

# 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 state-of-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: cap-charging, 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, CE, IEC-60950-1, and Demko Recognized

PARAMETER	CONDITIONS	MODELS																UNITS
<b>INPUT</b>		<b>ALL TYPES</b>																
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
<b>OUTPUT</b>		<b>1/16C</b>		<b>1/8C</b>		<b>1/4C</b>		<b>1/2C</b>		<b>1C</b>		<b>2C</b>		<b>4C</b>		<b>6C</b>		
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	Iout, 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		100.1 ± 2% into 10MΩ																-
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, 0 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	0.16	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
<b>PROGRAMMING &amp; CONTROLS</b>		<b>ALL TYPES</b>																
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 +Out, +5 to 0 for - Out	+4.64 VDC for +Output or +0.36 for -Output = Nominal Eout																-
Output Voltage & Impedance	T=+25°C	+ 5.00VDC ± 2%, Zout = 464Ω ± 1%																-
Enable/Disable		0 to +0.5 Disable, +2.4 to 32 Enable (Default = Enable)																VDC
<b>ENVIRONMENTAL</b>		<b>STANDARD</b>								<b>-25PPM OPTION</b>								
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 -P1 or -S1 options, 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	10 (Standard), 20 (-C Option)																G's

Specifications subject to change without notice.

C = uF  
V = Volts  
I = mA  
T = ms

$$T = \frac{C \times V}{I}$$

C = uF  
V = kV  
I = mA  
F = Hz

$$I = C \times V \times F$$

C = uF  
V = kV  
I = mA  
F = Hz

$$F = \frac{I}{C \times V}$$

C = uF  
E² = kV  
J = Ws

$$J = \frac{C \times E^2}{2}$$

Figure A - Rise Time Formulas

NOTES: Capacitance must include HVPS internal Capacitance.



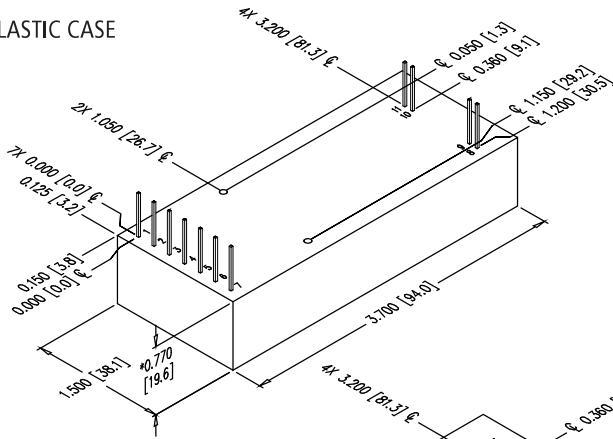
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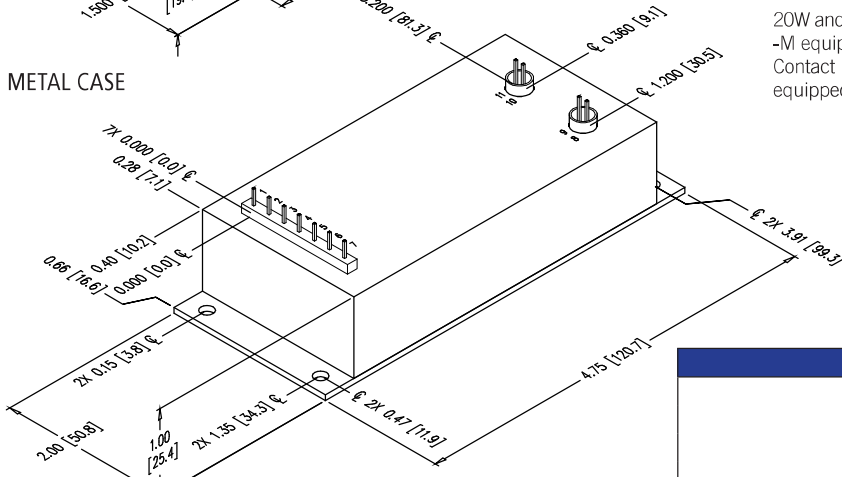
# C SERIES

## High Voltage Cap-Charging

### PLASTIC CASE



### METAL CASE



**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 >100kΩ, .01uF / 50V (Max) on all models except -M, -C, and -M-E configurations which are 0Ω.

Rev. T 8/10

### CONSTRUCTION

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

### SIZE

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)

### TOLERANCE

Overall ±0.050" (1.27), Pin to Pin ±0.015" (0.38), Mounting hole location ±0.025" (0.64) (Plastic case)  
Overall ±0.025" (0.64), Pin to Pin ±0.015" (0.38), Hole to Hole location ±0.025" (0.64) (Metal case)

### NOTES

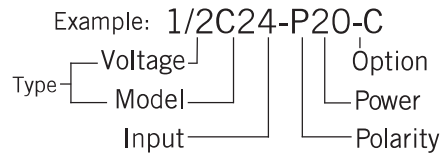
20W and 30W versions are an additional 0.062" (1.57) in height.  
-M equipped units are an additional 0.030" (0.76) for each dimension.  
Contact UltraVolt's Customer Service Department for drawings of models equipped with -E or -H options.

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



ORDERING INFORMATION		
Type	0 to 62 VDC Main Output	1/16C
	0 to 125 VDC Main Output	1/8C
	0 to 250 VDC Main Output	1/4C
	0 to 500 VDC Main Output	1/2C
	0 to 1,000 VDC Main Output	1C
	0 to 2,000 VDC Main Output	2C
	0 to 4,000 VDC Main Output	4C
Input	0 to 6,000 VDC Main Output	6C
	24VDC Nominal (20W & 30W)	24
Polarity	Positive Output	-P
	Negative Output	-N
Power	Watts Output	20
	Watts Output	30
Case	Plastic Case - Diallyl Phthalate	(Standard)
	'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

Contact the factory for boosted current monitor options.



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



**Making High Voltage Easier!**

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