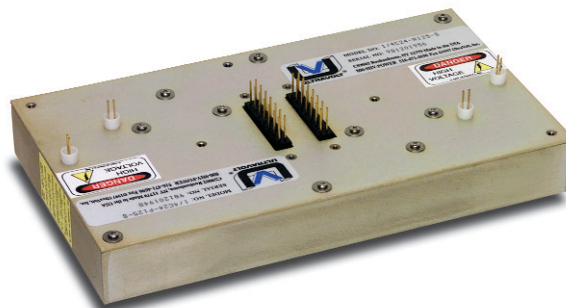


# BI-POLAR HIGH POWER “C” SERIES

## DUAL-OUTPUT HIGH VOLTAGE POWER SUPPLY

- 8 models from 0 to  $\pm 125$  Volts through 0 to  $\pm 6$ kV
- 125 or 250 watts of total output power
- Dual, independently controlled outputs
- Output current & voltage monitors
- Maximum  $I_{out}$  down to 0 Volts
- Fast  $T_{rise}$  with very low overshoot
- High power to voltage density
- >200,000 hour MTBF @65°C
- Output short-circuit protection
- Fixed-frequency, low-stored-energy design
- UL, cUL, IEC-60950-1, and Demko Recognized



### GENERAL INFORMATION:

The Bi-Polar “C” Series line of regulated DC-to-DC high-voltage converters is an extension of the High Power “C” Series. Bi-Polar “C” Series units contain a pair of + and - standard-product, 60-watt or 125-watt High Power “C” Series assemblies, providing a total of 125 watts or 250 watts. By encapsulating a module pair within one case, the cost of testing, potting, burn-in, and system integration is reduced.

The  $\pm$  HV output pair is packaged in UltraVolt's 4.5" x 8" x 1.1" standard case. This high power density is especially suited to high-energy pulsers, amplifiers, and discharge devices with large capacitance, fast repetition rates, or high current loads. See Application Note 10 for more charging information. See the High Power “C” Series datasheet for detailed specifications.

### COMPATIBILITY:

The Bi-Polar “C” Series matches the standard UltraVolt 60 watt / 125 watt High Power “C” Series for all electrical functions and design methodology, including wide input range, remote control, enable/disable, output monitors, and local +5 VDC reference output.

### HIGH VOLTAGE OUTPUT:

Bi-Polar “C” Series units, like all High Power “C” units, are non-isolated converters. The output range is independently adjustable from 0 to  $\pm 125$ V,  $\pm 250$ V,  $\pm 500$ V,  $\pm 1$ kV,  $\pm 2$ kV,  $\pm 4$ kV, or  $\pm 6$ kV on all 60Wx2 and 125Wx2 models. As the output voltage is reduced towards 0, the maximum current capability remains unchanged.

Internal capacitance is kept to a minimum to facilitate fast-rise applications. Most fast-rise applications involve charging a storage capacitor, which also acts as an additional output filter/storage capacitor. If your application is continuous DC bias power, an external filter/storage capacitor should be added. Contact the factory for recommended capacitor values.

### OUTPUT CURRENT & VOLTAGE MONITORS:

The Bi-Polar “C” Series units contain two pairs of output voltage and current monitors, one pair for the + HVPS, one pair for the - HVPS. See the High Power “C” Series data sheet along with Application Note 13 and Connection Drawings #3 and #4 for more details.

### HV & LV CONNECTIONS:

Each independent HVPS in the Bi-Polar “C” Series has a dedicated input power and control connector. These connectors are standard, dual-row, 7-pin headers. Each HVPS also has a dedicated, HV-ground-return, 2-pin header and HV output, 2-pin header.

Wire-harness connections can be made via J-hooked and soldered leads, AMP Mod-U connectors with high-current pins, or other wire-applied header connectors.

PCBs can be mounted directly to HVPS with the headers plugged into PCB sockets or soldered directly to the PCB. Direct-mounted PCBs can use factory or user-supplied standoffs mounted directly to the (7) #4-40 & (4) #2-56 PEM nuts provided on top of the HVPS.

### MECHANICAL:

The Bi-Polar “C” Series converters are packaged in aluminum enclosures. Both the 125W(60Wx2) and the 250W(125Wx2) versions use the 38in<sup>3</sup> package. Chassis wall mounting is facilitated with the four #8-32 studs. Thermal grease or elastomer should be used prior to mounting. An optional flush-mount bracket kit allows the unit to be surface mounted with the #8 studs removed. An optional vertical mounting bracket and finned heatsink allow the units to be stacked side by side.

### ENVIRONMENT:

The High Power Bi-Polar “C” Series provides full power at case temperature from  $-40$  to  $+65$ °C. Extended temperature range is available along with enhanced capabilities. Please contact the factory. All units receive a 24-hour burn-in prior to final testing.



1800 OCEAN AVE., FRNT  
RONKONKOMA, NY 11779

TEL 800-9HV-POWER

TEL 631-471-4444

FAX 631-471-4696

www.ultravolt.com

# BI-POLAR HIGH POWER "C" SERIES

## DUAL OUTPUT HIGH VOLTAGE POWER SUPPLY

### METAL CASE

#### CONSTRUCTION:

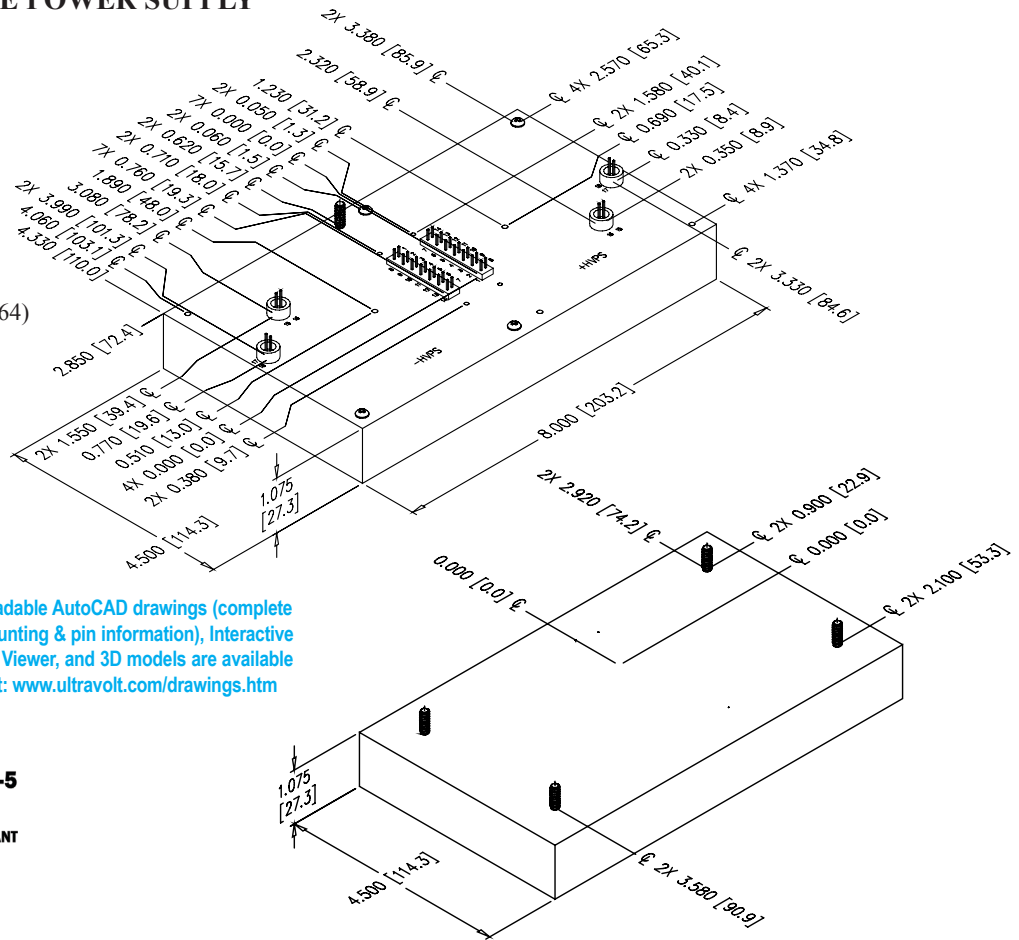
- Epoxy-filled aluminum box
- Chem film per MIL-C-5541
- Class 1A

#### TOLERANCE:

- Overall  $\pm 0.025''$  (0.64)
- Pin to Pin  $\pm 0.015''$  (0.38)
- Hole to Hole location  $\pm 0.025''$  (0.64)

#### MOUNTING:

- Bottom mounting
- #8-32 x 7/16 long threaded stud



Downloadable AutoCAD drawings (complete with mounting & pin information), Interactive Product Viewer, and 3D models are available online at: [www.ultravolt.com/drawings.htm](http://www.ultravolt.com/drawings.htm)



#### + HVPS Connections

|                                   |
|-----------------------------------|
| 1 & 8 - Input Power Ground Return |
| 3 - Iout Monitor                  |
| 4 - Enable/Disable                |
| 5 - Signal Ground Return          |
| 6 - Remote Adjust Input           |
| 7 - +5 VDC Reference Output       |
| 2,9 & 10 - Positive Power Input   |
| 11 - N/C                          |
| 12 - N/C                          |
| 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  $>100k\Omega$ ,  $.01\mu F / 50V$  (Max)

#### Ordering Information

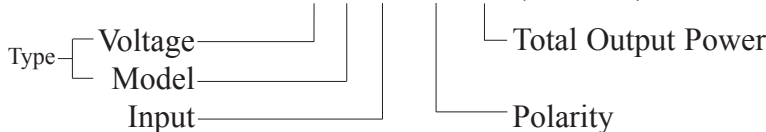
|              |                                   |              |
|--------------|-----------------------------------|--------------|
| Type:        | 0 to 125 VDC Output               | 1/8C         |
|              | 0 to 250 VDC Output               | 1/4C         |
|              | 0 to 500 VDC 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:    | Negative & Positive Output        | -NP          |
| Power:       | 125 Watts Output                  | 125 (60Wx2)  |
|              | 250 Watts Output                  | 250 (125Wx2) |
| HeatSink:    | .400" High (sized to fit case)    | -H           |
| PCB Support: | (7) 0.187" Standoffs on top cover | -Z11         |

#### - HVPS Connections

|                                   |
|-----------------------------------|
| 1 & 8 - Input Power Ground Return |
| 3 - Iout Monitor                  |
| 4 - Enable/Disable                |
| 5 - Signal Ground Return          |
| 6 - Remote Adjust Input           |
| 7 - +5 VDC Reference Output       |
| 2,9 & 10 - Positive Power Input   |
| 11 - N/C                          |
| 12 - N/C                          |
| 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  $>100k\Omega$ ,  $.01\mu F / 50V$  (Max)

Example: 1/2C24-NP125(60Wx2)



Specifications subject to change without notice



"Making High Voltage Easier!"

[www.ultravolt.com](http://www.ultravolt.com)

Rev. G 2/07

1800 Ocean Ave., Frnt, Ronkonkoma, NY 11779

Copyright 1991-2006, UltraVolt, Inc.