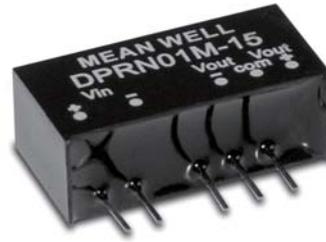




1W SIP Package DC-DC Regulated Converter **SPRN01 & DPRN01** series



■ Features

- SIP6 package with industry standard pinout
- Operating temperature range -40 ~ +90°C
- Comply to EN55032 radiated Class B without additional components
- Protection: Short circuit
- 1.5KVDC I/O isolation
- Low cost
- 3 years warranty

■ Applications

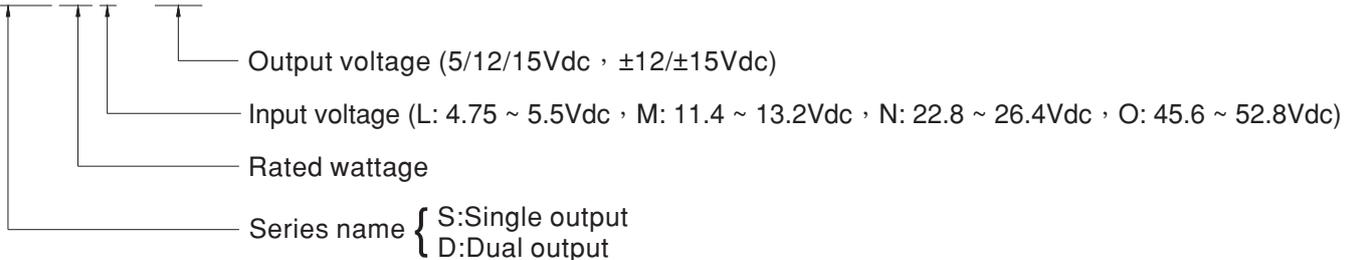
- Telecom/datacom system
- Wireless network
- Industrial control facility
- Instrument
- Analyzer
- Detector
- Data switch

■ Description

SPRN01 and DPRN01 series are 1W isolated and regulated module type DC-DC converter with SIP6 package. It features international standard pins, wide working temperature range -40~+90°C, 1.5KVDC I/P-O/P isolation voltage, compliance to EN55032 radiated Class B without additional components, short circuit protection, etc. The models account for different input voltage 5V/12V/24V/48V -5~+10%, and various output voltage, 5V/12V/15V for single output and ±12V/±15V for dual outputs, which are suitable for all kinds of systems, Such as industrial control, telecommunication field, distributed power architecture, and so on.

■ Model Encoding

SPRN01 L -12





1W SIP Package DC-DC Regulated Converter **SPRN01 & DPRN01** series

| MODEL SELECTION TABLE | | | | | | | |
|-----------------------|------------------------------|------------------------------|-----------|----------------|----------------|-------------------|-----------------------|
| ORDER NO. | INPUT | | | OUTPUT | | EFFICIENCY (TYP.) | CAPACITOR LOAD (MAX.) |
| | INPUT VOLTAGE (RANGE) | INPUT CURRENT | | OUTPUT VOLTAGE | OUTPUT CURRENT | | |
| | | NO LOAD | FULL LOAD | | | | |
| SPRN01L-05 | Normal 5V (4.75 ~ 5.5V) | 35mA | 294mA | 5V | 0 ~ 200mA | 68% | 100μF |
| SPRN01L-12 | | 38mA | 285mA | 12V | 0 ~ 84mA | 71% | 100μF |
| SPRN01L-15 | | 40mA | 278mA | 15V | 0 ~ 67mA | 71% | 100μF |
| DPRN01L-12 | | 40mA | 305mA | ±12V | ±0 ~ 42mA | 66% | *±47μF |
| DPRN01L-15 | | 45mA | 299mA | ±15V | ±0 ~ 34mA | 67% | *±47μF |
| SPRN01M-05 | | Normal 12V (11.4 ~ 13.2V) | 15mA | 116mA | 5V | 0 ~ 200mA | 72% |
| SPRN01M-12 | 18mA | | 118mA | 12V | 0 ~ 84mA | 72% | 100μF |
| SPRN01M-15 | 18mA | | 115mA | 15V | 0 ~ 67mA | 73% | 100μF |
| DPRN01M-12 | 18mA | | 124mA | ±12V | ±0 ~ 42mA | 68% | *±47μF |
| DPRN01M-15 | 18mA | | 120mA | ±15V | ±0 ~ 34mA | 69% | *±47μF |
| SPRN01N-05 | Normal 24V (22.8 ~ 26.4V) | | 10mA | 65mA | 5V | 0 ~ 200mA | 67% |
| SPRN01N-12 | | 10mA | 60mA | 12V | 0 ~ 84mA | 72% | 100μF |
| SPRN01N-15 | | 10mA | 60mA | 15V | 0 ~ 67mA | 73% | 100μF |
| DPRN01N-12 | | 10mA | 63mA | ±12V | ±0 ~ 42mA | 68% | *±47μF |
| DPRN01N-15 | | 11mA | 63mA | ±15V | ±0 ~ 34mA | 68% | *±47μF |
| SPRN01O-05 | | Normal 48V (45.6 ~ 52.8V) | 7mA | 32mA | 5V | 0 ~ 200mA | 67% |
| SPRN01O-12 | 7mA | | 32mA | 12V | 0 ~ 84mA | 67% | 100μF |
| SPRN01O-15 | 8mA | | 32mA | 15V | 0 ~ 67mA | 67% | 100μF |
| DPRN01O-12 | 8mA | | 35mA | ±12V | ±0 ~ 42mA | 63% | *±47μF |
| DPRN01O-15 | 8mA | | 35mA | ±15V | ±0 ~ 34mA | 63% | *±47μF |

* For each output

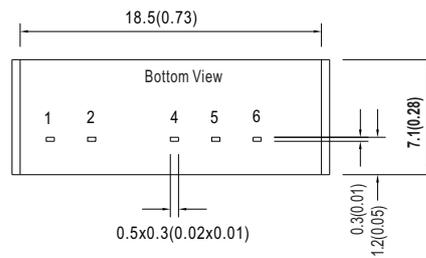
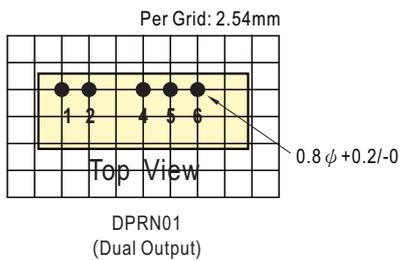
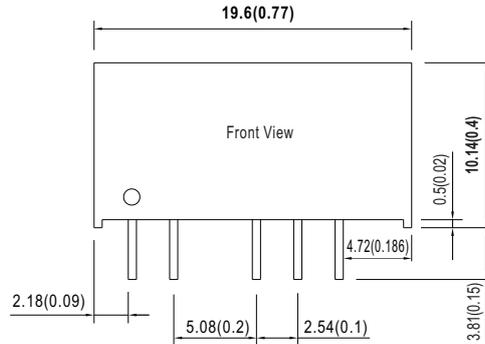
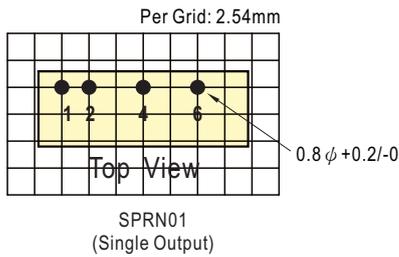


1W SIP Package DC-DC Regulated Converter **SPRN01 & DPRN01** series

| SPECIFICATION | | | | |
|--------------------------|--|--|------------------|--|
| INPUT | VOLTAGE RANGE | L: 4.75 ~ 5.5Vdc , M: 11.4 ~ 13.2Vdc , N: 22.8 ~ 26.4Vdc , O: 45.6 ~ 52.8Vdc | | |
| | SURGE VOLTAGE (100ms max.) | 5Vin models : 9Vdc ; 12Vin models : 18Vdc ; 24Vin models : 30Vdc ; 48Vin models : 60Vdc | | |
| | FILTER | Internal capacitor | | |
| | PROTECTION | Fuse recommended. 5Vin models: 500mA, 12Vin models: 250mA, 24Vin models: 100mA, 48Vin models: 60mA | | |
| | INTERNAL POWER DISSIPATION | 600mW | | |
| OUTPUT | VOLTAGE ACCURACY | ±3.0% | | |
| | RATED POWER | 1W | | |
| | RIPPLE & NOISE <small>Note.2</small> | 75mVp-p | | |
| | LINE REGULATION <small>Note.3</small> | ±1.0% | | |
| | LOAD REGULATION <small>Note.4</small> | ±1.0% | | |
| | SWITCHING FREQUENCY (Typ.) | 110KHz | | |
| PROTECTION | SHORT CIRCUIT | SPRN01: Current limit protection 60 sec. max., DPRN01: 1 sec. max. | | |
| ENVIRONMENT | COOLING | Free-air convection | | |
| | WORKING TEMP. | -40 ~ +90°C (Refer to "Derating Curve") | | |
| | CASE TEMPERATURE | +110°C max. | | |
| | WORKING HUMIDITY | 20% ~ 90% RH non-condensing | | |
| | STORAGE TEMP., HUMIDITY | -55 ~ +125°C, 10 ~ 95% RH non-condensing | | |
| | TEMP. COEFFICIENT | 0.05% / °C (0 ~ 71°C) | | |
| | SOLDERING TEMPERATURE | 1.5mm from case of 1 ~ 3sec./260°C max. | | |
| | VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes | | |
| SAFETY & EMC (Note.5) | SAFETY STANDARDS | EAC TP TC 004 approved | | |
| | WITHSTAND VOLTAGE | I/P-O/P:1.5KVDC | | |
| | ISOLATION RESISTANCE | I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH | | |
| | ISOLATION CAPACITANCE (Typ.) | 80pF | | |
| | EMC EMISSION | Parameter | Standard | Test Level / Note |
| | | Conducted | EN55032(CISPR32) | N/A |
| | | Radiated | EN55032(CISPR32) | Class B |
| | EMC IMMUNITY | Parameter | Standard | Test Level / Note |
| | | ESD | EN61000-4-2 | Level 3, ±8KV air, Level 2, ±4KV contact |
| | | Radiated Susceptibility | EN61000-4-3 | Level 2, 3V/m |
| | | EFT/Burest | EN61000-4-4 | Level 1, 0.5KV at power, Level 2, 0.5KV at signal |
| | | Surge | EN61000-4-5 | Level 2, 0.5KV Line-Line, Level 2, 1KV Line ground |
| | | Conducted | EN61000-4-6 | Level 2, 3V(e.m.f.) |
| Magnetic Field | | EN61000-4-8 | Level 1, 1A/m | |
| OTHERS | MTBF | 1000Khrs MIL-HDBK-217F(25°C) | | |
| | DIMENSION (L*W*H) | 19.6*7.1*10.14mm (0.77*0.28*0.40 inch) | | |
| | CASE MATERIAL | Non-Conductive black plastic (UL 94V-0 rated) | | |
| | PACKING | 2.5g | | |
| NOTE | <p>1.All parameters are specified at normal input(L:5Vdc, M:12Vdc, N:24Vdc, O:48Vdc), rated load, 25°C 70% RH ambient.</p> <p>2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1µf & 47µf capacitor.</p> <p>3.Line regulation is measured from low line to high line at rated load.</p> <p>4.Load regulation is measured from 10% to 100% rated load.</p> <p>5.The final equipment must be re-confirm that it still meet EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."(as available on http://www.meanwell.com)</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</p> | | | |

■ Mechanical Specification

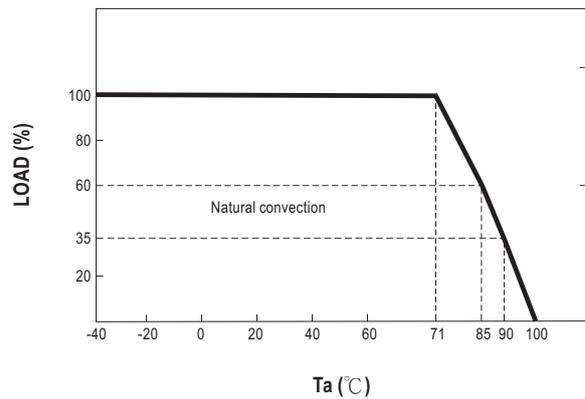
- All dimensions in mm (inch)
- Tolerance: $x.x \pm 0.5\text{mm}$ ($x.xx \pm 0.02''$)
 $x.xx \pm 0.25\text{mm}$ ($x.xxx \pm 0.010''$)
- Pin pitch tolerance: $\pm 0.05\text{mm}$ ($\pm 0.002''$)



■ Pin Configuration

| Pin-Out | | |
|---------|---------------------------|-------------------------|
| Pin No. | SPRN01 (Single output) | DPRN01 (Dual output) |
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 4 | -Vout | -Vout |
| 5 | No pin | Common |
| 6 | +Vout | +Vout |

■ Derating Curve



■ Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>