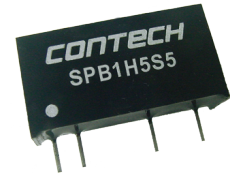




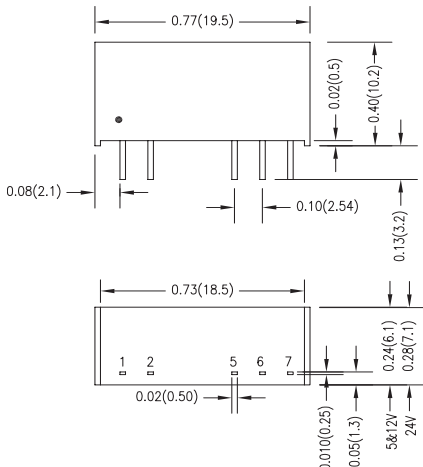
# 1 Watt SPB Single and Dual Series



- Compact SIP-6 Package
- Efficiency up to 80%
- 1500VDC Isolation
- MTBF > 2,800,000 Hours
- CSA/UL 60950 (Pending)
- RoHS Compliant



Model Number	Voltage		Current			Input Overvoltage (1000ms)	Reflected Ripple Current	Efficiency	Capacitive Load	
	Input		Input		Output					
	Nom. (VDC)	Range (VDC)	(VDC)	@ No Load (mA)	@ Max Load (mA)					Max (mA)
SPB1H5S5	5	4.5 - 9	5	40	263	200	15	80	76	1680 $\mu$ F
SPB1H5S12	5	4.5 - 9	12	40	259	83	15	80	77	820 $\mu$ F
SPB1H5S15	5	4.5 - 9	15	40	254	67	15	80	79	680 $\mu$ F
SPB1H5S24	5	4.5 - 9	24	40	265	42	15	80	76	470 $\mu$ F
SPB1H5D12	5	4.5 - 9	$\pm$ 12	40	262	$\pm$ 42	15	80	77	470 $\mu$ F
SPB1H5D15	5	4.5 - 9	$\pm$ 15	40	254	$\pm$ 33	15	80	78	330 $\mu$ F
SPB1H12S5	12	9 - 18	5	20	108	200	25	40	77	1680 $\mu$ F
SPB1H12S12	12	9 - 18	12	20	108	83	25	40	77	820 $\mu$ F
SPB1H12S15	12	9 - 18	15	20	105	67	25	40	80	680 $\mu$ F
SPB1H12S24	12	9 - 18	24	20	109	42	25	40	77	470 $\mu$ F
SPB1H12D12	12	9 - 18	$\pm$ 12	20	106	$\pm$ 42	25	40	79	470 $\mu$ F
SPB1H12D15	12	9 - 18	$\pm$ 15	20	106	$\pm$ 33	25	40	78	330 $\mu$ F
SPB1H24S5	24	18 - 36	5	10	54	200	50	30	77	1680 $\mu$ F
SPB1H24S12	24	18 - 36	12	10	52	83	50	30	80	820 $\mu$ F
SPB1H24S15	24	18 - 36	15	10	52	67	50	30	80	680 $\mu$ F
SPB1H24S24	24	18 - 36	24	10	55	42	50	30	77	470 $\mu$ F
SPB1H24D12	24	18 - 36	$\pm$ 12	10	53	$\pm$ 42	50	30	80	470 $\mu$ F
SPB1H24D15	24	18 - 36	$\pm$ 15	10	52	$\pm$ 33	50	30	80	330 $\mu$ F
SPB1H48S5	48	36 - 75	5	7	27	200	100	20	77	1680 $\mu$ F
SPB1H48S12	48	36 - 75	12	7	27	83	100	20	78	820 $\mu$ F
SPB1H48S15	48	36 - 75	15	7	27	67	100	20	78	680 $\mu$ F
SPB1H48S24	48	36 - 75	24	7	28	42	100	20	76	470 $\mu$ F
SPB1H48D12	48	36 - 75	$\pm$ 12	7	27	$\pm$ 42	100	20	79	470 $\mu$ F
SPB1H48D15	48	36 - 75	$\pm$ 15	7	26	$\pm$ 33	100	20	79	330 $\mu$ F



Pin Connections		
Pin	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
5	+Vout	+Vout
6	No Pin	Common
7	-Vout	-Vout

Dimensions are inches (mm) unless noted

Tolerance: Inches      Millimeters  
 X.XX  $\pm$ 0.01      X.X  $\pm$ 0.25  
 X.XXX  $\pm$ 0.005      X.XX  $\pm$ 0.13  
 Pin       $\pm$ 0.002       $\pm$ 0.05



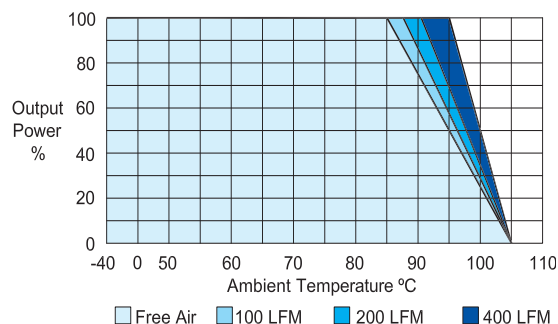
See Model Selection Table for Model Specific Parameters

Input Parameters	Min	Typ	Max	Units
Switching Frequency		220		kHz
Start Voltage	5 Vin 12 Vin 24 Vin 48 Vin		4.5 9 18 36	VDC
Input Filter	Internal Capacitor			
Output Parameters	Min	Typ	Max	Units
Output Voltage Accuracy			±1.0	%
Load Regulation Io = 10% to 100%	Single Dual		0.5 0.8	%
Line Regulation Vin=Min. to Max.			±0.2	%
Ripple & Noise (20MHz)		50		mV P-P
Transient Recovery Time 25% Load Step Change		250		µsec
Temperature Coefficient			±0.02	% / °C
Short Circuit Protection	Continuous			
General Specifications	Min	Typ	Max	Units
Isolation Voltage, 60 seconds	1500			VDC
Isolation Resistance 500VDC	1000			Mohms
Isolation Capacitance, 100kHz, 1V			50	pF
Operating Temperature (Ambient)	-40		+85	°C
Storage Temperature	-55		+125	°C
Humidity			95	%
MTBF MIL-HDBK-217F @25°C, Ground Benign	2800			K Hours
Cooling	Free-Air Convection			
Case Size	0.67 x 0.30 x 0.43 inches 17.0 x 7.62 x 11.0 mm			
Case Material	Non Conductive Black Plastic (UL94V-0)			
Weight	12.9g			
Agency Approval	CSA 60950-1 (Pending)			

Notes:

1. Specifications typical at Ta=+25°C, 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 0.47µF 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.
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](http://www.ConTech-us.com/appnotes.html).
7. Specifications subject to change without notice.
8. See ConTech website [www.ConTech.com/pdf/rohs.pdf](http://www.ConTech.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 85°C.

Input Fuse Selection Table	
5V Input	500 mA Slow-Blow
12V Input	200 mA Slow-Blow
24V Input	120 mA Slow-Blow
48V Input	60 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.

