

HIGH POWER 8C-30C SERIES

8kV to 30kV High Voltage Cap-Charging Supplies



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 8C - 30C units provide up to 60/125 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 changing information. Typical applications for the High Power 8C-30C Series include the following: laser, cap-charger, pulse generators, Q-switch, and TDR test equipment.

- 7 models from 0 to 8kV through 0 to 30kV
- 60 or 125 watts of output power
- Maximum lout capability down to 0 Volts
- Maximum lout 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	ALL TYPES														UNITS		
INPUT				ALL TYPES														
Voltage Range	Full Power	+ 23 to 30														VDC		
Voltage Range	Derated Power Range	+ 11 to 30														VDC		
Current	Standby / Disable	< 40														mA		
Current	No Load, Max Eout	8C to 15C < 500, 20C to 25C < 600														mA		
Current	Max Load, Max Eout	60W: 3, 125W: 6														A		
AC Ripple Current	Nominal Input, Full Load	< 50														mA p-p		
OUTPUT				8C	10C		12C		15C		20C		25C		30C			
Voltage Range	Nominal Input	0 to 8,000		0 to 10,000		0 to 12,000		0 to 15,000		0 to 20,000		0 to 25,000		0 to 30,000		VDC		
Power	Nominal Input, Max Eout	60	125	60	125	60	125	60	125	60	125	60	125	60	125	Watts		
Current	Iout, Entire Output Voltage Range	7.5	15.5	6	12.5	5	10.5	4	8.3	3	6.25	2.4	5	2	4.17	mA		
Current Scale Factor	Full Load	4.7	14.2	4.1	10.9	4.0	7.4	4.0	7.5	.65	.653	.65	.650	.65	.642	mA/V		
Voltage Monitor Scaling		1000:1 ± 2% into 10MΩ														-		
Internal Capacitance	Capacitance / 95% Decay (50Meg Load)	2800/700		2000/575		2000/650		2000/650		1600/240		1600/240		1600/240		pF/mS		
Ripple	Full Load, Max Eout	< 1.0 (Cload ≥ 0.05uF)								< 1.0 (Cload ≥ 0.01uF)								V p-p
Rise Time	Max Iout, Various C Loads & Eout	Figure A														-		
Storage Capacitance	Internal	2800	2800	2000	2000	2000	2000	2000	2000	782	1182	710	1110	710	1110	pF		
Overshoot	C Load, 0 Eout to Full Eout	< 0.1 %														V pk		
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		0 to +0.5 Disable, +2.4 to 32 Enable (Default = Enable)														VDC		
ENVIRONMENTAL				ALL TYPES														
Humidity	All Conditions, Standard Package	0 to 95% non-condensing														-		
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		

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

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

Specifications subject to change without notice.

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.

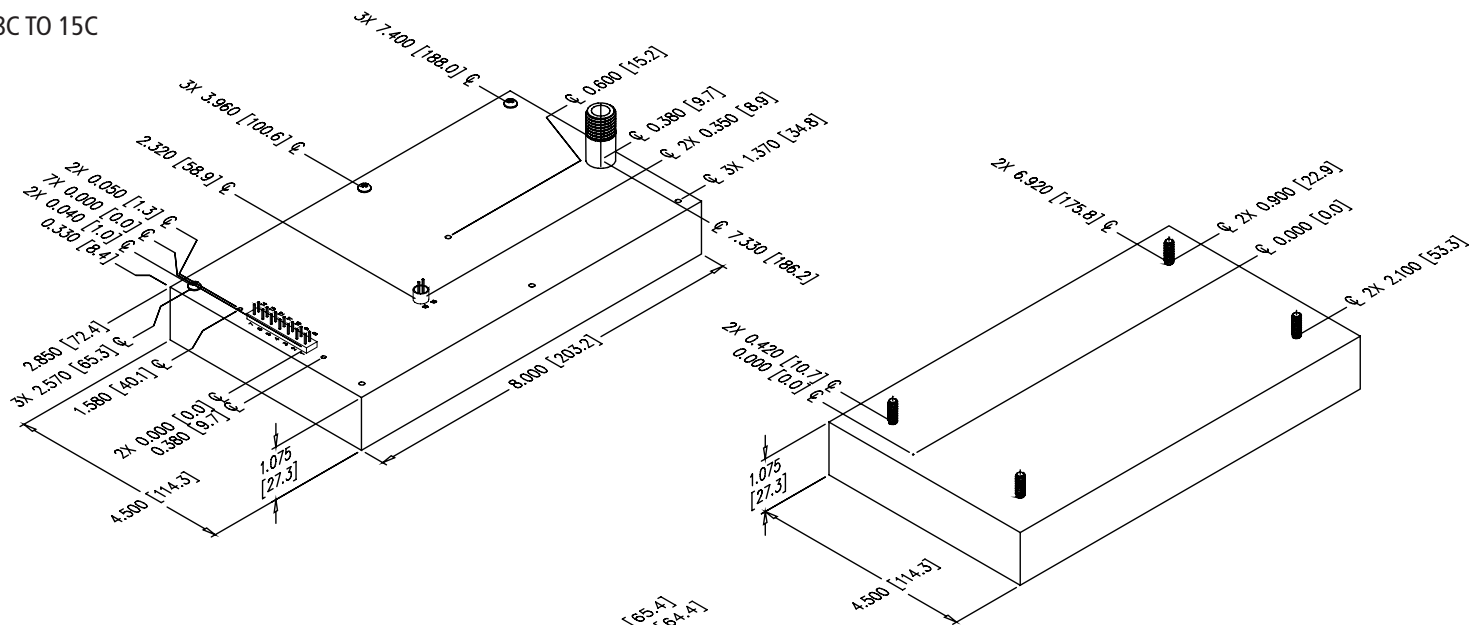


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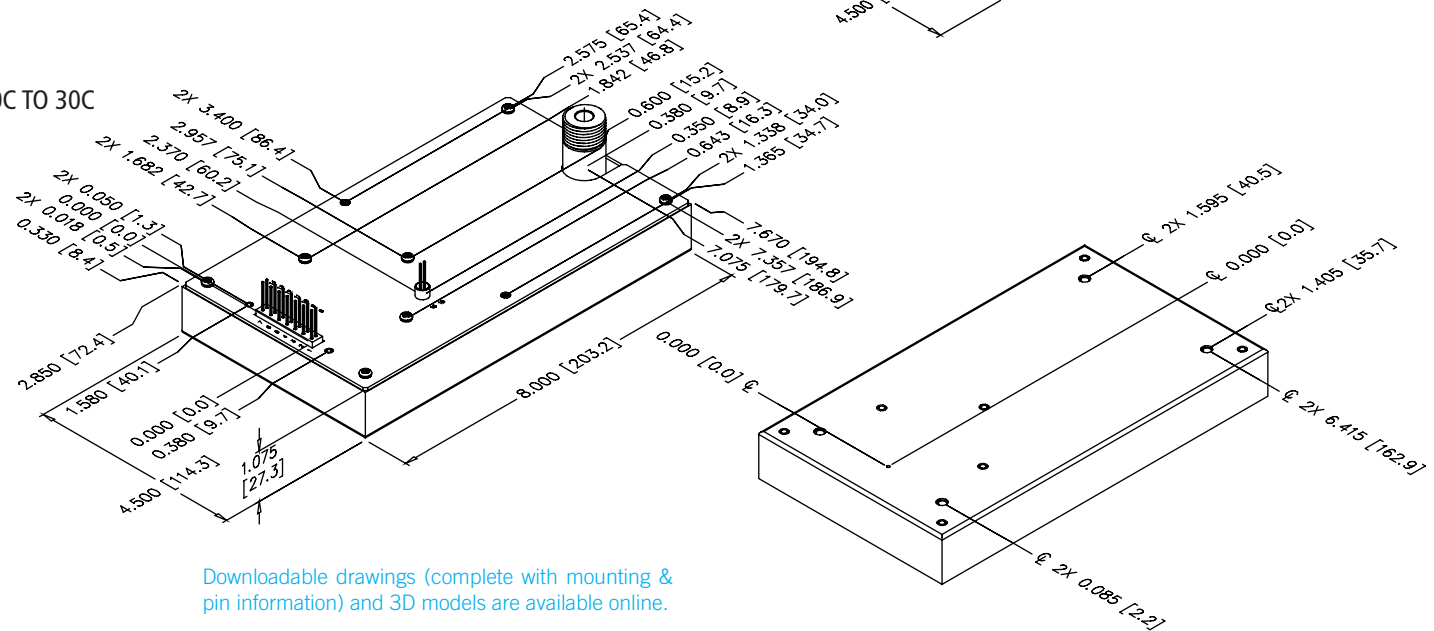
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8C TO 15C



20C TO 30C



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

CONSTRUCTION

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

SIZE

Volume 38.7 in³ (634cc)
Weight 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)

PINS

Gold-plated 0.025 (0.64) sq.
The center of the pins and mounting holes are located from the center of pin 1
Pins 1 thru 14 spacing 0.100 (2.54) x 0.200 (5.08) on center,
height from cover 0.280 (7.11) min
Pins 15 and 16 spacing 0.100 (2.54) on center,
height from cover 0.450 (11.43) min

HV OUTPUT CONNECTION

Unit requires an LGH flying lead connector for proper operation:
8C to 15C = CA-20KV-1000
20C to 30C = CA-40KV-1000



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

All grounds joined internally. Power-supply mounting points isolated from internal grounds by >100kΩ, .01uF / 500V (Max).

ORDERING INFORMATION		
Type	0 to 8,000 VDC Output	8C
	0 to 10,000 VDC Output	10C
	0 to 12,000 VDC Output	12C
	0 to 15,000 VDC Output	15C
	0 to 20,000 VDC Output	20C
	0 to 25,000 VDC Output	25C
	0 to 30,000 VDC Output	30C
Input	24VDC Nominal	24
Polarity	Positive Output	-P
	Negative Output	-N
Power	60 Watts Output	60
	125 Watts Output	125
Heat Sink	.400" High (sized to fit case)	-H
PCB Support	(5) 0.187" standoffs on top cover	-Z11



Example: **8C24-P125**

Type — Voltage — Model — Input — Power — Polarity

Popular accessories ordered with this product include CONN-KIT-HP, BR-7 and BR-8 mounting bracket kits and our full range of high voltage output connectors (see Accessories & Connectors datasheet).



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

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