

**MOTOROLA**  
**SEMICONDUCTOR**  
 TECHNICAL DATA

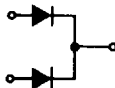
**SWITCHMODE Power Rectifiers**  
**DPAK Surface Mount Package**

... 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
- Finish: All External Surface Corrosion Resistance and Terminal Leads are Readily Solderable
- Lead Formed for Surface Mount
- Available in 16 mm Tape and Reel or Plastic Rails
- Compact Size
- Dual Rectifier Single Chip Construction
- Lead Temperature for Soldering Purpose: 260°C for 10 Seconds



**MURD605CT**  
**MURD610CT**  
**MURD615CT**  
**MURD620CT**

MURD620CT is a  
 Motorola Preferred Device

**ULTRAFAST**  
**RECTIFIERS**  
**6 AMPERES**  
**50 TO 200 VOLTS**



CASE 369A-11  
 PLASTIC

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**MAXIMUM RATINGS**

Rating	Symbol	MURD				Unit
		605CT	610CT	615CT	620CT	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	50	100	150	200	Volts
Average Rectified Forward Voltage ( $T_C = 145^\circ\text{C}$ , Rated $V_R$ )	$I_F(AV)$	3 6		Per Diode Per Device		Amps
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 145^\circ\text{C}$ )	$I_F$	6		Per Diode		Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, 60 Hz)	$I_{FSM}$	63				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 Junction to Ambient (1)	$R_{\theta JC}$ $R_{\theta JA}$	9 80	$^\circ\text{C/W}$
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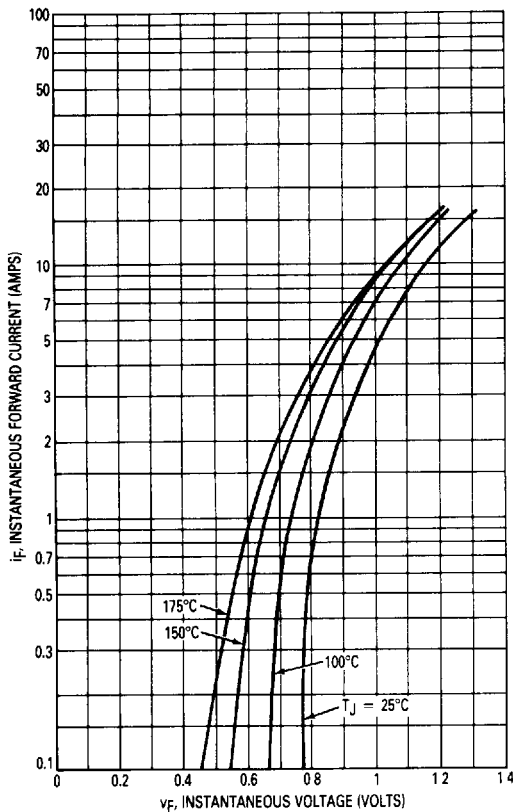
**ELECTRICAL CHARACTERISTICS PER DIODE**

Maximum Instantaneous Forward Voltage Drop (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 0.95 1.2 1.1	Volts
Maximum Instantaneous Reverse Current (2) ( $T_J = 25^\circ\text{C}$ , Rated dc Voltage) ( $T_J = 125^\circ\text{C}$ , Rated dc Voltage)	$I_R$	5 250	$\mu\text{A}$
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

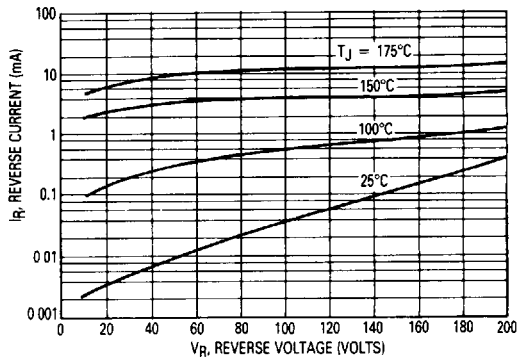
(1) Rating applies when surface mounted on the minimum pad size recommended.  
 (2) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2\%$

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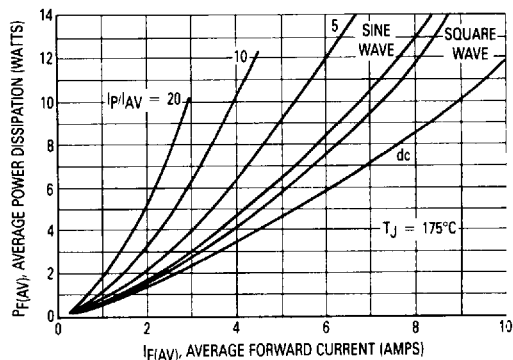


**Figure 1. Typical Forward Voltage (Per Leg)**

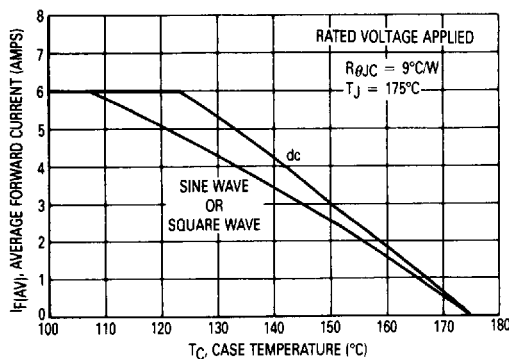


\*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these curves if  $V_R$  is sufficient below rated  $V_R$ .

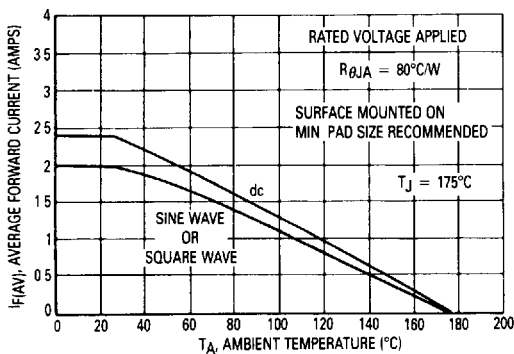
**Figure 2. Typical Leakage Current\* (Per Leg)**



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



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



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

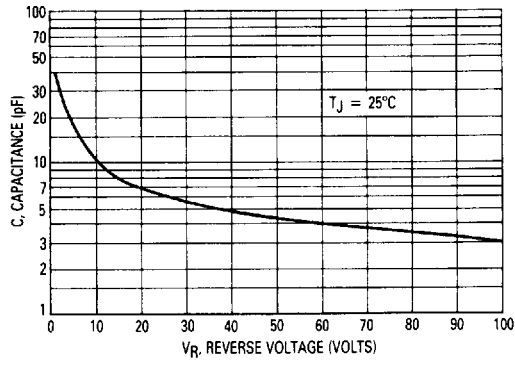


Figure 6. Typical Capacitance (Per Leg)