

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

**MUR1605CT MUR1630CT**  
**MUR1610CT MUR1640CT**  
**MUR1615CT MUR1650CT**  
**MUR1620CT MUR1660CT**

MUR1620CT, MUR1640CT and MUR1660CT  
 are Motorola Preferred Devices

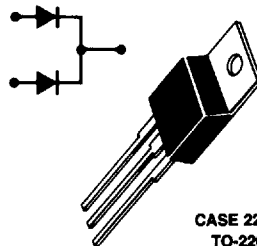
**SWITCHMODE POWER RECTIFIERS**

... 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 and 60 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Popular TO-220 Package
- Epoxy meets UL94, V<sub>0</sub> @ 1/8"
- High Temperature Glass Passivated Junction
- High Voltage Capability to 600 Volts
- Low Leakage Specified @ 150°C Case Temperature
- Current Derating @ Both Case and Ambient Temperatures

**ULTRAFAST  
 RECTIFIERS**

**8 AMPERES  
 50-600 VOLTS**



CASE 221A-06  
 TO-220AB  
 PLASTIC

3

**MAXIMUM RATINGS**

Rating	Symbol	MUR								Unit	
		1605CT	1610CT	1615CT	1620CT	1630CT	1640CT	1650CT	1660CT		
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	50	100	150	200	300	400	500	600	Volts	
Average Rectified Forward Current Total Device, (Rated V <sub>R</sub> ), T <sub>C</sub> = 150°C	Per Leg I <sub>F(AV)</sub> Total Device	8.0					16				Amps
Peak Repetitive Forward Current (Rated V <sub>R</sub> , Square Wave, 20 kHz), T <sub>C</sub> = 150°C	Per Diode Leg I <sub>FM</sub>	16									Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I <sub>FSM</sub>	100									Amps
Operating Junction Temperature and Storage Temperature	T <sub>J</sub> , T <sub>stg</sub>	- 65 to + 175									°C

**THERMAL CHARACTERISTICS, PER DIODE LEG**

Maximum Thermal Resistance, Junction to Case	R <sub>θJC</sub>	3.0	2.0	°C/W
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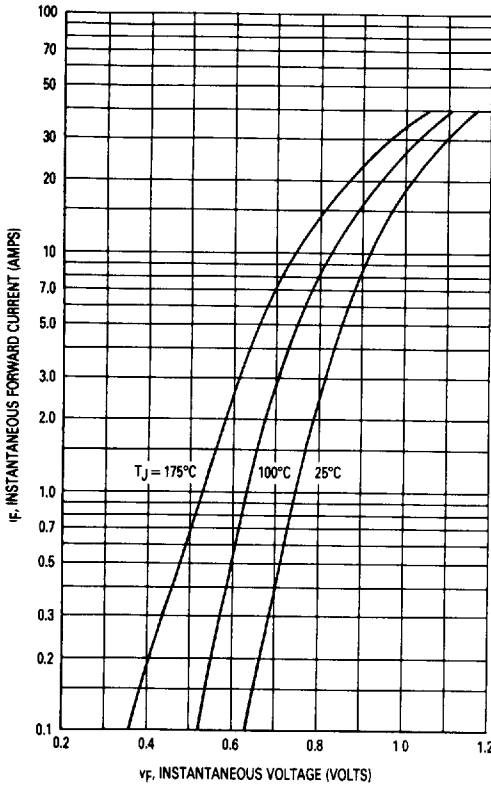
**ELECTRICAL CHARACTERISTICS, PER DIODE LEG**

Maximum Instantaneous Forward Voltage (1) (I <sub>F</sub> = 8.0 Amp, T <sub>C</sub> = 150°C) (I <sub>F</sub> = 8.0 Amp, T <sub>C</sub> = 25°C)	V <sub>F</sub>	0.895 0.975	1.00 1.30	1.20 1.50	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, T <sub>C</sub> = 150°C) (Rated dc Voltage, T <sub>C</sub> = 25°C)	i <sub>R</sub>	250 5.0	500 10	500 10	μA
Maximum Reverse Recovery Time (I <sub>F</sub> = 1.0 Amp, di/dt = 50 Amp/μs) (I <sub>F</sub> = 0.5 Amp, i <sub>R</sub> = 1.0 Amp, I <sub>REC</sub> = 0.25 Amp)	t <sub>rr</sub>	35 25	60 50		ns

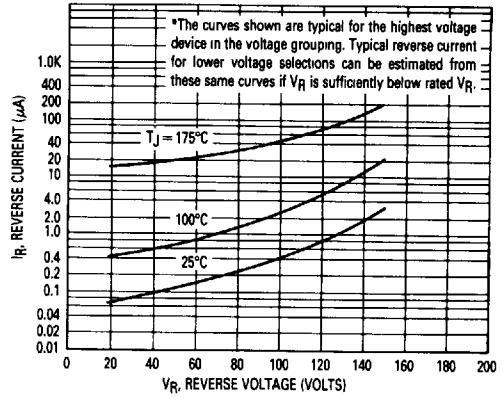
(1) Pulse Test Pulse Width = 300 μs, Duty Cycle ≤ 2.0%

**MUR1605CT, 1610CT AND 1615CT**

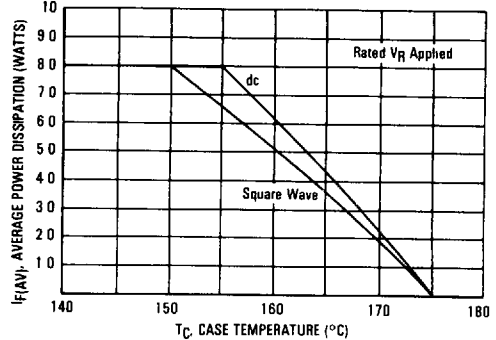
**FIGURE 1 — TYPICAL FORWARD VOLTAGE, PER LEG**



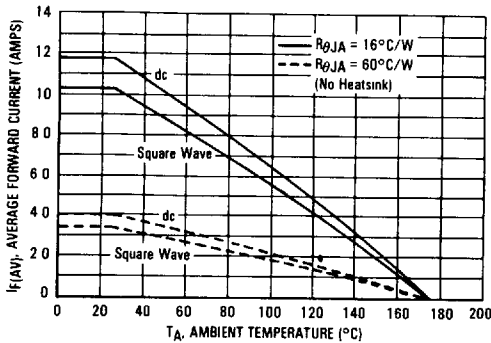
**FIGURE 2 — TYPICAL REVERSE CURRENT, PER LEG\***



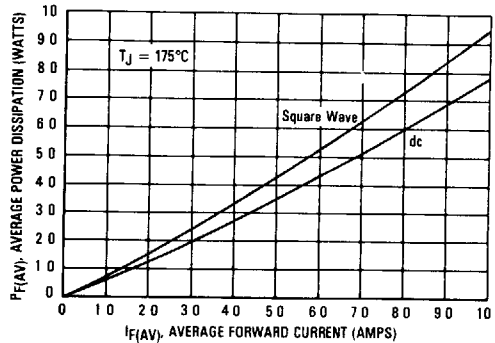
**FIGURE 3 — CURRENT DERATING CASE, PER LEG**



**FIGURE 4 — CURRENT DERATING, AMBIENT, PER LEG**



**FIGURE 5 — POWER DISSIPATION, PER LEG**

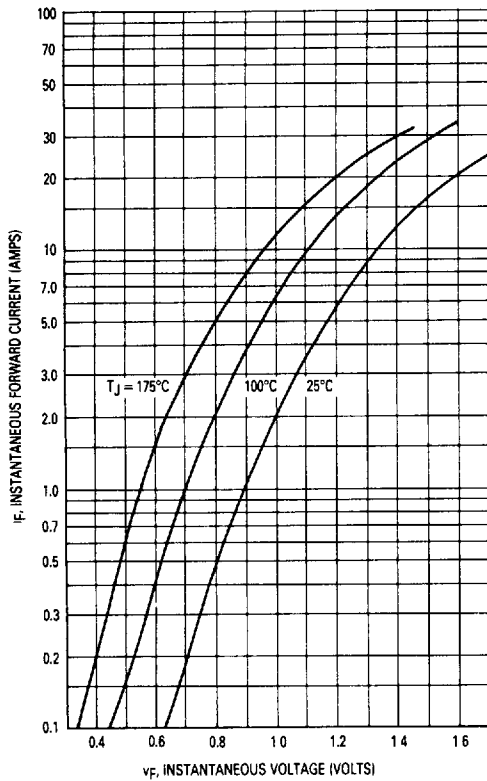


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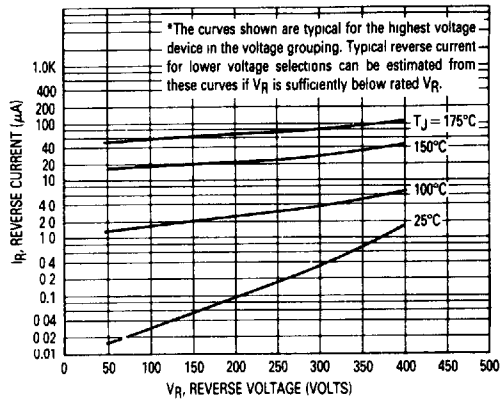
**MUR1605CT thru MUR1660CT**

**MUR1620CT, 1630CT AND 1640CT**

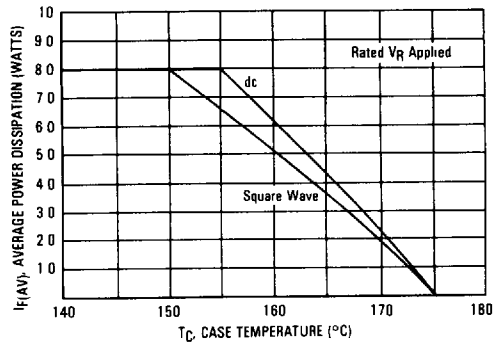
**FIGURE 6 — TYPICAL FORWARD VOLTAGE, PER LEG**



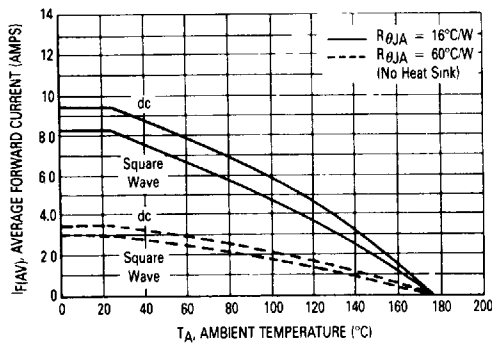
**FIGURE 7 — TYPICAL REVERSE CURRENT, PER LEG\***



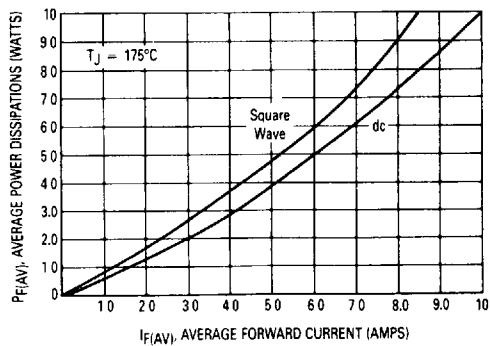
**FIGURE 8 — CURRENT DERATING, CASE, PER LEG**



**FIGURE 9 — CURRENT DERATING, AMBIENT, PER LEG**



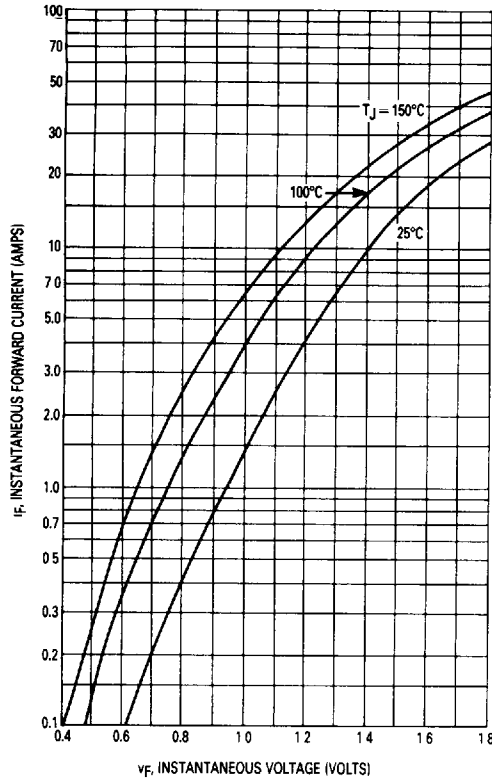
**FIGURE 10 — POWER DISSIPATION, PER LEG**



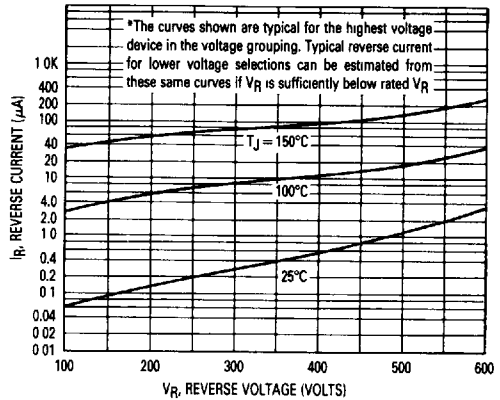
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**MUR1650CT AND 1660CT**

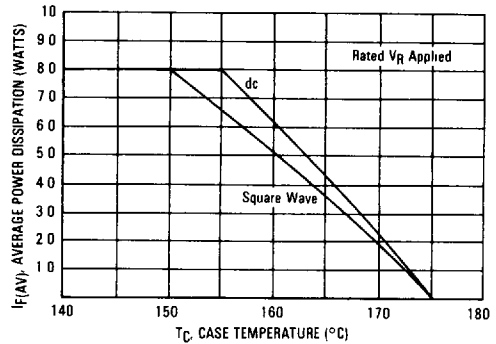
**FIGURE 11 — TYPICAL FORWARD VOLTAGE, PER LEG**



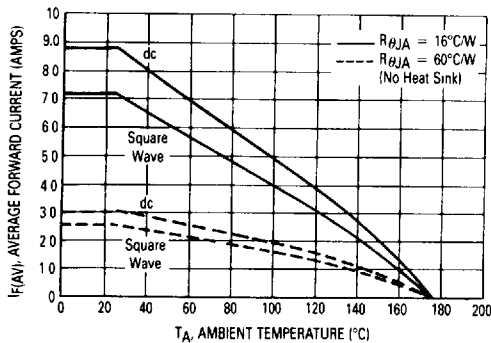
**FIGURE 12 — TYPICAL REVERSE CURRENT, PER LEG\***



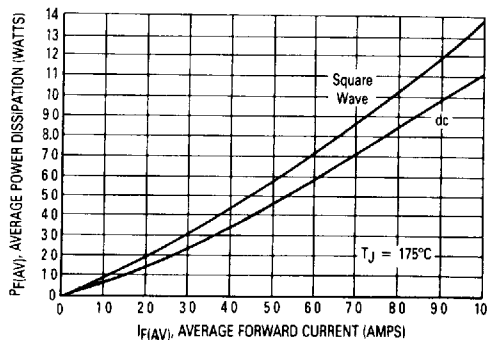
**FIGURE 13 — CURRENT DERATING, CASE, PER LEG**



**FIGURE 14 — CURRENT DERATING, AMBIENT, PER LEG**



**FIGURE 15 — POWER DISSIPATION, PER LEG**



MUR1605CT thru MUR1660CT

FIGURE 16 — THERMAL RESPONSE

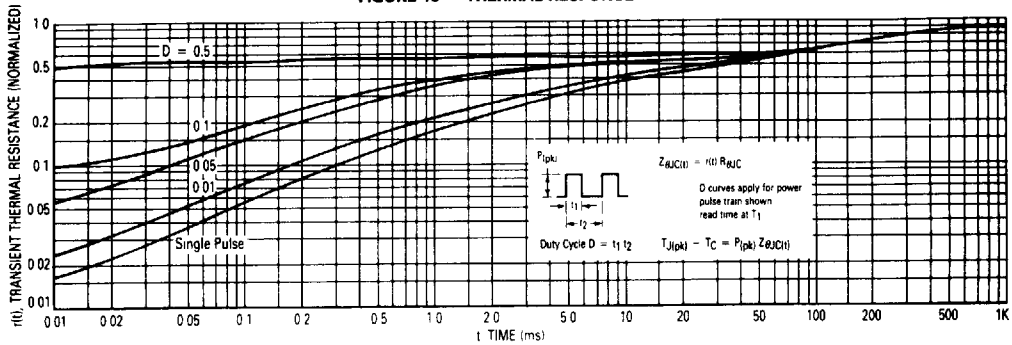
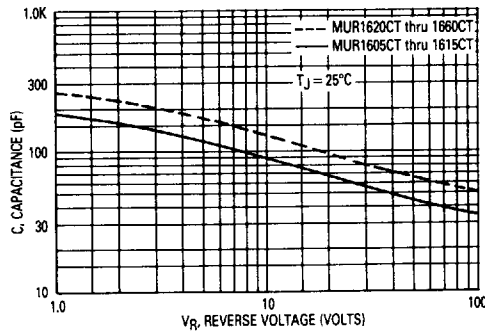


FIGURE 17 — TYPICAL CAPACITANCE, PER LEG



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