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# 2W SIP Package DC-DC Regulated Converter SPAN02 & DPAN02 series







Automate Industrial Security Network Telecom

## Features

- SIP8 package with industry standard pinout
- 2:1 wide input range
- Operating temperature range -40 ~ +90℃
- No minimum load required
- Comply to BS EN/EN55032 radiated Class A without additional components
- High efficiency up to 85%
- Protections: Short circuit (Continuous) / Overload
- 1.5KVDC I/O isolation
- Remote ON/OFF control
- 3 years warranty

## Applications

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

## GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

## Description

SPAN02 and DPAN02 series are 2W isolated and regulated module type DC-DC converter with SIP8 package. It features international standard pins, a high efficiency up to 85%, wide working temperature range -40~+90℃, 1.5KVDC I/P-O/P isolation voltage, compliance to BS EN/EN55032 radiated class A without additional components, overload and continuous-mode short circuit protection, etc. The models account for different input voltage 4.5~9V, 9~18V, 18~36V and 36~75V 2:1 wide input range, and various output voltage, 3.3V/5V/12V/15V for single output and ±5V/±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

**SPAN02E-12**

- 12 → Output voltage (3.3/5/12/15Vdc，±5/±12/±15Vdc)
- E → Input voltage (E: 4.5~9Vdc，A: 9~18Vdc，B: 18~36Vdc，C: 36~75Vdc)
- 02 → Rated wattage
- SPAN → Series name { S:Single output / D:Dual output

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## 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 | | | | |
| SPAN02E-03 | 5V (4.5 ~ 9V) | 60mA | 452mA | 3.3V | 0 ~ 500mA | 74% | 500μF |
| SPAN02E-05 | | 60mA | 526mA | 5V | 0 ~ 400mA | 78% | 400μF |
| SPAN02E-12 | | 60mA | 501mA | 12V | 0 ~ 167mA | 80% | 167μF |
| SPAN02E-15 | | 65mA | 503mA | 15V | 0 ~ 134mA | 80% | 134μF |
| DPAN02E-05 | | 60mA | 519mA | ±5V | ±0 ~ 200mA | 78% | *200μF |
| DPAN02E-12 | | 60mA | 504mA | ±12V | ±0 ~ 83mA | 80% | *83μF |
| DPAN02E-15 | | 60mA | 503mA | ±15V | ±0 ~ 67mA | 80% | *67μF |
| SPAN02A-03 | 12V (9 ~ 18V) | 30mA | 181mA | 3.3V | 0 ~ 500mA | 76% | 500μF |
| SPAN02A-05 | | 32mA | 211mA | 5V | 0 ~ 400mA | 80% | 400μF |
| SPAN02A-12 | | 32mA | 204mA | 12V | 0 ~ 167mA | 83% | 167μF |
| SPAN02A-15 | | 32mA | 202mA | 15V | 0 ~ 134mA | 84% | 134μF |
| DPAN02A-05 | | 31mA | 211mA | ±5V | ±0 ~ 200mA | 79% | *200μF |
| DPAN02A-12 | | 31mA | 202mA | ±12V | ±0 ~ 83mA | 82% | *83μF |
| DPAN02A-15 | | 31mA | 202mA | ±15V | ±0 ~ 67mA | 83% | *67μF |
| SPAN02B-03 | 24V (18 ~ 36V) | 18mA | 90mA | 3.3V | 0 ~ 500mA | 76% | 500μF |
| SPAN02B-05 | | 19mA | 105mA | 5V | 0 ~ 400mA | 79% | 400μF |
| SPAN02B-12 | | 19mA | 102mA | 12V | 0 ~ 167mA | 82% | 167μF |
| SPAN02B-15 | | 19mA | 101mA | 15V | 0 ~ 134mA | 83% | 134μF |
| DPAN02B-05 | | 18mA | 105mA | ±5V | ±0 ~ 200mA | 79% | *200μF |
| DPAN02B-12 | | 19mA | 102mA | ±12V | ±0 ~ 83mA | 81% | *83μF |
| DPAN02B-15 | | 19mA | 100mA | ±15V | ±0 ~ 67mA | 85% | *67μF |
| SPAN02C-03 | 48V (36 ~ 75V) | 9mA | 46mA | 3.3V | 0 ~ 500mA | 75% | 500μF |
| SPAN02C-05 | | 9mA | 53mA | 5V | 0 ~ 400mA | 80% | 400μF |
| SPAN02C-12 | | 9mA | 51mA | 12V | 0 ~ 167mA | 82% | 167μF |
| SPAN02C-15 | | 9mA | 50mA | 15V | 0 ~ 134mA | 83% | 134μF |
| DPAN02C-05 | | 12mA | 53mA | ±5V | ±0 ~ 200mA | 78% | *200μF |
| DPAN02C-12 | | 12mA | 51mA | ±12V | ±0 ~ 83mA | 82% | *83μF |
| DPAN02C-15 | | 9mA | 50mA | ±15V | ±0 ~ 67mA | 84% | *67μF |

* For each output

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# 2W SIP Package DC-DC Regulated Converter SPAN02 & DPAN02 series

| SPECIFICATION | | | | |
|---|---|---|---|---|
| INPUT | VOLTAGE RANGE | E: 4.5~9Vdc , A: 9~18Vdc , B: 18~36Vdc , C: 36~75Vdc | | |
| | SURGE VOLTAGE (100ms max.) | 5Vin models : 15Vdc ; 12Vin models : 25Vdc ; 24Vin models : 50Vdc ; 48Vin models : 100Vdc | | |
| | FILTER | Internal capacitor | | |
| | PROTECTION | Fuse recommended. 5Vin models: 1000mA Slow-Blow Type, 12Vin models: 500mA Slow-Blow Type, 24V and 48Vin models: 250mA Slow-Blow Type | | |
| | INTERNAL POWER DISSIPATION | 500mW | | |
| OUTPUT | VOLTAGE ACCURACY | ±1.5% | | |
| | RATED POWER | 2W | | |
| | RIPPLE & NOISE Note.2 | 75mVp-p | | |
| | LINE REGULATION Note.3 | ±0.5% | | |
| | LOAD REGULATION Note.4 | Single output models:±0.5%, Dual output models:±1% | | |
| | SWITCHING FREQUENCY (Typ.) | 100KHz | | |
| PROTECTION | SHORT CIRCUIT | Protection type : Continuous, automatic recovery | | |
| | OVERLOAD | Protection type : Recovers automatically after fault condition is removed | | |
| | UNDER VOLTAGE LOCKOUT | Start-up voltage | 5Vin : 4.2Vdc ; 12Vin : 7.3Vdc ; 24Vin : 15.5Vdc ; 48Vin : 31Vdc | |
| | | Shutdown voltage | 5Vin : 3Vdc ; 12Vin : 5.8Vdc ; 24Vin : 12Vdc ; 48Vin : 24Vdc | |
| FUNCTION | REMOTE CONTROL | Power ON: R.C. ~ -Vin <0.8Vdc or open circuit; Power OFF: R.C. ~ -Vin >4 ~ 15Vdc | | |
| ENVIRONMENT | COOLING | Free-air convection | | |
| | WORKING TEMP. | -40 ~ +90℃ (Refer to "Derating Curve") | | |
| | CASE TEMPERATURE | +100℃ max. | | |
| | WORKING HUMIDITY | 20% ~ 90% RH non-condensing | | |
| | STORAGE TEMP., HUMIDITY | -55 ~ +125℃, 10 ~ 95% RH non-condensing | | |
| | TEMP. COEFFICIENT | 0.03% / ℃ (0 ~ 85℃) | | |
| | SOLDERING TEMPERATURE | 1.5mm from case of 1 ~ 3sec./260℃ 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 020/2011 (EAC TP TC 004 for 48Vin type only) approved | | |
| | WITHSTAND VOLTAGE | I/P-O/P:1.5KVDC | | |
| | ISOLATION RESISTANCE | I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH | | |
| | ISOLATION CAPACITANCE (Typ.) | 10pF | | |
| | EMC EMISSION | **Parameter** | **Standard** | **Test Level / Note** |
| | | Conducted | BS EN/EN55032(CISPR32) | N/A |
| | | Radiated | BS EN/EN55032(CISPR32) | Class A |
| | EMC IMMUNITY | **Parameter** | **Standard** | **Test Level / Note** |
| | | ESD | BS EN/EN61000-4-2 | Level 2, ±8KV air, ±4KV contact |
| | | Radiated Susceptibility | BS EN/EN61000-4-3 | Level 2, 3V/m |
| | | EFT/Burest | BS EN/EN61000-4-4 | Level 1, 0.5KV |
| | | Surge | BS EN/EN61000-4-5 | Level 1, 0.5KV Line-Line |
| | | Conducted | BS EN/EN61000-4-6 | Level 2, 3V(e.m.f.) |
| | | Magnetic Field | BS EN/EN61000-4-8 | Level 2, 3A/m |
| OTHERS | MTBF | 2500Khrs MIL-HDBK-217F(25℃) | | |
| | DIMENSION (L*W*H) | 21.8*9.2*11.1mm (0.86*0.36*0.44 inch) | | |
| | CASE MATERIAL | Non-Conductive black plastic (UL 94V-0 rated) | | |
| | PACKING | 2.7g ; 14pcs/per tube, 2058pcs/147 tube/per carton | | |

**NOTE**

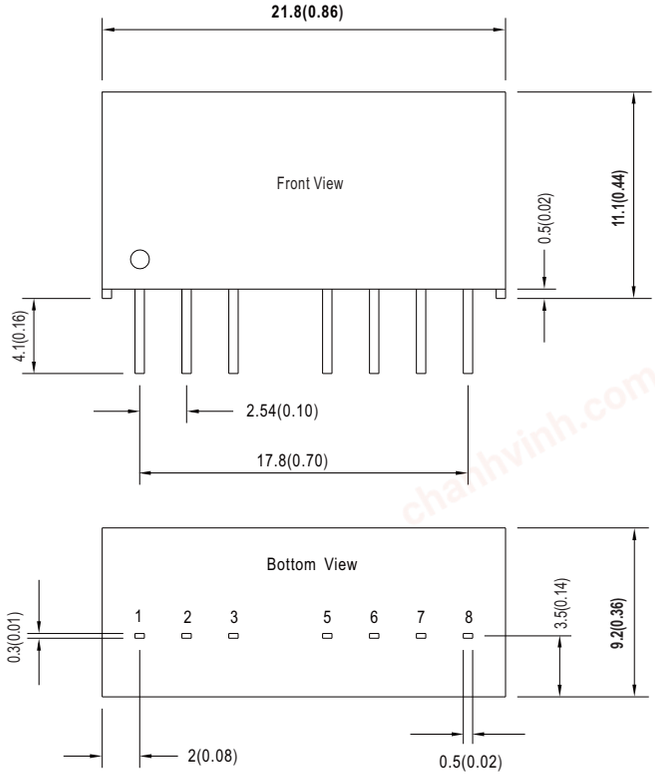
1.All parameters are specified at normal input(E:5Vdc, A:12Vdc, B:24Vdc, C:48Vdc), rated load, 25℃ 70% RH ambient.
2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1μf & 47μf capacitor.
3.Line regulation is measured from low line to high line at rated load.
4.Load regulation is measured from 10% to 100% rated load.
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)
※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

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## ■ Mechanical Specification

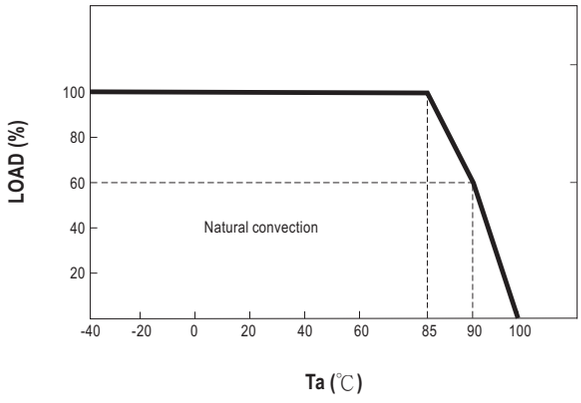
- All dimensions in mm(inch)
- Tolerance:x.x±0.5mm(x.xx±0.02")
- Pin pitch tolerance:±0.05mm (±0.002")




## ■ Plug Assignment

| Pin-Out | | |
|---|---|---|
| Pin No. | SPAN02 (Single output) | DPAN02 (Dual output) |
| 1 | -Vin | -Vin |
| 2 | +Vin | +Vin |
| 3 | R.C. | R.C. |
| 5 | N.C. | N.C. |
| 6 | +Vout | +Vout |
| 7 | -Vout | Common |
| 8 | N.C. | -Vout |

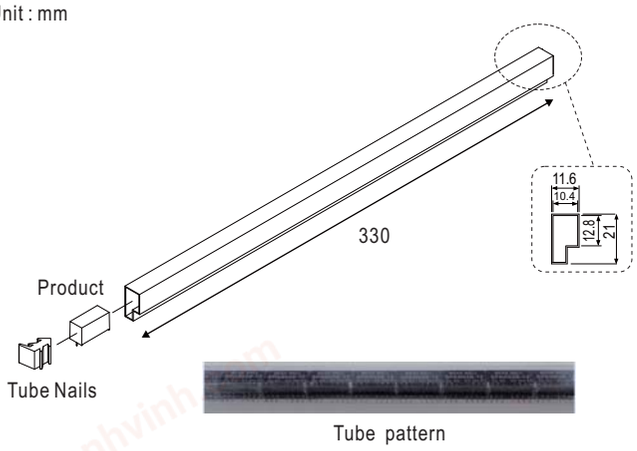
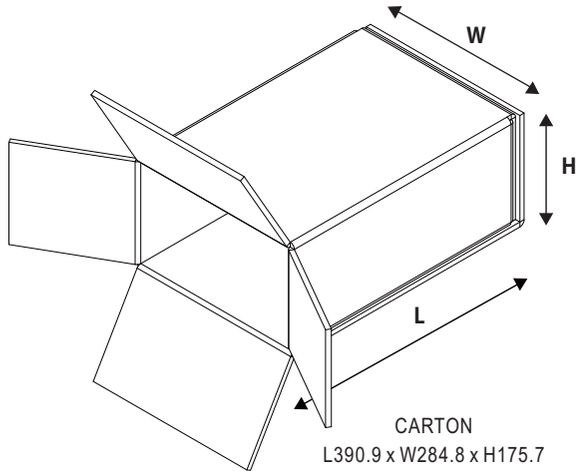
## ■ Derating Curve



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## ■ Packing

| Standard Tube Packing | MPQ Per Tube (PCS) | One Tube G.W. | Max. Q'TY/ Carton(PCS) | One Carton G.W. |
|---|---|---|---|---|
| Unit : mm<br><br><br><br>Tube pattern<br><br><br>CARTON<br>L390.9 x W284.8 x H175.7 | 14 | 56.3g | 2058 | 10.28Kg |

## ■ Installation Manual

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