

- Efficiency up to 81%
- 1600VDC Isolation
- 4:1 Input Range
- MTBF > 800,000 Hours
- Remote On/Off
- Regulated Output
- RoHS Compliant



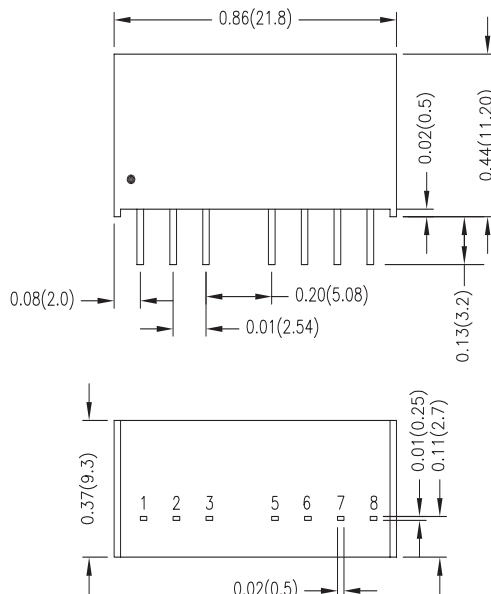
## 3 Watt SPQ Single and Dual Series



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)			
SPQ2P12S3	12	4.5-18	3.3	60	260	175	700	25	74	1760 $\mu$ F
SPQ3P12S5	12	4.5-18	5	60	320	150	600	25	78	1000 $\mu$ F
SPQ3P12S12	12	4.5-18	12	60	313	63	250	25	80	170 $\mu$ F
SPQ3P12S15	12	4.5-18	15	60	313	50	200	25	80	110 $\mu$ F
SPQ3P12D5	12	4.5-18	$\pm$ 5	60	313	$\pm$ 75	$\pm$ 300	25	80	470 $\mu$ F
SPQ3P12D12	12	4.5-18	$\pm$ 12	60	313	$\pm$ 31	$\pm$ 125	25	80	100 $\mu$ F
SPQ3P12D15	12	4.5-18	$\pm$ 15	60	313	$\pm$ 25	$\pm$ 100	25	80	47 $\mu$ F
SPQ2P24S3	24	9-36	3.3	25	128	175	700	50	75	1760 $\mu$ F
SPQ3P24S5	24	9-36	5	25	156	150	600	50	80	1000 $\mu$ F
SPQ3P24S12	24	9-36	12	25	154	63	250	50	81	170 $\mu$ F
SPQ3P24S15	24	9-36	15	25	154	50	200	50	81	110 $\mu$ F
SPQ3P24D5	24	9-36	$\pm$ 5	25	158	$\pm$ 75	$\pm$ 300	50	79	470 $\mu$ F
SPQ3P24D12	24	9-36	$\pm$ 12	25	156	$\pm$ 31	$\pm$ 125	50	80	100 $\mu$ F
SPQ3P24D15	24	9-36	$\pm$ 15	25	154	$\pm$ 25	$\pm$ 100	50	81	47 $\mu$ F
SPQ2P48S3	48	18-75	3.3	15	65	175	700	100	74	1760 $\mu$ F
SPQ3P48S5	48	18-75	5	15	79	150	600	100	79	1000 $\mu$ F
SPQ3P48S12	48	18-75	12	15	79	63	250	100	79	170 $\mu$ F
SPQ3P48S15	48	18-75	15	15	79	50	200	100	79	110 $\mu$ F
SPQ3P48D5	48	18-75	$\pm$ 5	15	79	$\pm$ 75	$\pm$ 300	100	79	470 $\mu$ F
SPQ3P48D12	48	18-75	$\pm$ 12	15	79	$\pm$ 31	$\pm$ 125	100	79	100 $\mu$ F
SPQ3P48D15	48	18-75	$\pm$ 15	15	78	$\pm$ 25	$\pm$ 100	100	80	47 $\mu$ F

Dimensions are inches (mm) unless noted

Tolerance: Inches      Millimeters  
 X.XX  $\pm$ 0.02      X.X  $\pm$ 0.5  
 X.XXX  $\pm$ 0.01      X.XX  $\pm$ 0.25  
 Pin       $\pm$ 0.004       $\pm$ 0.1



Pin Connections	(NC-Not Connected)	
	Function	
Pin	Single Output	Dual Output
1	-Vin	-Vin
2	+Vin	+Vin
3	Remote On/Off	Remote On/Off
5	NC	NC
6	+Vout	+Vout
7	-Vout	Common
8	NC	-Vout

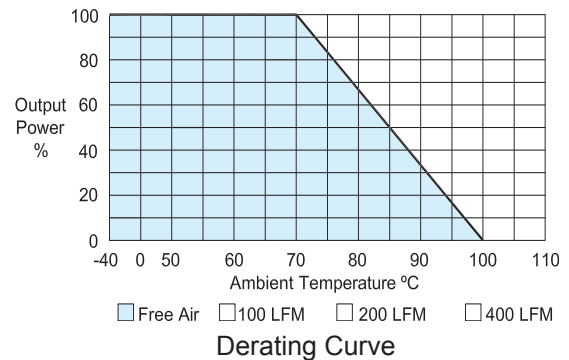
See Model Selection Table for Model Specific Parameters

Input Parameters	Min	Typ	Max	Units	
Reverse Polarity Input Current			1	A	
Short Circuit Input Power			2500	mW	
Start Voltage	12 Vin 24 Vin 48 Vin	3 4.5 8.5	4 6 12	4.5 9 18	VDC
Under Voltage Shutdown	12 Vin 24 Vin 48 Vin		3.5	4 8 16	VDC
Switching Frequency		350		kHz	
Input Filter	Capacitor Type				
Output Parameters	Min	Typ	Max	Units	
Output Voltage Accuracy 50% Load Nom. $V_{IN}$		±0.5	±1.0	%	
Output Voltage Balance Dual Output, Balanced Loads		±0.5	±2.0		
Load Regulation $I_o = 25\%$ to 100%		±0.5	±1.0	%	
Line Regulation $V_{in} = \text{Min. to Max.}$		±0.3	±0.5	%	
Ripple & Noise (20MHz)		50	75	mV P-P	
Transient Recovery Time 25% Load Step Change		300	500	µS	
Transient Response 25% Load Step Change		±3	±5	%	
Temperature Coefficient			±0.02	% / °C	
Short Circuit Protection	Continuous				
General Specifications	Min	Typ	Max	Units	
Isolation Voltage, 60 seconds	1600			VDC	
Isolation Resistance 500VDC	1000			Mohms	
Isolation Capacitance, 100kHz, 1V		200		pF	
Operating Temperature (Ambient)	-40		+85	°C	
Case Temperature			+105		
Storage Temperature	-55		+125	°C	
Humidity			95	%	
MTBF MIL-HDBK-217F @25°C, Ground Benign	800			K Hours	
Lead Temperature (1.5mm from case for 10 Sec.)			260	°C	
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				
Agency Approval	UL60950 Pending				

Remote On/Off	Min	Typ	Max	Units
Supply On	Under 0.6 VDC or Open Circuit, drops down to 0 VDC by 2mV/°C			
Supply Off	2.7		15	VDC
Device Standby Input Current		1	2.5	mA
Control Input Current (on) $V_{in}=0V$			1	mA
Control Input Current (off) $V_{in}=5.0V$			1	mA
Control Common	Referenced to Negative Logic			

Notes:

- Specifications typical at  $T_a = +25^\circ\text{C}$ , resistive load, nominal input voltage, full rated output current unless otherwise noted.
- Transient recovery time is measured to within 1% error band for a step change in output load 75% to 100%.
- 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 0.47µF 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.
- 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](http://www.ConTech-us.com/appnotes.html).
- Specifications subject to change without notice.
- See ConTech website [www.ConTech-us.com/pdf/rohs.pdf](http://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 105°C.

Input Fuse Selection Table	
12V Input	1500 mA Slow-Blow
24V Input	700 mA Slow-Blow
48V Input	350 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.

