

BIPOLAR HIGH POWER C SERIES

Dual-Output High Voltage Power Supply



The Bipolar C Series line of regulated DC-to-DC high-voltage converters is an extension of the High Power C Series. Bipolar 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 ± 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. Typical applications for the Bipolar C Series include the following: cap-charging, pulsed power, ultrasound, amplifiers, and pulse generators.

- 7 models from 0 to ±125 Volts through 0 to ±6kV
- 125 or 250 watts of total output power
- Dual, independently controlled outputs
- Output current & voltage monitors
- High efficiency

- Maximum Iout capability down to 0 Volts
- Low profile
- Fast Trise 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, CE, IEC-60950-1, and Demko Recognized

PARAMETER	CONDITIONS	ALL TYPES														UNITS
INPUT																
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	125W: 3, 250W: 6														A
Current	No Load, Max Eout	1/8C to 1C: < 600, 2C to 6C: < 1000														mA
AC Ripple Current	Nominal Input, Full Load	< 50														mA p-p
OUTPUT																
Voltage Range	Nominal Input	1/8C		1/4C		1/2C		1C		2C		4C		6C		VDC
		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								
Power	Nominal Input, Max Eout	125	250	125	250	125	250	125	250	125	250	125	250	125	250	Watts
Current	Iout, Entire Output Voltage Range	1000	2000	500	1000	250	500	125	250	62	125	31	62	21	42	mA
Current Scale Factor	Full Load	833	1667	417	833	208	417	114	227	52	104	26	52	17.7	35	mA/V
Voltage Monitor Scaling		100:1 ±2% into 10MΩ														-
Ripple	Full Load, Max Eout, Cload ≥0.5uF	< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		< 1.0		V p-p
Rise Time	Max Iout, Various C Loads & Eout	Figure A														-
Storage Capacitance	Internal	0.90	0.90	0.90	0.90	0.43	0.43	0.019	0.019	0.019	0.019	0.013	0.013	0.013	0.013	uF
Overshoot	C Load, 0 Eout to Full Eout	< 1V		< 1V		< 1V		< 1V		< 1V		< 1V		< 1V		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
ENVIORNMENTAL																
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)														-
TEMPERATURE & HUMIDITY																
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 Vacuum (Vacuum may require -P1 or -S1 options, contact factory for details.)														-
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 subject to change without notice.



Making High Voltage Easier!®

©2010, UltraVolt Inc. All rights reserved.

BIPOLAR HIGH POWER C SERIES

Dual-Output High Voltage Power Supply

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

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

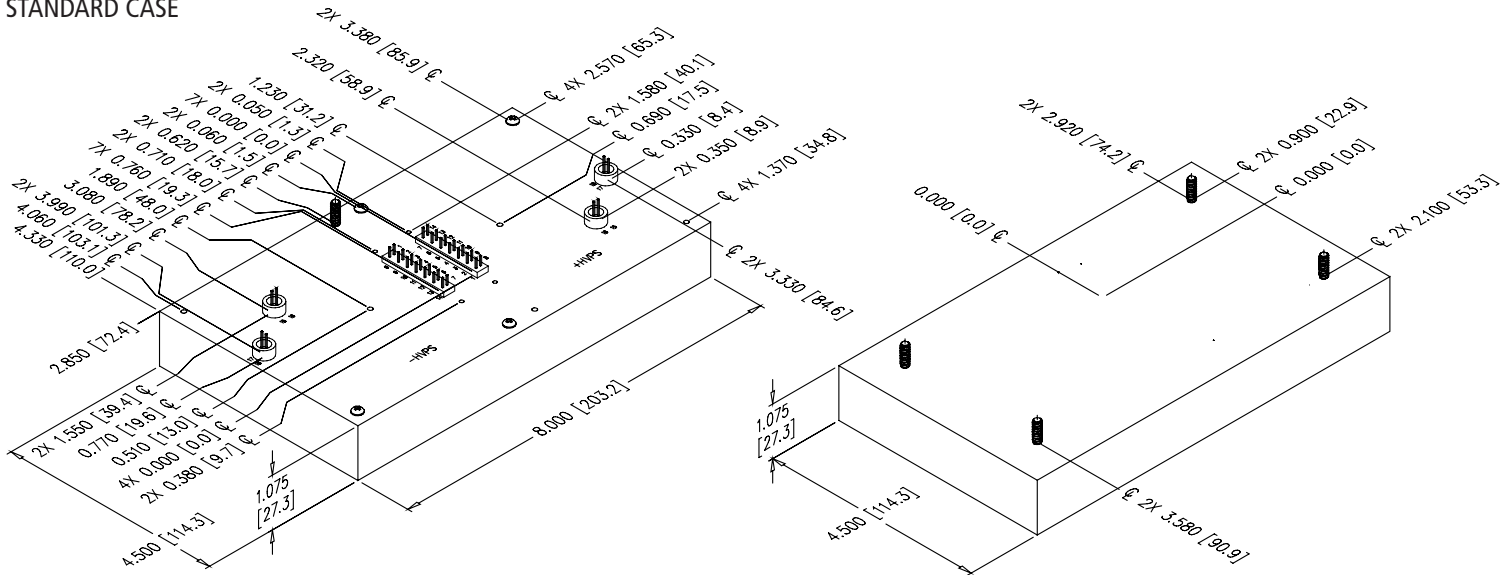
C = uF
E² = kV
J = Ws

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

Figure A - Rise Time Formulas

NOTES: Capacitance must include HVPS internal Capacitance.

STANDARD CASE



CONSTRUCTION

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

SIZE

Volume 38.7in³ (634 cc)
Weight 2.45lbs (1.1kg)

TOLERANCE

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

+ 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, 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)	

- 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, 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)	

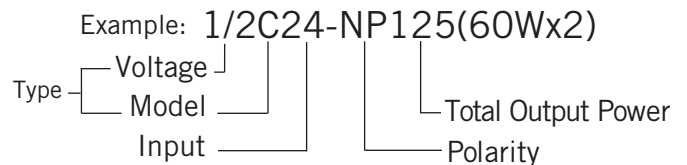
Downloadable drawings (complete with mounting & pin information) and 3D models are available online.

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)
Heat Sink	.400" High (sized to fit case)	-H
PCB Support	(7) 0.187" Standoffs on top cover	-Z11

Rev. K 8/10



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



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



Making High Voltage Easier!®

1800 Ocean Avenue, Ronkonkoma, NY 11779
Phone: 1-631-471-4444 Fax: 1-631-471-4696 www.ultravolt.com