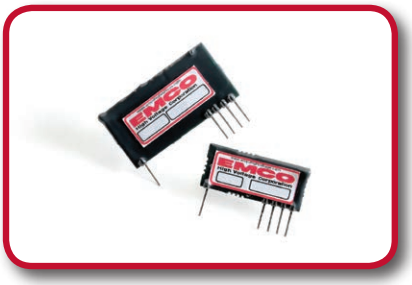
Proven Reliability

SIP SERIES

REGULATED, LOW RIPPLE HIGH VOLTAGE DC TO DC CONVERTERS

90V @ 0.1W and 100V @ 1W



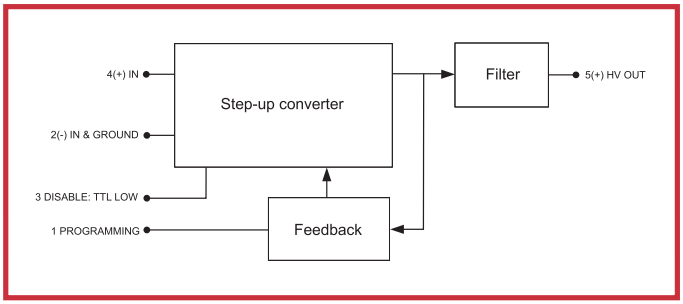
PRODUCT SELECTION TABLE

MODEL	OUTPUT VOLTAGE	MAXIMUM OUTPUT CURRENT
SIP 90 – 0.1W	<25 – 90V	0 to 1 mA
SIP 100 – 1W	<25 – 100V	0 to 10 mA

PRODUCT DESCRIPTION

Ideal for APD biasing and MEMS driver applications, 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 related to the programming voltage, i.e. applying 5 volts to the programming sets the output voltage to the minimum level. Conversely, 0 volts on the programming sets the output voltage to the maximum level. The supply is linearly programmable through this range*2. An enable/disable function is included. Applying a TTL Low (open collector compatible) disables the output voltage to less than 10 volts.

BLOCK DIAGRAM



FEATURES

- Low Ripple
- Well Regulated
- Analog Programming Voltage
- Ultra-Thin, 0.16 inches (4mm)
- High Performance Low Cost
- MTBF: >2.03 million hours per Bellcore TR-332
- Packaging: Epoxy Coated
- RoHS Compliant

APPLICATIONS

- Photomultiplier Tubes
- Mass Spectrometers
- Avalanche Photodiode
- Microchannel Plates
- Piezo Materials
- Igniters
- Capacitor Charging

ISO 9001:2008 CERTIFIED ISO 14001:2004 CERTIFIED RoHS COMPLIANT IPC Certified J-STD-001 Application Specialist

ELECTRICAL SPECIFICATIONS*2 (25 to 100VDC)

MODEL	SIP90	SIP100
Output Voltage	<25 to 90VDC	<25 to 100VDC
Max Output Current*1	0 to 1mA	0 to 10mA
Ripple P-P	<5mV	<10mV
Input Voltage	3 to 6.7VDC	4 to 6.7VDC
Input Current [No load]	<125mA	<75mA
Input Current [Full load]	<150mA	<350mA
Line Regulation	0.05%	0.20%
Load Regulation	0.03%	0.10%
Programming Voltage	See Below	
Programming Accuracy	91 +/-1	—
Frequency	2MHz +/- 5%	
Stability	< 0.01%/hr [1hr warm up]	
Tempco	<100ppm / deg C	
Operating Temperature	-20 to +70C°*3 (Case)	
Storage Temperature	-20 to +105C	

VOLTAGE PROGRAMMING

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

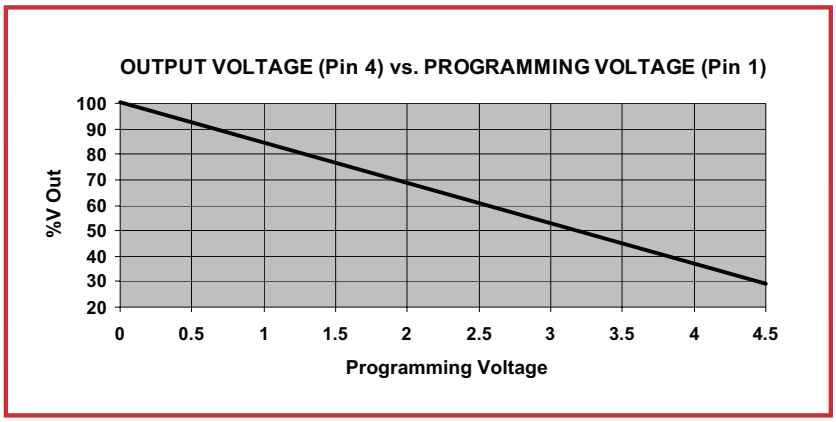
$$\text{SIP100 Programming Voltage} = \frac{100 - \text{Vout}}{15.8}$$

Ripple Measurements:

1. Ripple specified at maximum output power
2. Set scope bandwidth limit to 20MHz

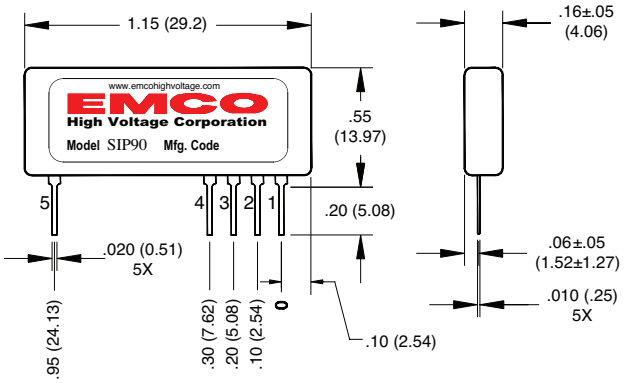
Programming pin (#1):

1. Pin should be left open for min Vout.
2. Pin must be grounded for max Vout.
3. Pin Can be modeled in the following way:
   (Please refer to the programming voltage chart)

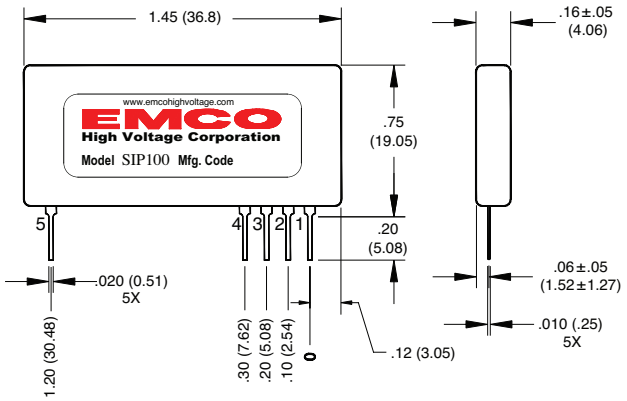


MECHANICAL SPECIFICATIONS SIP

SIP90



SIP100

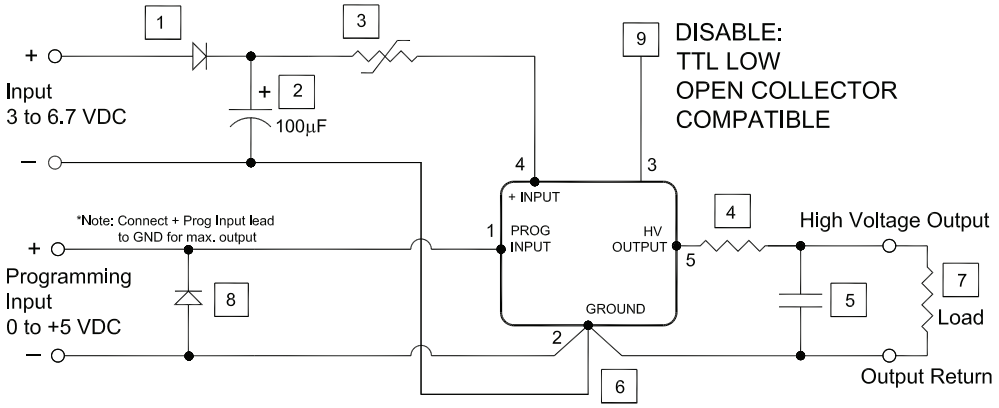


DIMENSIONS ARE IN INCHES (METRIC EQUIVALENTS ARE IN PARENTHESIS)
DIMENSIONAL TOLERANCES: .XX = ± 0.03 (0.76)

PARAMETER	VALUE	
	SIP 90	SIP 100
WEIGHT	<0.2 OZ (5 GRAMS)	<0.25 OZ (7.1 GRAMS)
VOLUME	0.101 CUBIC INCHES (1,656 CUBIC MILLIMETERS)	0.174 CUBIC INCHES (2,850 CUBIC MILLIMETERS)
DIMENSIONS	1.15 x 0.55 x 0.16 (29.2 x 13.97 x 4.06)	1.45 x 0.75 x 0.16 (36.83 x 19.05 x 4.06)

PIN #	FUNCTION
1	PROGRAMMING INPUT
2	GROUND
3	DISABLE: TTL, LOW, OPEN COLLECTOR COMPATIBLE
4	SUPPLY VOLTAGE
5	OUTPUT VOLTAGE

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

*Notes:
1. At Maximum Rated Output Voltage.
2. Specifications after 1 hour warm-up, full load, at 25°C unless otherwise indicated.
3. Proper thermal management techniques are required to maintain safe case temperature at maximum power output.

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