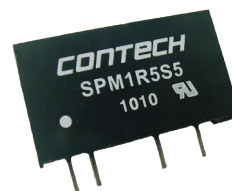


1 Watt SPM

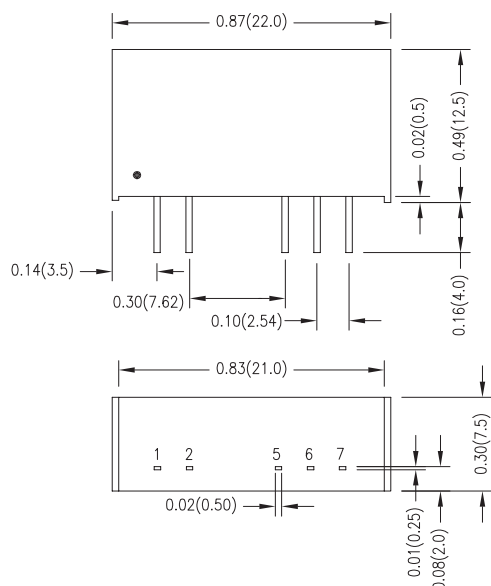
Single and Dual Series



- Efficiency up to 75%
- 3000 VAC Isolation
- MTBF > 2,000,000 Hours
- UL60950 & UL60601 Approved
- 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 (Dual each output)
SPM1R5S5	5	4.5 - 5.5	5	55	303	4	200	10	9	66	680 μF
SPM1R5S12	5	4.5 - 5.5	12	55	291	2	80	8	9	66	680 μF
SPM1R5S15	5	4.5 - 5.5	15	55	295	1	65	8	9	66	680 μF
SPM1R5D5	5	4.5 - 5.5	±5	55	303	±2	±100	10	9	66	220 μF
SPM1R5D12	5	4.5 - 5.5	±12	55	267	±1	±40	8	9	72	220 μF
SPM1R5D15	5	4.5 - 5.5	±15	55	287	±1	±35	8	9	73	220 μF
SPM1R12S5	12	10.8 - 13.2	5	30	126	4	200	10	29	66	680 μF
SPM1R12S12	12	10.8 - 13.2	12	30	121	2	80	8	29	66	680 μF
SPM1R12S15	12	10.8 - 13.2	15	30	123	1	65	8	29	66	680 μF
SPM1R12D5	12	10.8 - 13.2	±5	30	126	±2	±100	10	29	66	220 μF
SPM1R12D12	12	10.8 - 13.2	±12	30	108	±1	±40	8	29	74	220 μF
SPM1R12D15	12	10.8 - 13.2	±15	30	117	±1	±35	8	29	75	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	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Common
7	+Vout	+Vout

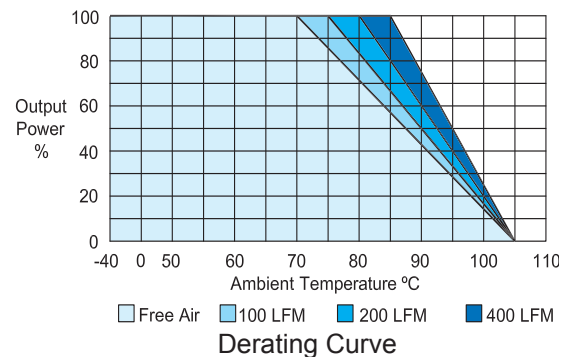


See Model Selection Table for Model Specific Parameters

Input Parameters	Min	Typ	Max	Units
Reverse Polarity Input Current			0.3	A
Switching Frequency	50	80	100	kHz
Input Filter	LC Filter			
Output Parameters	Min	Typ	Max	Units
Output Voltage Accuracy		±1.0	±3.0	%
Output Voltage Balance Dual Output, Balanced Loads		±0.1	±1.0	%
Load Regulation I _o = 20% to 100%	See Model Selection Guide			%
Line Regulation for V _{in} Change of 1%		±1.2	±1.5	%
Ripple & Noise (20MHz)		100	150	mV P-P
Ripple & Noise (20 MHz) Over Line, Load & Temp			200	mV P-P
Ripple & Noise (20 MHz)			15	mV RMS
Temperature Coefficient		±0.01	±0.02	% / °C
Short Circuit Protection	0.5 Second Max			
General Specifications	Min	Typ	Max	Units
Isolation Voltage, 60 seconds	3000			VAC _{RMS}
Isolation Resistance 500VDC	10			GΩ
Isolation Capacitance, 100kHz, 1V		15	20	pF
Operating Temperature with Derating (Ambient)	-25		+85	°C
Case Temperature			+90	
Storage Temperature	-50		+125	°C
Humidity			95	%
MTBF MIL-HDBK-217F @25°C, Ground Benign	2000			K Hours
Cooling	Free-Air Convection			
Case Size	0.87 x 0.30 x 0.49 inches 22.0 x 7.5 x 12.5 mm			
Case Material	Non Conductive Black Plastic (UL94V-0)			
Weight	3.9g			
Agency Approval	UL60950 and UL60601 Approved			

Notes:

- Specifications typical at Ta=+25°C, resistive load, nominal input voltage, full rated output current unless otherwise noted.
- 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.
- 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.
- 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.
- 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.
- See ConTech website for Definition of Terms, Application Notes, and Test Setups and Parameters. www.ConTech-us.com/appnotes.html
- Specifications subject to change without notice.
- See ConTech website www.ConTech-us.com/pdf/RoHS.pdf for RoHS Statement.



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

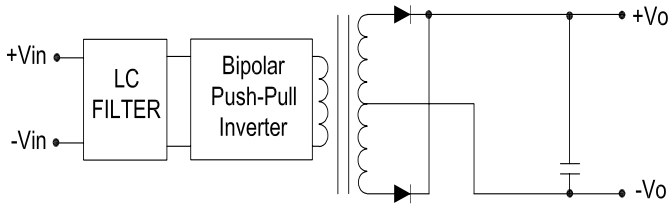
Input Fuse Selection Table

5V Input	500 mA Slow-Blow
12V Input	200 mA Slow-Blow

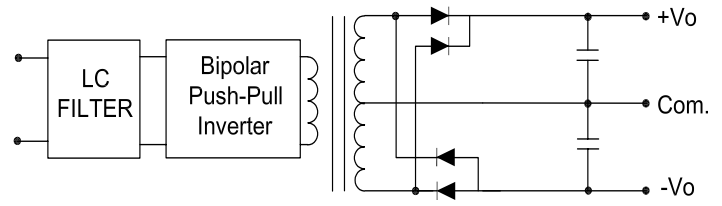
External fusing should be used for system protection due to a catastrophic failure. See ConTech website for Fusing Application Notes to determine the correct fuse.



Block Diagrams



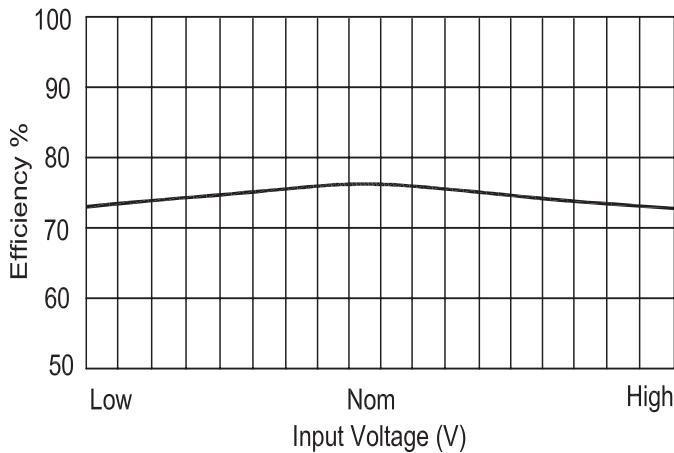
Single Output Block Diagram



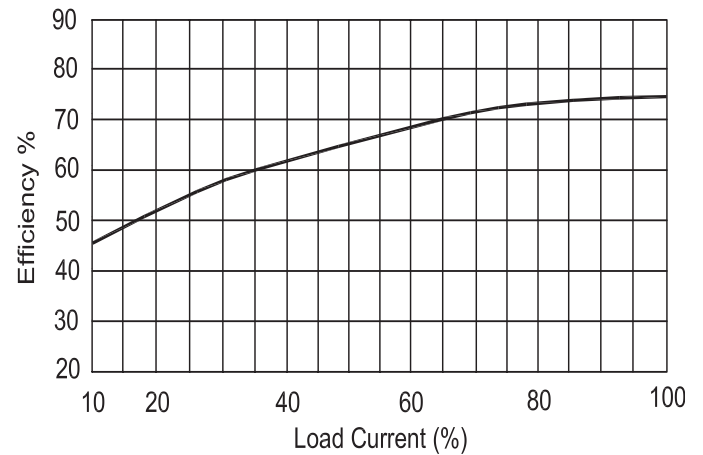
Dual Output Block Diagram

Efficiency Curves

Single Output

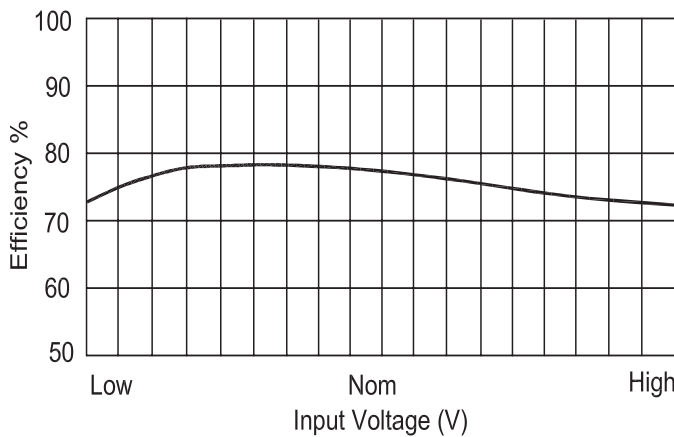


Efficiency vs Input Voltage

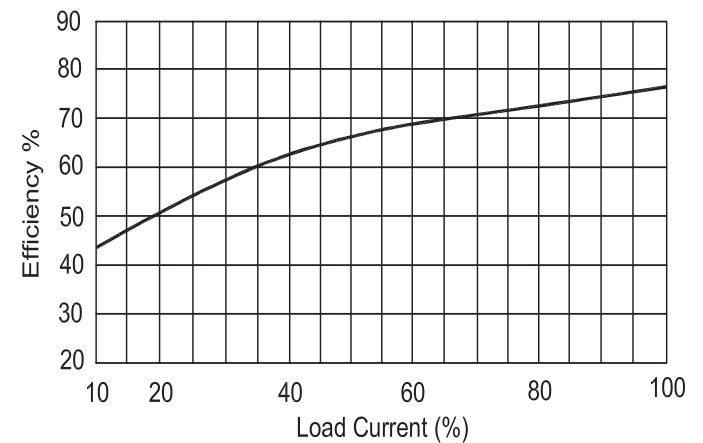


Efficiency vs Output Load

Dual Output



Efficiency vs Input Voltage



Efficiency vs Output Load