

# V SERIES

## Vertical, Microsize High Voltage Biasing Supply

The vertical, microsize V Series is the ideal solution for applications that require a bias voltage ranging from 0 to 3000V and very small current, at only 0.84in<sup>3</sup> (13.8cc). With a footprint under 1in<sup>2</sup> (2.54cm<sup>2</sup>), these modules are perfect for applications with limited board space.

- 7 models from 0 to 600V, 1000V, 1250V, 1500V, 2000V, 2500V, or 3000V
- 0.5, 0.8, or 1 watt of output power
- Tight line/load regulation
- Arc and continuous short circuit protection
- Self restoring output voltage
- Low cost
- Miniature and lightweight
- Voltage monitoring
- Low ripple (0.01% peak to peak)
- Optional flying lead for HV output



Typical applications for the V Series include the following:

- |                              |                                     |
|------------------------------|-------------------------------------|
| Bias Supplies                | Scanning Electron Microscopes (SEM) |
| Avalanche Photo Diodes (APD) | Photomultiplier Tubes (PMT)         |

Please contact UltraVolt's customer service department for an analysis of your requirements.

| PARAMETER                                      | SPECIFICATION  |      |      |                             |      |      |                             |       |       |                             |      |      | UNITS  |
|--|--|------|------|-----------------------------|------|------|-----------------------------|-------|-------|-----------------------------|------|------|--------|
| Input voltage Vin (pins 1 & 2)                 | 5 ± 0.5 (2-3kV ONLY) 12 ± 1, 15 ± 1 (600V-1.5kV ONLY), or 24 ± 2   |      |      |                             |      |      |                             |       |       |                             |      |      | VDC    |
| Input Voltage                                  | 5 (2-3kV Only)   |      |      | 12                          |      |      | 15 (600V-1.5kV ONLY)        |       |       | 24                          |      |      | V      |
| Input Current                                  | No load: 55, Full load: 450  |      |      | No load: 45, Full load: 200 |      |      | No load: 40, Full load: 190 |       |       | No load: 35, Full load: 160 |      |      | mA     |
| Polarity                                       | Fixed positive and fixed negative  |      |      |                             |      |      |                             |       |       |                             |      |      | -      |
| Output Voltage                                 | 0 to 600   |      |      | 0 to 1000                   |      |      | 0 to 1250                   |       |       | 0 to 1500                   |      |      | VDC    |
| Input Voltage                                  | 12   | 15   | 24   | 12                          | 15   | 24   | 12                          | 15    | 24    | 12                          | 15   | 24   | VDC    |
| Output Power                                   | 0.5  | 0.8  | 1    | 0.5                         | 0.8  | 1    | 0.5                         | 0.8   | 1     | 0.5                         | 0.8  | 1    | W      |
| Output Current                                 | 0.83   | 1.33 | 1.67 | 0.5                         | 0.8  | 1    | 0.4                         | 0.64  | 0.8   | 0.33                        | 0.53 | 0.67 | mA     |
| Output Voltage                                 | 0 to 2000  |      |      | 0 to 2500                   |      |      | 0 to 3000                   |       |       |                             |      |      | VDC    |
| Input Voltage                                  | 5  | 12   | 24   | 5                           | 12   | 24   | 5                           | 12    | 24    |                             |      |      | VDC    |
| Output Power                                   | 0.5  | 0.8  | 1    | 0.5                         | 0.8  | 1    | 0.5                         | 0.8   | 1     |                             |      |      | W      |
| Output Current                                 | 0.25   | 0.40 | 0.50 | 0.20                        | 0.32 | 0.40 | 0.167                       | 0.267 | 0.333 |                             |      |      | mA     |
| HV setting                                     | 10K to 100K (Potentiometer Across Vref. & Signal Ground, Wiper to Adjust)  |      |      |                             |      |      |                             |       |       |                             |      |      | -      |
| 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                                | <0.01% at full load  |      |      |                             |      |      |                             |       |       |                             |      |      | Vpk-pk |
| Temperature coefficient                        | 100ppm/°C for the maximum output voltage after starting and over temperature range 0 to 50°C   |      |      |                             |      |      |                             |       |       |                             |      |      | -      |
| Output Voltage Monitor (600V-1500V)            | +1V/1kV max. or -1V/-1kV max. according to model polarity output impedance = 200kΩ ±1%   |      |      |                             |      |      |                             |       |       |                             |      |      | -      |
| Output Voltage Monitor (2kV-3kV)               | 12-24V Input Only: 0 to +5V±2%<br>5V Inputs: 0 to +2.5V±2%   |      |      |                             |      |      |                             |       |       |                             |      |      | VDC    |
| Reference Voltage                              | 12-24V Input Only: 5V ±1%, TC:100ppm/°C, max. output current: 1mA<br>5V Inputs: 2.5V ±1%, TC:100ppm/°C, max. output current: 1mA         |      |      |                             |      |      |                             |       |       |                             |      |      | -      |
| Operating temperature                          | -10 to +65, Full load, Max Eout, Case Temp   |      |      |                             |      |      |                             |       |       |                             |      |      | °C     |
| Storage temperature                            | -20 to +70   |      |      |                             |      |      |                             |       |       |                             |      |      | °C     |
| Safeguards                                     | Arc and short circuit protection   |      |      |                             |      |      |                             |       |       |                             |      |      | -      |
| Options  | <ul style="list-style-type: none"> <li>• Flying wire for HV output</li> <li>• Suitable for use with an external potentiometer</li> </ul> |      |      |                             |      |      |                             |       |       |                             |      |      | -      |
| Enhanced Interface (-EI) Option (2kV-3kV Only) | Enable/Disable (ON/OFF): 0V to +0.5V Enable, +2.4V to V_input Disable (Default = Disable)  |      |      |                             |      |      |                             |       |       |                             |      |      | -      |
|  | Output Current Monitor (5V Input Only): 0 to +2.5V±2%<br>Output Current Monitor (12-24V Input): 0 to +5.0V±2%                            |      |      |                             |      |      |                             |       |       |                             |      |      | -      |

Specifications subject to change without notice.



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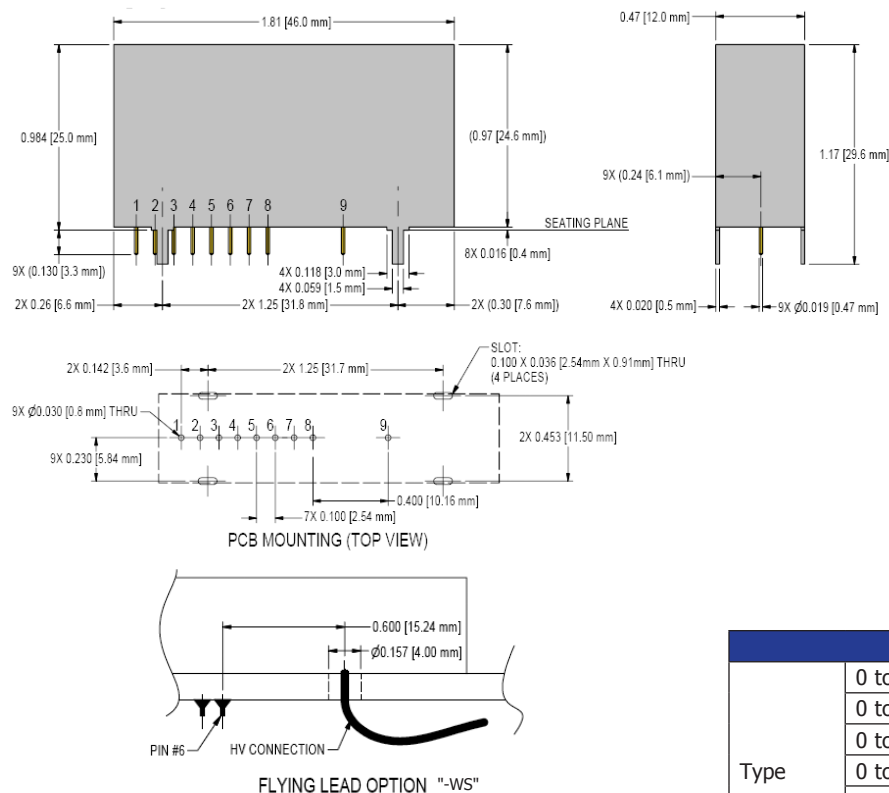
Higher Service, Higher Performance, Higher Reliability

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Note: Pins 7 & 8 are available for 2k-3kV units with Enhanced Interface option ONLY



| CONNECTIONS |  |
|-------------|--|
| PIN         | FUNCTION   |
| 1           | Positive Power Input                             |
| 2           | Power Ground                                     |
| 3           | Signal Ground                                    |
| 4           | Remote Adjust Input                              |
| 5           | Reference Voltage                                |
| 6           | Voltage Monitor                                  |
| 7           | Current Monitor (Available with -EI Option ONLY) |
| 8           | Enable (Available with -EI Option ONLY)          |
| 9           | HV Output  |

Note: Mounting tabs must be connected to ground.



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



Rev. F 2/14

### CONSTRUCTION

Steel, tin plated, thickness 0.02" (0.5)  
Insulation: fully potted in an epoxy resin

### SIZE

Volume: 0.84in<sup>3</sup> (13.8cc)  
Weight: 1.23oz (35g)

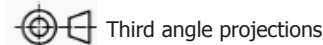
### TOLERANCE

Overall ±0.0030" (0.76)  
Pin to Pin ±0.015" (0.38)  
Tabs location ±0.020" (0.51)  
Tab to Tab ±0.010" (0.25)

### NOTES

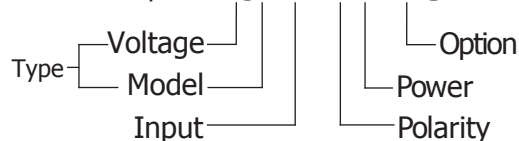
0.019" (0.47) round pins, length: 0.12" (3), spacing: 0.1" (2.54)  
PCB mounting through 4 mounting tabs: Length: 0.2" (5), width: 0.059" (1.5), thickness: 0.02" (0.5)  
Optional flying lead for HV output: Coaxial cable (RG178), diameter = 0.079" (2) length = 19.685" (500)

### DRAWING VIEWS



| ORDERING INFORMATION |  |            |
|----------------------|--|------------|
| Type                 | 0 to 600 VDC Output                                  | 0.6V       |
|                      | 0 to 1,000 VDC Output                                | 1V         |
|                      | 0 to 1,250 VDC Output                                | 1.25V      |
|                      | 0 to 1,500 VDC Output                                | 1.5V       |
|                      | 0 to 2,000 VDC Output                                | 2V         |
|                      | 0 to 2,500 VDC Output                                | 2.5V       |
|                      | 0 to 3,000 VDC Output                                | 3V         |
| Input                | 5VDC Nominal (2-3kV Only)                            | 5          |
|                      | 12VDC Nominal  | 12         |
|                      | 15VDC Nominal (600V-1.5kV Only)                      | 15         |
|                      | 24VDC Nominal  | 24         |
| Power                | 0.5 Watt Output                                      | 0.5        |
|                      | 0.8 Watt Output                                      | 0.8        |
|                      | 1 Watt Output  | 1          |
| Case                 | Tin Steel Case                                       | (Standard) |
| Polarity             | Positive Output                                      | -P         |
|                      | Negative Output                                      | -N         |
| Option               | Shielded Flying Lead for HV Output (600V-1.5kV Only) | -WS        |
|                      | Flying Lead for HV Output (2-3kV Only)               | -W         |
|                      | Current Monitor/Enable Pin (2-3kV Only)              | -EI        |

Example: 1.5V24-P1-WS



Popular accessories ordered with this product include the PCB-CONN-M/V.

\*The V Series is not available in all territories. Please contact an UltraVolt Applications Engineer for details concerning sales in your area.



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