

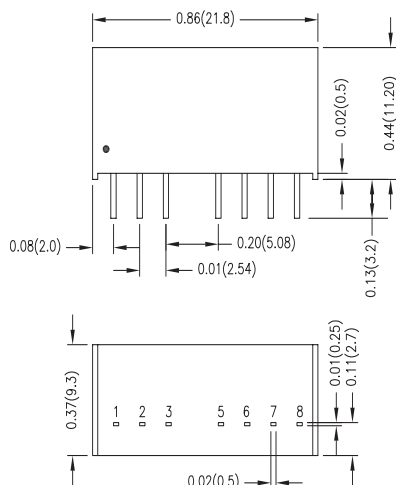
3 Watt SPS Single and Dual Series



- Efficiency up to 83%
- 1600VDC Isolation
- MTBF > 1,000,000 Hours
- Remote On/Off
- 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)
SPS2H5S3R3	5	4.5 - 9	3.3	70	651	175	700	11	71	1760
SPS3H5S5	5	4.5 - 9	5	70	822	150	600	11	73	1000
SPS3H5S12	5	4.5 - 9	12	70	759	63	250	11	79	170
SPS3H5S15	5	4.5 - 9	15	70	759	50	200	11	79	110
SPS3H5D5	5	4.5 - 9	±5	70	811	±75	±300	11	74	470
SPS3H5D12	5	4.5 - 9	±12	70	759	±31	±125	11	79	100
SPS3H5D15	5	4.5 - 9	±15	70	759	±25	±100	11	79	47
SPS2H12S3R3	12	9 - 18	3.3	20	257	175	700	25	75	1760
SPS3H12S5	12	9 - 18	5	20	321	150	600	25	78	1000
SPS3H12S12	12	9 - 18	12	20	301	63	250	25	83	170
SPS3H12S15	12	9 - 18	15	20	301	50	200	25	83	110
SPS3H12D5	12	9 - 18	±5	20	316	±75	±300	25	79	470
SPS3H12D12	12	9 - 18	±12	20	301	±31	±125	25	83	100
SPS3H12D15	12	9 - 18	±15	20	301	±25	±100	25	83	47
SPS2H24S3R3	24	18 - 36	3.3	10	128	175	700	50	75	1760
SPS3H24S5	24	18 - 36	5	10	160	150	600	50	78	1000
SPS3H24S12	24	18 - 36	12	10	151	63	250	50	83	170
SPS3H24S15	24	18 - 36	15	10	151	50	200	50	83	110
SPS3H24D5	24	18 - 36	±5	10	156	±75	±300	50	80	470
SPS3H24D12	24	18 - 36	±12	10	151	±31	±125	50	83	100
SPS3H24D15	24	18 - 36	±15	10	151	±25	±100	50	83	47
SPS2H48S3R3	48	36 - 75	3.3	8	64	175	700	100	75	1760
SPS3H48S5	48	36 - 75	5	8	80	150	600	100	78	1000
SPS3H48S12	48	36 - 75	12	8	75	63	250	100	83	170
SPS3H48S15	48	36 - 75	15	8	75	50	200	100	83	110
SPS3H48D5	48	36 - 75	±5	8	78	±75	±300	100	80	470
SPS3H48D12	48	36 - 75	±12	8	75	±31	±125	100	83	100
SPS3H48D15	48	36 - 75	±15	8	75	±25	±100	100	83	47



Pin Connections		
Pin	Single Function	Dual Function
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

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

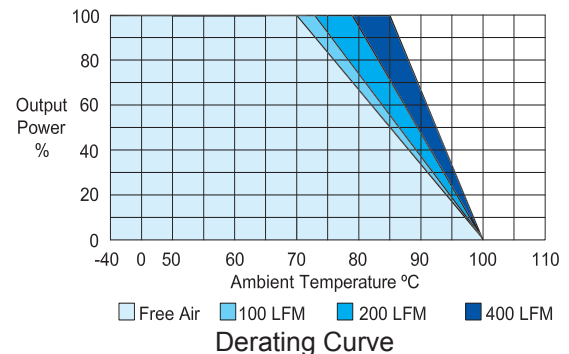
See Model Selection Table for Model Specific Parameters

Input Parameters	Min	Typ	Max	Units
Reverse Polarity Input Current			1	A
Short Circuit Input Power			2500	mW
Start Voltage	5 Vin	3	4	4.5
	12 Vin	4.5	7	9
	24 Vin	8	12	18
	48 Vin	16	24	36
Under Voltage Shutdown	5 Vin		3.5	4
	12 Vin		6.5	8.5
	24 Vin		11	17
	48 Vin		22	34
Switching Frequency		300		kHz
Input Filter	Capacitor Type			
Output Parameters	Min	Typ	Max	Units
Output Voltage Accuracy		±0.5	±1	%
Output Voltage Balance Dual Output, Balanced Loads		±0.5	±2.0	%
Load Regulation Io = 25% to 100%		±0.5	±1.0	%
Line Regulation Vin=Min. to Max.		±0.3	±0.5	%
Ripple & Noise (20MHz)		50	75	mV P-P
Ripple & Noise (20 MHz) Over Line, Load & Temp			100	mV P-P
Ripple & Noise (20 MHz)			15	mV RMS
Over Power Protection	120			%
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		60	200	pF
Operating Temperature (Ambient)	-40		+70	°C
Operating Temperature (Case)	-40		+100	°C
Storage Temperature	-55		+125	°C
Humidity			95	%
MTBF MIL-HDBK-217F @25°C, 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/°C			
Supply Off	2.7		15	VDC
Device Standby Input Current		1	2.5	mA
Control Input Current (on) Vin=0V			1	mA
Control Input Current (off) Vin=5.0V			1	mA
Control Common	Referenced to Negative Logic			

Notes:

- Specifications typical at Ta=+25°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.
- Specifications subject to change without notice.
- See ConTech website www.ConTech-us.com/pdf/rohs.pdf for RoHS Statement.



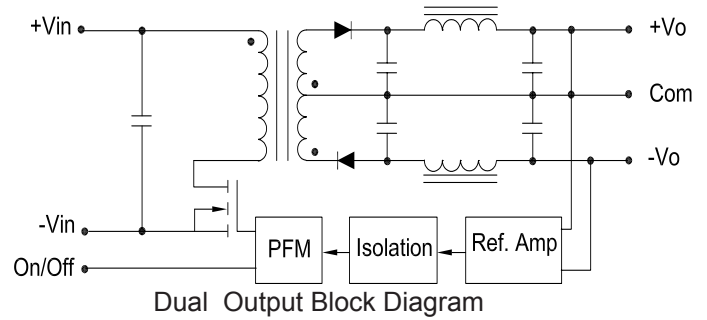
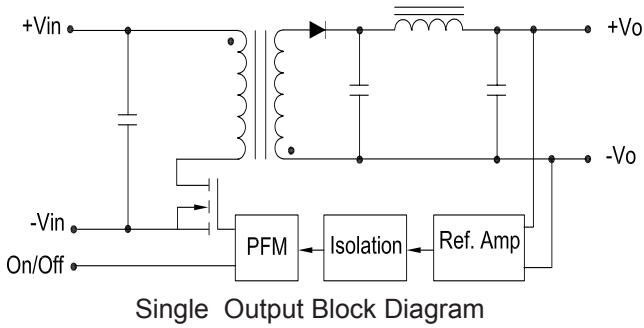
To avoid exceeding the maximum temperature rating of the components inside the power module, the case temperature must be kept below 100°C.

Input Fuse Selection Table	
5V Input	2000 mA Slow-Blow
12V Input	1000 mA Slow-Blow
24V Input	500 mA Slow-Blow
48V Input	250 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.

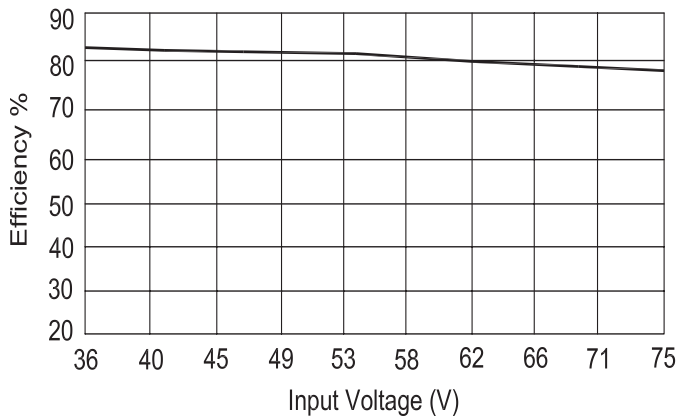


Block Diagrams

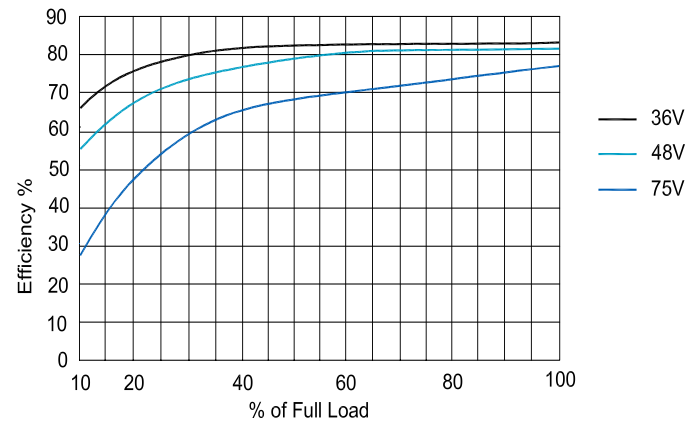


Efficiency Curves

Single Output

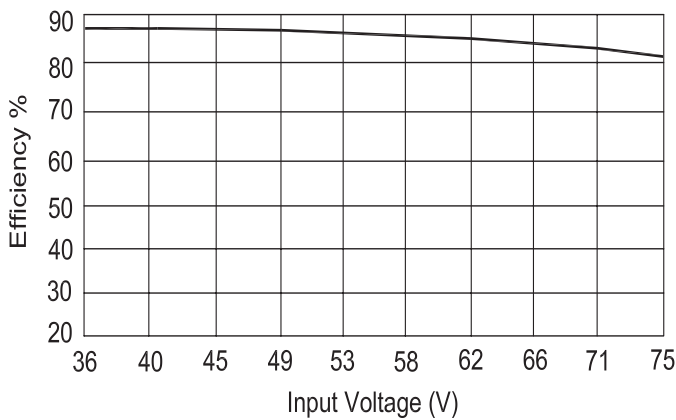


Efficiency vs Input Voltage

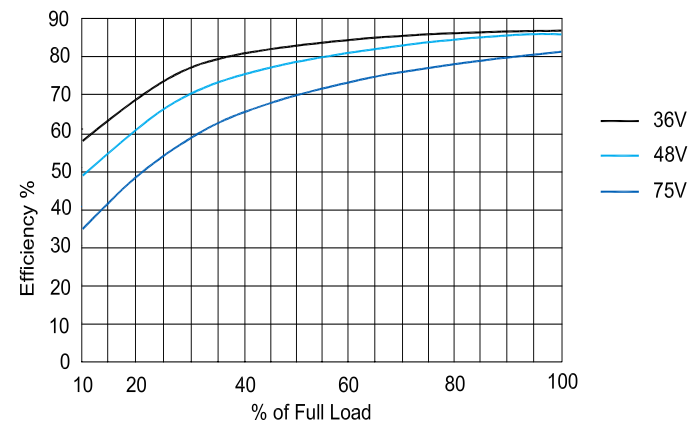


Efficiency vs Output Load

Dual Output



Efficiency vs Input Voltage



Efficiency vs Output Load

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