

MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA

Ultrafast
SWITCHMODE Power Rectifiers

... designed for use in switching power supplies, inverters, and as freewheeling diodes. These state-of-the-art devices have the following features:

- Dual Diode Construction — May Be Paralleled For Higher Current Output
- Low Leakage Current
- Low Forward Voltage
- 175°C Operating Junction Temperature
- Labor Saving **POWERTAP** Package

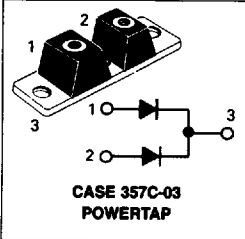
Mounting Specifications

Terminal Penetration: 0.280 max
 Terminal Torque: 25–40 in-lb max
 Mounting Torque —
 Outside Holes:* 30–40 in-lb max
 *Center Hole Must be
 Torqued First: 8–10 in-lb max

MUR20030CT
MUR20040CT

MUR20040CT is a
 Motorola Preferred Device

ULTRAFAST
RECTIFIERS
200 AMPERES
300 and 400 VOLTS



3

MAXIMUM RATINGS

Rating	Symbol	MUR20030CT	MUR20040CT	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	300	400	Volts
Working Peak Reverse Voltage	V_{RWM}			
DC Blocking Voltage	V_R			
Average Rectified Forward Current, (Rated V_R), $T_C = 95^\circ\text{C}$ Per Device	$I_F(AV)$		200	Amps
Per Leg			100	
Peak Repetitive Forward Current, Per Leg, (Rated V_R , Square Wave, 20 kHz), $T_C = 95^\circ\text{C}$	I_{FRM}		200	Amps
Nonrepetitive Peak Surge Current Per Leg (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}		800	Amps
Operating Junction and Storage Temperature	T_J, T_{stg}	–65 to +175		$^\circ\text{C}$

THERMAL CHARACTERISTICS PER LEG

Rating	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.75	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS PER LEG

Instantaneous Forward Voltage (1) ($I_F = 100$ Amp, $T_C = 25^\circ\text{C}$) ($I_F = 100$ Amp, $T_C = 125^\circ\text{C}$)	V_F	1.35 1.25	Volts
Instantaneous Reverse Current (1) (Rated dc Voltage, $T_C = 125^\circ\text{C}$) (Rated dc Voltage, $T_C = 25^\circ\text{C}$)	I_R	500 50	μA
Maximum Reverse Recovery Time ($I_F = 1$ Amp, $di/dt = 50$ Amps/ μs)	t_{rr}	75	ns

(1) Pulse Test Pulse Width = 300 μs , Duty Cycle $\leq 2\%$.

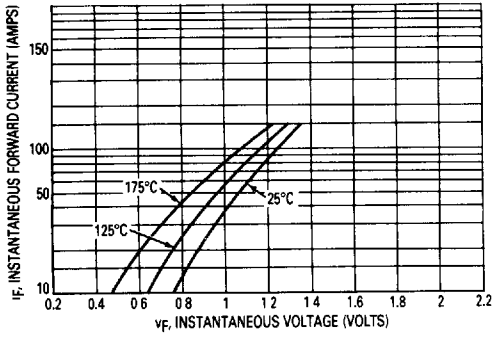


Figure 1. Typical Forward Voltage

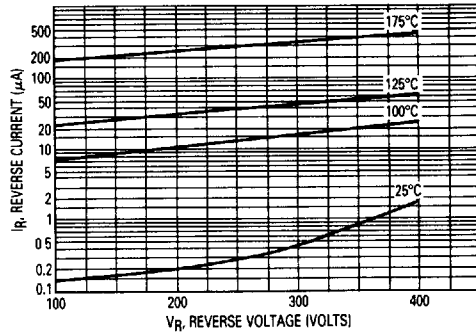


Figure 2. Typical Reverse Current

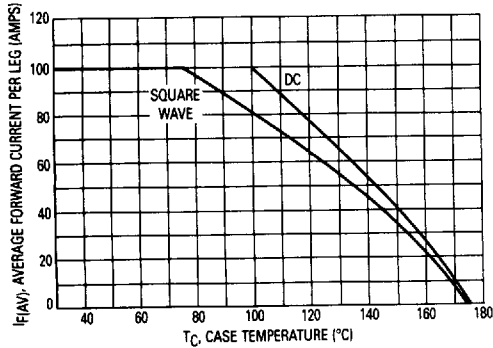


Figure 3. Current Derating (Per Leg)

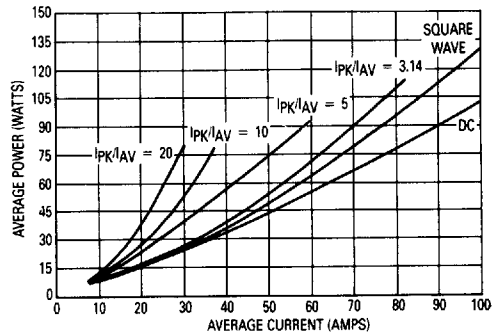


Figure 4. Average Power Dissipation and Average Current

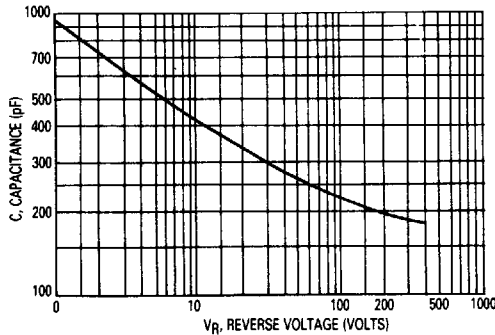


Figure 5. Capacitance (Per Leg)