# **C SERIES**

## High Voltage Cap-Charging Supply

The C Series of high-voltage regulated DC-DC converters are designed for fast rise-time/charging applications utilizing stateof-the-art power conversion topology. Surface-mount technology and encapsulation techniques provide high reliability and low cost. See Application Note 10 for more charging information. Typical applications for the C Series include the following: capcharging, pulsed power, test equipment, mass spectrometry and automated test equipment (ATE).

- 8 models from 0 to 62 Volts through 0 to 6kV
- 20 or 30 watts of output power
- Maximum Iout capability down to 0 Volts
- Maximum Iout during charge/rise time
- Indefinite output short-circuit protection



- Very fast rise with very low overshoot
- Output voltage and current monitors
- >400,000 hour MTBF @65°C
- Fixed-frequency, low-stored-energy design
- UL/cUL Recognized Component; CE Mark (LVD & RoHS)

PARAMETER	CONDITIONS								MOI	DELS								UNITS
INPUT									Al	L TY	PES							
Voltage Range	Full Power	+ 23 to 30							VDC									
Voltage Range	Derated Power Range	+ 9 to 32								VDC								
Current	Standby / Disable		< 30								mA							
Current	No Load, Max Eout		< 90								mA							
Current	Max Load, Max Eout		20W: 950, 30W: 1425								mA							
AC Ripple Current	Nominal Input, Full Load	< 80									mA p-p							
OUTPUT		1/16C		1/	8C	1/	1/4C		1/2C		1C		2C		4C		6C	
Voltage Range	Nominal Input	0 to 62		0 to 125		0 to 250		0 to 500		0 to 1,000		0 to 2,000		0 to 4,000		0 to 6,000		VDC
Power	Nominal Input, Max Eout	20	30	20	30	20	30	20	30	20	30	20	30	20	30	20	30	Watts
Current	lout, Entire Output Voltage Range	320	480	160	240	80	120	40	60	20	30	10	15	5	7.5	3.3	5	mA
Current Scale Factor	Full Load	TBD	TBD	2540	4210	1096	2000	1142	1667	307	476	159	259	94	112	51	86	mA/V
Voltage Monitor Scaling	Oltage Monitor Scaling			$100.1 \pm 2\%$ into $10\text{M}\Omega$												-		
Ripple	Full Load, Max Eout, Cload ≥0.5uF	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	V p-p
Overshoot	C Load, O Eout to Full Eout	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 6.0	< 6.0	V pk
Rise Time	Max Iout, Various C Loads & Eout		Figure A									-						
Storage Capacitance	Internal	TBD	TBD	0.50	0.50	0.15	0.15	0.16	0.16	0.033	0.018	0.009	0.009	0.010	0.010	0.0064	0.0064	uF
Line Regulation	Nom. Input, Max Eout, Full Power	< 0.01 %							VDC									
Static Load Regulation	No Load to Full Load, Max Eout		< 0.01%									VDC						
Stability	30 Min. warmup, per 8 hr/ per day		< 0.01% / < 0.02%							VDC								
PROGRAMMING & CONTROLS		ALL TYPES																
Input Impedance	Nominal Input		+ Output Models 1.1MΩ to GND, - Output Models 1.1MΩ to +5 Vref							MΩ								
Adjust Resistance	Typical Potentiometer Values	10K to 100K (Pot across Vref. & Signal GND, Wiper to Adjust)								Ω								
Adjust Logic	0 to +5 for +0ut, +5 to 0 for - Out	+4.64 VDC for +Output or +0.36 for -Output = Nominal Eout								-								
Output Voltage & Impedance	T=+25°C		$+ 5.00$ VDC $\pm 2\%$ , Zout $= 464\Omega \pm 1\%$							-								
Enable/Disable							0 to +0.5	Disable,	+2.4 to 3	2 Enable	(Default	= Enable)	)					VDC
ENVIRONMENTAL					STAN	DARE	)					-25	5PPM	OPTI	ON			
Operating	Full Load, Max Eout, Case Temp.	-40 to +65					+10 to +45								°C			
Coefficient	Over the Specified Temperature	±50 ±25									PPM/°C							
Thermal Shock	Mil-Std 810, Method 503-4, Proc. II	-40 to +65								°C								
Storage	Non-Operating, Case Temp.	-55 to +105							°C									
Humidity	All Conditions, Standard Package	0 to 95% non-condensing							-									
Altitude	Standard Package, All Conditions	Sea Level through Vacuum (Vacuum may require -P2 option, contact factory for details)								-								
Shock	Mil-Std-810, Method 516.5, Proc. IV	20 (Standard), 40 (-C Option)							G's									
Vibration	Mil-Std-810, Method 514.5, Fig.514.5C-3								G's									
C = uF	C	= uF						C = uF					Sp	ecificatio	ns subje	ct to chan	ige witho	out notice.

V = Volts I = mAT = mS

I = mA

 $I = C \times V \times F$ 

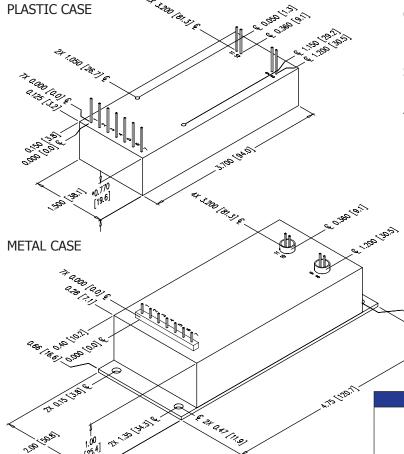
I = mA

 $E^2 = kV$ 



Figure A - Rise Time Formulas NOTES: Capacitance must include HVPS internal Capacitance

## High Voltage Cap-Charging Supply



PROLIDI Y

MADE IN THE USA

RoHS COMPLIANT Non-RoHS compliant units are available. Please contact the factory for more information.

CONNECTIONS					
PIN	FUNCTION				
1	Input-Power Ground Return				
2	Positive Power Input				
3	Iout Monitor				
4	Enable/Disable				
5	Signal Ground Return				
6	Remote Adjust Input				
7	+5VDC Reference Output				
8	HV Ground Return				
9	Eout Monitor				
10 & 11	HV Output				

All grounds joined internally. Power-supply mounting points isolated from internal grounds by >100k $\Omega$ , .01uF / 50V (Max) on all models except -M, -M-C, -M-E, and -M-H configurations which are  $0\Omega$ .

#### CONSTRUCTION

Epoxy-filled DAP box certified to ASTM-D-5948 With -C option, Aluminum box, Chem film per MIL-A-8625 Type II (Anodizing)

#### SI7F

Volume 4.30in<sup>3</sup> (70.5cc), w/ -C Option: 8.00in<sup>3</sup> (131.1cc) Weight 5.0oz (142g), w/ -C Option: 10.0oz (284g)

#### TOI FRANCE

(2) 3.01/80.5)

Overall  $\pm 0.050''$  (1.27), Pin to Pin  $\pm 0.015''$  (0.38), Mounting hole location  $\pm 0.025''$  (0.64) (Plastic case) Overall  $\pm 0.025''$  (0.64), Pin to Pin  $\pm 0.015''$  (0.38), Hole to Hole location  $\pm 0.025''$  (0.64) (Metal case)

### **NOTES**

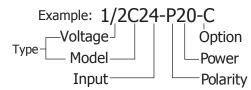
20W and 30W versions are an additional 0.062" (1.57) in height.
-M equipped units are an additional 0.030" (0.76) for each dimension.
Contact UltraVolt's Customer Service Department for drawings of models equipped with -E or -H options.

Downloadable drawings (complete with mounting & pin information) and 3D models are available online.



ORDERING INFORMATION						
	0 to 62 VDC Main Output	1/16C				
	0 to 125 VDC Main Output	1/8C				
	0 to 250 VDC Main Output	1/4C				
Typo	0 to 500 VDC Main Output	1/2C				
Туре	0 to 1,000 VDC Main Output	1C				
	0 to 2,000 VDC Main Output	2C				
	0 to 4,000 VDC Main Output	4C				
	0 to 6,000 VDC Main Output	6C				
Input	24VDC Nominal (20W & 30W)	24				
Polarity	Positive Output	-P				
Polarity	Negative Output	-N				
Power	Watts Output	20				
Power	Watts Output	30				
	Plastic Case - Diallyl Phthalate	(Standard)				
Case	'Eared' Heatsink Plate (plastic case)	-E				
	RF-Tight Aluminum Case	-C				
Heatsink	.400" High (sized to fit case)	-H				
Shield	Six-sided Mu-Metal Shield	-M				
Temp. Coefficient	25PPM Temperature Coefficient	-25PPM				
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Contact the factory for boosted current monitor options.



Popular accessories ordered with this product include CONN-KIT and BR-1 mounting bracket kit.

