



ULTRAVOLT® HIGH-POWER C SERIES
HIGH VOLTAGE CAP-CHARGING SUPPLY

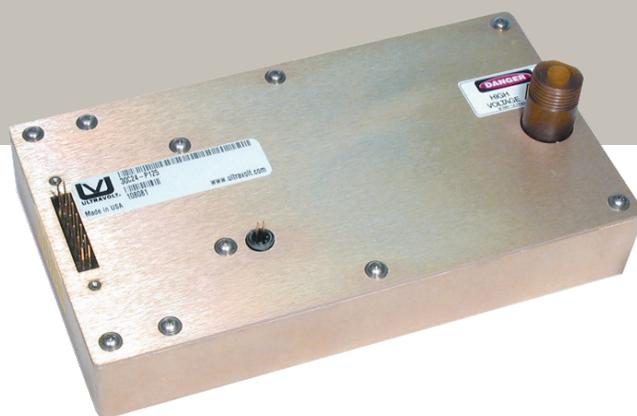




High voltage **cap-charging supplies**

The 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 W applications**. High-power C units provide up to 60/125/250 W. This high power density is especially suited to high-energy systems with large capacitances, fast repetition rates, or high continuous-DC-power requirements.

- › Seven models from 0 to 125 V through 0 to 6 kV
- › 60, 125, or 250 W of output power
- › Maximum load capability down to 0 V
- › Maximum load 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 and voltage monitors
- › > 200,000 hour MTBF at 65°C (149°F)
- › Fixed-frequency, low-stored-energy design
- › UL/CUL recognized component; CE Mark (LVD and RoHS)



Typical Applications

- › Laser
- › Cap charging
- › Pulsed power
- › Pulse generation
- › Test equipment



PARAMETER	CONDITIONS						
Input	All Types						
Voltage Range	Full Power						
Voltage Range	Derated Power Range						
Current	Standby/Disable						
Current	Max Load, Max Eout						
Current	No Load, Max Eout						
Output	1/8C			1/4C			1
Voltage Range	Nominal Input			0 to 125			0 to 250
Power	Nominal Input, Max Eout			60	125	250	60 125 250
Current	Iout, Entire Output Voltage Range			480	1000	2000	240 500 1000
Current Scale Factor	Full Load			400	833	1667	200 417 833
Voltage Monitor Scaling							
Ripple	Full Load, Max Eout, Cload ≥ 0.5 μF						
Overshoot	C Load, 0 Eout to Full Eout						
Rise Time	Max Iout, Various C Loads and Eout						
Storage Capacitance	Internal			0.90	0.90	1.80	0.90 0.90 1.80
Line Regulation	Nom. Input, Max Eout, Full Power						
Static Load Regulation	No Load to Full Load, Max Eout						
Stability	30 Min Warmup, Per 8 hr/Per Day						
Programming and controls	All Types						
Input Impedance	Nominal Input						
Adjust Resistance	Typical Potentiometer Values						
Adjust Logic	0 to +5 for +Out, +5 to 0 for - Out						
Output Voltage & Impedance	T=+25°C						
Enable/Disable (ON/OFF)							
Environmental	All Types						
Operating	Full Load, Max Eout, Case Temp.						
Coefficient	Over the Specified Temperature						
Thermal Shock	Mil-Std 810, Method 503-4, Proc. II						
Storage	Non-Operating, Case Temp.						
Humidity	All Conditions, Standard Package						
Altitude	Standard Package, All Conditions						
Shock	Mil-Std-810, Method 516.5, Proc. IV						
Vibration	Mil-Std-810, Method 514.5, Fig.514.5C-3						

Figure A. Rise time formulas

$C = \mu\text{F}$
 $V = \text{Volts}$
 $I = \text{mA}$
 $T = \text{mS}$

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

$C = \mu\text{F}$
 $V = \text{kV}$
 $I = \text{mA}$
 $F = \text{Hz}$

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

$C = \mu\text{F}$
 $V = \text{kV}$
 $I = \text{mA}$
 $F = \text{Hz}$

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

$C = \mu\text{F}$
 $E^2 = \text{kV}$
 $J = \text{Ws}$

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

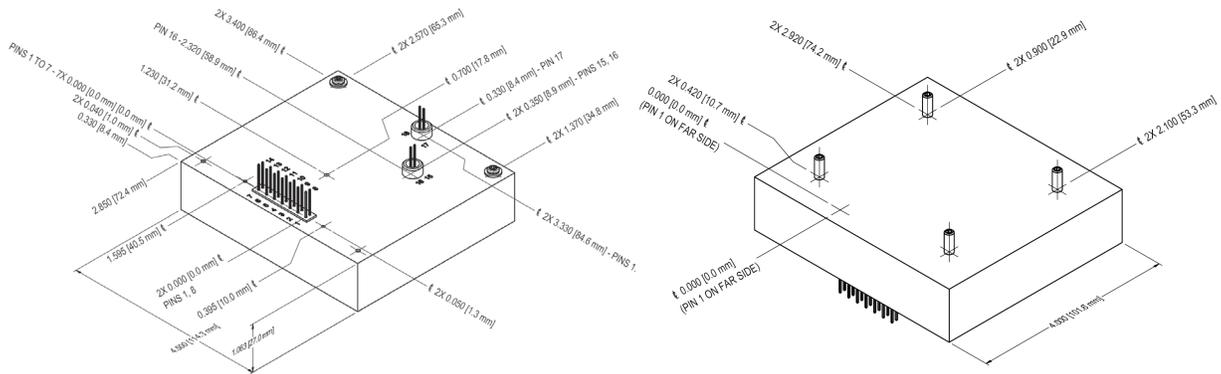
Note: Capacitance must include HVPS internal capacitance.



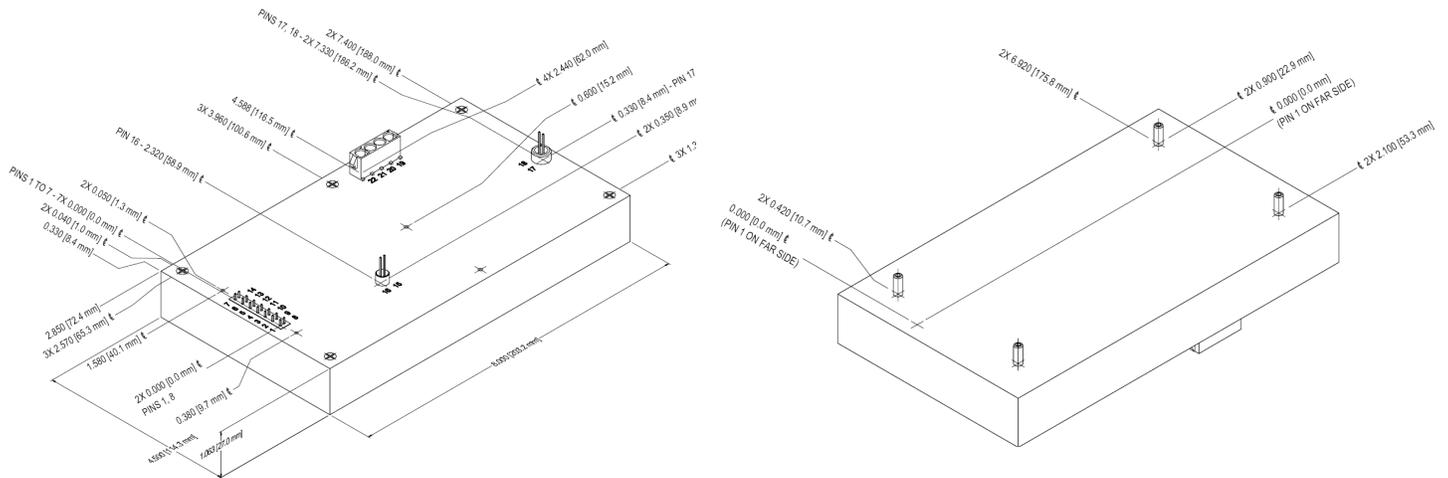
															UNITS
+23 to 30															VDC
+11 to 32															VDC
< 40															mA
60 W: 3; 125 W: 6; 250 W: 12															A
1/8C to 1C: < 300; 2C to 6C: < 500															mA
/2C			1C			2C			4C			6C			
0 to 500			0 to 1000			0 to 2000			0 to 4000			0 to 6000			VDC
60	125	250	60	125	250	60	125	250	60	125	250	60	125	250	Watts
120	250	500	60	125	250	30	62	125	15	31	62	10	21	42	mA
109	208	417	50	114	227	26	52	104	11.5	26	52	6.2	17.7	35	mA/V
100:1 ±2% into 10 MΩ															-
< 1.0															%V p to p
< 1															%V pk
Figure A (below)															-
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	μF
< 0.01%															VDC
< 0.01%															VDC
< 0.01%/< 0.02%															VDC
+output models 1.1 MΩ to GND; -output models 1.1 MΩ to +5 Vref															M
10 to 100 K (pot. across Vref. and signal GND, wiper to adjust)															
+4.64 VDC for +output or +0.36 for -output = nominal Eout															-
+5.00 VDC ±2%; Zout = 464 Ω ± 1%															-
0 to +0.5 disable; +2.4 to 32 enable (default: enable)															VDC
-40 to +65 (-40 to +149)															°C (°F)
±50 (±25 optional)															PPM/°C
-40 to +65 (-40 to +149)															°C (°F)
-55 to +105 (-67 to +221)															°C (°F)
0 to 95%, non-condensing															-
Sea level through 21,336 m (70,000')															-
20															Gs
10															Gs



60 W/125 W



250 W



PHYSICAL SPECIFICATIONS

Construction

RTV-silicone filled aluminum box (epoxy optional)

Chem film per MIL-A-8625 type II (anodizing)

Size

Volume

60 W/125 W

317 cc (19.35 in³)

250 W

634 cc (38.7 in³)

Weight

60 W/125 W

0.64 kg (1.4 lb)

250 W

1.18 kg (2.6 lb)

Note: For detailed outline drawings and 3D STEP files, please visit www.advanced-energy.com/en/High_Voltage.html.



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	+5 VDC reference output
10, 11, 12, & 13	N/C
14	Eout monitor
15 & 16	HV ground return
17 & 18	HV output

HIGH-POWER PIN CONNECTIONS (250 W UNITS)

Pin	Function
2, 9, & 10	N/C
19 & 20	Positive Power Input
21 & 22	Input Power Ground Return

All grounds joined internally. Power-supply mounting points isolated from internal grounds by > 100 kΩ, 0.01 μF/50 V (max).



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 1000 VDC Output	1C
	0 to 2000 VDC Output	2C
	0 to 4000 VDC Output	4C
	0 to 6000 VDC Output	6C
	Input	24 VDC Nominal
Polarity	Positive Output	-P
	Negative Output	-N
Power	60 W Output	60
	125 W Output	125
	250 W Output	250
Heat Sink	1.02 cm (0.400") high (sized to fit case)	-H
PCB Support	(5 or 7) 0.47 cm (0.187") standoffs on top cover	-Z11
Enhanced Interface	5 V Control and Monitors	-I5
	10 V Control and Monitors	-I10
Options	25 PPM Temperature Coefficient	-25PPM

Popular accessories ordered with this product include CONN-KIT-HP250, CONN-KIT-HP, and the BR-7 and BR-8 mounting bracket kits.

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

Example: **1/2C24-P125-H** (Heat Sink)





For international contact information, visit
advanced-energy.com.