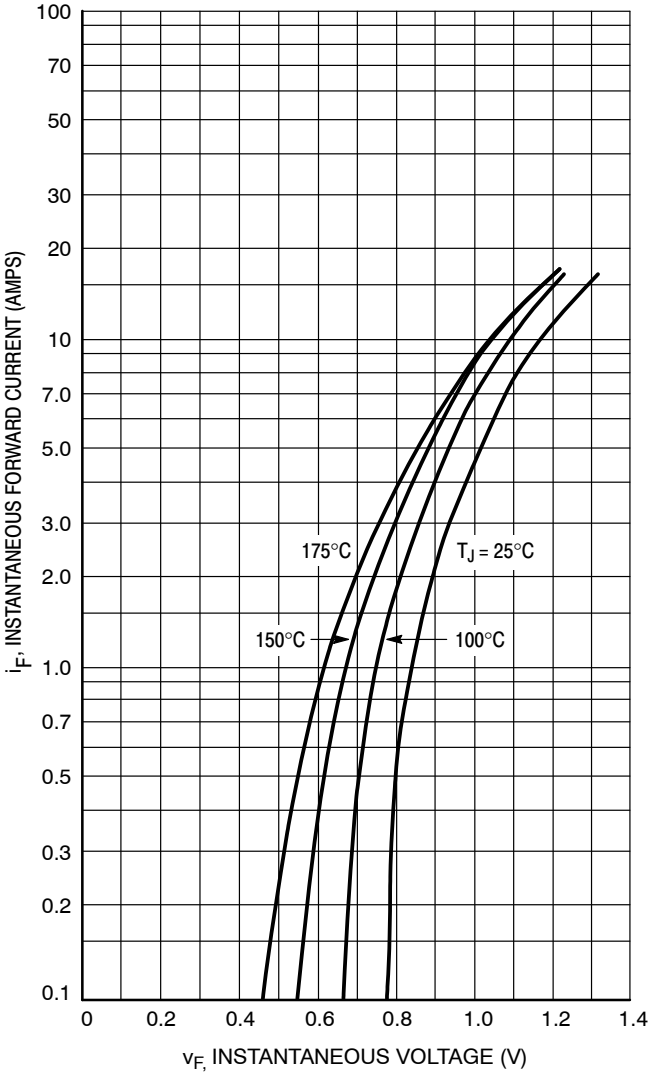


Figure 1. Typical Forward Voltage (Per Leg)

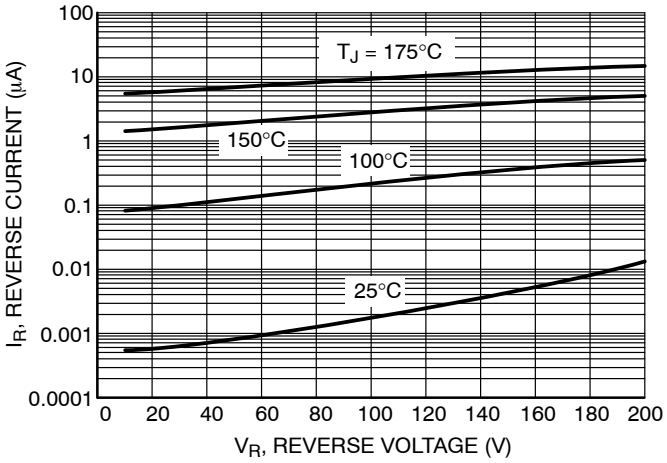


Figure 2. Typical Leakage Current* (Per Leg)

* The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these curves if V_R is sufficiently below rated V_R.

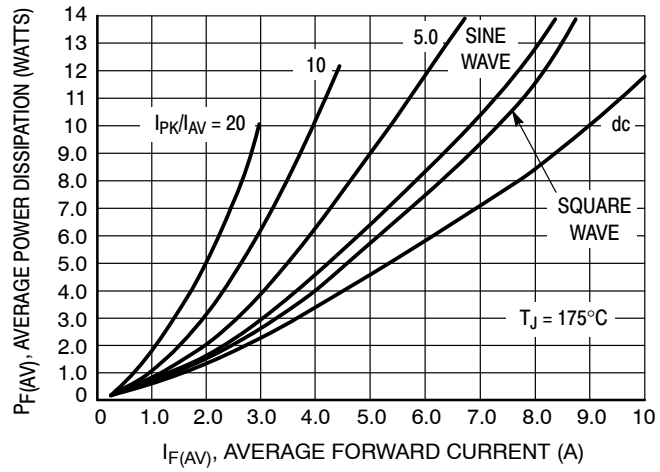


Figure 3. Average Power Dissipation (Per Leg)

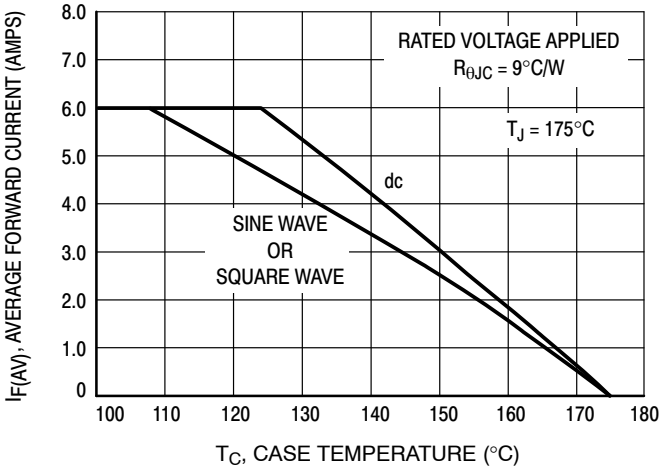


Figure 4. Current Derating, Case (Per Leg)

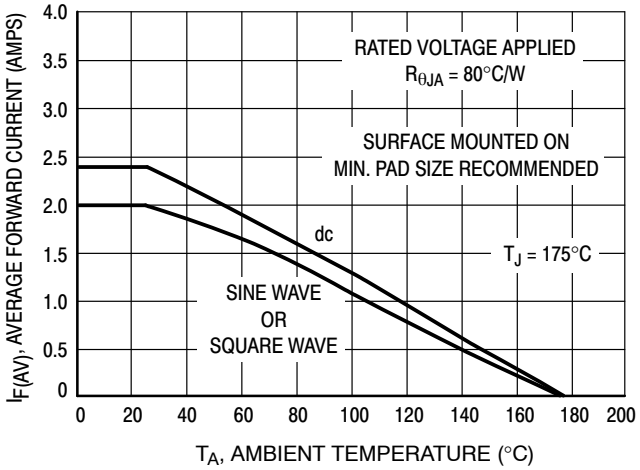


Figure 5. Current Derating, Ambient (Per Leg)

TYPICAL CHARACTERISTICS

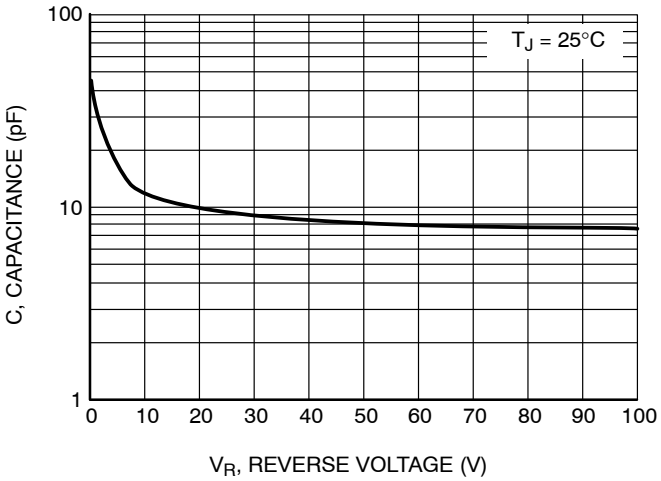
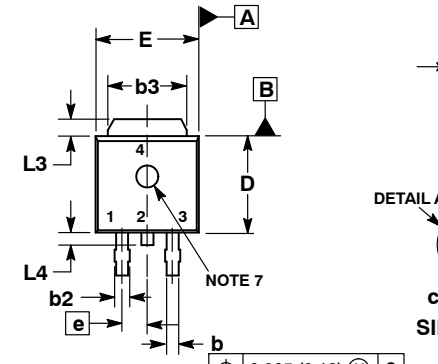


Figure 6. Typical Capacitance (Per Leg)

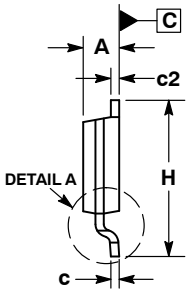
PACKAGE DIMENSIONS

DPAK (SINGLE GAUGE)
CASE 369C
ISSUE F

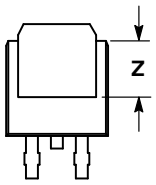


TOP VIEW

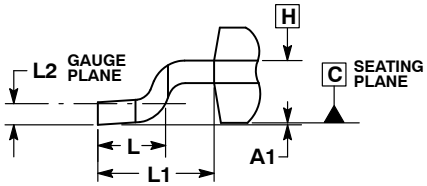
⊕	0.005 (0.13) Ⓜ	C



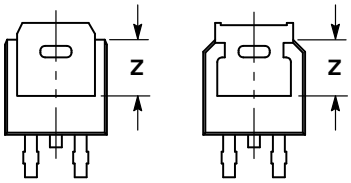
SIDE VIEW



BOTTOM VIEW



DETAIL A
ROTATED 90° CW

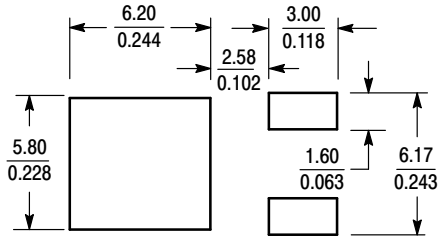


BOTTOM VIEW
ALTERNATE CONSTRUCTIONS

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS b3, L3 and Z.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.006 INCHES PER SIDE.
5. DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
6. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.
7. OPTIONAL MOLD FEATURE.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.086	0.094	2.18	2.38
A1	0.000	0.005	0.00	0.13
b	0.025	0.035	0.63	0.89
b2	0.028	0.045	0.72	1.14
b3	0.180	0.215	4.57	5.46
c	0.018	0.024	0.46	0.61
c2	0.018	0.024	0.46	0.61
D	0.235	0.245	5.97	6.22
E	0.250	0.265	6.35	6.73
e	0.090 BSC		2.29 BSC	
H	0.370	0.410	9.40	10.41
L	0.055	0.070	1.40	1.78
L1	0.114 REF		2.90 REF	
L2	0.020 BSC		0.51 BSC	
L3	0.035	0.050	0.89	1.27
L4	---	0.040	---	1.01
Z	0.155	---	3.93	---

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.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
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