

# SWITCHMODE™ Power Rectifiers

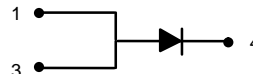
## DPAK Surface Mount Package

... designed for use in switching power supplies, inverters and as free wheeling diodes, these state-of-the-art devices have the following features:

- Ultrafast 35 Nanosecond Recovery Time
- Low Forward Voltage Drop
- Low Leakage

### Mechanical Characteristics:

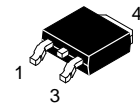
- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 75 units per plastic tube
- Available in 16 mm Tape and Reel, 2500 units per reel, by adding a "T4" suffix to the part number
- Marking: U320



## MURD320

MURD320 is a  
Motorola Preferred Device

**ULTRAFAST RECTIFIERS**  
**3 AMPERES**  
**200 VOLTS**



**CASE 369A-13**  
**DPAK**

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	200	Volts
Average Rectified Forward Current ( $T_C = 158^\circ\text{C}$ , Rated $V_R$ )	$I_{F(AV)}$	3	Amps
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 158^\circ\text{C}$ )	$I_{FRM}$	6	Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, 60 Hz)	$I_{FSM}$	75	Amps
Operating Junction and Storage Temperature	$T_J, T_{stg}$	-65 to +175	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

Thermal Resistance, Junction to Case Junction to Ambient (1)	$R_{\theta JC}$ $R_{\theta JA}$	6 80	$^\circ\text{C/W}$
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### ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage Drop (2) ( $i_F = 3$ Amps, $T_J = 25^\circ\text{C}$ ) ( $i_F = 3$ Amps, $T_J = 125^\circ\text{C}$ )	$v_F$	0.95 0.75	Volts
Maximum Instantaneous Reverse Current (2) ( $T_J = 25^\circ\text{C}$ , Rated dc Voltage) ( $T_J = 125^\circ\text{C}$ , Rated dc Voltage)	$i_R$	5 500	$\mu\text{A}$
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

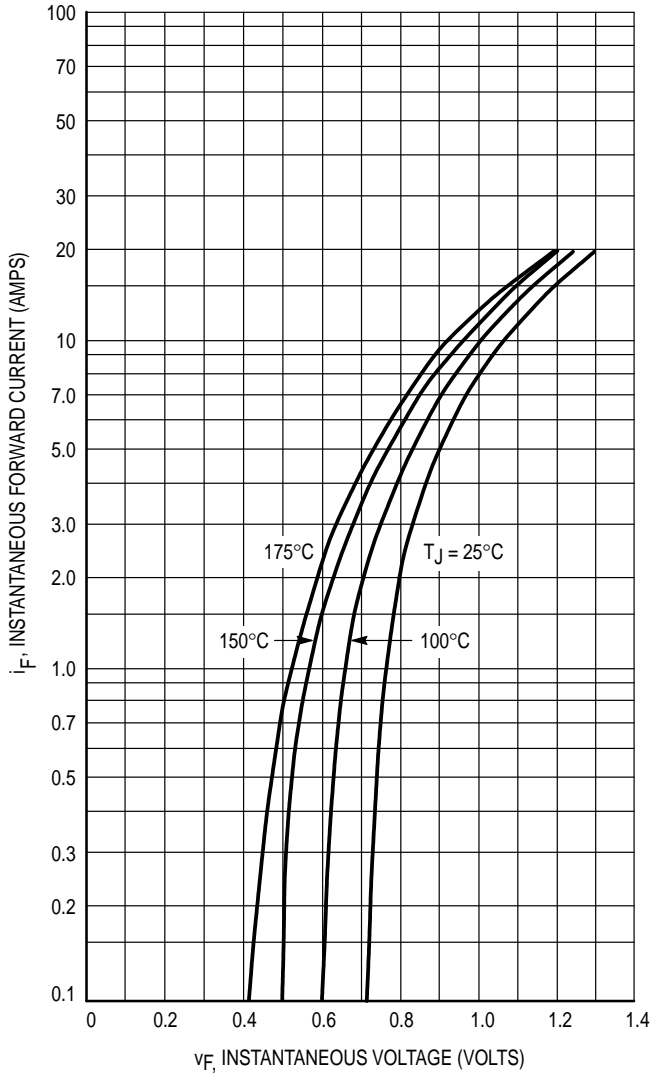
(1) Rating applies when surface mounted on the minimum pad sizes recommended.

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

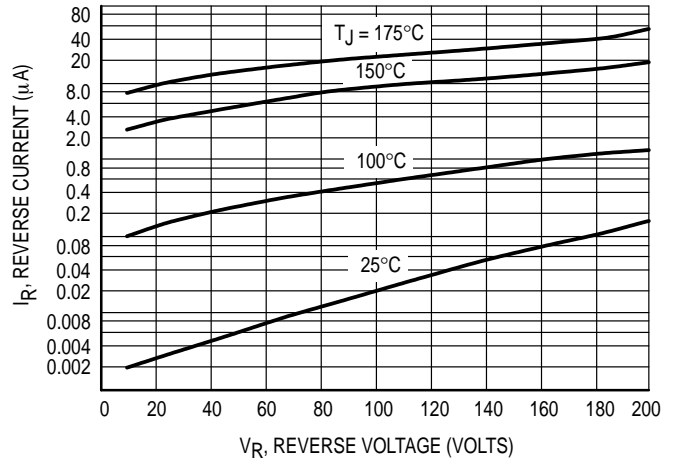
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Preferred devices are Motorola recommended choices for future use and best overall value.

# MURD320

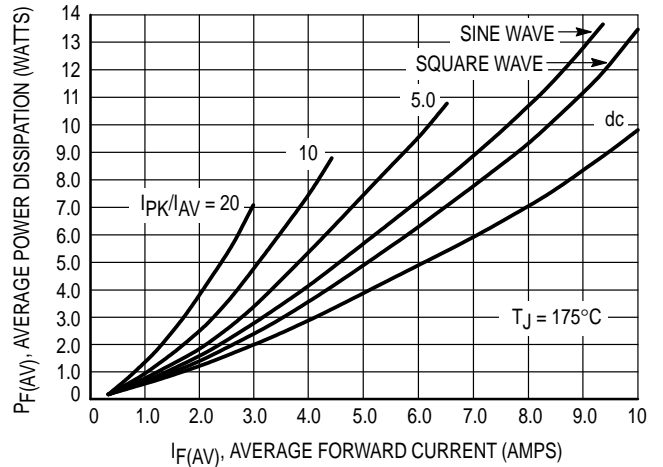


**Figure 1. Typical Forward Voltage**

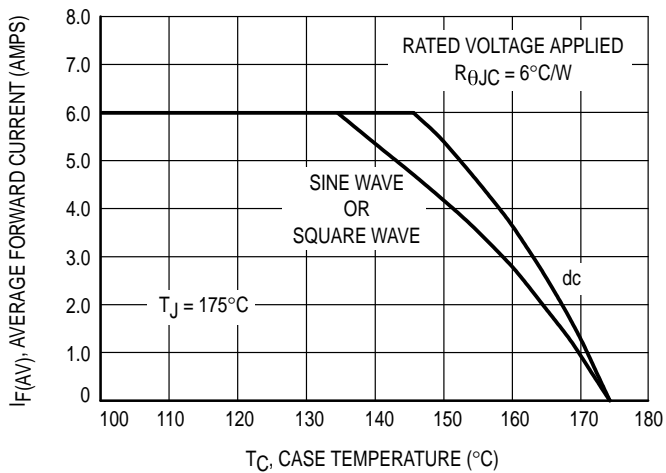


**Figure 2. Typical Reverse Current\***

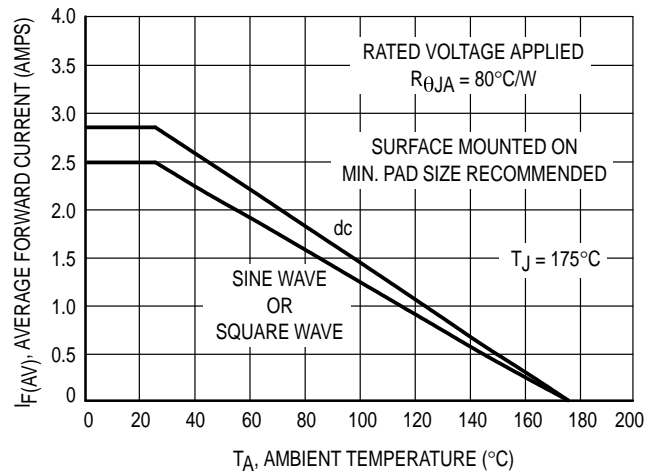
\* The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these curves if  $V_R$  is sufficiently below rated  $V_R$ .



**Figure 3. Average Power Dissipation**



**Figure 4. Current Derating, Case**



**Figure 5. Current Derating, Ambient**

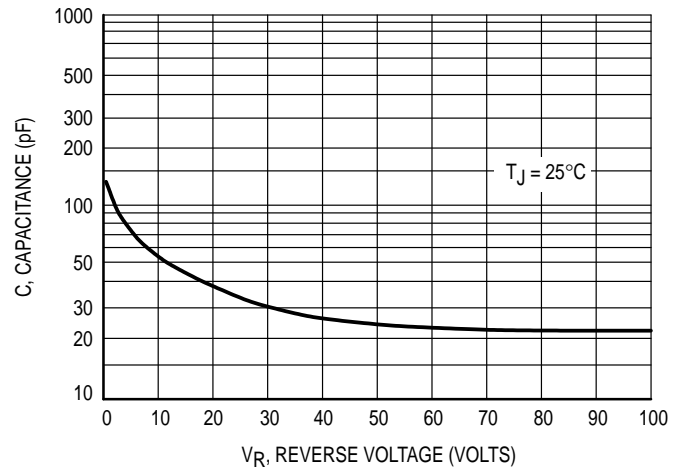
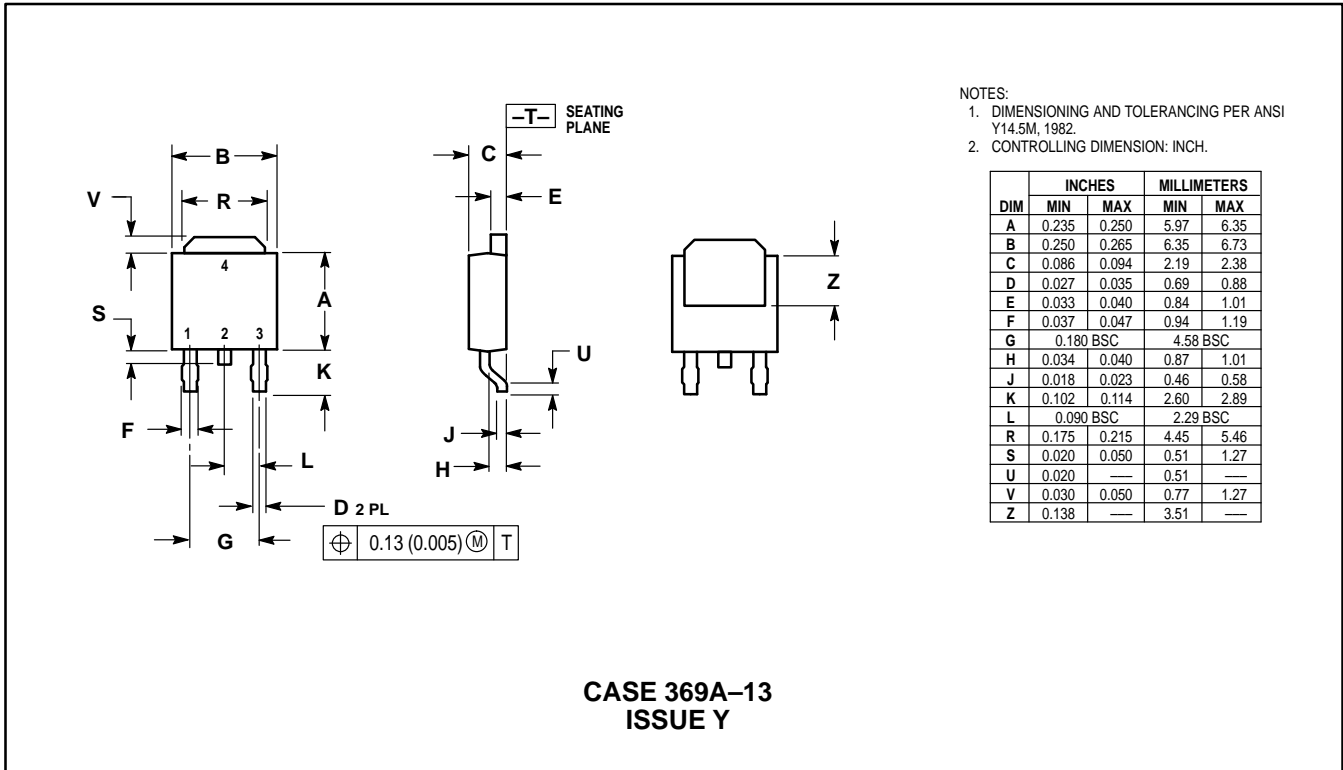


Figure 6. Typical Capacitance

PACKAGE DIMENSIONS



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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.235	0.250	5.97	6.35
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	0.033	0.040	0.84	1.01
F	0.037	0.047	0.94	1.19
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	0.175	0.215	4.45	5.46
S	0.020	0.050	0.51	1.27
U	0.020	—	0.51	—
V	0.030	0.050	0.77	1.27
Z	0.138	—	3.51	—

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