

ULTRAVOLT[®] M SERIES MINIATURE, MICRO-SIZED

HIGH VOLTAGE BIASING SUPPLIES



Single-output, micro-sized HV modules

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 in³). Less than 12.7 mm (0.5") high, these modules are ideal for low-profile applications.

Features

Typical Applications

- 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 for high voltage output

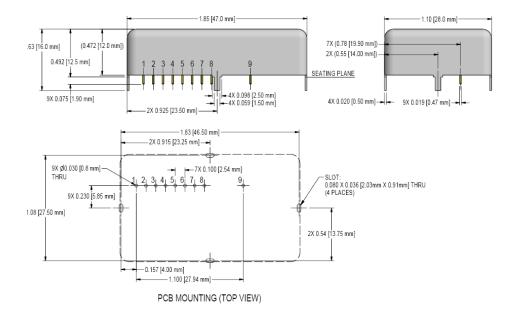
- Bias supplies
- Electrostatic chucks
- Hand held x-ray florescence (XRF)
- Avalanche photo diodes (APD)
- Photomultiplier tubes (PMT)
- Silicon detector (SiD)
- X-ray flat panel detector (FPD)
- Ionization chamber detector

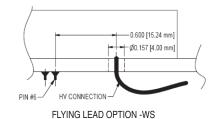


PARAMETER	SPECIFICATIONS				UNITS		
Input Voltage Vin (Pins 1 and 2)	5 ±0.5 (2 to 3 kV ONLY), 12 ±1, 15 ±1 (600 V to 1.5 kV ONLY), or 24 ±2				VDC		
Input Voltage	5 (2 to 3 kV (ONLY)		12	12		
Input Current	No load: 55, full load: 450			No load: 45,	No load: 45, full load: 200		mA
Polarity	Fixed positive and fixed negative				-		
Output Voltage	0 to 600 0 to 1000					VDC	
Input Voltage	12	15	24	12	15	24	VDC
Output Power	0.5	0.8	1	0.5	0.8	1	W
Output Current	0.83	1.33	1.67	0.5	0.8	1	mA
Output Voltage	0 to 1250			0 to 1500			VDC
Input Voltage	12	15	24	12	15	24	VDC
Output Power	0.5	0.8	1	0.5	0.8	1	W
Output Current	0.4	0.64	0.8	0.33	0.53	0.67	mA
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 = 200 k Ω ±1%				-		
Output Voltage Monitoring (2 to 3 kV)	12 to 24 V input only: 0 to +5 V±2%			VDC			
	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	Flying lead for HV output				-		
Enhanced Interface (-EI) Option (2 to 3 kV Only)	Enable/disable (ON/OFF): 0 to +0.5 V enable, +2.4V to V_input disable (default = disable)				-		
	Output current monitor (5 V input only): 0 to +2.5 V $\pm 2\%$						
	Output current monitor (12 to 24 V input): 0 to +5.0 V ±2%					-	

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PARAMETER	SPECIFIC				04.0		UNITS
Input Voltage Vin (Pins 1 and 2)			:I, I5 ±I (600 V	to 1.5 kV ONLY), or 24 ±2		VDC
Input Voltage	15 (600 V to 1			24			V
Input Current	No load: 40, f	full load: 190		No load: 35,k	full load: 160		mA
Polarity	Fixed positive and fixed negative				-		
Output Voltage	0 to 2000 0 to 2500					VDC	
Input Voltage	5	12	24	5	12	24	VDC
Output Power	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	mA
Output Voltage				0 to 3000			VDC
Input Voltage	5 12 24					24	VDC
Output Power	0.5 0.8 1 0.167 0.267 0.333				1	W	
Output Current					0.333	mA	
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 = 200 k Ω ±1%				-		
Output Voltage Monitoring (2 to 3 kV)	12 to 24 V input only: 0 to +5 V±2%					VDC	
	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	Flying lead for HV output				-		
Enhanced Interface (-EI) Option (2 to 3 kV Only)	Enable/disable (ON/OFF): 0 to +0.5 V enable, +2.4V to V_input disable (default = disable)				-		
	Output current monitor (5 V input only): 0 to +2.5 V $\pm 2\%$						
	Output current monitor (12 to 24 V input): 0 to +5.0 V ±2%				-		





Note: Pins 7 and 8 are available for 2 k to 3 kV units with enhanced interface option ONLY. Drawing views: third angle projections. Measurements are in inches (millimeters).

PHYSICAL SPECIFICATIONS				
Construction	Steel, tin-plated thickness 0.5 mm (0.02")			
	Insulation: fully potted in an epoxy resin			
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")			

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

PCB mounting through 4 mounting tabs, length: 5 mm (0.2"), width: 1.5 mm (0.059"), thickness: 0.5 mm (0.02") Optional flying lead for HV output: coaxial cable (RG178), diameter: 2 mm (0.079"), length: 500 mm (19.685")

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 -El option only)			
9	HV OUTPUT			

Note: Mounting tabs must be connected to ground.

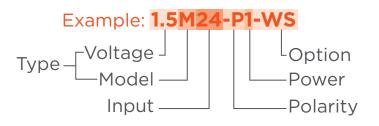
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ORDERING INFORMATION					
Туре	0 to 600 VDC Output	0.6 M			
	0 to 1000 VDC Output	1 M			
	0 to 1250 VDC Output	1.25 M			
	0 to 1500 VDC Output	1.5 M			
	0 to 2000 VDC Output	2 M			
	0 to 2500 VDC Output	2.5 M			
	0 to 3000 VDC Output	3 M			
Input	5 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			
	Flying Lead for HV Output (2 to 3 kV only)	-W			
	Current Monitor/Enable Pin (2 to 3 kV only)	-EI			



RoHS	No Ple
COMPLIANT	info

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



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

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

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For international contact information, visit advanced-energy.com.

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