Switch-mode Power Rectifier

DPAK Surface Mount Package

MURD620CT, NRVUD620CT, SRVUD620CT, SNRVUD620CT

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:

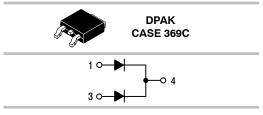
- Case: Epoxy, Molded
- Weight: 0.4 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds



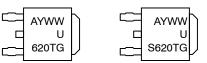
ON Semiconductor®

www.onsemi.com

ULTRAFAST RECTIFIER 6.0 AMPERES 200 VOLTS



MARKING DIAGRAMS



A = Assembly Location*

Y = Year WW = Work Week

U620T = Device Code (MURD/NRVUD/

SNRVUD620CT)

US620T = Device Code (SRVUD620CT)

G = Pb-Free Package

ORDERING INFORMATION

Davidas	Daalsana	Chinnina†
Device	Package	Shipping [†]
MURD620CTG	DPAK	75 Units / Rail
	(Pb-Free)	
NRVUD620CTG	DPAK	75 Units / Rail
	(Pb-Free)	
MURD620CTT4G	DPAK	2,500 /
	(Pb-Free)	Tape & Reel
NRVUD620CTT4G	DPAK	2,500 /
	(Pb-Free)	Tape & Reel
SRVUD620CTT4G	DPAK	2,500 /
	(Pb-Free)	Tape & Reel
SNRVUD620CTT4G	DPAK	2,500 /
	(Pb-Free)	Tape & Reel
NRVUD620CTG-	DPAK	2,500 /
VF01	(Pb-Free)	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.

^{*} 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.

MURD620CT, NRVUD620CT, SRVUD620CT, SNRVUD620CT

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 (T _C = 140°C) Per Diode Per Device	I _{F(AV)}	3.0 6.0	А
Peak Repetitive Forward Current (Square Wave, Duty = 0.5, T _C = 145°C) Per Diode	IF	6.0	А
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, 60 Hz)	I _{FSM}	50	Α
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	$R_{ heta JC}$	9	°C/W
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{ heta JA}$	80	°C/W

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

ELECTRICAL CHARACTERISTICS (Per Diode)

Characteristic	Symbol	Value	Unit
$\label{eq:maximum Instantaneous Forward Voltage Drop (Note 2)} \begin{tabular}{l} (i_F = 3 \text{ Amps, } T_C = 25^\circ \text{C}) \\ (i_F = 3 \text{ Amps, } T_C = 125^\circ \text{C}) \\ (i_F = 6 \text{ Amps, } T_C = 25^\circ \text{C}) \\ (i_F = 6 \text{ Amps, } T_C = 125^\circ \text{C}) \\ \end{tabular}$	VF	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)	İR	5 250	μΑ
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%.

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TYPICAL CHARACTERISTICS

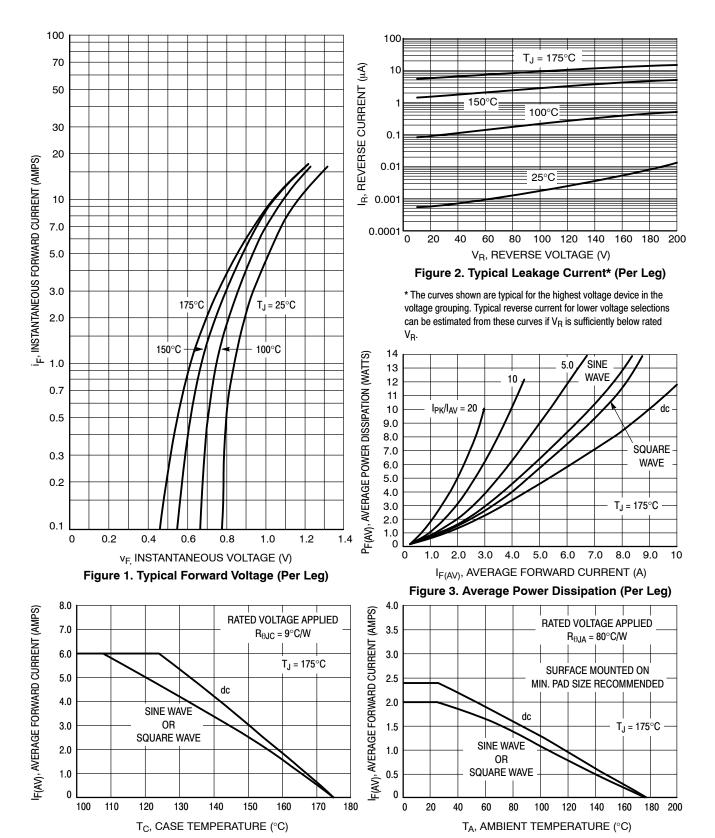


Figure 4. Current Derating, Case (Per Leg)

MURD620CT, NRVUD620CT, SRVUD620CT, SNRVUD620CT

TYPICAL CHARACTERISTICS

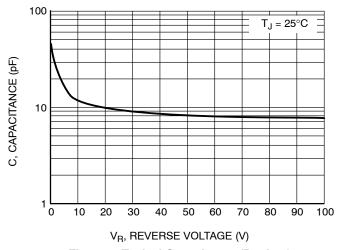
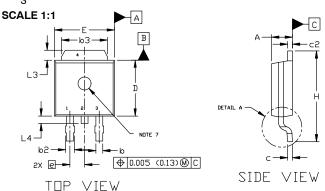


Figure 6. Typical Capacitance (Per Leg)





DATE 31 MAY 2023



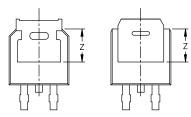


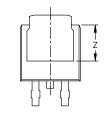
- DIMENSIONING AND TOLERANCING ASME Y14.5M, 1994. CONTROLLING DIMENSION: INCHES
- THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS 63,
- L3. AND Z. L3, AND Z.

 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.
 DIMENSIONS D AND E ARE DETERMINED AT THE
 OUTERMOST EXTREMES OF THE PLASTIC BODY.
 DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.
 DETININAL MOLD ESCALUES.

- OPTIONAL MOLD FEATURE.

DIM	INCHES		MILLIMETERS	
MIM	MIN.	MAX.	MIN.	MAX.
Α	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	
Н	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	

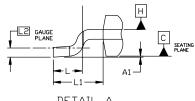




BOTTOM VIEW

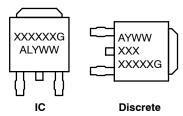
BOTTOM VIEW ALTERNATE CONSTRUCTIONS

5.80 [0.228] 6.20 [0.244] 2.58 3.00 [0.102] [0.118] 1.60 [0.063] 6.17 [0.243]



DETAIL A ROTATED 90° CW

GENERIC MARKING DIAGRAM*



XXXXXX	= Device Code
Α	= Assembly Location
L	= Wafer Lot
Υ	= Year
WW	= Work Week
G	= Pb-Free Package

*This information is generic. Please refer to

*FOR ADDITIONAL INFORMATION ON OUR PB-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DUWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

3 FMITTER

4. COLLECTOR

s

3 GATE

RECOMMENDED MOUNTING FOOTPRINT*

STYLE 1: STYLE 2: PIN 1. BASE PIN 1. GATE 2. COLLECTOR 2. DRAIL 3. EMITTER 3. SOUF 4. COLLECTOR 4. DRAIL	N 2. CATHODE RCE 3. ANODE	3. GATE	STYLE 5: PIN 1. GATE 2. ANODE 3. CATHODE 4. ANODE
--	------------------------------	---------	---

STYLE 7: PIN 1. GATE 2. COLLECTOR STYLE 6: STYLE 8: STYLE 9: STYLE 10: PIN 1. MT1 2. MT2 PIN 1. N/C 2. CATHODE 3. ANODE PIN 1. ANODE 2. CATHODE

4. CATHODE

device data sheet for actual part marking. PIN 1. CATHODE 2. ANODE 3. CATHODE Pb-Free indicator, "G" or microdot "■", may or may not be present. Some products may 3 RESISTOR ADJUST not follow the Generic Marking. 4. ANODE

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DESCRIPTION:	DPAK (SINGLE GAUGE)		PAGE 1 OF 1

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