

- Can both source and sink current
- PPM level line & load regulation
- Bipolar models available at 0 to ±5kV
- Unipolar models available at 0 to 10kV
- 25ppm temperature coefficient
- Operates in DC, reversible, and amplifier modes
- Low zero-crossing error



GENERAL INFORMATION:

The new “HVA” Series of DC-to-DC high-voltage power supplies operates a precision filter/divider & linear HV switch to produce a High Voltage Amplifier (HVA). These new modules provide a high-resolution, programmable, high-voltage DC to greater than 1 kHz output. The “HVA” Series is optimized for bias applications while providing excellent line regulation, load regulation, dynamic response, and stability. **The “HVA” Series can both source and sink current!**

Unipolar Units:

Parameter	Conditions	Models					Units
Input		1kV	2kV	4kV	6kV	10kV	
Voltage Range	Full Power	24VDC ± 10%					VDC
Current	Standby/Disable	<70					mA
Current	Full load, Max Eout	<420					mA
Current	No load, Max Eout	<400					mA
Output		1kV	2kV	4kV	6kV	10kV	
Power	Nominal Input, Max Eout	0.25	0.5	1	1	1	W
Current	lout Entire Voltage Range	250	250	250	167	100	uA
Ripple	Full load, Max Eout	0.05	0.05	0.05	0.03	0.01	%V pp
Line Regulation	Vin Min to Vin Max, Max Eout	0.01					%
Load Regulation	No load to Full load, Max Eout	0.01					%

Bipolar Units:

Parameter	Conditions	Models				Units
Input		1kV	2kV	4kV	5kV	
Voltage Range	Full Power	24VDC ± 10%				VDC
Current	Standby/Disable	<105				mA
Current	Full load, Max Eout	<420				mA
Current	No load, Max Eout	<400				mA
Output		1kV	2kV	4kV	5kV	
Power	Nominal Input, Max Eout	0.25	0.5	1	1	W
Current	lout Entire Voltage Range	250	250	250	200	uA
Ripple	Full load, Max Eout	0.05	0.05	0.05	0.03	%V pp
Line Regulation	Vin Min to Vin Max, Max Eout	0.01				%
Load Regulation	No load to Full load, Max Eout	0.01				%

All Units:

Parameter	Conditions	Models		Units
Remote Programming				
Input Impedance	Normal Operating Conditions	10		MΩ
Vprog (+)	Normal Operating Conditions	0 to +10 ± 0.5% is 0 to full positive output voltage 0 to -10 ± 0.5% is 0 to full negative output voltage		VDC
Vprog (-)	Normal Operating Conditions	Reference for Vprog(+)		VDC
I Limit Control	Normal Operating Conditions	0 to 10 ± 1% is 0 to full rated current		VDC
Monitors				
Output Impedance	Normal Operating Conditions	Buffered, low impedance		-
Voltage Monitor	Normal Operating Conditions	0 to ±10 ± 0.5% is 0 to ± full output voltage		VDC
Current Monitor	Normal Operating Conditions	0 to ±10 ± 1% is 0 to ± full output current		VDC



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“HVA” SERIES

PRECISION HIGH VOLTAGE AMPLIFIER

Sample “HVA” Series Waveforms:

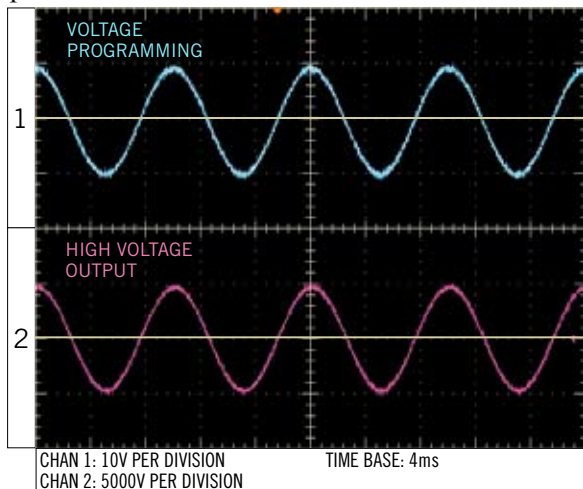


Figure A:
5HVA24-BP1 Sine Wave Input

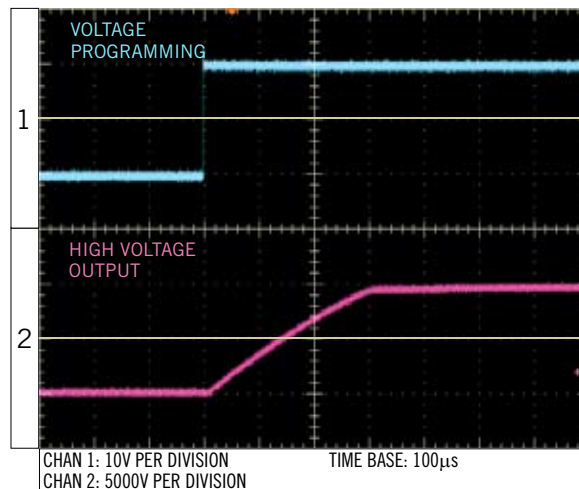


Figure B:
5HVA24-BP1 10kV Step Wave Input w/ No Load

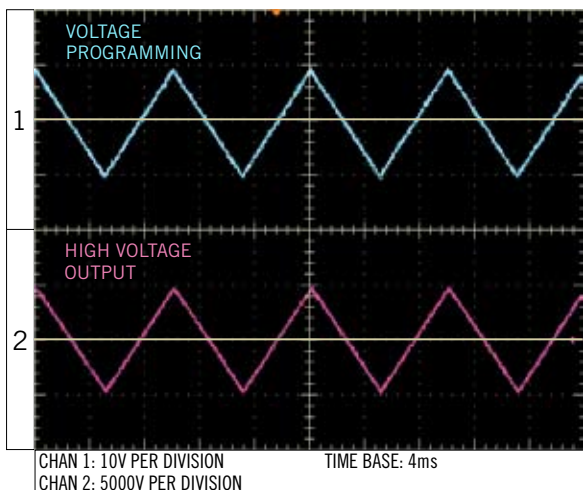


Figure C:
5HVA24-BP1 Triangle Wave Input

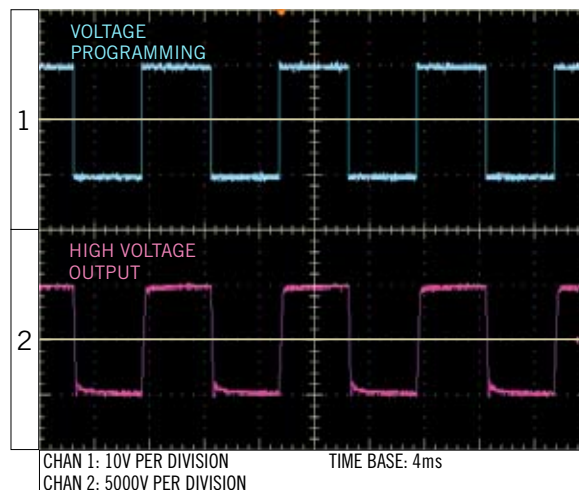


Figure D:
5HVA24-BP1 Square Wave Input

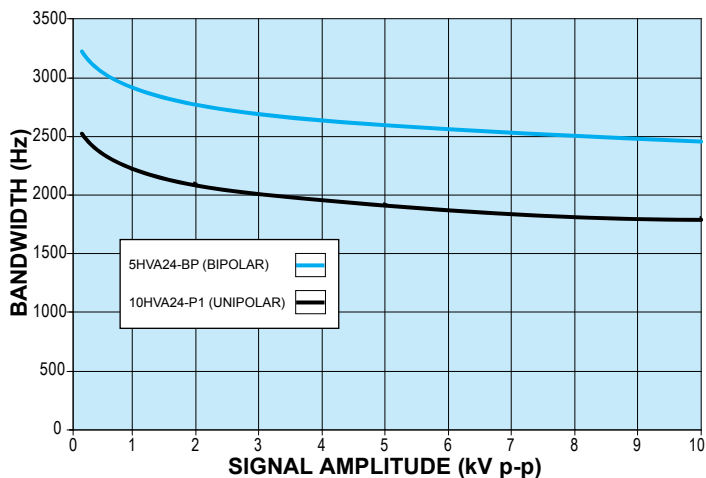


Figure E:
Bandwidth vs. Signal Amplitude with No Load

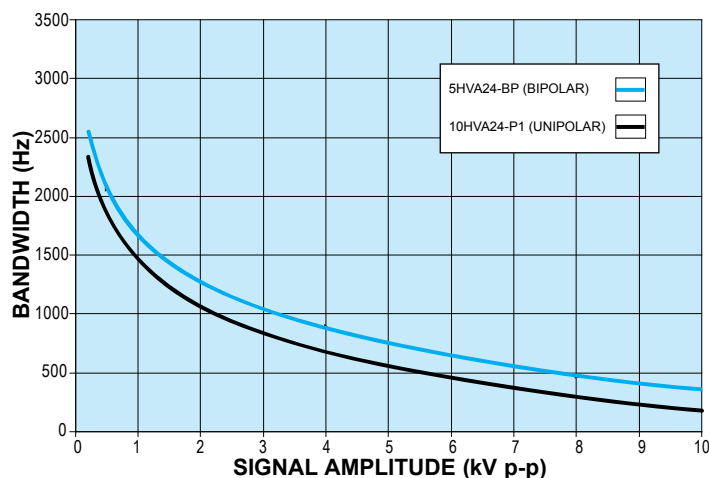


Figure F:
Bandwidth vs. Signal Amplitude with 100pF Load



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Downloadable drawings (complete with mounting & pin information) and 3D models are available online at www.ultravolt.com/drawings.htm

CONSTRUCTION:

Material: Aluminum Alloy 5052-H32
Finish: Anodize MIL-A-8625E Blue

MOUNTING:

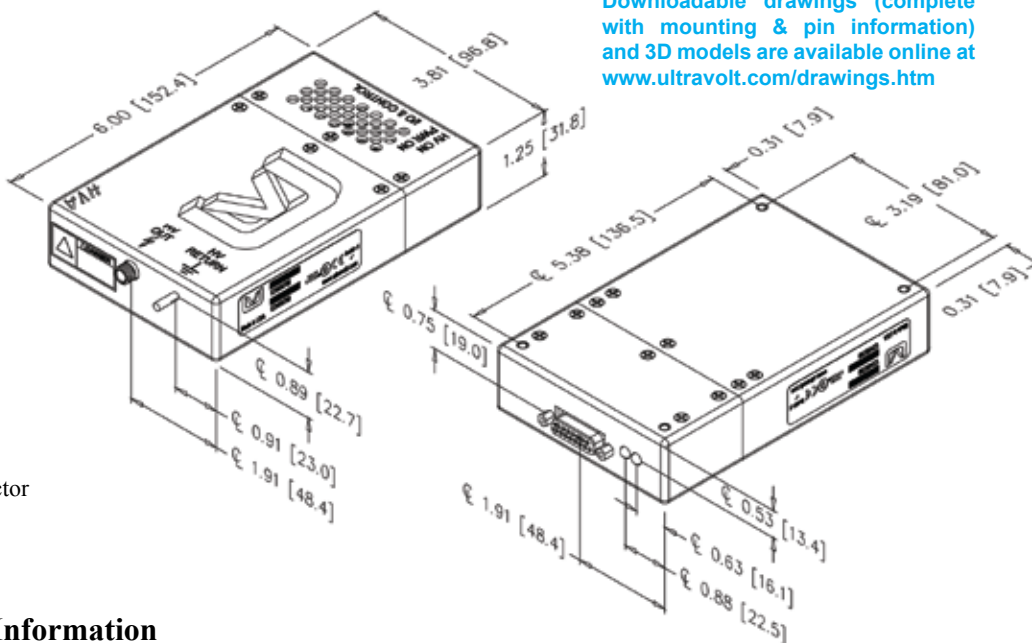
4X #6-32 X 0.281 DP THD

TOLERANCE:

Overall ± 0.030 [0.76]
Mounting Hole Location ± 0.025 [0.64]

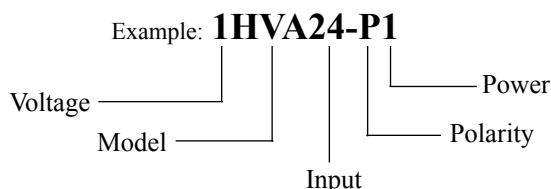
CONNECTORS:

LGH 1/2I - 10kV High Altitude/
Ruggedized/MIL
5/16-32 UNEF Thread
Industry Standard DB15 Female Connector



Ordering Information

Type:	0 to 1,000 VDC Output	1HVA
	0 to 2,000 VDC Output	2HVA
	0 to 4,000 VDC Output	4HVA
	0 to 5,000 VDC Output (Bipolar Only)	5HVA
	0 to 6,000 VDC Output (Unipolar Only)	6HVA
	0 to 10,000 VDC Output (Unipolar Only)	10HVA
Input:	24VDC Nominal	24
Polarity:	Positive Output	-P
	Negative Output	-N
	Bipolar Output	-BP
Power:	1 Watt Output	1



UV-HVA Input Connector Pinout Functions

Pin	Description	Function
1	Reference Voltage	(+)10.00V precision reference $\pm 0.05\%$, 5ppm/°C
2	Voltage Programming (-)	0 to 10V or 0 to (-)10V to program full output voltage, depending on polarity
3	Voltage Programming (+)	Programming input is differential between pins 2 and 3
4	Voltage Monitor	0 to $\pm 10V$ represents 0 to \pm full output voltage
5	N/C	No connection
6	Signal Ground	Reference all control and monitoring signals here
7	Input Power	(+)24V Input Power
8	Input Power	
9	Power Ground	Input power return
10	Power Ground	
11	Enable	TTL high to enable, low to disable, default is OFF
12	Current Monitor	0 to $\pm 10V$ represents 0 to \pm full output current
13	Current Limit Adjust	0 to (+)10V sets current limit from 0 to full rated output current
14	N/C	No connection
15	Signal Ground	Reference all control and monitoring signals here

Specifications are subject to change without notice.



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