ULTRAVOLT M SERIES

MINIATURE, MICRO-SIZED HIGH VOLTAGE BIASING SUPPLIES

The miniature, micro-sized M series is the ideal solution for applications requiring biasing voltage ranging from 0 to 3000 V and very small current—only 16.4 cc (1.00 in^3). Less than 12.7 mm (0.5") high, these modules are ideal for low-profile applications.

PRODUCT HIGHLIGHTS

- Seven models from 0 to 600, 1000, 1250, 1500, 2000, 2500, or 3000 V
- Output power: 0.5, 0.8, or 1 W
- 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
- UL/cUL recognized, IEC-60950-1, CE Mark (LVD and RoHS)

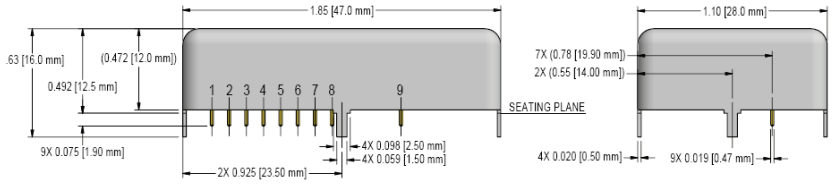
TYPICAL APPLICATIONS

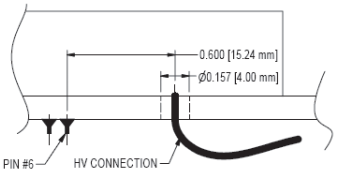
- Bias supplies
- Electrostatic chucks
- Hand held x-ray florescence (XRF)
- Avalanche photo diodes (APD)
- Photomultiplier tubes (PMT)
- Silicon detector (SiD)
- X-ray flat panel detector (FPD)
- Ionization chamber detector

ELECTRICAL SPECIFICATIONS

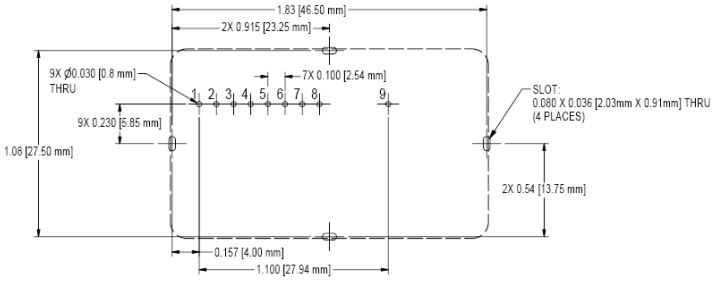
Parameter	Specifications												Units
Input Voltage Vin (Pins 1 and 2)	5 ±0.5 (2 to 3 kV ONLY)			12 ±1			15 ±1 (600 V to 1.5 kV ONLY)			24 ±2			VDC
Input Voltage	5 (2 to 3 kV ONLY)						12						V
Input Current	No load: 55, full load: 450						No load: 45, full load: 200						mA
Input Voltage	15 (600 V to 1.5 kV ONLY)						24						V
Input Current	No load: 40, full load: 190						No load: 35, full load: 160						mA
Polarity	Fixed positive or 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	15	24	5	15	24	5	15	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
Parameter	**All Types**												**Units**
HV Setting	10 to 100 K (potentiometer across Vref. and 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												V pk to pk
Temperature Coefficient	100 ppm/°C for the max output voltage after starting and over temperature range 0 to 50°C												-
Output Voltage Monitoring	600 to 1500 V: +1 V/1 kV max or -1 V/-1 kV max according to model polarity output impedance = to 200 kΩ ±1%												-
	2 to 3 kV (12 to 24 V input only): 0 to +5 V±2%												-
	2 to 3 kV (5 V inputs): 0 to +2.5 V±2%												-
Reference Voltage	12 to 24 V input only: 5 V ±1%, TC: 100 ppm/°C, max output current: 1 mA												-
	5 V inputs: 2.5 V ±1%, TC: 100 ppm/°C, max output current: 1 mA												-
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	Shielded flying lead for HV output (0.6 to 1.5 kV units only)												-
Enhanced Interface (-EI) Option (2 to 3 kV Only)	Enable/disable (ON/OFF): 0 to +0.5 V enable, +2.4V to Vinput disable (default = disable)												-
	Output current monitor (5 V input only): 0 to +2.5 V ±2%												-
	Output current monitor (12 to 24 V input): 0 to +5.0 V ±2%												-

MECHANICAL SPECIFICATIONS





FLYING LEAD OPTION -WS



PCB MOUNTING (TOP VIEW)

1 Pins 7 and 8 are available for 2 k to 3 kV units with enhanced interface option ONLY.

2 Drawing views: third angle projections. Measurements are in inches (millimeters).

Construction	
Case	Steel, tin-plated thickness 0.5 mm (0.02")
Insulation	Silicone-based RTV (contact factory for other options)
Volume	16.4 cc (1.00 in^3)
Weight	35 g (1.23 oz)
Tolerance	Overall: ±0.76 mm (0.030")
	Pin to Pin: ±0.38 mm (0.015")
	Pin to Tab: ±0.51 mm (0.020")
	Tab to Tab: ±0.25 mm (0.010")

1 0.47 mm (0.019") round pins, length: 3 mm (0.12"), spacing: 2.54 mm (0.1")

2 PCB mounting through 4 mounting tabs, length: 5 mm (0.2"), width: 1.5 mm (0.059"), thickness: 0.5 mm (0.02")

3 Optional flying lead for HV output: coaxial cable (RG178), diameter: 2 mm (0.079"), length: 500 mm (19.685") (0.6 to 1.5 kV units only)

INTERFACE

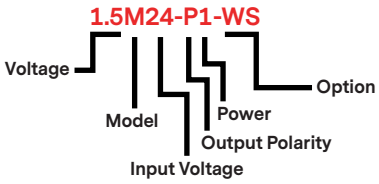
Connections	
Pin	**Function**
1	Positive Power Input
2	Power Ground
3	Signal Ground
4	Remote Adjust Input
5	Reference Voltage
6	Voltage Monitor
7	Current Monitor
8	Enable (available with -EI option only)
9	HV Output

1 Mounting tabs must be connected to ground.

ORDERING INFORMATION

Type	0 to 600 VDC Output	0.6M
	0 to 1000 VDC Output	1M
	0 to 1250 VDC Output	1.25M
	0 to 1500 VDC Output	1.5M
	0 to 2000 VDC Output	2M
	0 to 2500 VDC Output	2.5M
	0 to 3000 VDC Output	3M
Input	5 VDC Nominal (2 to 3 kV only)	5
	12 VDC Nominal	12
	15 VDC Nominal (600 V to 1.5 kV only)	15
	24 VDC Nominal	24
Power	0.5 W Output	0.5
	0.8 W Output	0.8
	1 W Output	1
Case	Tin Steel Case	(Standard)
Polarity	Positive Output	-P
	Negative Output	-N
Option	Shielded Flying Lead for HV Output (600 V to 1.5 kV)	-WS
	Current Monitor/Enable Pin (2 to 3 kV only)	-EI

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



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