

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 lout capability down to 0 Volts
- Maximum lout 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		
INPUT	ALL TYPES																			
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		1/4C		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	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	Figures A & B																-		
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		
TEMPERATURE & HUMIDITY		STANDARD										-25PPM OPTION								
Humidity	All Conditions, Standard Package	0 to 95% non-condensing										0 to 95% non-condensing								
Operating	Full Load, Max Eout, Case Temp.	-40 to +65										+10 to +45						°C		
Storage	Non-Operating, Case Temp.	-55 to +105										-55 to +105						°C		
Coefficient	Over the Specified Temperature	±50										±25						PPM/°C		
Thermal Shock	Mil-Std 810, Method 503-4, Proc. II	-40 to +65										-40 to +65						°C		
ALTITUDE		ALL TYPES																		
All Conditions	Standard Package	Sea Level through Vacuum (Vacuum may require -P1 or -S1 options, contact factory for details)																		
SHOCK & VIBRATION		STANDARD										-C OPTION								
Shock	Mil-Std-810, Method 516.5, Proc. IV	20										40						G's		
Vibration	Mil-Std-810, Method 514.5, Fig.514.5C-3	10										20						G's		

$$T = \frac{C \times V}{I} \quad I = C \times V \times F \quad J = \frac{C \times E^2}{2} \quad F = \frac{I}{C \times V}$$

C = uF C = uF C = uF C = uF
 V = Volts V = kV V = kV E² = kV
 I = mA I = mA I = mA J = Ws
 T = mS F = Hz F = Hz

NOTES: Capacitance must include HVPS internal Capacitance, see Fig. B. For very light capacitive loads the HVPS exhibits slower than calculated rise times due to the pulse by pulse current limit.

Figure A - Rise Time Formulas

MODEL	20W	30W
1/8C	0.50 uF	0.50 uF
1/4C	0.15 uF	0.15 uF
1/2C	0.16 uF	0.16 uF
1C	0.033 uF	0.018 uF
2C	0.009 uF	0.009 uF
4C	0.010 uF	0.010 uF
6C	0.0064 uF	0.0064 uF

Figure B - Internal Storage Capacitance

Specifications subject to change without notice.



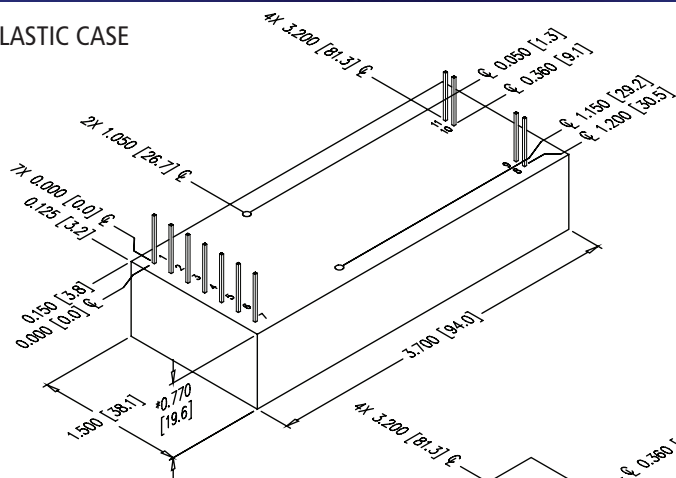
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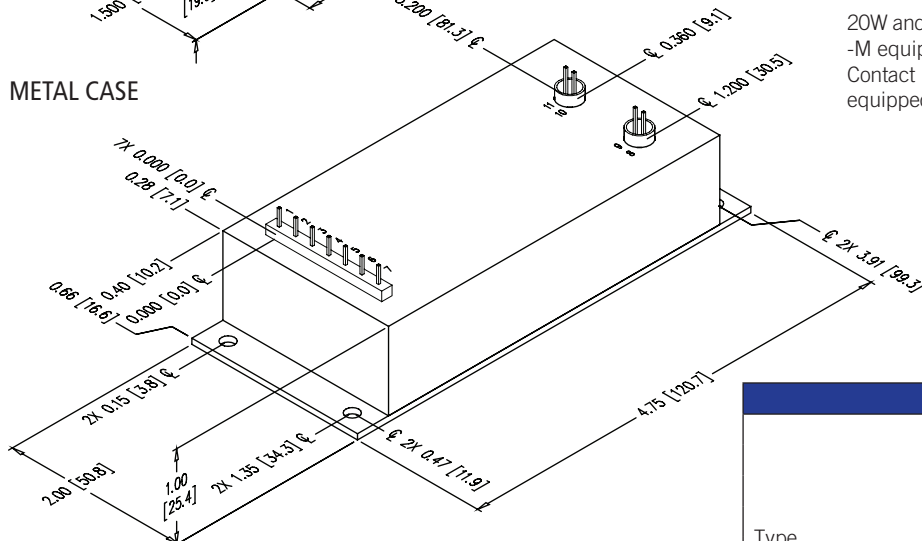
C SERIES

High Voltage Cap-Charging

PLASTIC CASE



METAL CASE



PROUDLY



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.

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 4.30in³ (70.5cc), w/ -C Option: 8.00in³ (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.

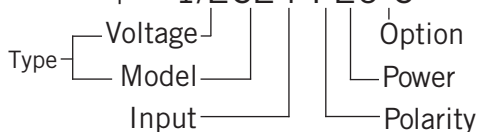


ORDERING INFORMATION

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
	0 to 6,000 VDC Main Output	6C
Input	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.

Example: 1/2C24-P20-C



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

Rev. S 6/10



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