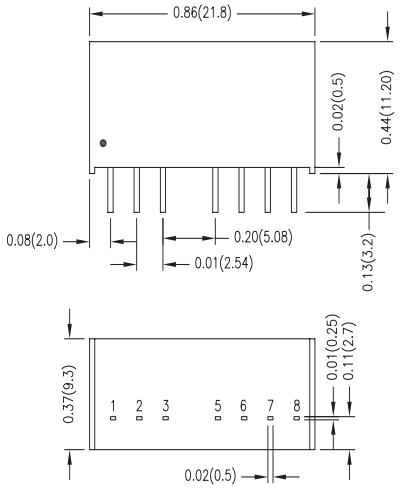
2 Watt SPR Single Series

- Efficiency up to 81%
- 1000VDC Isolation
- MTBF > 1,000,000 Hours
- Remote On/Off
- Low Ripple and Noise
- RoHS Compliant

Model Number	Voltage			Current				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 (VDC)	@ Max Load (%, Typ)	Max (Dual each output)
SPR2F5S3R3	5	4.5 - 9	3.3	40	471	125	500	15	70	2200 µF
SPR2F5S5	5	4.5 - 9	5	40	548	100	400	15	73	1000 µF
SPR2F5S12	5	4.5 - 9	12	40	534	42	167	15	75	170 µF
SPR2F12S3R3	12	9 - 18	3.3	20	184	125	500	25	73	2200 µF
SPR2F12S5	12	9 - 18	5	20	217	100	400	25	77	1000 µF
SPR2F12S12	12	9 - 18	12	20	209	42	167	25	80	170 µF
SPR2F24S3R3	24	18 - 36	3.3	10	96	125	500	50	72	2200 µF
SPR2F24S5	24	18 - 36	5	10	109	100	400	50	77	1000 µF
SPR2F24S12	24	18 - 36	12	10	103	42	167	50	81	170 µF
SPR2F48S3R3	48	36 - 75	3.3	8	49	125	500	100	71	2200 µF
SPR2F48S5	48	36 - 75	5	8	57	100	400	100	73	1000 µF
SPR2F48S12	48	36 - 75	12	8	53	42	167	100	79	170 µF



Dimensions are inches (mm) unless noted

Tolerance:	Inches	Millimeters
	X.XX ±0.02	X.X ±0.5
	X.XXX ±0.01	X.XX ±0.25
Pin	±0.004	±0.1

Pin Connections	
Pin	**Function**
1	-Vin
2	+Vin
3	Remote On/Off
5	NC
6	+Vout
7	-Vout
8	NC

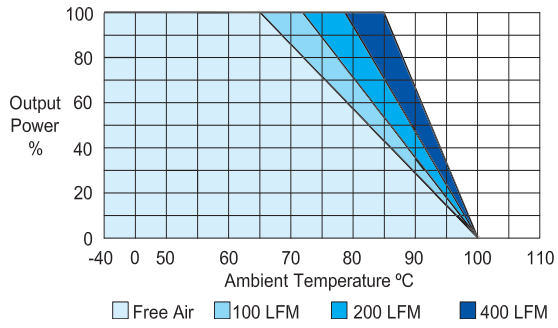
See Model Selection Table for Model Specific Parameters

Input Parameters		Min	Typ	Max	Units
Reverse Polarity Input Current				1	A
Short Circuit Input Power				1500	mW
Start Voltage	5 Vin	3.5	4	4.5	VDC
	12 Vin	4.5	7	9	
	24 Vin	8	12	18	
	48 Vin	16	24	36	
Under Voltage Shutdown	5 Vin		3.5	4	VDC
	12 Vin		6.5	8.5	
	24 Vin		11	17	
	48 Vin		22	34	
Switching Frequency		100	300	650	kHz
Input Filter		Capacitor Type			
Output Parameters		**Min**	**Typ**	**Max**	**Units**
Output Voltage Accuracy			±1	±2	%
Load Regulation Io = 25% to 100%			±0.5	±0.75	%
Line Regulation Vin=Min. to Max.			±0.3	±0.5	%
Ripple & Noise (20MHz)			30	50	mV P-P
Ripple & Noise (20 MHz) Over Line, Load & Temp				75	mV P-P
Ripple & Noise (20 MHz)				15	mV RMS
Over Power Protection		120			%
Transient Recovery Time 25% Load Step Change			100	300	µS
Transient Response 25% Load Step Change			±3	±5	%
Temperature Coefficient			±0.01	±0.02	% / ºC
Short Circuit Protection		Continuous			
General Specifications		**Min**	**Typ**	**Max**	**Units**
Isolation Voltage, 60 seconds		1000			VDC
Isolation Resistance 500VDC		1000			Mohms
Isolation Capacitance, 100kHz, 1V			65	120	pF
Operating Temperature (Ambient)		-40		+85	ºC
Storage Temperature		-55		+105	ºC
Humidity				95	%
MTBF MIL-HDBK-217F @25ºC, Ground Benign		1000			K Hours
Cooling		Free-Air Convection			
Case Size		0.86 x 0.37 x 0.44 inches 21.8x 9.3 x 11.2 mm			
Case Material		Non Conductive Black Plastic (UL94V-0)			
Weight		4.8g			

Remote On/Off	Min	Typ	Max	Units
Supply On	Under 0.6 VDC or Open Circuit, drops down to 0 VDC by 2mV/ºC			
Supply Off	2.7		15	VDC
Device Standby Input Current		0.1	0.2	mA
Control Input Current (on) Vin=0V			-0.4	mA
Control Input Current (off) Vin=5.0V			1	mA
Control Common	Referenced to Negative Logic			

Notes:

1. Specifications typical at Ta=+25ºC, resistive load, nominal input voltage, full rated output current unless otherwise noted.
2. Transient recovery time is measured to within 1% error band for a step change in output load 75% to 100%.
3. 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.
4. 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.
5. When measuring peak-to-peak output noise, use a Cout 0.47µF 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.
6. 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.
7. See ConTech website for Definition of Terms, Application Notes, and Test Setups and Parameters. www.ConTech-us.com/appnotes.html.
8. Specifications subject to change without notice.
9. See ConTech website www.ConTech-us.com/pdf/rohs.pdf for RoHS Statement.



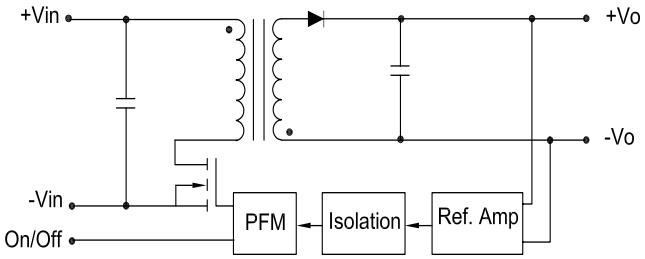
Derating Curve

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	1500 mA Slow-Blow
12V Input	700 mA Slow-Blow
24V Input	350 mA Slow-Blow
48V Input	135 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.

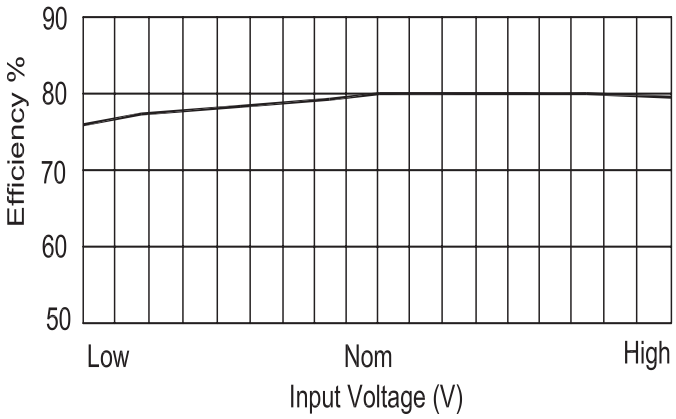
Block Diagram



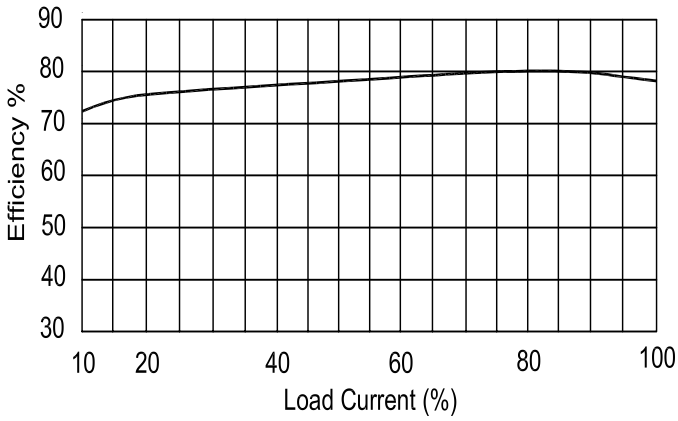
Single Output Block Diagram

Efficiency Curves

Single Output



Efficiency vs Input Voltage



Efficiency vs Output Load