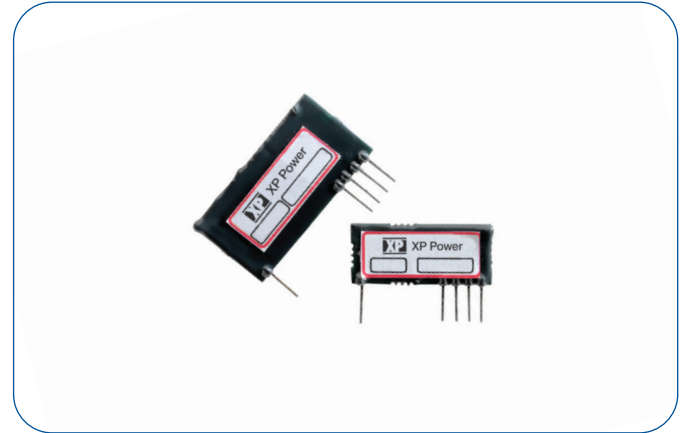


### 0.1 Watt & 1 Watt

- Precision Voltage Regulated
- Output Voltages up to 100V
- Low Ripple, <10mV
- TTL-compatible Disable Pin
- Ultra-thin Package
- Epoxy coated
- Operating Temperature -20°C to +70°C
- 3 Year Warranty



The SIP Series provides high performance in an ultra-thin, miniature single in-line package. Designed for low cost, high quantity applications, these DC to DC converters deliver high stability with very low ripple. The output voltage is programmable via a 0 to 5 volt analog voltage. The output voltage is inversely proportional to the programming voltage. Applying 5 volts to the programming input sets the output voltage to the minimum level. Conversely, 0 volts on the programming input sets the output voltage to the maximum level.

The units are linearly programmable throughout the output range. An enable/disable function is included; applying a TTL Low (open collector compatible) disables the output voltage to less than 10 volts. The SIP Series is a low cost, low power solution ideal for Photomultiplier tubes and APD biasing.

#### Dimensions:

SIP90: 1.15 x 0.55 x 0.16" (29.2 x 14.0 x 4.1mm)  
 SIP100: 1.45 x 0.75 x 0.16" (36.8 x 19.1 x 4.1mm)

#### Key Applications:

- Photomultiplier Tubes
- Mass Spectrometers
- Avalanche Photodiodes
- Microchannel Plates
- Capacitor Charging

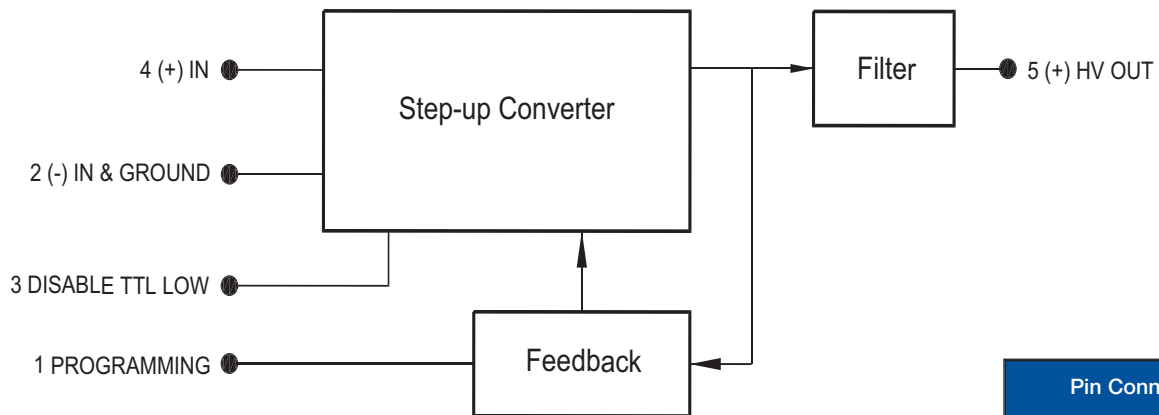
### Models & Ratings

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
<b>SIP90</b>					
Output Voltage	25		90	VDC	
Output Current			1	mA	
Ripple and Noise			5	mV	
Line Regulation					
Load Regulation			0.03	%	
Input Voltage	3		6.7	VDC	
Input Current, No Load			125	mA	
Input Current, Full Load			150	mA	
<b>SIP100</b>					
Output Voltage	25		100	VDC	
Output Current			10	mA	
Ripple and Noise			10	mV	at Max Vout, Full Load
Line Regulation			0.2	%	
Load Regulation			0.1	%	
Input Voltage	4		6.7	VDC	
Input Current, No Load			75	mA	
Input Current, Full Load			350	mA	

### General Specifications

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
<b>All Models</b>					
Minimum Load	No minimum load required				
Programming Voltage Input, VPGM	0		5	VDC	See page 2 for details
Disable input					TTL Low to disable
Temperature Coefficient			100	ppm/°C	
Stability			100	ppm/hr	
Isolation	N/A - Input ground is connected to output ground				
Construction	Epoxy coated				
Switching Frequency	1.8	2	2.2	MHz	
MTBF	2.03			Mhrs	
Operating Temperature	-20		70	°C	
Storage Temperature	-20		105	°C	

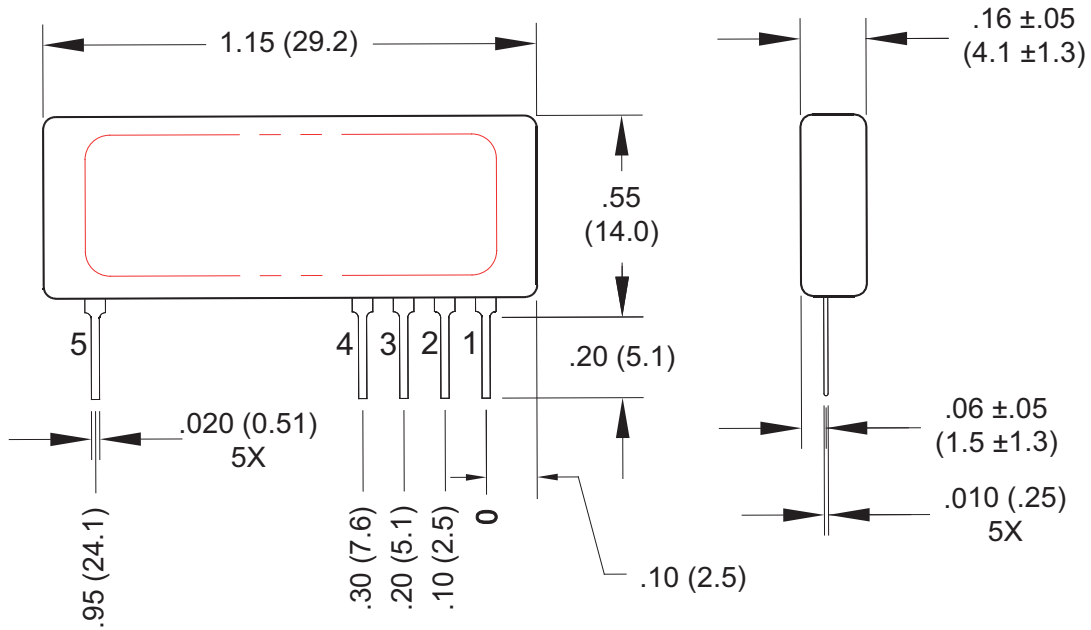
### Block Diagram



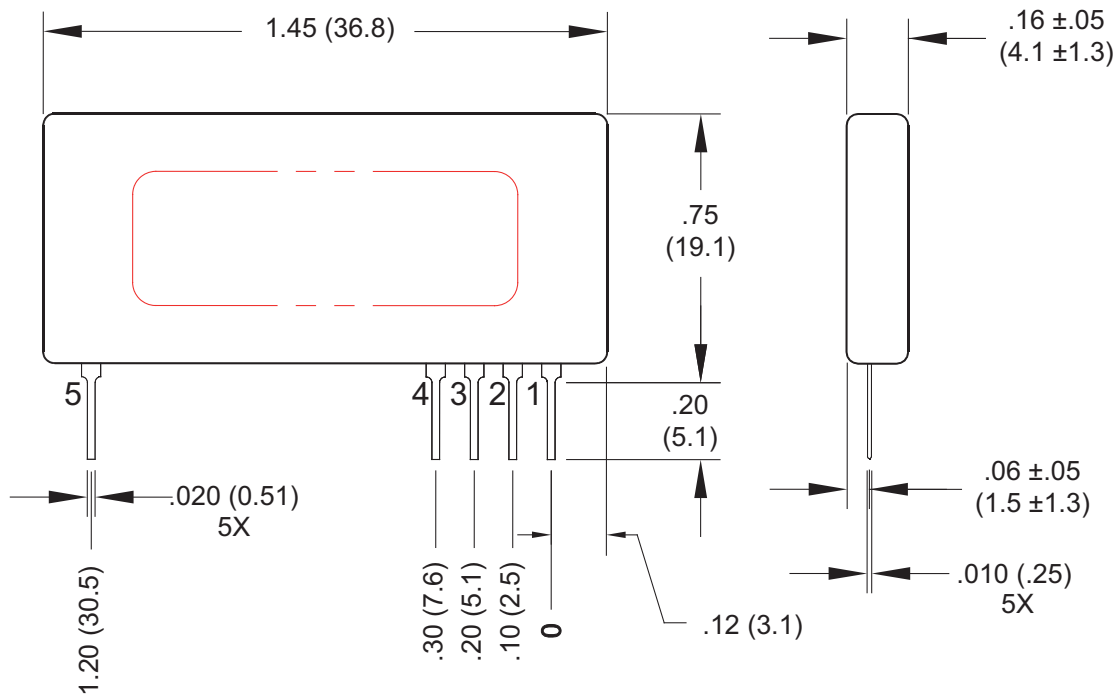
Pin Connections	
Pin	Function
1	VPGM
2	GROUND
3	DISABLE
4	VIN
5	HV OUT

### Mechanical Details

#### SIP90



#### SIP100

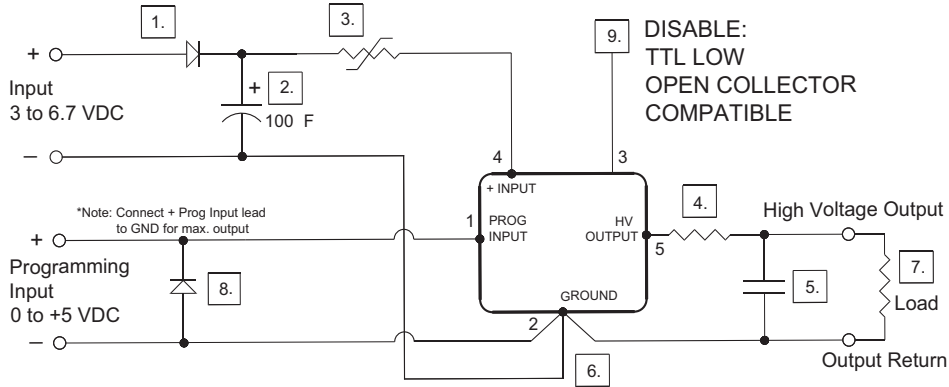


#### Notes

1. All dimensions are in inches (mm)
2. Weight: SIP90, 0.2oz (5g)  
SIP100, 0.25oz (7.1g)

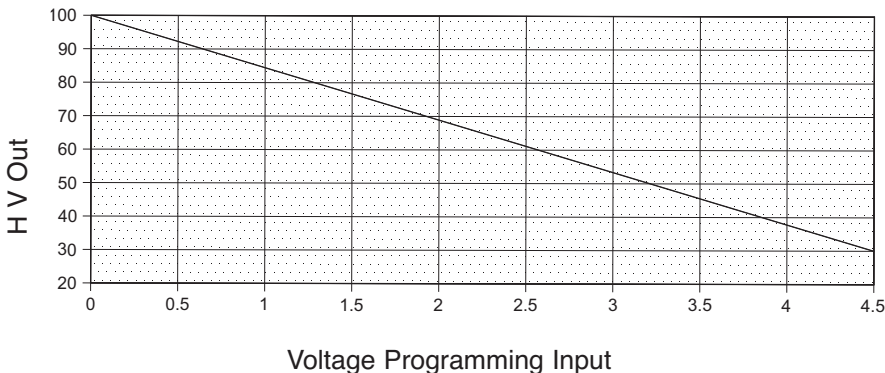
3. Tolerance: X.XX±0.02 (0.51)
4. Pin Tolerance: ±0.005 (0.127)

### Application Notes



- 1 Diode provides reverse polarity protection.
- 2 Capacitor reduces ripple.
- 3 Resettable fuse provides indefinite short circuit protection.
- 4 Series resistance increases arc protection and reduces ripple (when used with an output capacitor).
- 5 Capacitor reduces ripple.
- 6 IMPORTANT: Keep Input, Programming and Output return paths separate to eliminate ground loop accuracy errors.
- 7 Conformal coating recommended on all exposed high voltage conductors.
- 8 Diode provides protection against negative programming voltage or negative transient spike.
- 9 DISABLE: TTL low open collector compatible.  
ON/OFF CONTROL: ON = 5 Volts or N.C.  
OFF = 0 Volts

### Voltage Programming Instructions



$$\text{SIP90 Programming Voltage} = \frac{91 - V_{out}}{14.1}$$

$$\text{SIP100 Programming Voltage} = \frac{100 - V_{out}}{15.8}$$

Programming pin (1)

1. Pin should be left open for min Vout
2. Pin must be grounded for max Vout
3. See Chart for voltage adjustment.

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