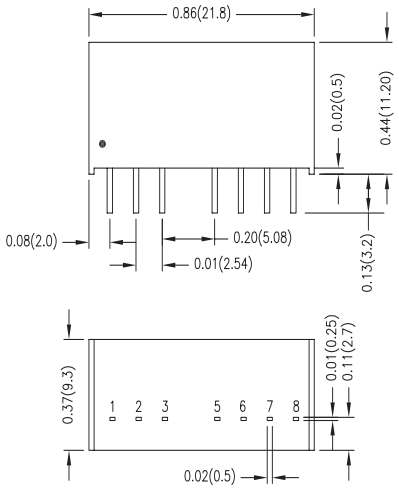
# 2 Watt SPL
# Single and Dual Series

- Efficiency up to 82%
- 1500VDC 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) | Max (mA) | Max (VDC) | @ Max Load (%, Typ) | Max (Dual each output) |
| SPL2H12S3 | 12 | 4.5 - 18 | 3.3 | 60 | 183 | 500 | 25 | 75 | 1000 µF |
| SPL2H12S5 | 12 | 4.5 - 18 | 5 | 60 | 208 | 400 | 25 | 80 | 1000 µF |
| SPL2H12S12 | 12 | 4.5 - 18 | 12 | 60 | 204 | 167 | 25 | 82 | 170 µF |
| SPL2H12S15 | 12 | 4.5 - 18 | 15 | 60 | 204 | 134 | 25 | 82 | 110 µF |
| SPL2H12D5 | 12 | 4.5 - 18 | ±5 | 60 | 208 | ±200 | 25 | 80 | 470 µF |
| SPL2H112D12 | 12 | 4.5 - 18 | ±12 | 60 | 202 | ±83 | 25 | 82 | 100 µF |
| SPL2H12D15 | 12 | 4.5 - 18 | ±15 | 60 | 204 | ±67 | 25 | 82 | 47 µF |
| SPL2H24S3R3 | 24 | 9 - 36 | 3.3 | 30 | 92 | 500 | 50 | 75 | 1000 µF |
| SPL2H24S5 | 24 | 9 - 36 | 5 | 30 | 104 | 400 | 50 | 80 | 1000 µF |
| SPL2H24S12 | 24 | 9 - 36 | 12 | 30 | 102 | 167 | 50 | 82 | 170 µF |
| SPL2H24S15 | 24 | 9 - 36 | 15 | 30 | 102 | 134 | 50 | 82 | 110 µF |
| SPL2H24D5 | 24 | 9 - 36 | ±5 | 30 | 104 | ±200 | 50 | 80 | 470 µF |
| SPL2H24D12 | 24 | 9 - 36 | ±12 | 30 | 101 | ±83 | 50 | 82 | 100 µF |
| SPL2H24D15 | 24 | 9 - 36 | ±15 | 30 | 102 | ±67 | 50 | 82 | 47 µF |
| SPL2H48S3R3 | 48 | 18 - 75 | 3.3 | 20 | 46 | 500 | 100 | 74 | 1000 µF |
| SPL2H48S5 | 48 | 18 - 75 | 5 | 20 | 52 | 400 | 100 | 80 | 1000 µF |
| SPL2H48S12 | 48 | 18 - 75 | 12 | 20 | 51 | 167 | 100 | 82 | 170 µF |
| SPL2H48S15 | 48 | 18 - 75 | 15 | 20 | 51 | 134 | 100 | 82 | 110 µF |
| SPL2H48D5 | 48 | 18 - 75 | ±5 | 20 | 52 | ±200 | 100 | 80 | 470 µF |
| SPL2H48D12 | 48 | 18 - 75 | ±12 | 20 | 51 | ±83 | 100 | 82 | 100 µF |
| SPL2H48D15 | 48 | 18 - 75 | ±15 | 20 | 51 | ±67 | 100 | 82 | 47 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** | **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 |

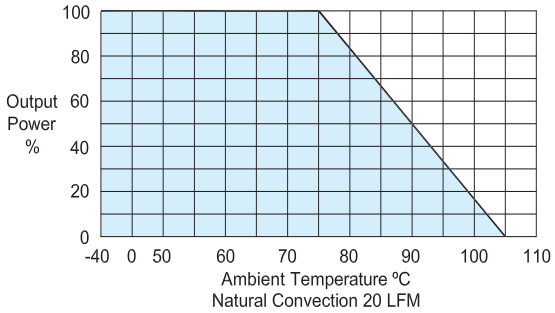
See Model Selection Table for Model Specific Parameters

| Input Parameters | Min | Typ | Max | Units |
|---|---|---|---|---|
| Reverse Polarity Input Current | | | 0.5 | A |
| Short Circuit Input Power | | | 1500 | mW |
| Start Voltage<br>12 Vin<br>24 Vin<br>48 Vin | <br>3<br>4.5<br>8.5 | <br>4<br>6<br>12 | <br>4.5<br>8.5<br>17 | VDC |
| Under Voltage Shutdown<br>12 Vin<br>24 Vin<br>48 Vin | | | <br>4<br>8<br>16 | VDC |
| Switching Frequency | | 300 | | kHz |
| Input Filter | Capacitor Type | | | |
| **Output Parameters** | **Min** | **Typ** | **Max** | **Units** |
| Output Voltage Accuracy | | | ±2 | %Vnom |
| Output Voltage Balance<br>Dual Output, Balanced Loads | | ±1.0 | ±2.0 | % |
| Load Regulation<br>Io = 0% to 100% | | ±0.5 | ±1.0 | % |
| Line Regulation<br>Vin=Min. to Max. | | ±0.3 | ±0.5 | % |
| Ripple & Noise (20MHz) | | 50 | 100 | mV P-P |
| Transient Recovery Time<br>25% Load Step Change | | 300 | 500 | µS |
| Transient Response<br>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,<br>60 seconds | 1500 | | | VDC |
| Isolation Resistance<br>500VDC | 1000 | | | Mohms |
| Isolation Capacitance,<br>100kHz, 1V | | 250 | 500 | pF |
| Operating Temperature (Ambient) | -40 | | +90 | ºC |
| Storage Temperature | -55 | | +125 | ºC |
| Humidity | | | 95 | % |
| MTBF MIL-HDBK-217F @25ºC,<br>Ground Benign | 1000 | | | K Hours |
| Cooling | Free-Air Convection | | | |
| Case Size | 0.86 x 0.37 x 0.44 inches<br>21.8x 9.3 x 11.2 mm | | | |
| Case Material | Non Conductive Black Plastic<br>(UL94V-0) | | | |
| Weight | 4.66g | | | |

| Remote On/Off | Min | Typ | Max | Units |
|---|---|---|---|---|
| Supply On | Under 0.6 VDC or Open Circuit,<br>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)<br>Vin=0V | | | -0.4 | mA |
| Control Input Current (off)<br>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 | |
|---|---|
| 12V Input | 750 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.