

# MURD620CT

## SWITCHMODE 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
- Pb-Free Packages are Available

#### 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

#### 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 $V_R$ , $T_C = 140^\circ\text{C}$ ) Per Diode Per Device	$I_{F(AV)}$	3.0 6.0	A
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 145^\circ\text{C}$ ) 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	$^\circ\text{C}$

#### THERMAL CHARACTERISTICS (Per Diode)

Rating	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	9	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	80	$^\circ\text{C/W}$

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.

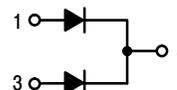
1. Rating applies when surface mounted on the minimum pad sizes recommended.



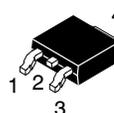
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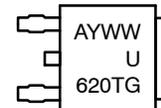
### ULTRAFAST RECTIFIER 6.0 AMPERES 200 VOLTS



#### MARKING DIAGRAM



DPAK  
CASE 369C



A = Assembly Location  
Y = Year  
WW = Work Week  
U620T = Device Code  
G = Pb-Free Package

#### ORDERING INFORMATION

Device	Package	Shipping†
MURD620CT	DPAK	75 Units/Rail
MURD620CTG	DPAK (Pb-Free)	75 Units/Rail
MURD620CTT4	DPAK	2500/Tape & Reel
MURD620CTT4G	DPAK (Pb-Free)	2500/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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## ELECTRICAL CHARACTERISTICS (Per Diode)

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

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

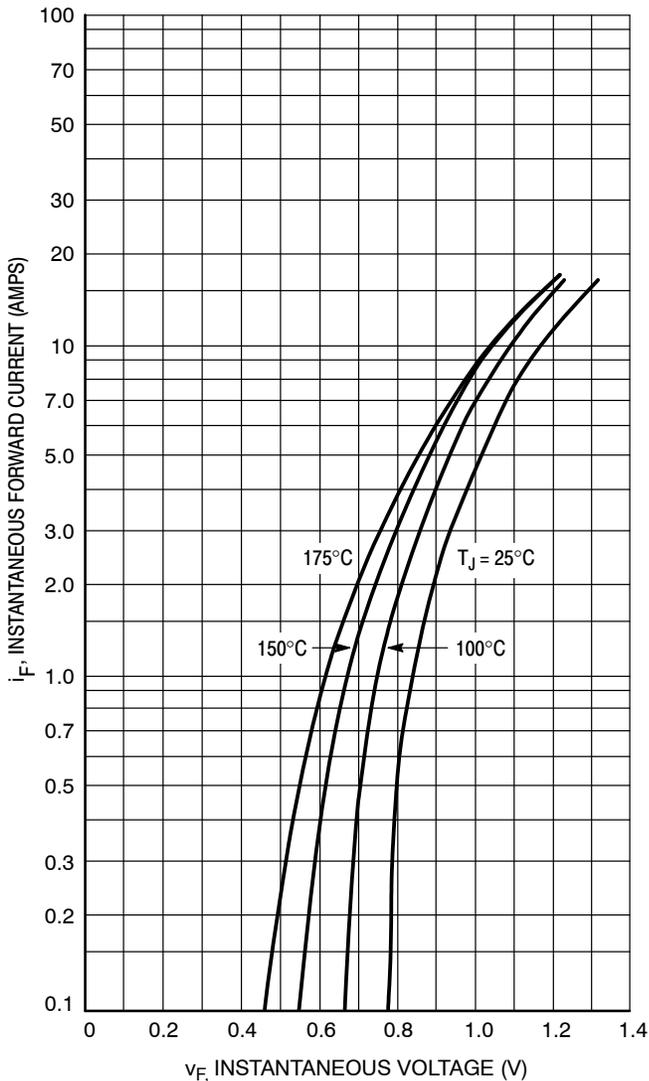


Figure 1. Typical Forward Voltage (Per Leg)

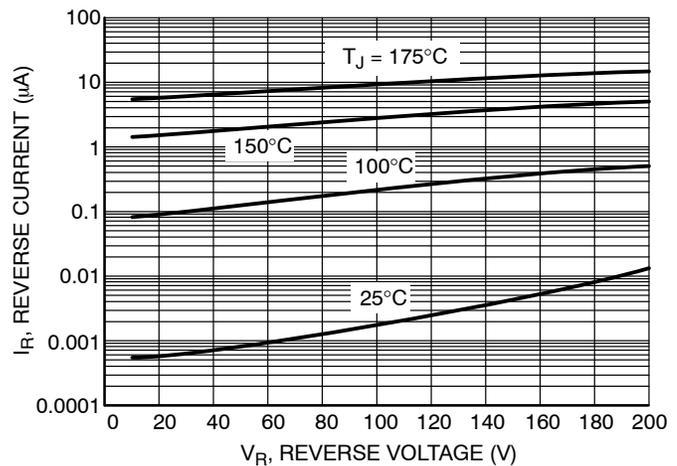


Figure 2. Typical Leakage Current\* (Per Leg)

\* 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  $V_R$ .

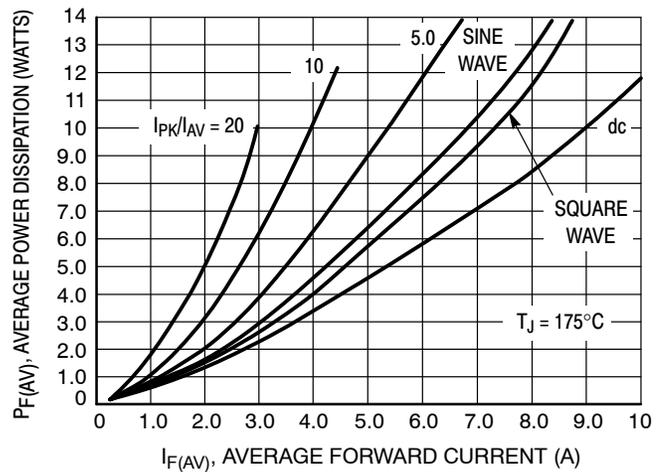


Figure 3. Average Power Dissipation (Per Leg)

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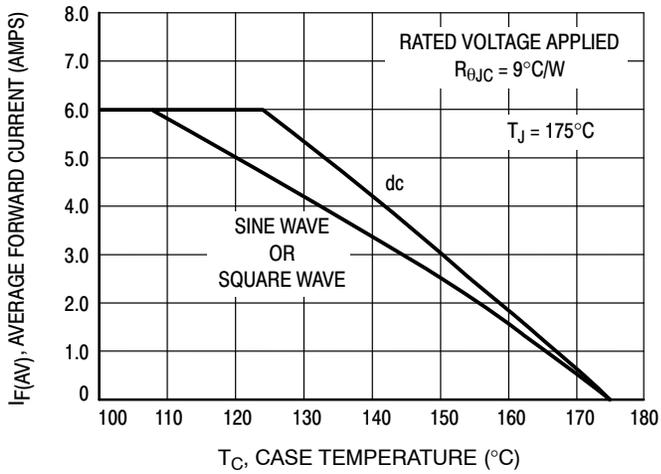


Figure 4. Current Derating, Case (Per Leg)

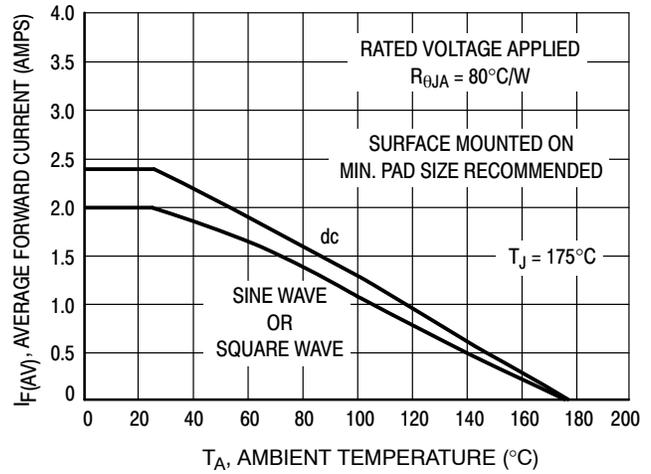


Figure 5. Current Derating, Ambient (Per Leg)

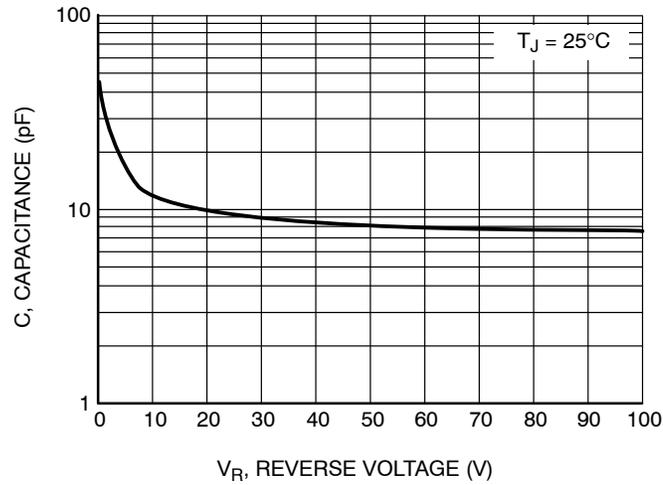
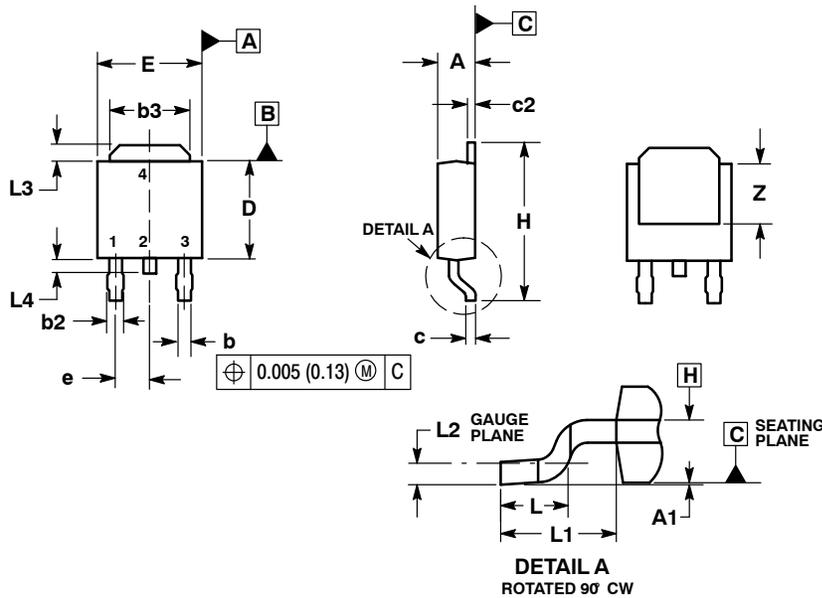


Figure 6. Typical Capacitance (Per Leg)

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## PACKAGE DIMENSIONS

### DPAK (SINGLE GAUGE) CASE 369C-01 ISSUE D

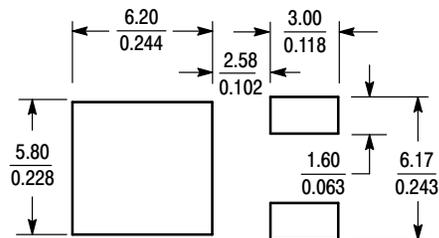


**NOTES:**

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.

DIM	INCHES		MILLIMETERS	
	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	0.030	0.045	0.76	1.14
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	0.108 REF		2.74 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  $\left(\frac{\text{mm}}{\text{inches}}\right)$

\*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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