

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 60/125/250 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 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, 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 Recognized Component; CE Mark (LVD & RoHS)

| PARAMETER | CONDITIONS | ALL TYPES | | | | | | | | | | | | | | | | | | | | UNITS | |
|-----------------------------------|---|--|------------|------------|-------------|------------|------------|-------------|----------|---------|-------------|----------|---------|-------------|---------|---------|-------------|---------|--------|-------------|--------|--------|-------|
| INPUT | | ALL TYPES | | | | | | | | | | | | | | | | | | | | | |
| Voltage Range | Full Power | + 23 to 30 | | | | | | | | | | | | | | | | | | | | VDC | |
| Voltage Range | Derated Power Range | 60W, 125W: + 11 to 30, 250W: 15-30 | | | | | | | | | | | | | | | | | | | | 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: 3.25, 125W: 6.5, 250W: 13 | | | | | | | | | | | | | | | | | | | | 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 | 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 | 7.5 | 15.5 | 31.2 | 6 | 12.5 | 25 | 5 | 10.5 | 20.8 | 4 | 8.3 | 16.7 | 3 | 6.25 | 12.5 | 2.4 | 5 | 10 | 2 | 4.17 | 8.33 | mA |
| Current Scale Factor | Full Load | 4.7 | 14.2 | 6.25 | 4.1 | 10.9 | 5 | 4.0 | 7.4 | 4.17 | 4.0 | 7.5 | 3.33 | .65 | .653 | 2.5 | .65 | .650 | 2 | .65 | .642 | 1.67 | mAV |
| Voltage Monitor Scaling | | 60W & 125W Models - 1000:1 ± 2% into 10MΩ; 250W Models - 10,000:1 ± 2% | | | | | | | | | | | | | | | | | | | | - | |
| Internal Capacitance | Capacitance / 95% Decay (50Meg Load) | 4400/659 | 2200/330 | 1500/225 | 2933/439 | 1467/220 | 1500/225 | 2933/439 | 1467/220 | 750/112 | 2200/330 | 1100/165 | 750/112 | 1320/200 | 880/132 | 750/112 | 1100/165 | 733/110 | 500/75 | 825/125 | 550/85 | 500/75 | pF/mS |
| Ripple | Full Load, Max Eout | < 1% | | | | | | | | | | < 1% | | | | | | | | | | V p-p | |
| Rise Time | Max Iout, Various C Loads & Eout | Figure A | | | | | | | | | | | | | | | | | | | | - | |
| Storage Capacitance | Internal | 4400 | 2200 | 1500 | 2933 | 1467 | 1500 | 2933 | 1467 | 750 | 2200 | 1100 | 750 | 1320 | 880 | 750 | 1100 | 733 | 500 | 825 | 550 | 500 | pF |
| Overshoot | C Load, 0 Eout to Full Eout | < 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 ± 1%, Zout = 464Ω ± 1% | | | | | | | | | | | | | | | | | | | | - | |
| Enable/Disable | | 0 to +0.8V Disable, +2.0 to 32 Enable (Default = Enable) | | | | | | | | | | | | | | | | | | | | VDC | |
| ENVIRONMENTAL | | ALL TYPES | | | | | | | | | | | | | | | | | | | | | |
| Operating | Full Load, Max E out, Case Temperature | -40 to +65 | | | | | | | | | | | | | | | | | | | | °C | |
| Coefficient | Over the Specified Temperature | ±50 (±25 Optional) | | | | | | | | | | | | | | | | | | | | 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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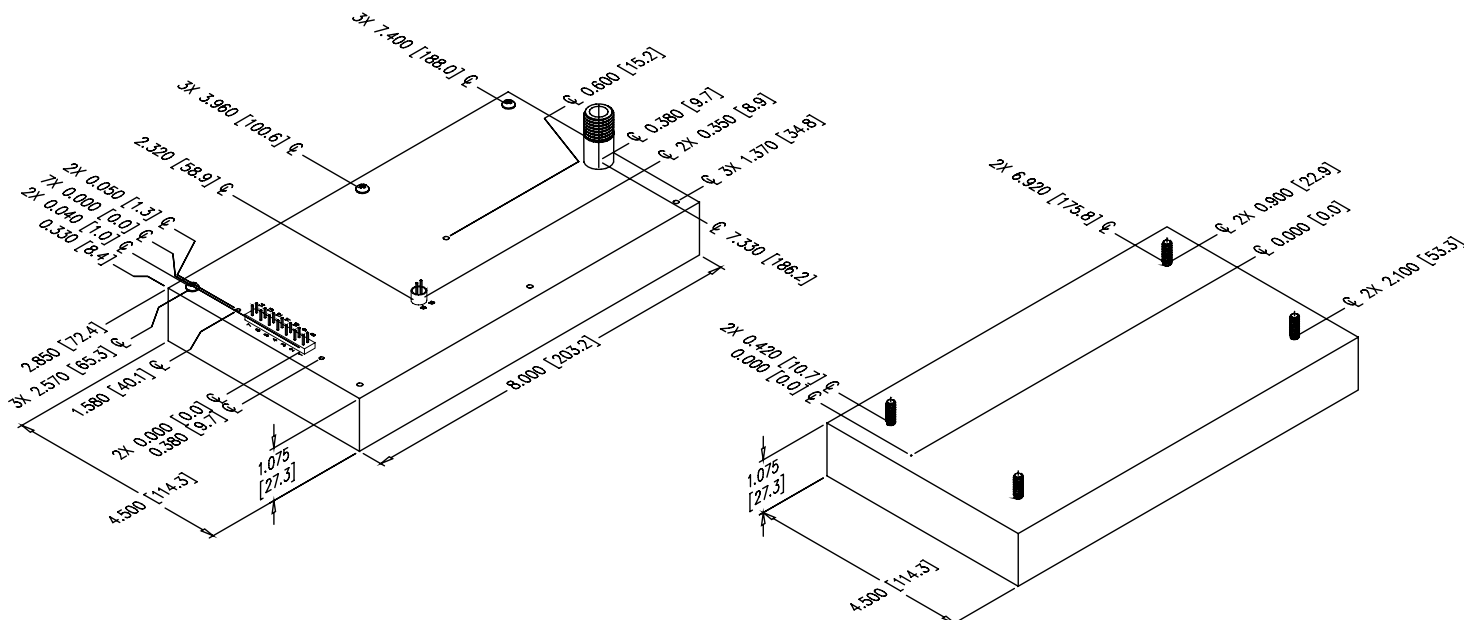
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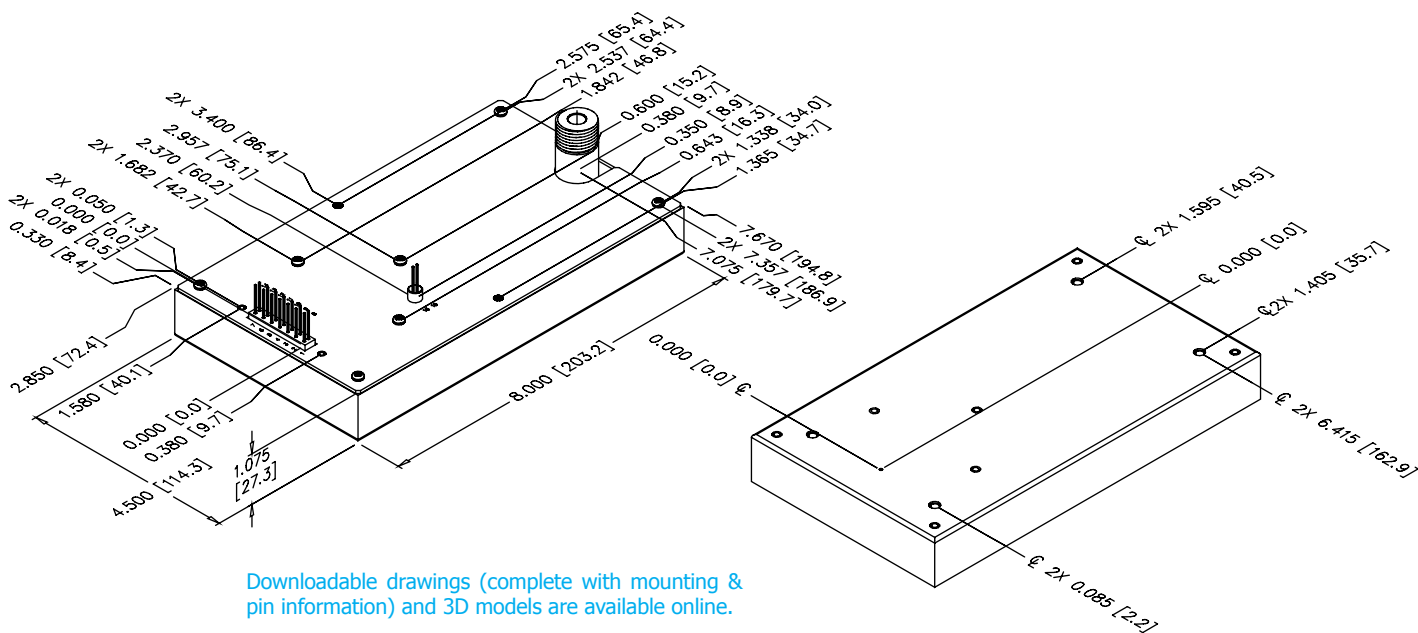
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8C TO 15C - 60/125W



20C TO 30C - 60/125W



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



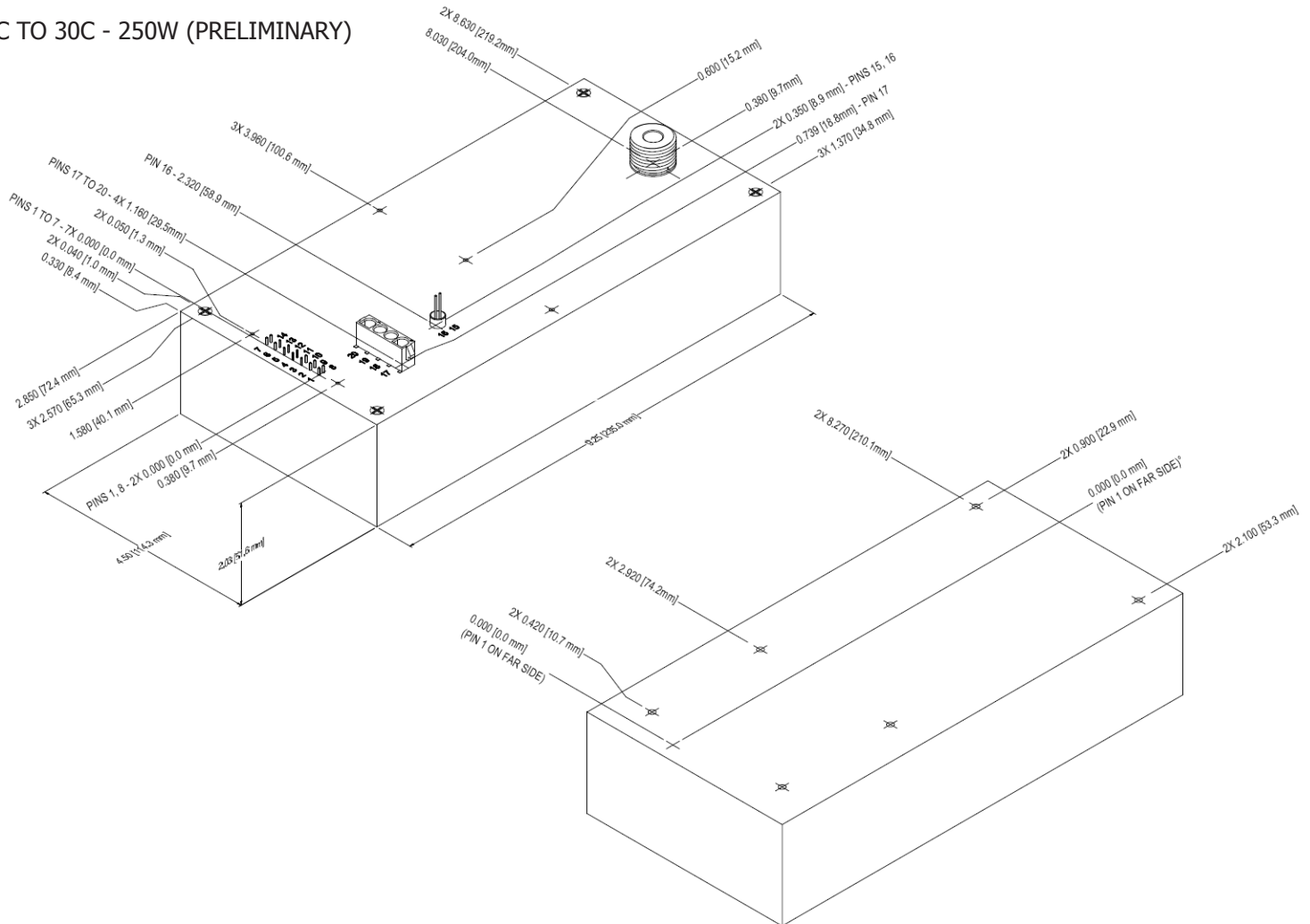
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HIGH POWER 8C-30C SERIES

8kV to 30kV High Voltage Cap-Charging Supplies

8C TO 30C - 250W (PRELIMINARY)



CONSTRUCTION

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

SIZE - 60 & 125W MODELS

Volume 38.7 in³ (634cc)
Weight 2.6 lbs. (1.18kg)

SIZE - 250W MODELS

Volume 84.5 in³ (1386cc)
Weight 5.6 lbs. (2.54kg)

TOLERANCE

Overall $\pm 0.025''$ (0.64)
Pin to Pin $\pm 0.015''$ (0.38)
Hole to hole location $\pm 0.025''$ (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 (60W & 125W Models) = CA-20KV-1000
20C to 30C (60W & 125W Models) = CA-40KV-1000
8C to 30C (250W Models) = CA-40KV-1000



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HIGH POWER 8C-30C SERIES

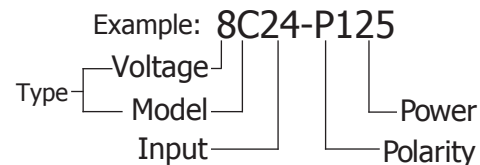
8kV to 30kV High Voltage Cap-Charging Supplies

| 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 | N/C (or Arc Detect option) |
| 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 |
| | 250 Watts Output | 250 |
| Heat Sink | .400" High (sized to fit case) | -H |
| PCB Support | (5) 0.187" standoffs on top cover | -Z11 |
| Enhanced Interface | 5V Controls and Monitors | -I5 |
| | 10V Control and Monitors | -I10 |
| Options | Arc Detect | -AD |
| | Arc Quench | -AQ |
| | 25PPM Temperature Coefficient | -25PPM |

Note: For more information on the enhanced interface options, download the [I5/I10 Option datasheet](#).



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).



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

Manufactured in USA



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Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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