ULTRAVOLT D SERIES

MICRO-SIZED HIGH VOLTAGE BIASING SUPPLIES



The UltraVolt© D series of high voltage power supplies is designed to meet the needs of customers with low-profile, < 13 mm (< 0.511") or < 17.5 mm (< 0.689") applications at 1 to 6 W. These ultra-compact modules are ideal for detectors that require high-bias voltages and currents at low ripple. D series PCB-mount high voltage power supplies feature a lightweight design, state-of-the-art surface-mount technology, and five-sided metal enclosures.

PRODUCT HIGHLIGHTS

- 4 models from 0 to 1 kV through 0 to 6 kV
- 1, 2, 4 or 6 W output power
- Low ripple (< 0.02% peak to peak)
- Tight line/load regulation
- Output current limit protection
- Adjustable from 0 to full output
- Buffered voltage and current monitoring
- 15 or 24 VDC Input
- Low profile and lightweight
- PCB flat mounting

TYPICAL APPLICATIONS

- Scanning electron microscopes (SEM)
- Mass spectrometry
- Gas chromatography
- Spectrometers
- Electrostatic chuck (e-chuck)
- PZT drivers
- Pulse generators
- Laser electro-optic modulation
- Fiber-optic telecom detectors
- Particle physics detectors
- Laser range finder detectors
- Detectors
- Geiger-Muller tubes (GM)
- Avalanche photo diodes (APD)
- Photo multiplier tubes (PMT)
- Photodiodes (PD)
- Multi-pixel photon counters (MPPC)
- Channel electron multipliers
- Silicon detectors (SiD)
- Silicon photomultipliers (SiPM)
- Image intensifiers (II and IIT)
- Microchannel plates (MCP)
- Ionization chamber detectors
- Thin-film bias
- High voltage testing
- ATE leakage testing
- General laboratory
- Bias supplies

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ELECTRICAL SPECIFICATIONS

Parameters	Specifications																Units
Input Voltage Vin (Pins 2 and 3)	15 VDC ±1.5 V or 24 VDC ±2 V, according to type																VDC
Input Current	Example for a 15 VDC, output 6000 V, 1 mA model: inhibition mode: 27 mA at no load and HV = 6000 V 46 mA, at full load < 630 mA																
Polarity	Fixed positive or negative																-
Output Voltage	0 to 1000				0 to 2000				0 to 4000				0 to 6000				VDC
Output Power	1	2	4	6	1	2	4	6	1	2	4	6	1	2	4	6	W
Output Current	1	2	4	6	0.5	1	2	3	0.25	0.5	1	1.5	0.17	0.33	0.67	1	mA
Programming (Pins 4 and 6)	Via external voltage source 0 to +5 V ±0.1% at full scale, and input impedance = 94 kΩ																-
Max Output Current Iout	Limited to 110% of nominal current																-
Load Voltage Regulation	±0.01% of full output voltage for no load to full load																VDC
Line Voltage Regulation	±0.01% of full output voltage over specified input voltage range																VDC
Residual Ripple	< 0.02% at full load																V pk to pk
Temperature Coefficient	100																PPM/°C
Output HV Monitoring (Pin 7) {still operating in inhibition mode}	Analog 0 to +5 V buffered output signal, accuracy ±0.2%																-
	Output impedance = 1 kΩ																
	Temperature coefficient: 50 ppm/°C for ≤ 4 kV units, 100 ppm/°C for 6 kV units																
Output Current Monitoring (Pin 5) {still operating in inhibition mode}	Analog 0 to +5 V buffered output signal, accuracy ±2%																-
	Output impedance = 1 kΩ																
	Temperature coefficient: 100 ppm/°C																
HV ON/OFF (Pin 1)	To disable (opened remote interlock) or enable (closed remote interlock)																-
Operating Temperature	-10 to +65, full load, max Eout, Tcase temp																°C
Storage Temperature	-10 to +70																°C
Safeguards	Protected against reverse Vin																-
	Soft start feature: the start is guaranteed with no overshoot																
	Auto inhibition if case > 75°C																
	HV setting internally limited to 5.3 V																

MECHANICAL SPECIFICATIONS

Construction	
Casing	Tin steel plate, thickness 0.5 mm
Insulation	Fully potted in an epoxy resin

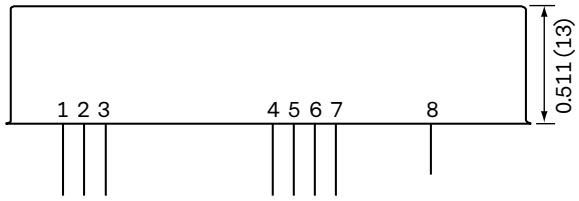
Volume and Weights		
Volume	**cm³**	**in³**
1 to 4 kV, 1 to 4 W	36.2	2.21
1 to 4 kV, 6 W and 1 to 6 kV, 1 to 6 W	48.6	2.97
Weight	**g**	**oz**
1 to 4 kV, 1 to 4 W	72	2.54
1 to 4 kV, 6 W and 1 to 6 kV, 1 to 6 W	85	3

Dimensions [1, 2]	
Tolerance	
Overall	±0.3 mm (0.0118")
Pin to Pin	±0.1 mm (0.0039")
Case to Pin	±1.5 mm (0.0591")

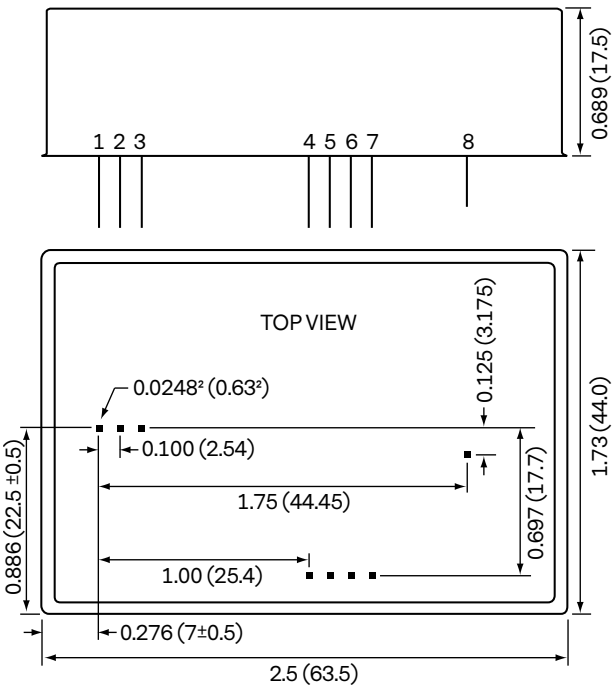
1 Standard case length, width, and height specs are 1.27 mm (0.050")

2 Pin length > 6 mm (0.24"), spacing 2.54 mm (0.1")

1 to 4 kV, 1 to 4 W



1 to 4 kV, 6 W and 1 to 6 kV, 1 to 6 W



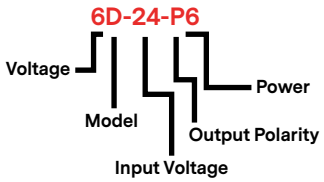
INTERFACE CONTROL PARAMETERS

Connections	
Pin	**Function**
1	Enable/Disable
2	Power Ground
3	Positive Power Input
4	Signal Ground
5	Iout Monitor
6	Remote Adjust Input
7	Eout Monitor
8	HV Output

ORDERING INFORMATION

Type	0 to 1000 VDC Output	1D
	0 to 2000 VDC Output	2D
	0 to 4000 VDC Output	4D
	0 to 6000 VDC Output	6D
Input	15 VDC Nominal	15
	24 VDC Nominal	24
Power	W Output	1
	W Output	2
	W Output	4
	W Output	6
Case	Steel, Tin-plated	(Standard)
Polarity	Positive Output	-P
	Negative Output	-N

The D series is not available in all territories. Please contact Advanced Energy for details concerning sales in your area.



PRECISION | POWER | PERFORMANCE

CAUTION:
High Voltage

Read and understand all documentation before you install, operate, or maintain Advanced Energy high voltage power supplies. Follow all safety instructions and precautions to protect against property damage and serious or possibly fatal bodily injury. Never defeat safety interlocks or grounds.

Advanced Energy

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