

# Preliminary Data Sheet

## POWERTAP II Ultrafast SWITCHMODE™ Power Rectifiers

**MURP20020CT**  
**MURP20040CT**

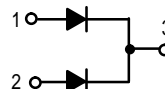
Motorola Preferred Devices

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

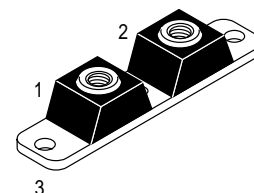
- Dual Diode Construction
- Low Leakage Current
- Low Forward Voltage
- 175°C Operating Junction Temperature
- Labor Saving POWERTAP Package

### Mechanical Characteristics:

- Case: Epoxy, Molded with metal heatsink base
- Weight: 80 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant
- Top Terminal Torque: 25–40 lb-in max
- Base Plate Torques: See procedure given in the Package Outline Section
- Shipped 25 units per foam
- Marking: UP20020



**ULTRAFAST  
RECTIFIERS  
200 AMPERES  
200–400 VOLTS**



**CASE 357C-03  
POWERTAP II**

### MAXIMUM RATINGS

Rating	Symbol	MURP20020CT	MURP20040CT	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	200	400	Volts
Average Rectified Forward Current (Rated $V_R$ )	$I_{F(AV)}$	200 ( $T_C = 130^\circ\text{C}$ ) 100 ( $T_C = 130^\circ\text{C}$ )	200 ( $T_C = 100^\circ\text{C}$ ) 100 ( $T_C = 100^\circ\text{C}$ )	Amps Per Device Per Leg
Peak Repetitive Forward Current, Per Leg (Rated $V_R$ , Square Wave, 20 kHz), $T_C = 95^\circ\text{C}$	$I_{FRM}$	200	200	Amps
Nonrepetitive Peak Surge Current Per Leg (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	800	800	Amps
Operating Junction Temperature	$T_J$	-55 to +175	-55 to +175	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	-55 to +150	$^\circ\text{C}$

### THERMAL CHARACTERISTICS PER LEG

Rating	Symbol	Max		Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.45	0.45	$^\circ\text{C}/\text{W}$

### ELECTRICAL CHARACTERISTICS PER LEG

Instantaneous Forward Voltage (1) ( $i_F = 100$ Amps, $T_C = +25^\circ\text{C}$ ) ( $i_F = 200$ Amps, $T_C = 25^\circ\text{C}$ ) ( $i_F = 100$ Amps, $T_C = 125^\circ\text{C}$ )	$V_F$	1.00 1.10 0.95	1.30 1.75 1.15	Volts
Instantaneous Reverse Current (1) (Rated dc Voltage, $T_C = 125^\circ\text{C}$ ) (Rated dc Voltage, $T_C = 25^\circ\text{C}$ )	$i_R$	1000 150	500 50	$\mu\text{A}$
Maximum Reverse Recovery Time ( $I_F = 1.0$ Amp, $di/dt = 50$ Amps/ $\mu\text{s}$ )	$t_{rr}$	50	75	ns

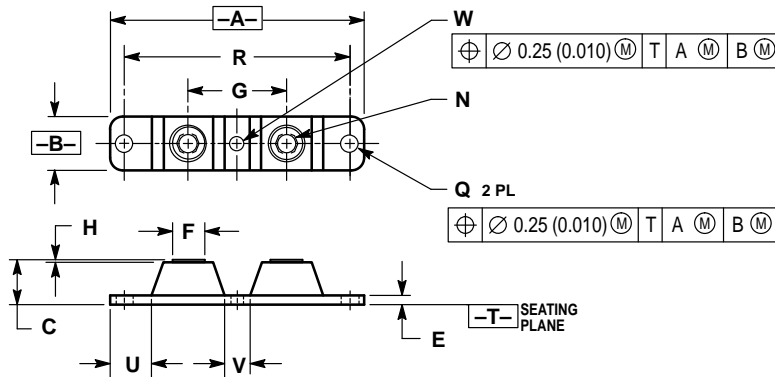
(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

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**Preferred** devices are Motorola recommended choices for future use and best overall value.

PACKAGE DIMENSIONS



- NOTES:  
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: INCH.  
 3. TERMINAL PENETRATION: 5.97 (0.235) MAXIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	3.450	3.635	87.63	92.33
B	0.700	0.810	17.78	20.57
C	0.615	0.640	15.53	16.26
E	0.120	0.130	3.05	3.30
F	0.435	0.445	11.05	11.30
G	1.370	1.380	34.80	35.05
H	0.007	0.030	0.18	0.76
N	1/4-20UNC-2B	1/4-20UNC-2B		
Q	0.270	0.285	6.86	7.32
R	31.50 BSC	80.01 BSC		
U	0.600	0.630	15.24	16.00
V	0.330	0.375	8.39	9.52
W	0.170	0.190	4.32	4.82

CASE 357C-03  
 ISSUE C

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