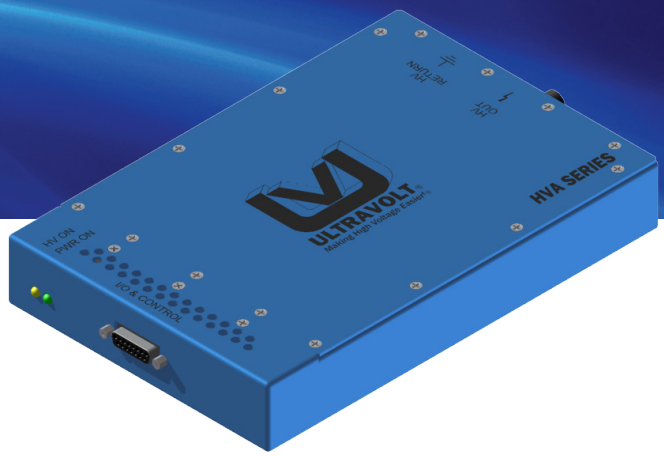
10HVA-20HVA SERIES

Precision High-Voltage Amplifier



PRELIMINARY DATASHEET

The 10HVA-20HVA 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 modules provide a high-resolution, high-voltage DC to full scale waveform capability greater than 500 Hz output. 10/15/20kV HVA modules are optimized for bias applications while providing excellent line regulation, load regulation, dynamic response, and stability. The HVA Series can both source and sink current operating linearly through 0V with low ripple and noise over the entire output range!

Typical applications for this series include the following:

Drivers for electrohydrodynamics, electrostatic chuck, Pockel's cells, laser & electro-optic modulation, electrophoresis.

Amplifiers for ion beam and electron beam devices such as mass spectrometry, and electron microscopes as well as electrostatic deflection/focusing, flocking, coating, electrospinning, precipitation and electrocoalescence.

- Bipolar models available at 0 to 10kV, 15kV, 20kV
- Unipolar models available at 0 to 15kV & 20kV
- Operates in DC, reversible, and amplifier modes
- Fast slew rate (40V/µs) and high bandwidth at an excellent value
- Can both source and sink current

- PPM level line & load regulation
- 25ppm temperature coefficient (15ppm optional)
- Reduced ripple option available

- Differential precision 0 to 10VDC control input
- Precision voltage and current monitors

PARAMETER	CONDITIONS	MODELS					UNITS
INPUT		ALL TYPES					
Voltage Range	Full Power	24VDC ± 10%					VDC
Current	Standby / Disable	<70 unipolar, <105 bipolar					mA
Current	Full Load, Max Eout	1W=525 / 2W=TBD	1W=950 / 2W=TBD		1W=850 / 2W=TBD		mA
Current	No Load, Max Eout	400	700		650		mA
OUTPUT*		±10kV	15kV/±15kV		20kV/±20kV		
Power	Nominal Input, Max Eout	1	1	1.5	1	2	W
Current	Iout Entire Voltage Range	100	66	100	50	100	uA
Ripple	Full Load, Max Eout	0.05	0.05	0.05	0.05	0.05	%V pp
Ripple with -F Option	Full Load, Max Eout	0.0125	0.0125	0.0125	0.0125	0.0125	%V pp
Voltage Monitor	Normal Operating Conditions	0 to 10 ± 0.5%					VDC
Current Monitor	Normal Operating Conditions	0 to 10 ± 1%					VDC
Line Regulation	Vin Min to Vin Max, Max Eout	<0.01					%
Load Regulation	No Load to Full Load, Max Eout	<0.01					%
PROGRAMMING & CONTROLS		ALL TYPES					
Input Impedance	Normal Operating Conditions	10					MΩ
Adjust Voltage	Differential	0 to +10					VDC
HV ON/OFF (Enable/Disable)		0 to +0.8V Disable, +2.5 to +10 Enable (Default = Disable)					VDC
Reference Voltage	T = +25°C, Initial Value	+10.00 ± 0.05%					VDC
Max Source Current	T = +25°C	1					mA
ENVIRONMENTAL		ALL TYPES					
Operating	Full Load, Max Eout, Case Temp.	+10 to +45					°C
Temperature Coefficient	Over the Specified Temperature	±25PPM or ±15PPM (Optional)					PPM/°C
Thermal Shock	Mil-Std 810, Method 503.4-2	-40 to +65					°C
Storage	Non-Operating, Case Temp.	-40 to +100					°C
Humidity	All Conditions, Standard Package	0 to 95% non-condensing					-
Altitude	Standard Package, All Conditions	Sea Level through 10,000					ft
Shock	Mil-Std-810, Method 516, Proc. 4	20					G's
Vibration	Mil-Std-810, Method 514, Fig. 514-3	10					G's

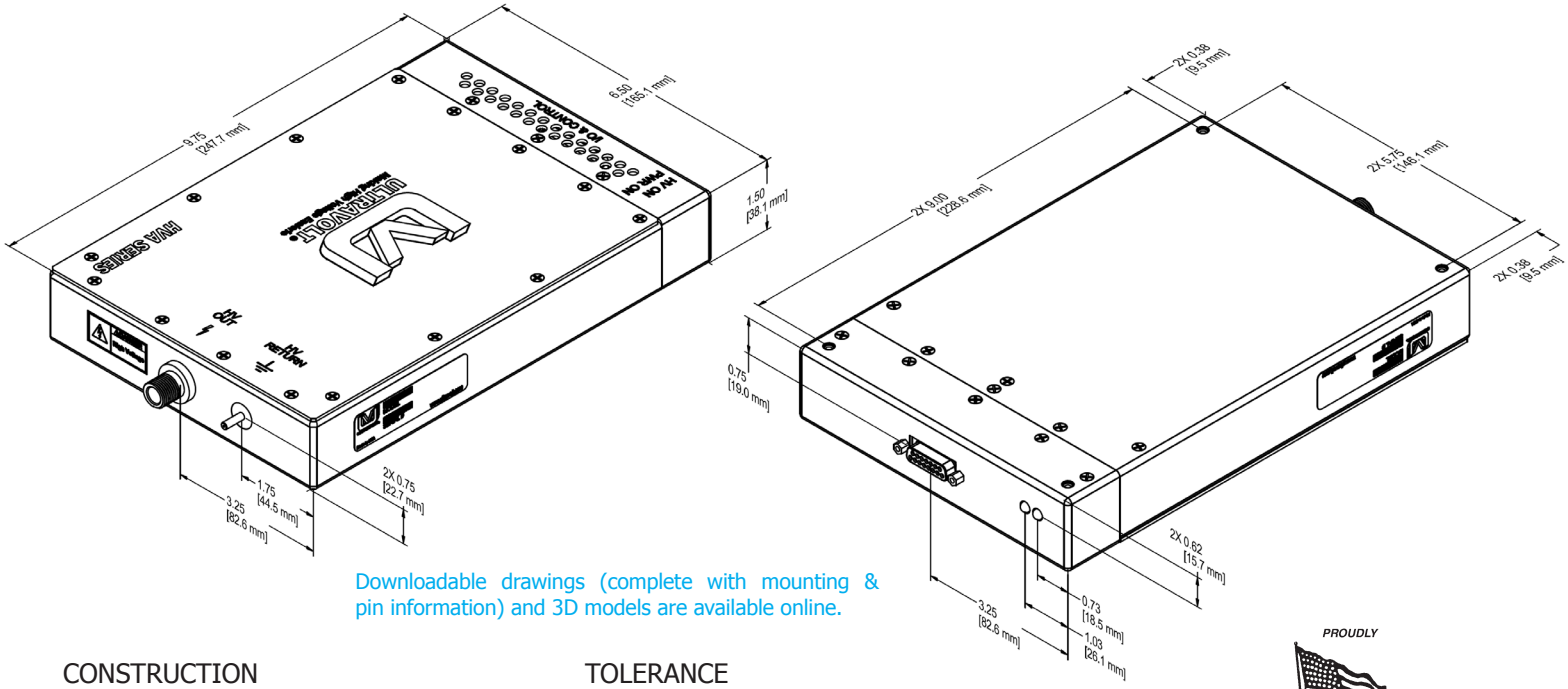
*Units listed without polarity can be ordered as positive (+) or negative (-). Units listed as (±) are bipolar.

Specifications subject to change without notice.

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10HVA-20HVA SERIES

Precision High-Voltage Amplifier



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

CONSTRUCTION

Material: Aluminum
Finish: Blue Anodized

SIZE

Volume: 95.06in³ (1557.8cm³)
Weight: TBD

TOLERANCE

Overall: ± 0.030in (1.27mm)
Mounting hole location: ± 0.025in (0.64mm)

CONNECTIONS

D-Sub 15 Pin Female
HV Connector, LGH1Li
HV Return, #6-32 x 0.437 Long Threaded Post

PROUDLY MADE IN THE USA

RoHS COMPLIANT

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

UV-HVA INPUT CONNECTOR PINOUT FUNCTIONS		
PIN	DESCRIPTION	FUNCTION
1	Reference Voltage	+10.00V precision reference
2	Voltage Programming -	0 to +10V or 0 to -10V to program full output voltage, depending on polarity. Programming input is differential between pins 2 and 3.
3	Voltage Programming +	
4	Voltage Monitor	0 to ±10V represents 0 to ± full output voltage
5	N/C	No connection
6	Signal Ground	Reference all control 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 ±10V represents 0 to ± 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 signals here

Popular accessories ordered with this product include our full range of high voltage output connectors (see Accessories & Connectors datasheet).

ORDERING INFORMATION		
Type	0 to 10,000 VDC Output	10HVA
	0 to 15,000 VDC Output	15HVA
	0 to 20,000 VDC Output	20HVA
Input	24VDC Nominal	24
Polarity	Positive Output	-P
	Negative Output	-N
	Bipolar Output	-BP
Power	1 Watt Output	1
	1.5 Watt Output @ 15kV Only	1.5
	2 Watt Output @ 20kV Only	2
Option	Ripple Stripper® Output Filter	-F
	15ppm temperature coefficient	-15PPM
Connections	LGH1Li	Standard
	Flying Lead for HV Output	-W
	Shielded Flying Lead for HV Output	-WS

Contact the factory for other output requirements!

Example: 20HVA24-BP2-F
Voltage
Model
Input
Polarity
Power
Option

Rev. 1 2/13

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