

## 4.0 AMPERES ULTRAFAST RECTIFIERS

## MUR405, MUR410, MUR415 MUR420, MUR440, MUR460

Vishaymas General Semiconductor

### FEATURES

- Ultrafast 25 ns, 50 ns and 75 ns Recovery Times
- 175°C Operating Junction Temperature
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Reverse Voltage to 600 V
- Shipped in Plastic Bags, 500 per Bag

### MECHANICAL DATA

**Case:** Epoxy, Molded

**Weight:** 1.1 Gram (Approximately)

**Finish:** All External Surfaces Corrosion Resistant and

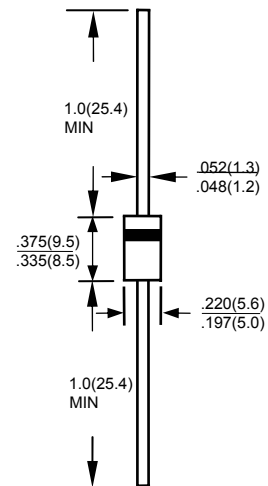
Terminal Leads are Readily Solderable

**Lead Temperature for Soldering Purposes:**

260°C Max. for 10 Seconds

**Polarity:** Cathode indicated by Polarity Band

### DO-27



Dimension in inches and (millimeters)

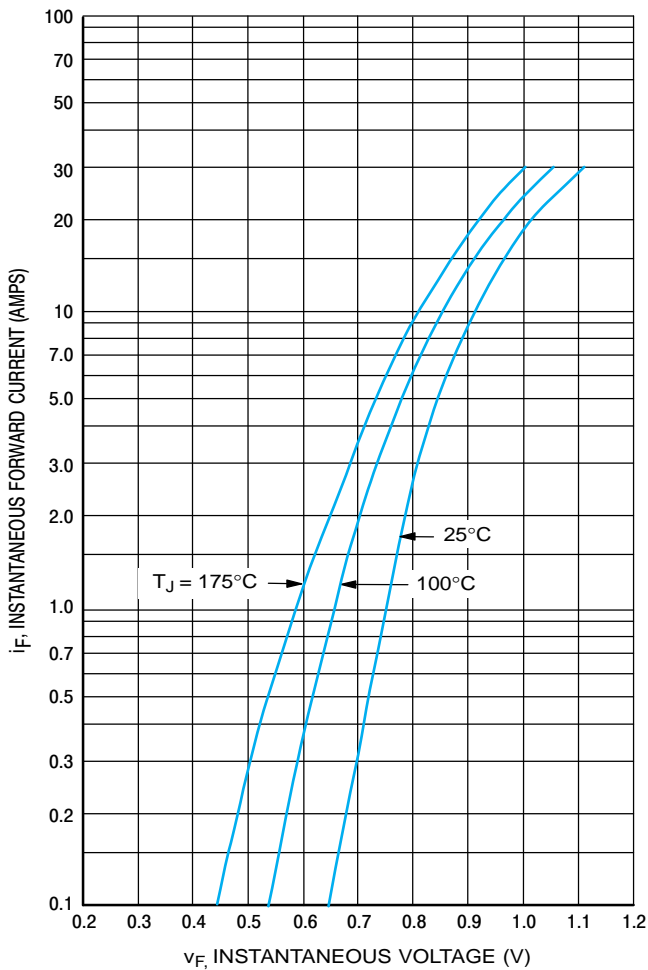
### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating	Symbol	MUR						Unit
		405	410	415	420	440	460	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	50	100	150	200	400	600	V
Average Rectified Forward Current (Square Wave) (Mounting Method #3 Per Note 2)	$I_{F(AV)}$	4.0 @ $T_A = 80^\circ\text{C}$			4.0 @ $T_A = 40^\circ\text{C}$			A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, half wave, single phase, 60 Hz)	$I_{FSM}$	125			110			A
Operating Junction Temperature & Storage Temperature	$T_J, T_{stg}$	-65 to +175						°C

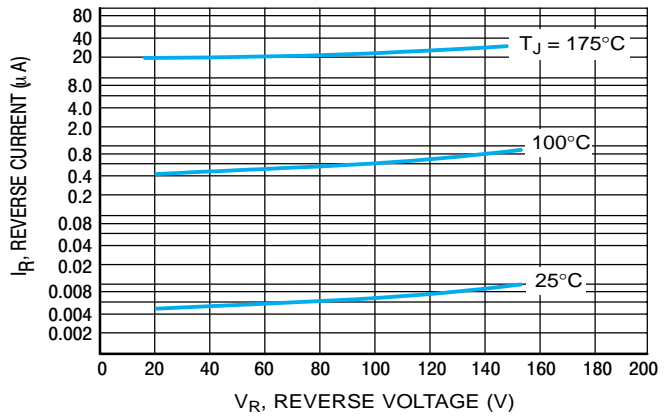
### ELECTRICAL CHARACTERISTICS

Rating	Symbol	MUR						Unit
		405	410	415	420	440	460	
Maximum Instantaneous Forward Voltage (Note 1) ( $I_F = 3.0\text{ A}, T_J = 150^\circ\text{C}$ ) ( $I_F = 3.0\text{ A}, T_J = 25^\circ\text{C}$ ) ( $I_F = 4.0\text{ A}, T_J = 25^\circ\text{C}$ )	$V_F$	0.71 0.88 0.89			1.05 1.25 1.28			V
Maximum Instantaneous Reverse Current (Note 1) (Rated dc Voltage, $T_J = 150^\circ\text{C}$ ) (Rated dc Voltage, $T_J = 25^\circ\text{C}$ )	$i_R$	150 5			250 10			$\mu\text{A}$
Maximum Reverse Recovery Time ( $I_F = 1.0\text{ A}, di/dt = 50\text{ A}/\mu\text{s}$ ) ( $I_F = 0.5\text{ A}, i_R = 1.0\text{ A}, I_{REC} = 0.25\text{ A}$ )	$t_{rr}$	35 25			75 50			ns
Maximum Forward Recovery Time ( $I_F = 1.0\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$ , Recovery to 1.0 V)	$t_{fr}$	25			50			ns
Controlled Avalanche Energy (Maximum)	$W_{aval}$				5			mJ

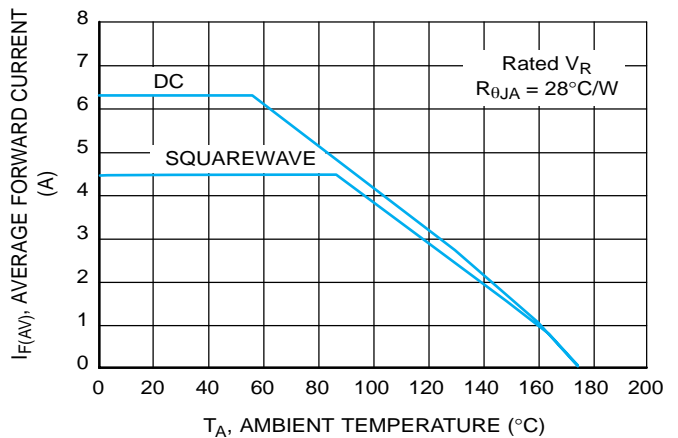
1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .



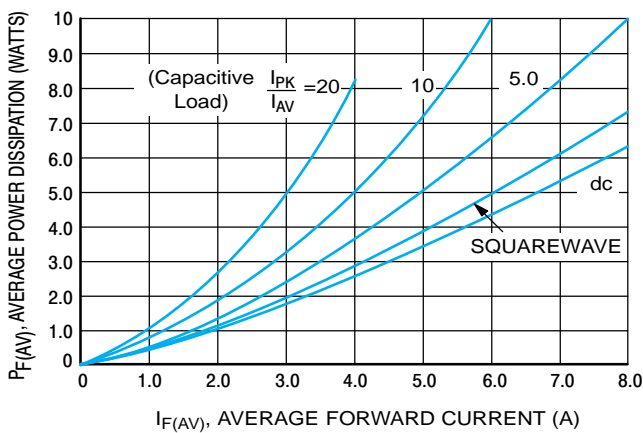
**Figure 1. Typical Forward Voltage**



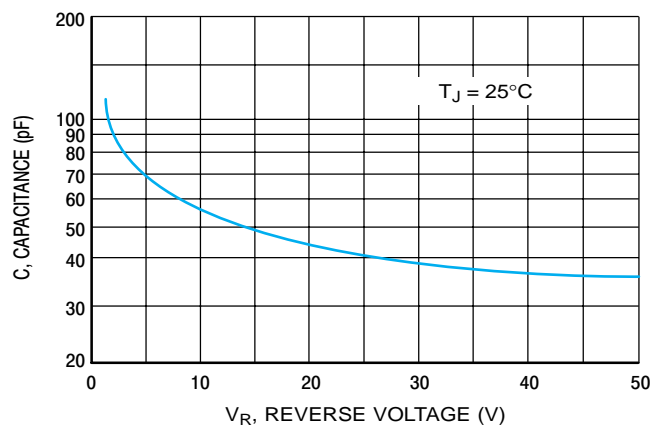
**Figure 2. Typical Reverse Current**



**Figure 3. Current Derating  
(Mounting Method #3 Per Note 2)**



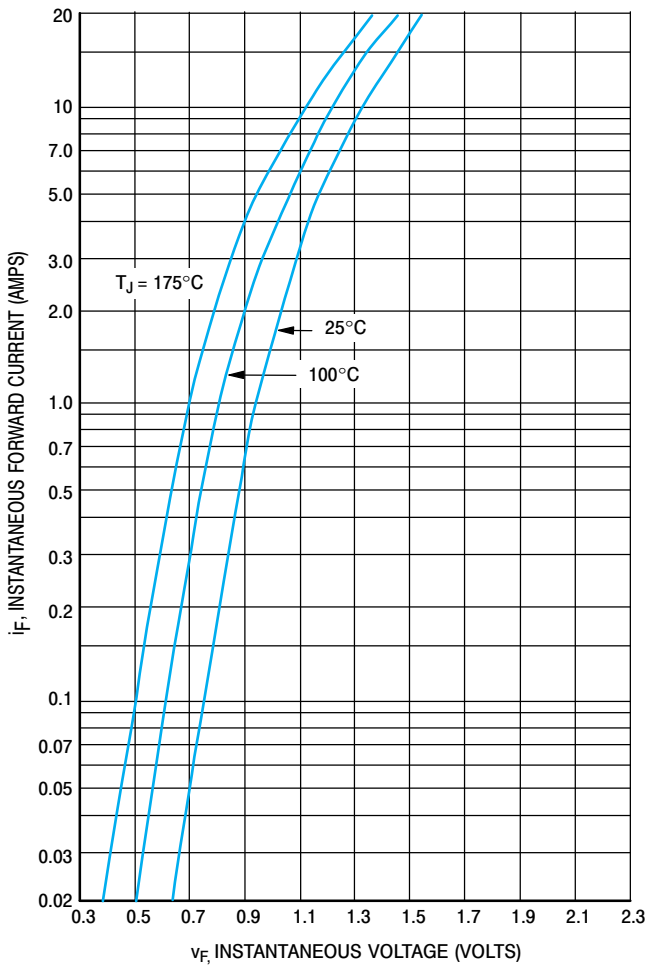
**Figure 4. Power Dissipation**



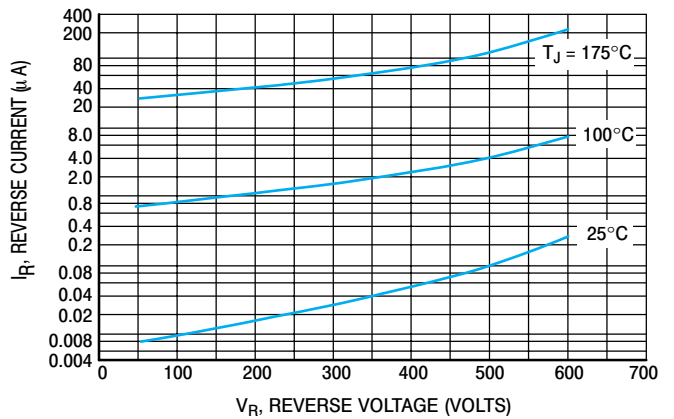
**Figure 5. Typical Capacitance**

**RATING AND CHARACTERISTIC CURVES**

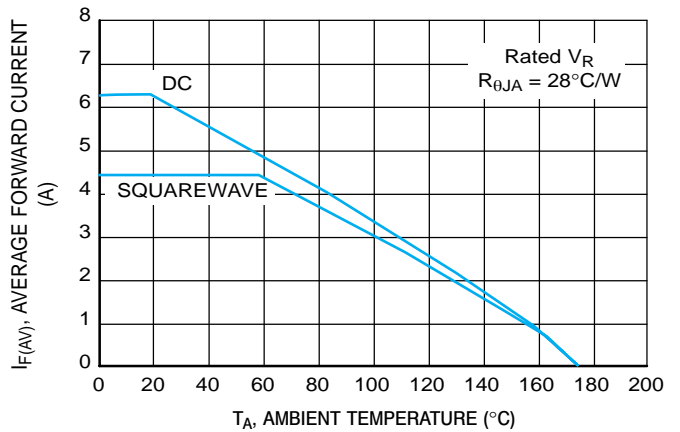
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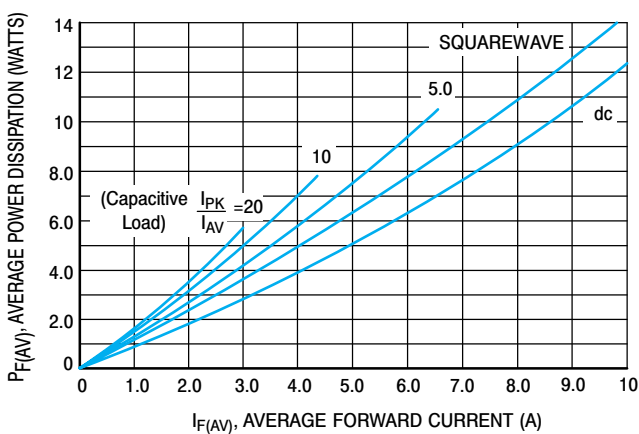
**Figure 6. Typical Forward Voltage**



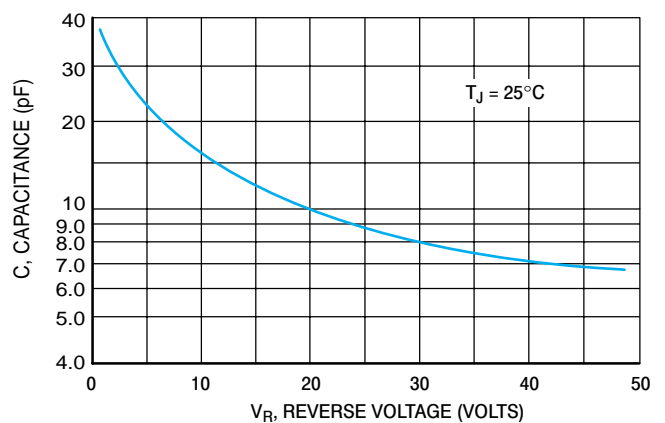
**Figure 7. Typical Reverse Current**



**Figure 8. Current Derating  
 (Mounting Method #3 Per Note 2)**



**Figure 9. Power Dissipation**



**Figure 10. Typical Capacitance**

