

# M SERIES

## Miniature, Microsize High Voltage Biasing Supply

The miniature, microsize M Series is the ideal solution for applications that need a biasing voltage ranging from 0 to 3000V and very small current, at only 1.00in<sup>3</sup> (16.4cc). At less than 0.5in (12.7mm) in height, these modules are ideal for low profile applications.

- 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 M Series include the following:

- |                              |                               |
|------------------------------|-------------------------------|
| Bias Supplies                | Electrostatic chuck (E-chuck) |
| 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 (2kV-3kV ONLY), 12 ±1, 15 ±1 (600V-1.5kV ONLY), or 24 ±2												VDC
Input Voltage	5 (2kV-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	5	12	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	0.25	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 Monitoring (600V-1500V)	+1V/1kV max. or -1V/-1kV max. according to model polarity output impedance = 200kΩ ±1%												-
Output Voltage Monitoring (2kV-3kV)	12-24V Input Only: 0 to +5V±2% 5V Inputs: 0 to +2.5V±2%												VDC
Reference voltage	12-24V Input Only: 5V ±1%, TC:100ppm/°C, max. output current: 1mA 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	-40 to +70												°C
Safeguards	Arc and short circuit protection												-
Options	• Flying Lead for HV output						• Suitable for use with an external potentiometer						-
Enhanced Interface (-EI) Option (2kV-3kV Only)	Enable/Disable (ON/OFF): 0V to +0.5V Enable, +2.4V to V <sub>input</sub> Disable (Default = Disable)												-
	Output Current Monitor (5V Input Only): 0 to +2.5V±2% Output Current Monitor (12-24V Input): 0 to +5.0V±2%												-

Specifications subject to change without notice.



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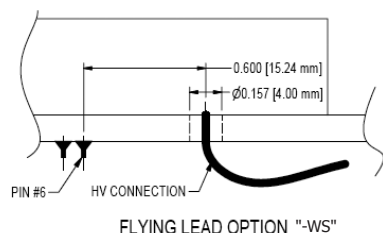
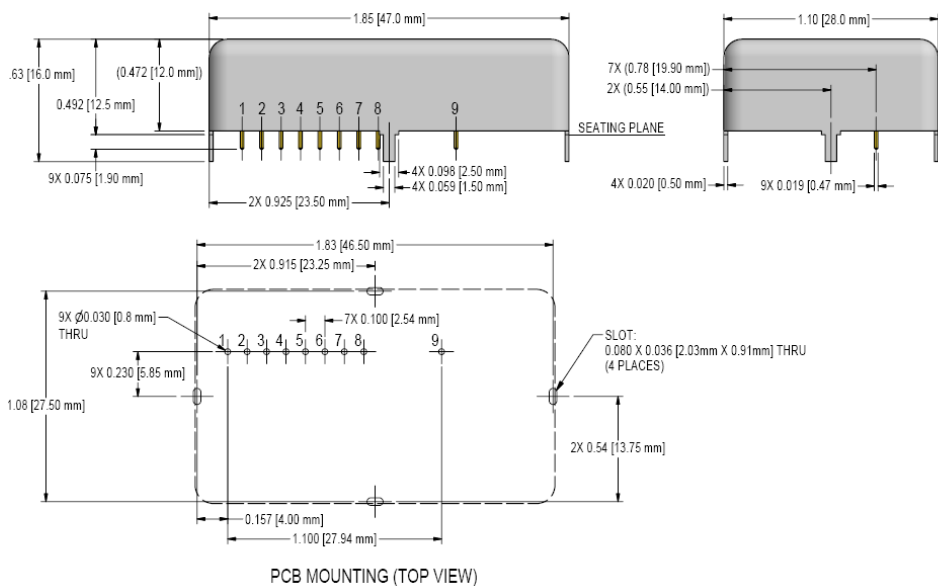
Higher Service, Higher Performance, Higher Reliability

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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. H 2/14

### CONSTRUCTION

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

### SIZE

Volume: 1.00in<sup>3</sup> (16.4cc)  
Weight: 1.23oz (35g)

### TOLERANCE

Overall ±0.030" (0.76)  
Pin to Pin ±0.015" (0.38)  
Pin to Tab ±0.020" (0.51)  
Tab to Tab ±0.010" (0.25)

### NOTES

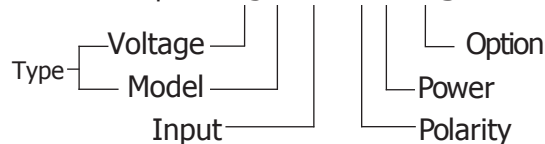
0.019" (0.47) round pins, length: 0.12" (3), spacing: 0.1" (2.54)  
PCB mounting through 4 mounting tabs: Length: 0.2" (5), width: 0.059" (1.5), thickness: 0.02" (0.5)  
Optional flying lead for HV output: Coaxial cable (RG178), diameter = 0.079" (2), length = 19.685" (500)

### DRAWING VIEWS

Third angle projections

ORDERING INFORMATION		
Type	0 to 600 VDC Output	0.6M
	0 to 1,000 VDC Output	1M
	0 to 1,250 VDC Output	1.25M
	0 to 1,500 VDC Output	1.5M
	0 to 2,000 VDC Output	2M
	0 to 2,500 VDC Output	2.5M
	0 to 3,000 VDC Output	3M
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: 1.5M24-P1-WS



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



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



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