HIGH POWER C SERIES

High Voltage Cap-Charging Supply

This High Power line of high-voltage regulated DC to DC converters is an extension of the C Series, directly addressing the high power density needs of >30 watt applications. High Power C units provide up to 60/125/250 watts. This high power density is especially suited to high-energy systems with large capacitances, fast repetition rates, or high continuous-DC-power requirements. See Application Note 10 for more charging information. Typical applications for the High Power C Series include the following: laser, cap-charging, pulsed power, pulse generator, and test equipment.

- 7 models from 0 to 125 Volts through 0 to 6kV
- 60, 125, or 250 watts of output power
- Maximum Iout capability down to 0 Volts
- Maximum Iout during charge/rise time
- Output short-circuit protection
- Very fast rise with very low overshoot
- High efficiency
- High power to voltage density
- Very low profile
- Output current & voltage monitors
- >200,000 hour MTBF @65°C
- Fixed-frequency, low-stored-energy design
- UL, cUL, CE, IEC-60950-1, and Demko Recognized

PARAMETER	CONDITIONS																						UNITS
INPUT		**ALL TYPES**																					
Voltage Range	Full Power	+ 23 to 30																					VDC
Voltage Range	Derated Power Range	+ 11 to 32																					VDC
Current	Standby / Disable	< 40																					mA
Current	Max Load, Max Eout	60W: 3, 125W: 6 250W: 12																					A
Current	No Load, Max Eout	1/8C to 1C: < 300, 2C to 6C: < 500																					mA
AC Ripple Current	Nominal Input, Full Load	< 50																					mA p-p
OUTPUT		**1/8C**			**1/4C**			**1/2C**			**1C**			**2C**			**4C**			**6C**			
Voltage Range	Nominal Input	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	60	125	250	60	125	250	60	125	250	60	125	250	60	125	250	60	125	250	60	125	250	Watts
Current	Iout, Entire Output Voltage Range	480	1000	2000	240	500	1000	120	250	500	60	125	250	30	62	125	15	31	62	10	21	42	mA
Current Scale Factor	Full Load	400	833	1667	200	417	833	109	208	417	50	114	227	26	52	104	11.5	26	52	6.2	17.7	35	mA/V
Voltage Monitor Scaling		100:1 ±2% into 10MΩ																					-
Ripple	Full Load, Max Eout, Cload ≥0.5uF	< 1.0																					%V p-p
Overshoot	C Load, 0 Eout to Full Eout	< 1																					%V pk
Rise Time	Max Iout, Various C Loads & Eout	Figure A																					-
Storage Capacitance	Internal	0.90	0.90	1.80	0.90	0.90	1.80	0.43	0.43	0.85	0.019	0.019	0.038	0.019	0.019	0.038	0.013	0.013	0.026	0.013	0.013	0.026	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 +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 (ON/OFF)		0 to +0.5 Disable, +2.4 to 32 Enable (Default = Enable)																					VDC
ENVIRONMENTAL		**ALL TYPES**																					
Operating	Full Load, Max Eout, Case Temp.	-40 to +65																					°C
Coefficient	Over the Specified Temperature	±50																					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 70,000																					ft
Shock	Mil-Std-810, Method 516.5, Proc. IV	20																					G's
Vibration	Mil-Std-810, Method 514.5, Fig.514.5C-3	10																					G's

Specifications are 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
E^2 = kV
J = Ws

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

Figure A - Rise Time Formulas

NOTE: Capacitance must include HVPS internal Capacitance.

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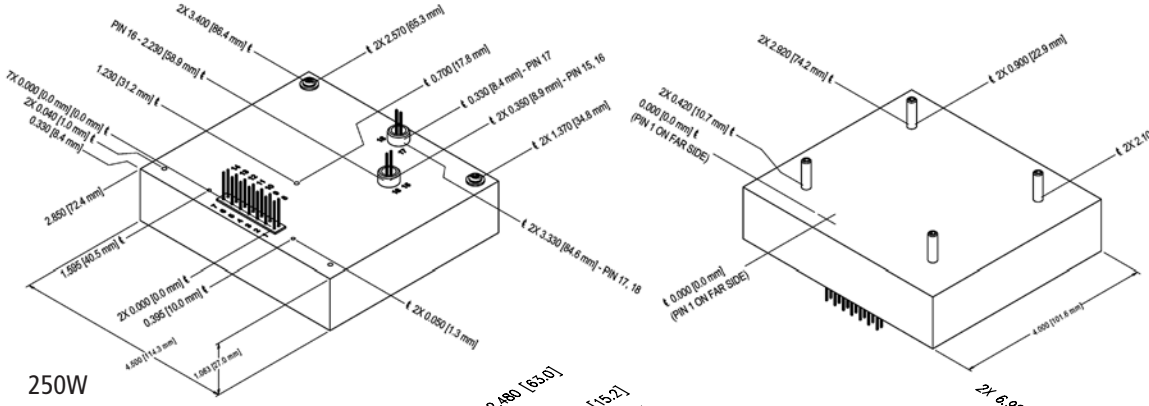
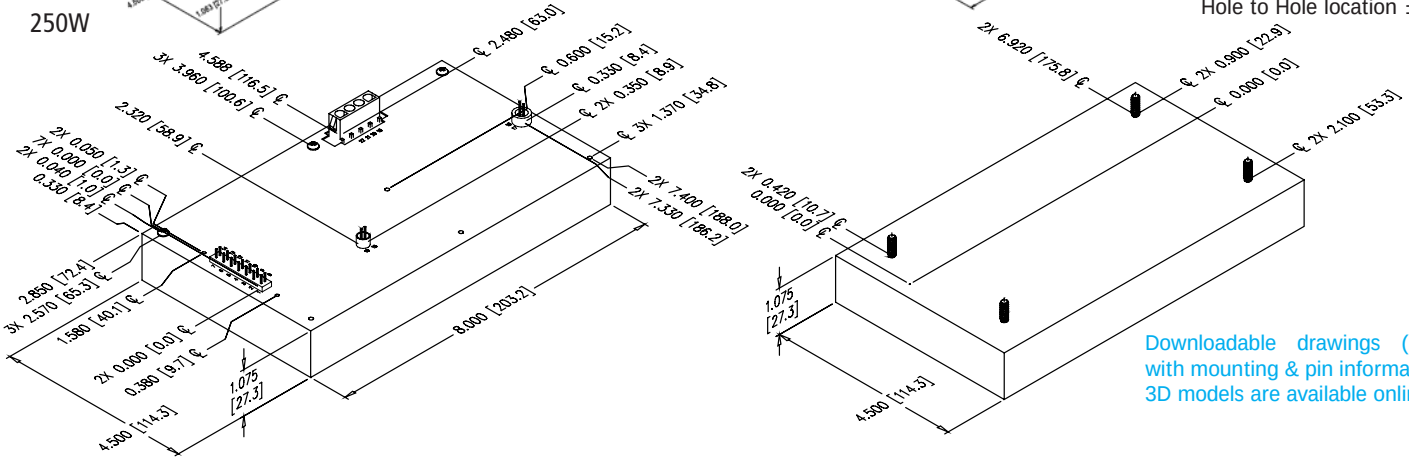
High Voltage Cap-Charging Supply

60W/125W



250W



CONSTRUCTION

Epoxy-filled Aluminum Box
Chem film per MIL-A-8625 Type II (Anodizing)

SIZE

Volume:
60W/125W: 19.35in^3 (317cc)
250W: 38.7in^3 (634cc)
Weight:
60W/125W: 1.4 lbs (.64kg)
250W: 2.6 lbs (1.18kg)

TOLERANCE

Overall ±0.025" (0.64)
Pin to Pin ±0.015" (0.38)
Hole to Hole location ±0.025" (0.64)

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

CONNECTIONS	
PIN	FUNCTION
1 & 8	Input Power Ground Return
2, 9 & 10	Positive Power Input
3	Iout Monitor
4	Enable/Disable
5	Signal Ground Return
6	Remote Adjust Input
7	+5VDC Reference Output
11, 12, & 13	N/C
14	Eout Monitor
15 & 16	HV Ground Return
17 & 18	HV Output

All grounds joined internally. Power-supply mounting points isolated from internal grounds by >100kΩ, .01uF / 50V (Max).

HIGH POWER PIN CONNECTIONS (250 WATT UNITS)	
PIN	FUNCTION
2, 9, & 10	N/C
19 & 20	Positive Power Input
21 & 22	Input Power Ground Return

CE cULus IEC-60950-1

RoHS COMPLIANT

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

ORDERING INFORMATION		
Type	0 to 125 VDC Output	1/8C
	0 to 250 VDC Output	1/4C
	0 to 500 VDC Output	1/2C
	0 to 1,000 VDC Output	1C
	0 to 2,000 VDC Output	2C
	0 to 4,000 VDC Output	4C
	0 to 6,000 VDC Output	6C
Input	24VDC Nominal	24
Polarity	Positive Output	-P
	Negative Output	-N
Power	60 Watts Output	60
	125 Watts Output	125
	250 Watts Output	250
Heat Sink	.400" High (sized to fit case)	-H
PCB Support	(5 or 7) 0.187" standoffs on top cover	-Z11
Enhanced Interface	5V Control and Monitors	-I5
	10V Control and Monitors	-I10

Note: For more information on the enhanced interface options, download the I5/I10 Option datasheet.

Example: 1/2C24-P125
Type — Voltage — Model — Input — Power — Polarity

Popular accessories ordered with this product include CONN-KIT-HP250, CONN-KIT-HP and the BR-8 mounting bracket kit.

PROUDLY MADE IN THE USA

Rev. U 9/11

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