

# Preliminary Data Sheet

## POWERTAP II Ultrafast SWITCHMODE™ Power Rectifiers

**MURP20020CT**  
**MURP20040CT**

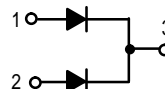
Motorola Preferred Devices

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

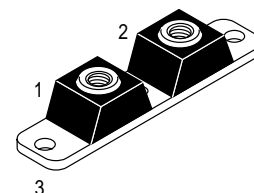
- Dual Diode Construction
- Low Leakage Current
- Low Forward Voltage
- 175°C Operating Junction Temperature
- Labor Saving POWERTAP Package

### 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

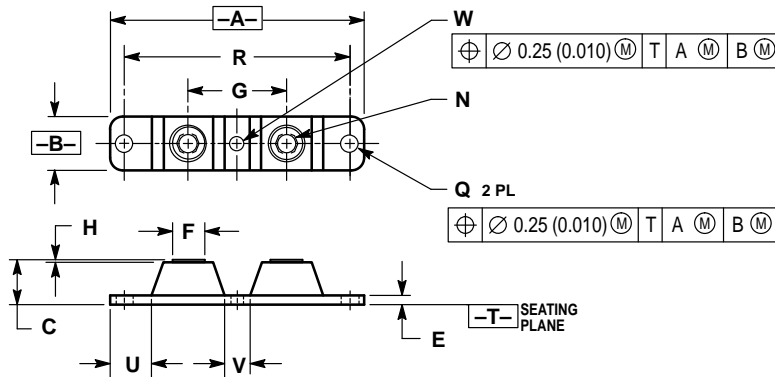
(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

POWERTAP II and SWITCHMODE are trademarks of Motorola, Inc.

This document contains information on a product under development. Motorola reserves the right to change or discontinue this product without notice.

**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
D	0.120	0.130	3.05	3.30
E	0.435	0.445	11.05	11.30
F	1.370	1.380	34.80	35.05
G	0.007	0.030	0.18	0.76
H	1/4-20UNC-2B	1/4-20UNC-2B		
I	0.270	0.285	6.86	7.32
J	31.50 BSC	80.01 BSC		
K	0.600	0.630	15.24	16.00
L	0.330	0.375	8.39	9.52
M	0.170	0.190	4.32	4.82

CASE 357C-03  
 ISSUE C

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Mfax is a trademark of Motorola, Inc.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;  
 P.O. Box 5405, Denver, Colorado 80217. 303-675-2140 or 1-800-441-2447

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, 6F Seibu-Butsuryu-Center,  
 3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 81-3-3521-8315

Mfax™: RMFAX0@email.sps.mot.com - TOUCHTONE 602-244-6609  
 - US & Canada ONLY 1-800-774-1848

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,  
 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

INTERNET: <http://motorola.com/sps>



Copyright © Each Manufacturing Company.

All Datasheets cannot be modified without permission.

This datasheet has been download from :

[www.AllDataSheet.com](http://www.AllDataSheet.com)

100% Free DataSheet Search Site.

Free Download.

No Register.

Fast Search System.

[www.AllDataSheet.com](http://www.AllDataSheet.com)