

# ULTRAVOLT D SERIES

## MICRO-SIZED HIGH VOLTAGE BIASING SUPPLIES

The 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

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	cm <sup>3</sup>	in <sup>3</sup>
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

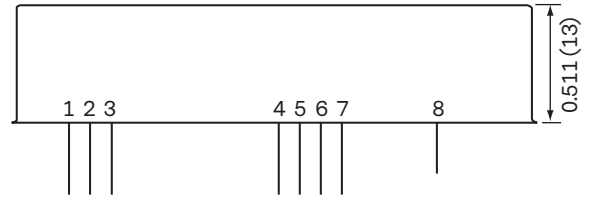
**Dimensions <sup>1, 2</sup>**

Tolerance	
Overall	±0.3 mm (0.0118")
Pin to Pin	±0.1 mm (0.0039")
Case to Pin	±1.5 mm (0.0591")

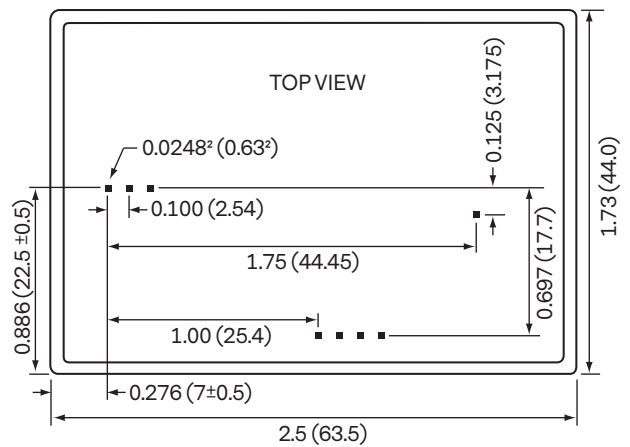
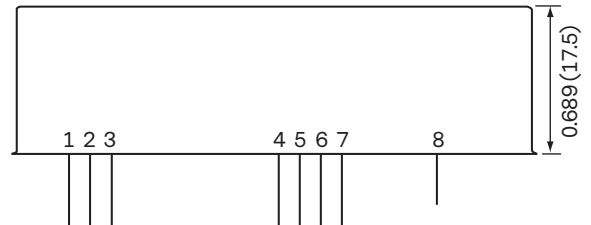
<sup>1</sup> Standard case length, width, and height specs are 1.27 mm (0.050")

<sup>2</sup> 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.

