

# AA SERIES

## High Voltage Biasing Supply

The AA Series of high-voltage regulated DC-DC converters addresses the needs of the miniature PCB-mount regulated high voltage power supply user. Designed and built utilizing state-of-the-art power-conversion topology, these units feature surface-mount technology and encapsulation techniques that provide high reliability and performance. Typical applications for the AA Series include the following: bias supplies, detectors, piezos, amplifiers, and photomultiplier tubes (PMT).

- 22% smaller than standard A Series
- 8 models from 0 to 62V through 0 to 6kV
- 4, 20 or 30 watts of output power
- Maximum lout capability down to 0 Volts
- Wide input voltage range
- Indefinite output short-circuit protection
- Output current & voltage monitors
- Fixed-frequency, low-stored-energy design
- >1,250,000 hour MTBF @65°C
- UL, cUL, CE, IEC-60950-1, and Demko Recognized



PARAMETER	CONDITIONS	MODELS																								UNITS
<b>INPUT</b>		12V												24V												
Voltage Range	Full Power	+ 11 to 16												+ 23 to 30												VDC
Voltage Range	Derated Power Range	+ 9 to 32												+ 9 to 32												VDC
Current	Standby / Disable	< 30												< 30												mA
Current	No Load, Max Eout	< 100												< 90												mA
Current	Max Load, Max Eout	~ 400												~ 1350												mA
AC Ripple Current	Nominal Input, Full Load	< 80												< 80												mA p-p
<b>OUTPUT</b>		1/16AA			1/8AA			1/4AA			1/2AA			1AA			2AA			4AA			6AA			
Voltage Range	Nominal Input	0 to 62			0 to 125			0 to 250			0 to 500			0 to 1,000			0 to 2,000			0 to 4,000			0 to 6,000			VDC
Nominal Input Voltage / Model		12	24	24	12	24	24	12	24	24	12	24	24	12	24	24	12	24	24	12	24	24	12	24	24	VDC
Power	Nominal Input, Max Eout	4	20	30	4	20	30	4	20	30	4	20	30	4	20	30	4	20	30	4	20	30	4	20	30	Watts
Current	lout Entire Output Voltage Range	64	320	480	32	160	240	16	80	120	8	40	60	4	20	30	2	10	15	1	5	7.5	0.67	3.3	5	mA
Current Scale Factor	Full Load	42.67	969.7	960	11.64	237	258	3.27	70.48	72.7	.79	17.78	17.65	.37	4.60	4.62	.192	1.52	1.52	.090	.752	.76	.066	.490	.50	mA/V
Voltage Monitor Scaling		10:1 ± 2% into 10MΩ												100:1 ± 2% into 10MΩ												-
Ripple	Full Load, Max Eout	0.03	0.06	0.15	0.03	0.038	0.038	0.023	0.04	0.05	0.01	0.01	0.011	0.026	0.048	0.073	0.01	0.011	0.046	0.042	0.050	0.070	0.035	0.024	0.046	%V p-p
Dynamic Load Regulation	½ to Full Load, Max Eout per .1mA	<.12	<.12	<.12	<.12	<.12	<.20	<.20	<.20	<.50	<.50	<.50	<.50	<.10	<.10	<.10	<.20	<.20	<.20	<.40	<.40	<.40	<.60	<.60	<.60	V pk
Line Regulation	Nom. Input, Max Eout, Full Power	< 0.01 %																								VDC
Static Load Regulation	No Load to Full Load, Max Eout	< 0.01 %																								VDC
Stability	30 Min. warmup, per 8 hr / per day	< 0.01% / < 0.02%																								VDC
<b>PROGRAMMING &amp; CONTROLS</b>		<b>ALL TYPES</b>																								
Input Impedance	Nominal Input	+ Output Models 1.1MΩ to GND, - Output Models 1.1MΩ to +5 Vref																								MΩ
Adjust Resistance	Typical Potentiometer Values	10K to 100K (Pot across Vref. & Signal GND, Wiper to Adjust)																								Ω
Adjust Logic	0 to +5 for +Out, +5 to 0 for - Out	+4.64 VDC for +Output or +0.36 for -Output = Nominal Eout																								-
Output Voltage & Impedance	T=+25°C	+ 5.00VDC ± 2%, Zout = 464Ω ± 1%																								-
Enable/Disable		0 to +0.5 Disable, +2.4 to 32 Enable (Default = Enable)																								VDC
<b>ENVIRONMENTAL</b>		<b>ALL TYPES</b>																								
Operating	Full Load, Max Eout, Case Temp.	-40 to +65																								°C
Coefficient	Over the Specified Temperature	±50																								PPM/°C
Thermal Shock	Mil-Std 810, Method 503-4, Proc. II	-40 to +65																								°C
Storage	Non-Operating, Case Temp.	-55 to +105																								°C
Humidity	All Conditions, Standard Package	0 to 95% non-condensing																								-
Altitude	Standard Package, All Conditions	Sea Level through Vacuum																								-
Shock	Mil-Std-810, Method 516.5, Proc. IV	20																								G's
Vibration	Mil-Std-810, Method 514.5, Fig.514.5C-3	10																								G's

Specifications subject to change without notice.



Making High Voltage Easier!®

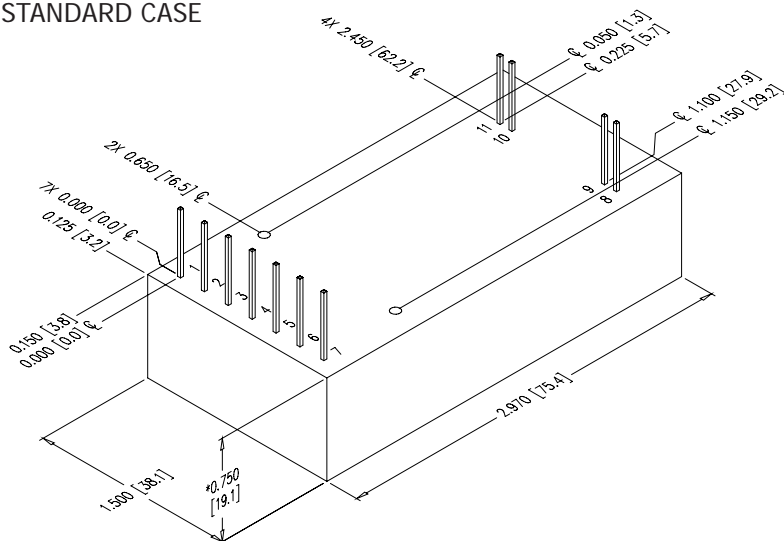
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## High Voltage Biasing Supply

### STANDARD CASE



### CONSTRUCTION

Epoxy-filled DAP box certified to ASTM-D-5948

### SIZE

Volume 3.34in<sup>3</sup> (54.8 cc)  
Weight 4.0oz (114g)

### TOLERANCE

Overall  $\pm 0.050$ " (1.27)  
Pin to Pin  $\pm 0.015$ " (0.38)  
Mounting hole location  $\pm 0.025$ " (0.64)

### NOTES

20W and 30W versions are an additional 0.062" (1.57) in height.  
-M equipped units are an additional 0.030" (0.76) for all dimensions.  
Contact UltraVolt's Customer Service Department for drawings of models equipped with -E or -H options.

[Downloadable drawings \(complete with mounting & pin information\) and 3D models are available online.](#)

CONNECTIONS	
PIN	FUNCTION
1	Input-Power Ground Return
2	Positive Power Input
3	Iout Monitor
4	Enable/Disable
5	Signal Ground Return
6	Remote Adjust Input
7	+5VDC Reference Output
8	HV Ground Return
9	Eout Monitor
10 & 11	HV Output

All grounds joined internally. Power-supply mounting points isolated from internal grounds by  $>100k\Omega$ , .01uF / 50V (Max) on all models except -M (20W and above), -M-E, and -M-H configurations which are  $0\Omega$ .

ORDERING INFORMATION		
Type	0 to 62 VDC Output	1/16AA
	0 to 125 VDC Output	1/8AA
	0 to 250 VDC Output	1/4AA
	0 to 500 VDC Output	1/2AA
	0 to 1,000 VDC Output	1AA
	0 to 2,000 VDC Output	2AA
	0 to 4,000 VDC Output	4AA
	0 to 6,000 VDC Output	6AA
Input	12VDC Nominal	12
	24VDC Nominal	24
Polarity	Positive Output	-P
	Negative Output	-N
Power	Watts Output (12 V Only)	4
	Watts Output (24 V Only)	20
	Watts Output (24 V Only)	30
Case	Plastic Case - Diallyl Phthalate	(Standard)
	'Eared' Chassis Mounting Plate	-E
Heat Sink	.400" High (sized to fit case)	-H
Shield	Six-sided Mu-Metal Shield	-M
Temp. Coefficient	25PPM Temperature Coefficient	-25PPM
Enhanced Interface	5V Control and Monitors	-15
	10V Control and Monitors (24Vin only)	-110

Note: For more information on the enhanced interface options, download the [I5/110 Option datasheet](#).



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



Rev. U 9/11

Example: 1/2AA24-P30-M



Popular accessories ordered with this product include CONN-KIT and BR-18 mounting bracket kit.



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