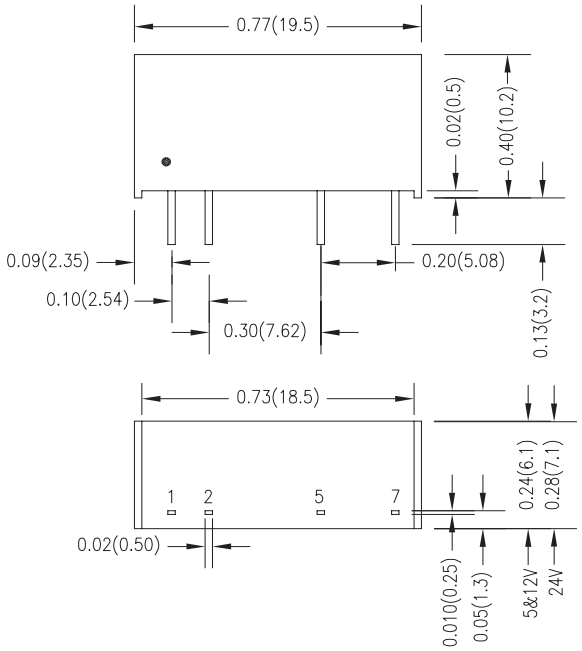
1 Watt SPV Single Series

- Efficiency up to 88%
- 3000VDC Isolation
- Low Ripple & Noise
- MTBF > 2,000,000 Hours
- RoHS Compliant

Model Number	Voltage			Current				Load Regulation	Input Overvoltage (1000ms)	Efficiency	Capacitive Load
	Input		Output	Input		Output					
	Nom. (VDC)	Range (VDC)	(VDC)	@ No Load (mA)	@ Max Load (mA)	Min (mA)	Max (mA)	% (Max)	Max (VDC)	@ Max Load (%, Typ)	Max
SPV1K5S5	5	4.5 - 5.5	5	30	238	4	200	6.2	9	84	220 µF
SPV1K5S9	5	4.5 - 5.5	9	30	229	2	110	5.5	9	86.5	220 µF
SPV1K5S12	5	4.5 - 5.5	12	30	231	1.5	84	5.5	9	87	220 µF
SPV1K5S15	5	4.5 - 5.5	15	30	230	1	67	5	9	87.5	220 µF
SPV1K12S5	12	10.8 - 13.2	5	12	99	4	200	5	18	84	220 µF
SPV1K12S9	12	10.8 - 13.2	9	12	96	2	110	3.3	18	86	220 µF
SPV1K12S12	12	10.8 - 13.2	12	12	95	1.5	84	3.6	18	88	220 µF
SPV1K12S15	12	10.8 - 13.2	15	12	95	1	67	2.9	18	88	220 µF
SPV1K24S5	24	21.6 - 26.4	5	11	50	4	200	5	30	84	220 µF
SPV1K24S9	24	21.6 - 26.4	9	11	48	2	110	3.5	30	86.5	220 µF
SPV1K24S12	24	21.6 - 26.4	12	11	48	1.5	84	3.5	30	87.5	220 µF
SPV1K24S15	24	21.6 - 26.4	15	11	48	1	67	3	30	87.5	220 µF



Dimensions are inches (mm) unless noted

Tolerance:	Inches	Millimeters
	X.XX ±0.01	X.X ±0.25
	X.XXX ±0.005	X.XX ±0.13
Pin	±0.002	±0.05

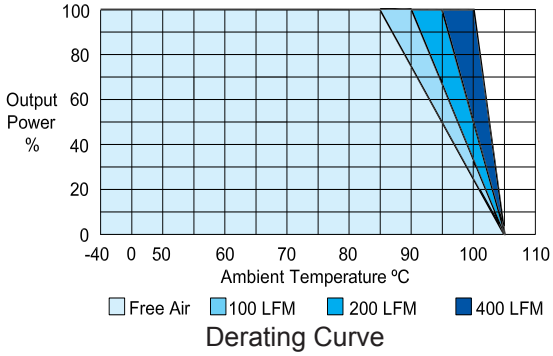
Pin Connections	
Pin	**Single**
1	+Vin
2	-Vin
5	-Vout
7	+Vout

See Model Selection Table for Model Specific Parameters

Input Parameters	Min	Typ	Max	Units
Reverse Polarity Input Current			0.3	A
Switching Frequency	50	100	120	kHz
Input Filter	Internal Capacitor			
Output Parameters	**Min**	**Typ**	**Max**	**Units**
Load Regulation Io = 20% to 100%	See Model Selection Guide			%
Line Regulation for Vin Change of 1%		±1.05	±1.2	%
Ripple & Noise (20MHz)		30	60	mV P-P
Temperature Coefficient		±0.01	±0.02	% / ºC
Short Circuit Protection	0.5 Second Max			
General Specifications	**Min**	**Typ**	**Max**	**Units**
Isolation Voltage, 60 seconds	3000			VDC
Isolation Resistance 1000VDC	10			Gohms
Isolation Capacitance, 100kHz, 1V	30	60	120	pF
Operating Temperature (Ambient)	-40		+85	ºC
Operating Temperature (Case)	-40		+90	ºC
Storage Temperature	-50		+125	ºC
Humidity			95	%
MTBF MIL-HDBK-217F @25ºC, Ground Benign	2000			K Hours
Cooling	Free-Air Convection			
Case Size 5V & 12V	0.77 x 0.24 x 0.40 inches 19.5 x 6.1 x 10.2 mm			
24V	0.77 x 0.28 x 0.40 inches 19.5 x 7.1 x 10.2 mm			
Case Material	Non Conductive Black Plastic (UL94V-0)			
Weight 5V & 12V 24V	2.2g 2.6g			

Notes:

1. Specifications typical at Ta=+25ºC, resistive load, nominal input voltage, full rated output current unless otherwise noted.
2. ConTech power converters require a minimum output loading to maintain specified regulation. Operation under no-load conditions will not damage these modules; however, they may not meet all specifications listed.
3. The series has a limitation of a maximum connected capacitance at the output. The power module may be operated in current limiting mode during start-up, affecting the ramp-up and the startup time.
4. When measuring peak-to-peak output noise, use a Cout 0.33µF ceramic capacitor. Scope measurement should be made by using a BNC socket, measurement bandwidth is 0-20MHz. Position the load between 2" and 2.5" from the converter.
5. Water washability - ConTech DC/DC converters are designed to withstand most solder/wash processes. Careful attention should be used when assessing the applicability in your specific manufacturing process. Converters are not hermetically sealed.
6. See ConTech website for Definition of Terms, Application Notes, and Test Setups and Parameters. www.ConTech-us.com/appnotes.html.
7. Specifications subject to change without notice.
8. See ConTech website www.ConTech-us.com/pdf/rohs.pdf for RoHS Statement.

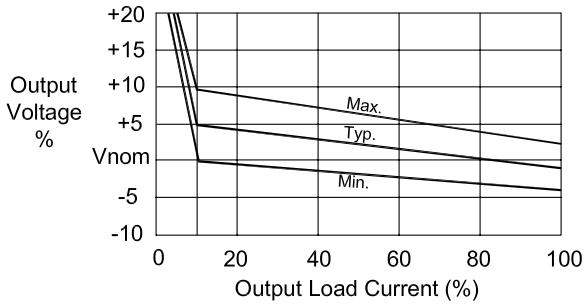


Derating Curve

To avoid exceeding the maximum temperature rating of the components inside the power module, the case temperature must be kept below 90ºC.

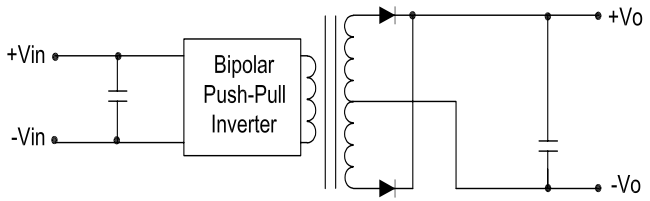
Input Fuse Selection Table	
5V Input	500 mA Slow-Blow
12V Input	200 mA Slow-Blow
24V Input	100 mA Slow-Blow

External fusing should be used for system protection due to a catastrophic failure. See ConTech website for Fusing Application Notes to determine the correct fuse.



Tolerance Envelope

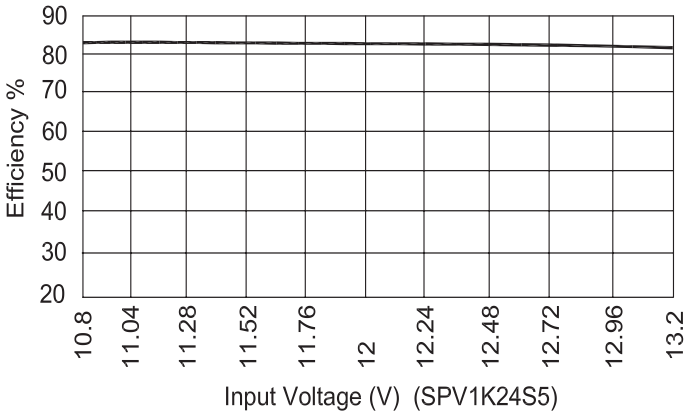
Block Diagrams



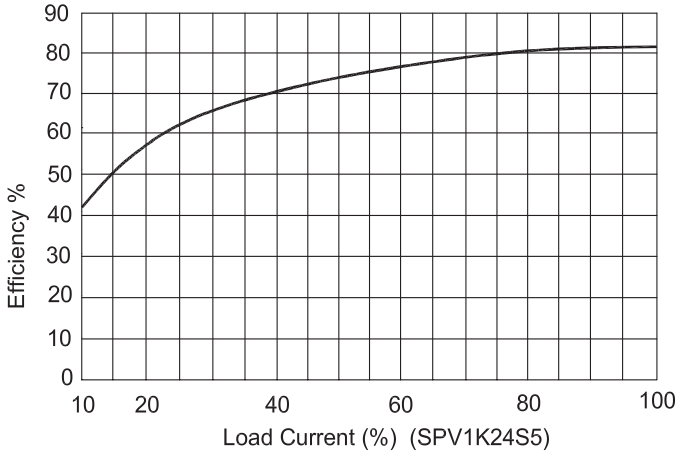
Single Output Block Diagram

Efficiency Curves

Single Output



Efficiency vs Input Voltage



Efficiency vs Output Load