A Series

DC-HVDC Converter

XP Power

1 & 1.5 Watt

- Output voltages from 100V to 6000V
- Output Proportional to Input
- 0.7VDC Turn-on Voltage
- Extremely Low Profile <0.25"
- Input to Output Isolation
- Short Circuit Protection
- Control Pin
- No minimum load
- 3 Year Warranty

The A Series is a broad line of ultra-miniature, DC to HV DC converters that set an industry standard in high voltage miniaturization. This unique package occupies less than one tenth of a cubic inch of volume, and an extremely low profile of only 0.250 inches (6.35mm).

Controllable output voltages range from 100 volts to 6000 volts. The output is directly proportional to the input voltage and is linear from <0.7V input to maximum input voltage, allowing for an adjustable output voltage. Output is load dependent. Isolation permits <±500V bias on output return. No external components or minimum load are required.

A separate high impedance control pin is standard and is designed for external error amplifier and/or DAC control in closed or open loop systems. Or simply connect the control pin to the + input for proportional input to output operation. These component-sized converters are ideal for applications requiring minimal size and weight.

Dimensions:

All models:
Height x Width: 0.25 x 0.45" (6.35 x 11.43mm)

100V to 2000V outputs:
Length: 0.92" (23.37mm)

6000V outputs:
Length: 1.33" (33.78mm)

3000V to 5000V outputs:
Length: 1.13" (28.69mm)

Key Applications:

- Avalanche Photo Diodes
- Photo Multiplier Tubes
- Electrophoresis
- Capacitor Charging
- Sustaining Ion Pumps
- Piezo Devices
- Handheld Instruments

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	0.7		5,12,24	VDC	See Models and Ratings Table.
Input Current			550	mA	See Models and Ratings Table.
Control Voltage Input	Analog Control Voltage adjusts output from 0 to 100%, not to exceed Input Voltage, see Application Notes on Page 8 for details.				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage			6,000	VDC	See Models and Ratings Table
Output Current			15	mA	See Models and Ratings Table
Output Voltage Tolerance		+10, -10		%	At Max Vout, Full Load
Minimum Load	No minimum load required				
Regulation	Unregulated, Output is proportional to Input. See Application Notes.				
Short Circuit Protection	Protected against short circuit conditions for a minimum 1 minute.				
Ripple and Noise			5	%	See Models and Ratings Table.

Notes

1. *Maximum output current is available at maximum rated output voltage, and derates linearly as input voltage is decreased.*
2. *Output Voltage is load dependent. Under light or no-load conditions, reduce the Input Voltage so maximum rated Output Voltage is not exceeded.*
3. *Specifications are after 30 minute warm-up, full-load at 25°C, unless otherwise noted.*
4. *Proper thermal management techniques are required to maintain safe case temperature at maximum power output.*

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature (case)	-25		+75	°C	Standard operating temp, all models
Operating Temperature (case)	-55		+85	°C	Extended operating temp, -T models
Storage Temperature	-55		+105	°C	
Humidity			95	%RH	Non-condensing
Cooling					Natural Convection

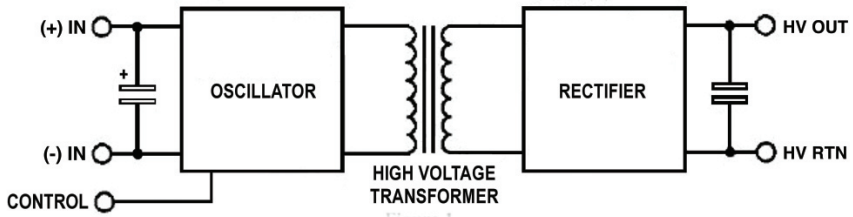
Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL	IEC/UL/CSA/EN 62368	
CE	CE Directive, RoHs and LVD	Where applicable
RoHS	RoHS 2 and 3 Directive (2011/65/EU)	Where applicable

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Isolation: Input to Output			500	V	< ±500 VDC Bias on Output Return
Leakage Current			100	nA	
Switching Frequency	50		350	kHz	
Construction	Solid vacuum encapsulation, UL 94 V-0 rated.				
Mean Time Between Failure	1.862			MHrs	Per Bellcore TR 332

Block Diagram



Pin Connections	
Pin	Function
1	(-) Input
2	(+) Input
3	HV Out
4	HV RTN
5	Control