

# MURD320

Preferred Device

## 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

- Pb-Free Package is Available
- Ultrafast 35 Nanosecond Recovery Time
- Low Forward Voltage Drop
- Low Leakage

#### 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
- Available in 16 mm Tape and Reel, 2500 Units Per Reel, by Adding a "T4" Suffix to the Part Number

#### 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 $V_R$ , $T_C = 158^\circ\text{C}$ )	$I_{F(AV)}$	3.0	A
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 158^\circ\text{C}$ )	$I_{FRM}$	6.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, 60 Hz)	$I_{FSM}$	75	A
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-65 to +175	°C

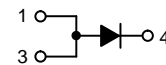
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



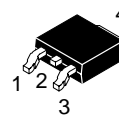
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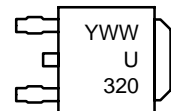
### ULTRAFast RECTIFIER 3.0 AMPERES, 200 VOLTS



#### MARKING DIAGRAM



DPAK  
CASE 369C



Y = Year  
WW = Work Week

#### ORDERING INFORMATION

Device	Package	Shipping†
MURD320T4	DPAK	2500/Tape & Reel
MURD320T4G	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.

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

# MURD320

## THERMAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Thermal Resistance – Junction-to-Case	$R_{\theta JC}$	6	$^{\circ}C/W$
Thermal Resistance – Junction-to-Ambient (Note 1)	$R_{\theta JA}$	80	$^{\circ}C/W$

## ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage Drop (Note 2) ( $i_F = 3$ Amps, $T_J = 25^{\circ}C$ ) ( $i_F = 3$ Amps, $T_J = 125^{\circ}C$ )	$v_F$	0.95 0.75	Volts
Maximum Instantaneous Reverse Current (Note 2) ( $T_J = 25^{\circ}C$ , Rated dc Voltage) ( $T_J = 125^{\circ}C$ , Rated dc Voltage)	$i_R$	5 500	$\mu A$
Maximum Reverse Recovery Time ( $I_F = 1$ Amp, $di/dt = 50$ Amps/ $\mu s$ , $V_R = 30$ V, $T_J = 25^{\circ}C$ ) ( $I_F = 0.5$ Amp, $i_R = 1$ Amp, $I_{REC} = 0.25$ A, $V_R = 30$ V, $T_J = 25^{\circ}C$ )	$t_{rr}$	35 25	ns

1. Rating applies when surface mounted on the minimum pad sizes recommended.
2. Pulse Test: Pulse Width = 300  $\mu s$ , Duty Cycle  $\leq 2.0\%$ .

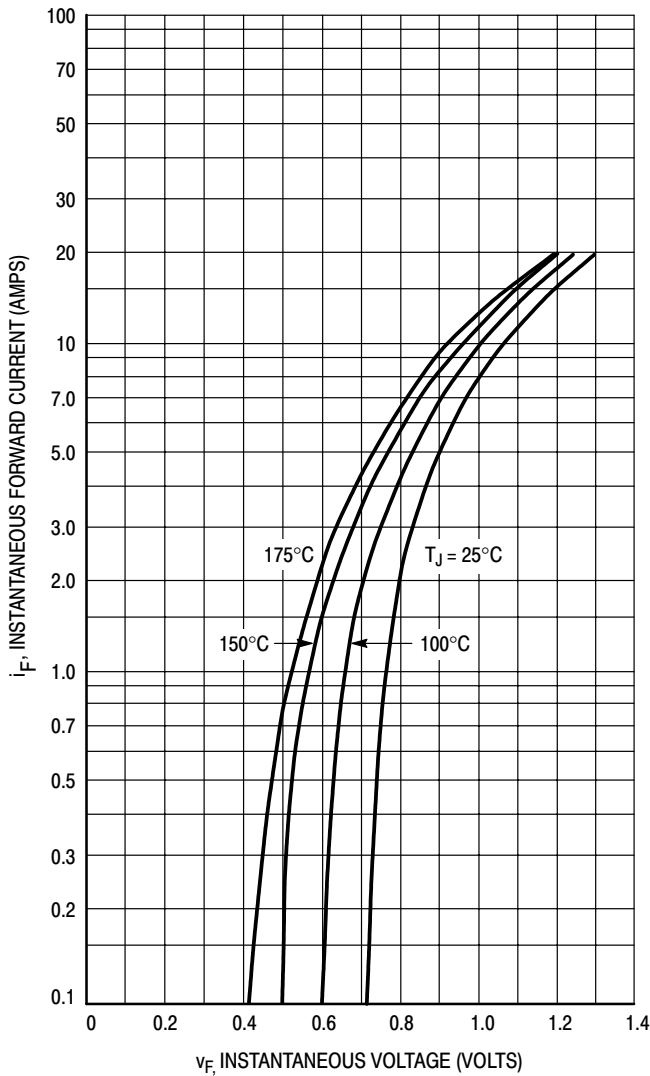


Figure 1. Typical Forward Voltage

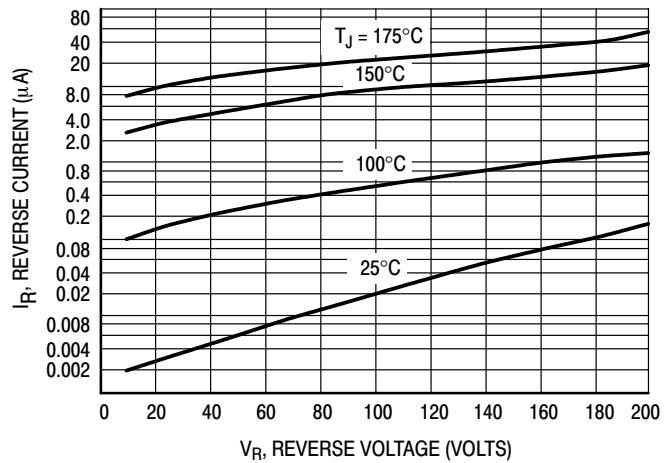


Figure 2. Typical Reverse Current\*

\* 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  $V_R$ .

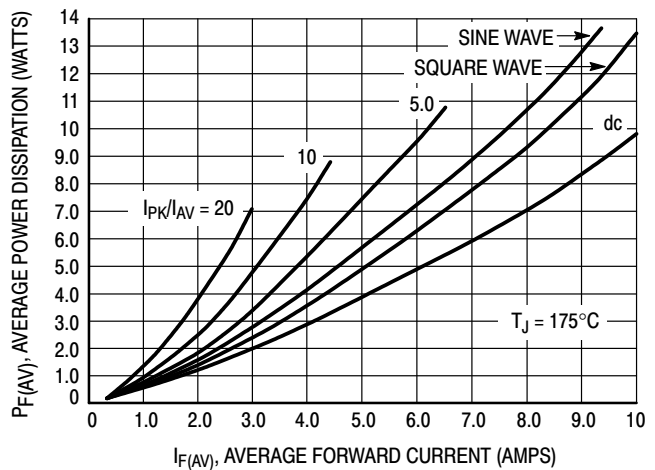


Figure 3. Average Power Dissipation

# MURD320

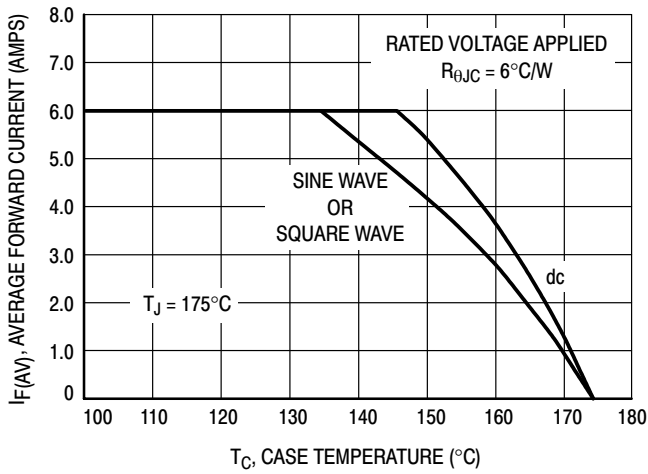


Figure 4. Current Derating, Case

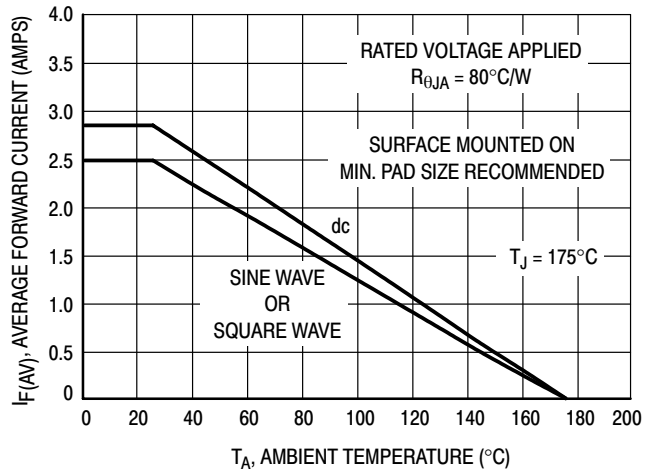


Figure 5. Current Derating, Ambient

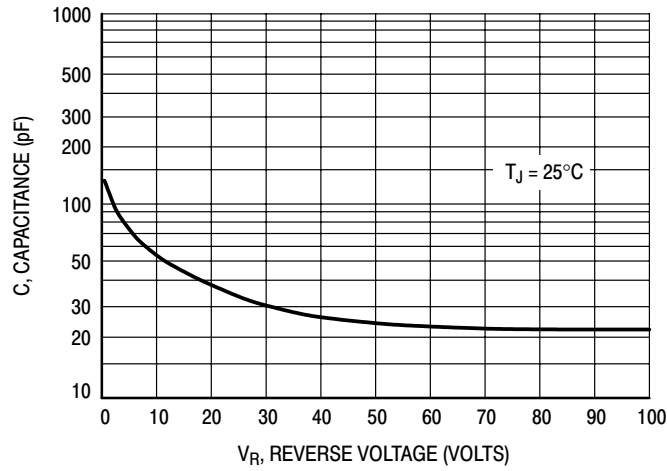
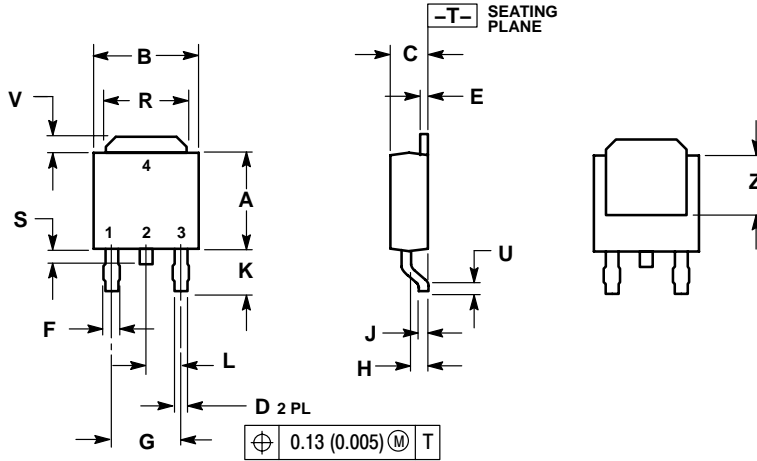


Figure 6. Typical Capacitance

# MURD320

## PACKAGE DIMENSIONS

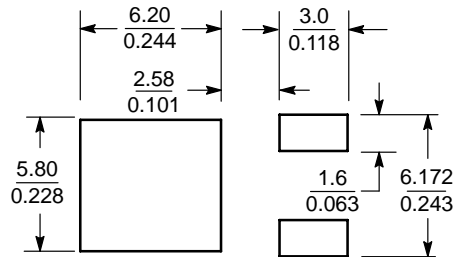
### DPAK CASE 369C ISSUE O



- NOTES:  
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.235	0.245	5.97	6.22
B	0.250	0.265	6.35	6.73
C	0.086	0.094	2.19	2.38
D	0.027	0.035	0.69	0.88
E	0.018	0.023	0.46	0.58
F	0.037	0.045	0.94	1.14
G	0.180 BSC		4.58 BSC	
H	0.034	0.040	0.87	1.01
J	0.018	0.023	0.46	0.58
K	0.102	0.114	2.60	2.89
L	0.090 BSC		2.29 BSC	
R	0.180	0.215	4.57	5.45
S	0.025	0.040	0.63	1.01
U	0.020	---	0.51	---
V	0.035	0.050	0.89	1.27
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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