

# SWITCHMODE™ Power Rectifiers

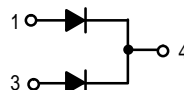
## CPAK Surface Mount Package

... 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:

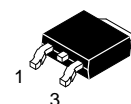
- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 75 units per plastic tube
- Available in 16 mm Tape and Reel, 2500 units per reel, by adding a "T4" suffix to the part number
- Marking: U620T



## MURD620CT

MURD620CT is a  
Motorola Preferred Device

**ULTRAFAST RECTIFIERS**  
**6 AMPERES**  
**200 VOLTS**



**CASE 369A-13**  
**PLASTIC**

### MAXIMUM RATINGS

| Rating   | Symbol                          | Value       | Unit             |
|--|---------------------------------|-------------|------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage             | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 200         | Volts            |
| Average Rectified Forward Voltage<br>( $T_C = 140^\circ\text{C}$ , Rated $V_R$ )                   | $I_F(AV)$                       | 3<br>6      | Amps             |
| Peak Repetitive Forward Current<br>(Rated $V_R$ , Square Wave, 20 kHz, $T_C = 145^\circ\text{C}$ ) | $I_F$                           | 6           | Amps             |
| Nonrepetitive Peak Surge Current<br>(Surge applied at rated load conditions, halfwave, 60 Hz)      | $I_{FSM}$                       | 50          | Amps             |
| Operating Junction and Storage Temperature   | $T_J, T_{stg}$                  | -65 to +175 | $^\circ\text{C}$ |

### THERMAL CHARACTERISTICS PER DIODE

|   |                                    |         |                    |
|---|------------------------------------|---------|--------------------|
| Thermal Resistance, Junction to Case<br>Junction to Ambient (1) | $R_{\theta JC}$<br>$R_{\theta JA}$ | 9<br>80 | $^\circ\text{C/W}$ |
|---|------------------------------------|---------|--------------------|

### ELECTRICAL CHARACTERISTICS PER DIODE

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

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

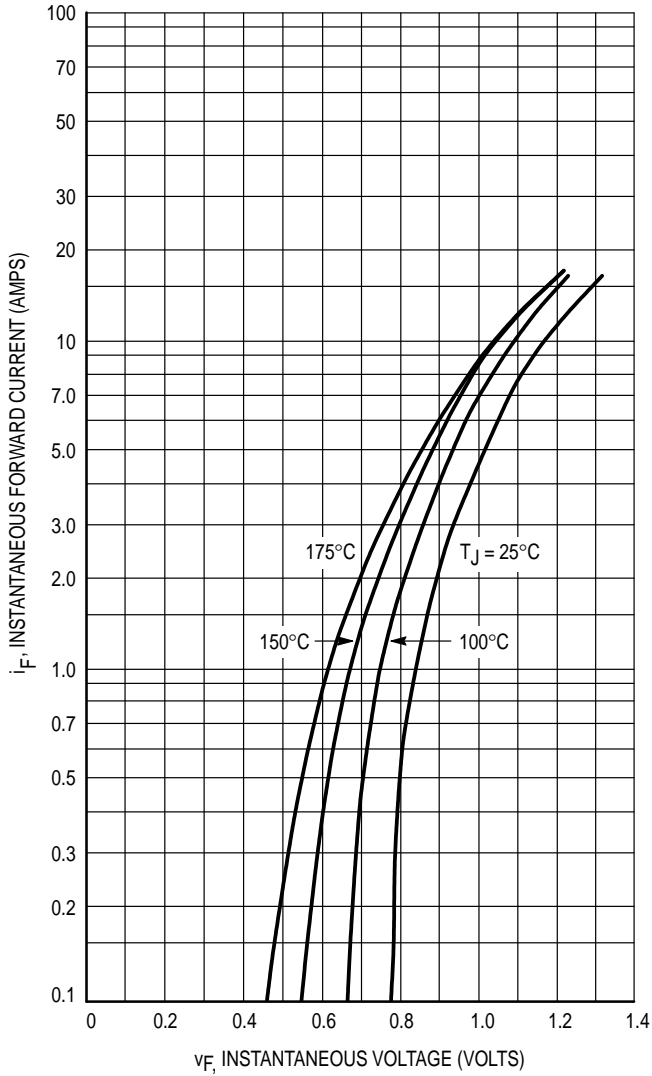
(2) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

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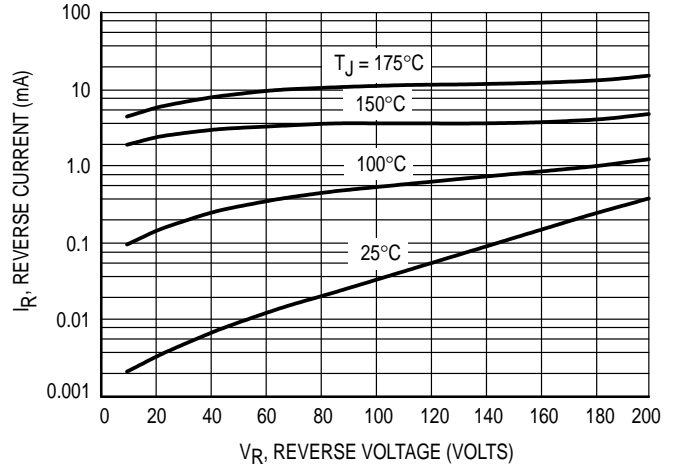
Preferred devices are Motorola recommended choices for future use and best overall value.



# MURD620CT

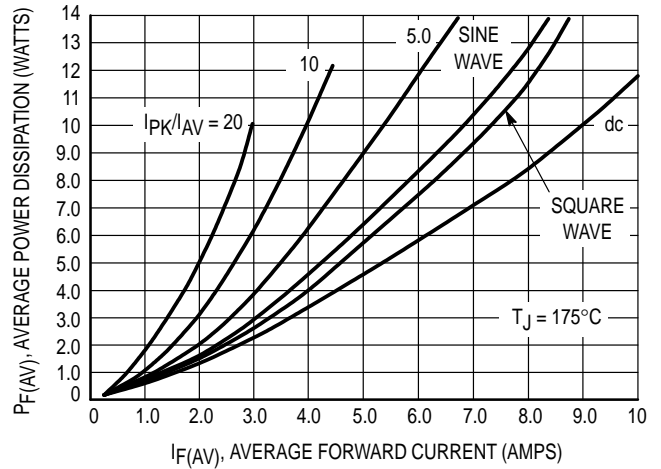


**Figure 1. Typical Forward Voltage (Per Leg)**

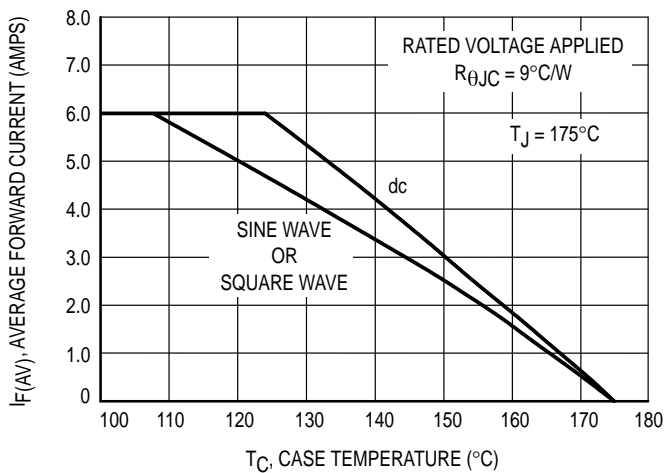


**Figure 2. Typical Leakage Current\* (Per Leg)**

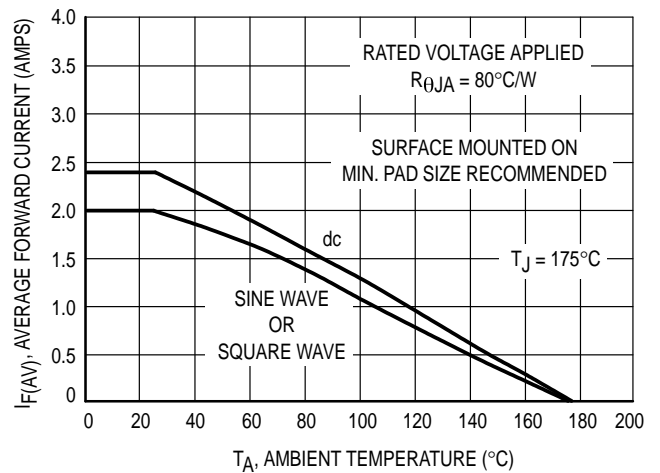
\* The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these curves if  $V_R$  is sufficiently below rated  $V_R$ .



**Figure 3. Average Power Dissipation (Per Leg)**



**Figure 4. Current Derating, Case (Per Leg)**



**Figure 5. Current Derating, Ambient (Per Leg)**

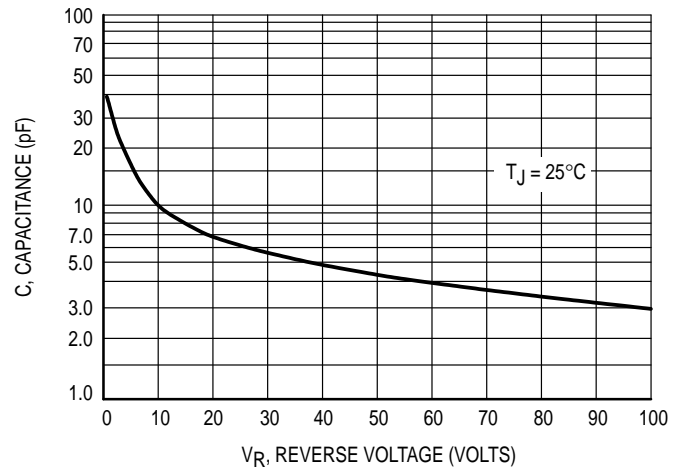
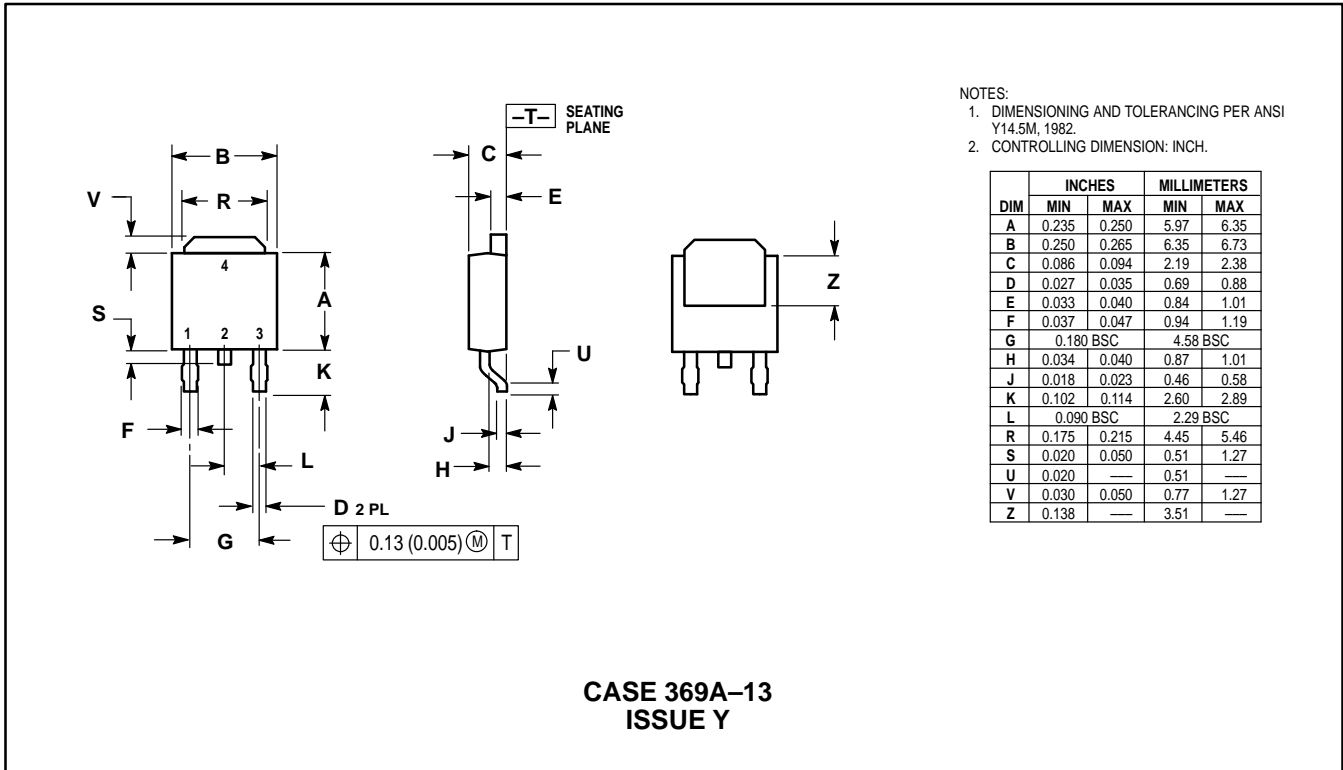


Figure 6. Typical Capacitance (Per Leg)

PACKAGE DIMENSIONS



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