

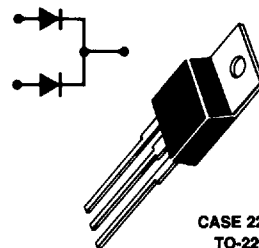
MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA
MUR1605CT MUR1630CT
MUR1610CT MUR1640CT
MUR1615CT MUR1650CT
MUR1620CT MUR1660CT

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, $V_0 @ \frac{1}{8}"$
- 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_{RRM} V_{RWM} V_R	50	100	150	200	300	400	500	600	Volts
Average Rectified Forward Current Total Device, (Rated V_R), $T_C = 150^{\circ}\text{C}$	$I_F(\text{AV})$ Per Leg Total Device	8.0 16								Amps
Peak Repetitive Forward Current (Rated V_R , Square Wave, 20 kHz), $T_C = 150^{\circ}\text{C}$	I_{FM} Per Diode Leg	16								Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	100								Amps
Operating Junction Temperature and Storage Temperature	T_J, T_{stg}	- 65 to + 175								$^{\circ}\text{C}$

THERMAL CHARACTERISTICS, PER DIODE LEG

Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.0	2.0	$^\circ\text{C/W}$
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ELECTRICAL CHARACTERISTICS, PER DIODE LEG

Maximum Instantaneous Forward Voltage (1) ($I_F = 8.0$ Amp, $T_C = 150^\circ\text{C}$) ($I_F = 8.0$ Amp, $T_C = 25^\circ\text{C}$)	V_F	0.895 0.975	1.00 1.30	1.20 1.50	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, $T_C = 150^\circ\text{C}$) (Rated dc Voltage, $T_C = 25^\circ\text{C}$)	I_R	250 5.0	500 10	500 10	μA
Maximum Reverse Recovery Time ($I_F = 1.0$ Amp, $di/dt = 50$ Amp/ μs) ($I_F = 0.5$ Amp, $I_R = 1.0$ Amp, $I_{REC} = 0.25$ Amp)	t_{rr}	35 25	60 50		ns

(1) Pulse Test Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$

MUR1605CT, 1610CT AND 1615CT

FIGURE 1 — TYPICAL FORWARD VOLTAGE, PER LEG

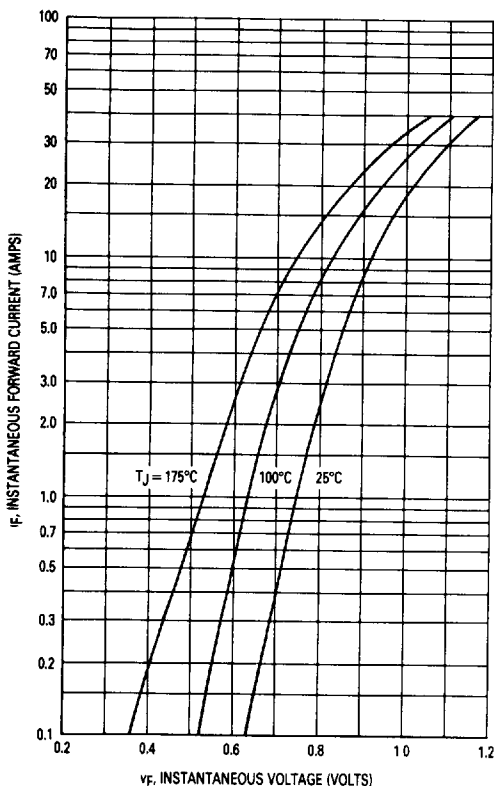


FIGURE 2 — TYPICAL REVERSE CURRENT, PER LEG*

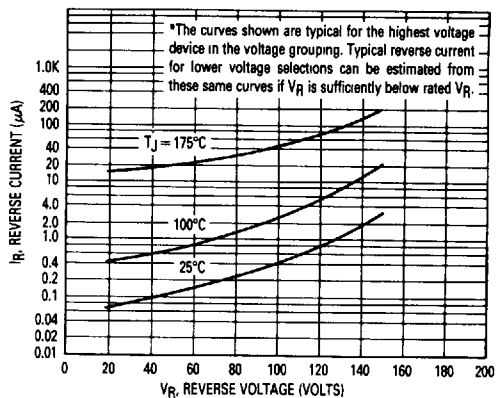


FIGURE 3 — CURRENT DERATING CASE, PER LEG

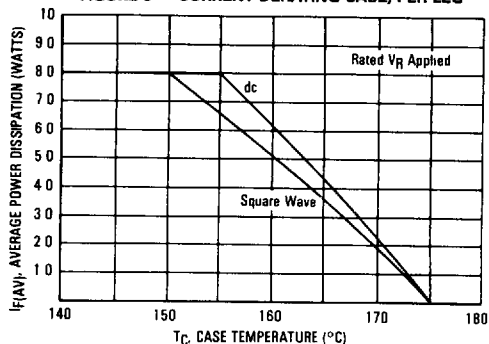


FIGURE 4 — CURRENT DERATING, AMBIENT, PER LEG

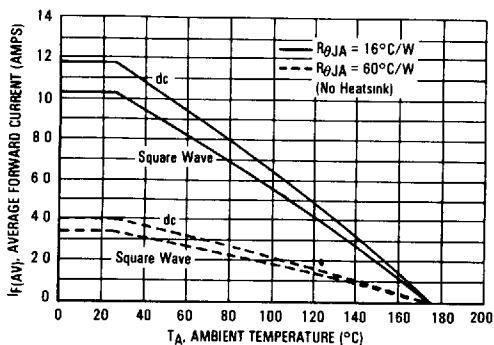
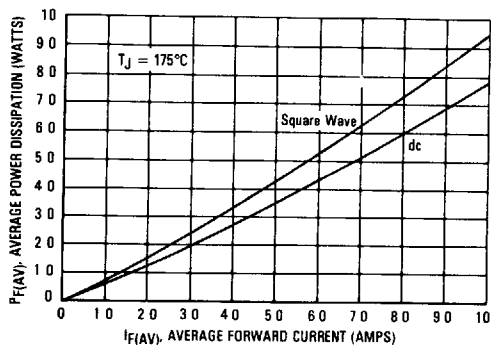


FIGURE 5 — POWER DISSIPATION, PER LEG



MUR1605CT thru MUR1660CT

MUR1620CT, 1630CT AND 1640CT

FIGURE 6 — TYPICAL FORWARD VOLTAGE, PER LEG

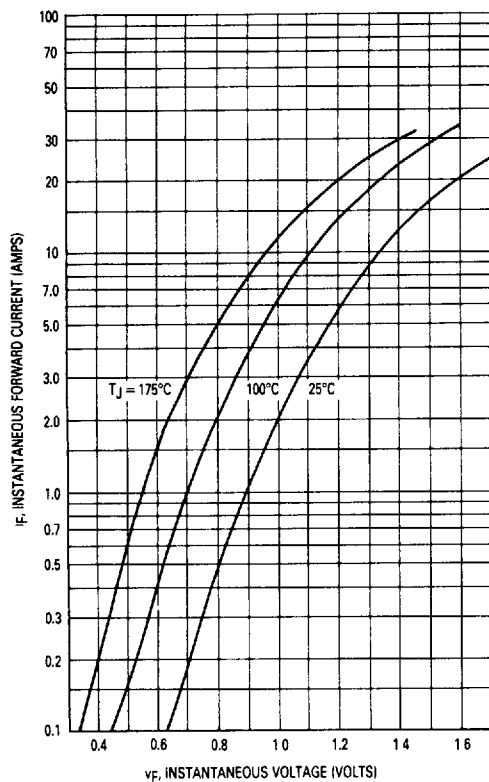


FIGURE 7 — TYPICAL REVERSE CURRENT, PER LEG*

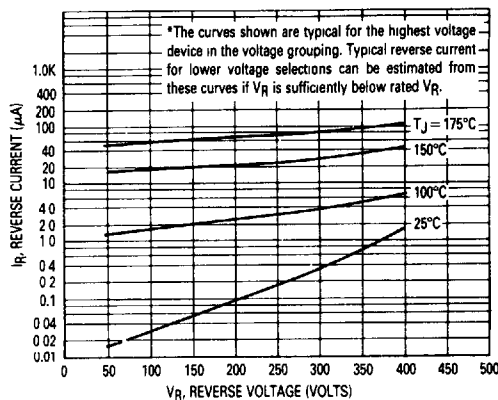


FIGURE 8 — CURRENT DERATING, CASE, PER LEG

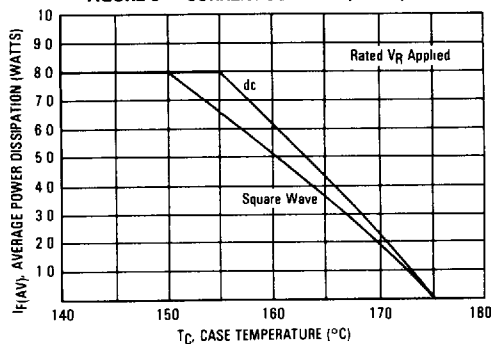


FIGURE 9 — CURRENT DERATING, AMBIENT, PER LEG

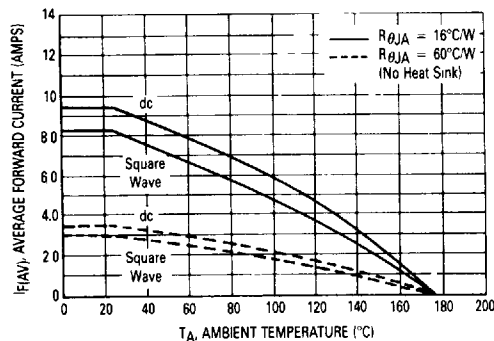
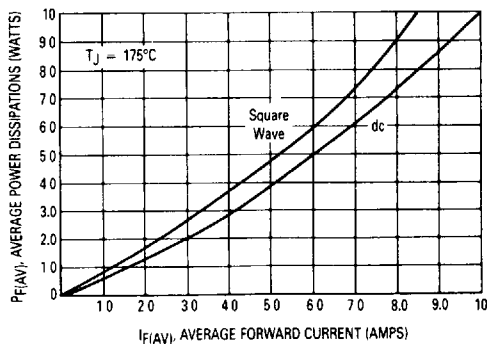


FIGURE 10 — POWER DISSIPATION, PER LEG



MUR1650CT AND 1660CT

FIGURE 11 — TYPICAL FORWARD VOLTAGE, PER LEG

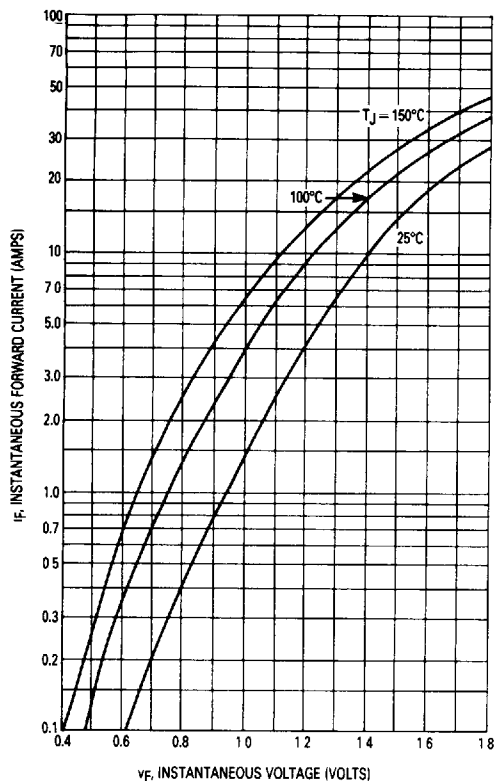


FIGURE 12 — TYPICAL REVERSE CURRENT, PER LEG*

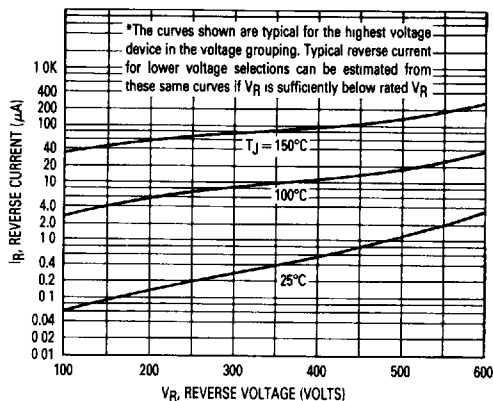


FIGURE 13 — CURRENT DERATING, CASE, PER LEG

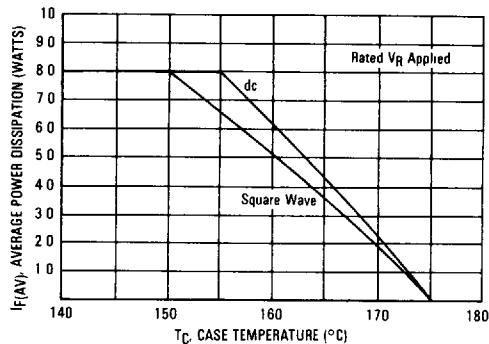


FIGURE 14 — CURRENT DERATING, AMBIENT, PER LEG

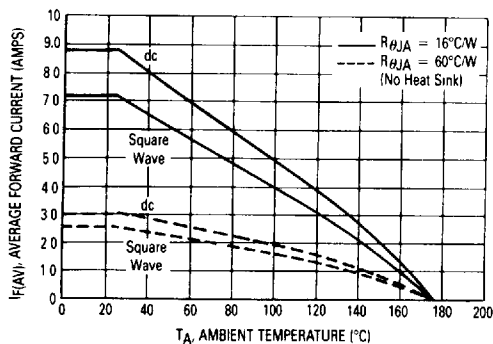


FIGURE 15 — POWER DISSIPATION, PER LEG

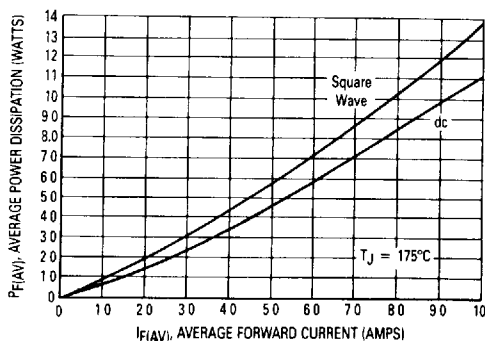


FIGURE 16 — THERMAL RESPONSE

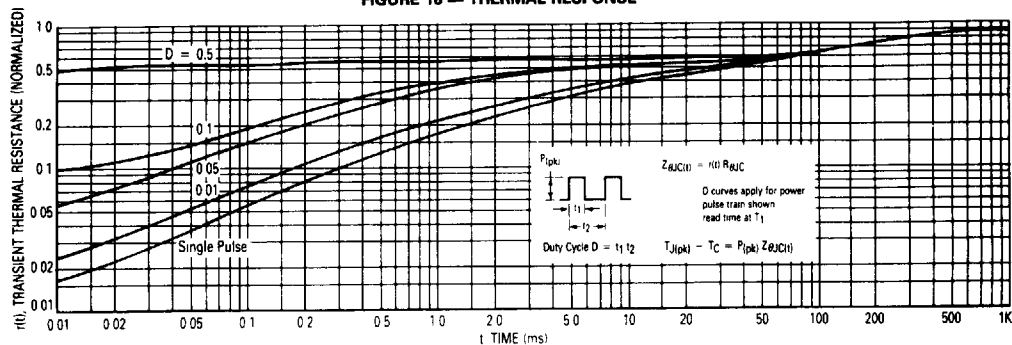


FIGURE 17 — TYPICAL CAPACITANCE, PER LEG

