

■ Features

- SIP7 package with industry standard pinout
- Operating temperature range -40 ~ +105°C
- Comply to EN55032 radiated Class A without additional components
- High efficiency up to 87%
- Protection: Short circuit(continuous)/Over load
- 3KVDC I/O isolation
- Low cost
- 3 years warranty

■ Applications

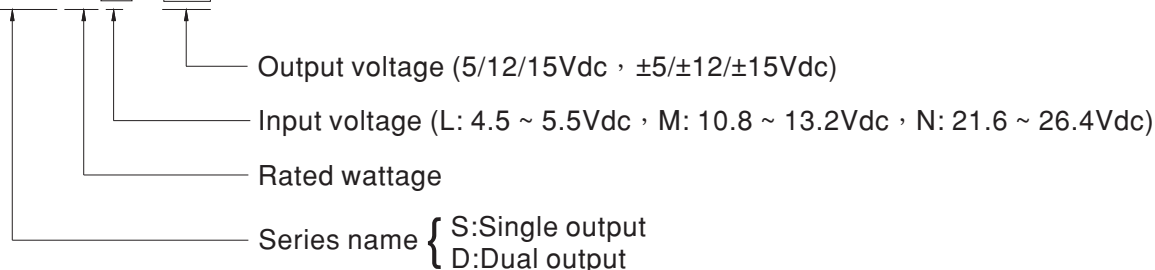
- Telecom/datacom system
- Wireless network
- Industrial control facility
- Instrument
- Analyzer
- Detector
- Data switch

■ Description

SPUN02 and DPUN02 series are 2W isolated and unregulated module type DC-DC converter with SIP7 package. It features international standard pins, a high efficiency up to 87%, wide working temperature range -40~+105°C, 3KVDC I/P-O/P isolation voltage, compliance to EN55032 radiated Class A without additional components, short circuit protection, etc. The models account for different input voltage 5V/12V/24V±10%, and various output voltage, 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

S **PUN02** **L** - **12**



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				
SPUN02L-05	5V (4.5 ~ 5.5V)	40mA	488mA	5V	0 ~ 400mA	81%	220μF
SPUN02L-12		50mA	473mA	12V	0 ~ 167mA	84%	220μF
SPUN02L-15		55mA	478mA	15V	0 ~ 134mA	84%	220μF
DPUN02L-05		40mA	482mA	±5V	±0 ~ 200mA	82%	*100μF
DPUN02L-12		50mA	469mA	±12V	±0 ~ 83mA	84%	*100μF
DPUN02L-15		45mA	473mA	±15V	±0 ~ 67mA	86%	*100μF
SPUN02M-05	12V (10.8 ~ 13.2V)	20mA	203mA	5V	0 ~ 400mA	81%	220μF
SPUN02M-12		20mA	192mA	12V	0 ~ 167mA	86%	220μF
SPUN02M-15		20mA	193mA	15V	0 ~ 134mA	86%	220μF
DPUN02M-05		20mA	198mA	±5V	±0 ~ 200mA	83%	*100μF
DPUN02M-12		20mA	193mA	±12V	±0 ~ 83mA	87%	*100μF
DPUN02M-15		20mA	193mA	±15V	±0 ~ 67mA	87%	*100μF
SPUN02N-05	24V (21.6 ~ 26.4V)	10mA	102mA	5V	0 ~ 400mA	81%	220μF
SPUN02N-12		10mA	96mA	12V	0 ~ 167mA	85%	220μF
SPUN02N-15		10mA	95mA	15V	0 ~ 134mA	86%	220μF
DPUN02N-05		10mA	100mA	±5V	±0 ~ 200mA	81%	*100μF
DPUN02N-12		10mA	96mA	±12V	±0 ~ 83mA	86%	*100μF
DPUN02N-15		10mA	95mA	±15V	±0 ~ 67mA	86%	*100μF

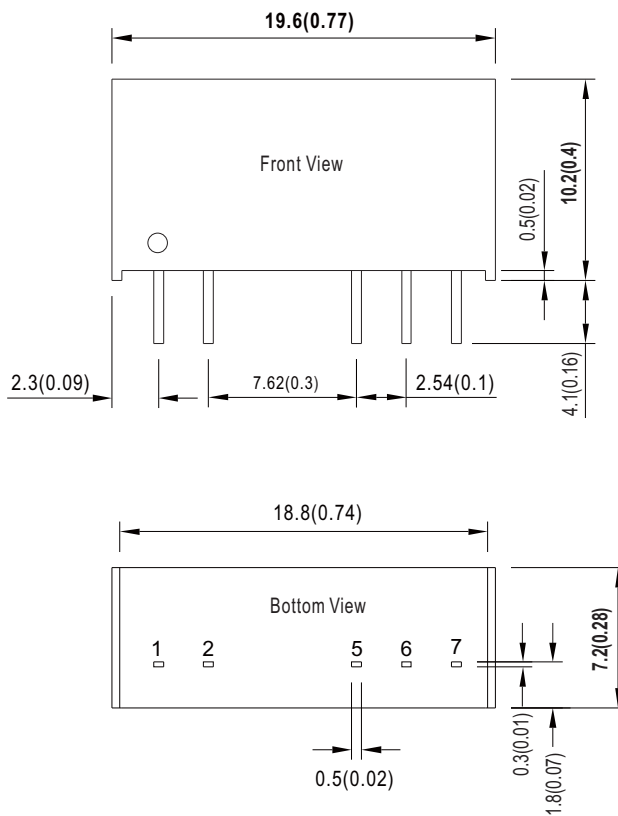
* For each output

File Name: SPUN02, DPUN02-SPEC 2019-07-12

SPECIFICATION				
INPUT	VOLTAGE RANGE	L: 4.5 ~ 5.5Vdc , M: 10.8 ~ 13.2Vdc , N: 21.6 ~ 26.4Vdc		
	SURGE VOLTAGE (100ms max.)	5Vin models : 9Vdc ; 12Vin models : 18Vdc ; 24Vin models : 30Vdc		
	FILTER	Internal capacitor		
	PROTECTION	Fuse recommended. 5Vin models: 1A Slow-Blow Type, 12Vin models: 500mA Slow-Blow Type, 24Vin models: 250mA Slow-Blow Type		
	INTERNAL POWER DISSIPATION	500mW		
OUTPUT	VOLTAGE ACCURACY	±3.0% max.		
	RATED POWER	2W		
	RIPPLE & NOISE <small>Note.2</small>	100mVp-p(150mV for SPUN02L-05/12)		
	LINE REGULATION <small>Note.3</small>	1.2% for 1% input variation		
	LOAD REGULATION <small>Note.4</small>	10%		
	SWITCHING FREQUENCY (Typ.)	60KHz		
PROTECTION	SHORT CIRCUIT	Protection type: Continuous, automatic recovery		
	OVERLOAD	Protection type : Recovers automatically after fault condition is removed		
ENVIRONMENT	COOLING	Free-air convection		
	WORKING TEMP.	-40 ~ +105°C (Refer to "Derating Curve")		
	CASE TEMPERATURE	+105°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 ~ 85°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:3KVDC		
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH		
	ISOLATION CAPACITANCE (Typ.)	18pF		
	EMC EMISSION	Parameter	Standard	Test Level / Note
		Conducted	EN55032(CISPR32)	N/A
		Radiated	EN55032(CISPR32)	Class A
	EMC IMMUNITY	Parameter	Standard	Test Level / Note
		ESD	EN61000-4-2	Level 2, ±8KV air, ±4KV contact
		Radiated Susceptibility	EN61000-4-3	Level 2, 3V/m
		EFT/Burest	EN61000-4-4	Level 1, 0.5KV
		Surge	EN61000-4-5	Level 1, 0.5KV Line-Line
		Conducted	EN61000-4-6	Level 2, 3V(e.m.f.)
Magnetic Field		EN61000-4-8	Level 2, 3A/m	
OTHERS	MTBF	3.3Mhrs MIL-HDBK-217F(25°C)		
	DIMENSION (L*W*H)	19.6*7.2*10.2mm (0.77*0.28*0.40 inch)		
	CASE MATERIAL	Non-Conductive black plastic (UL 94V-0 rated)		
	PACKING	2.7g		
NOTE	<p>1.All parameters are specified at normal input(L:5Vdc, M:12Vdc, N:24Vdc), rated load, 25°C 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 20% 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."</p>			

Mechanical Specification

- All dimensions in mm (inch)
- Tolerance: $x.x \pm 0.25\text{mm}$ ($x.xx \pm 0.01"$)
 $x.xx \pm 0.13\text{mm}$ ($x.xxx \pm 0.005"$)
- Pin pitch tolerance: $\pm 0.05\text{mm}$ ($\pm 0.002"$)



Pin Configuration

Pin-Out		
Pin No.	SPUN02 (Single output)	DPUN02 (Dual output)
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No pin	Common
7	+Vout	+Vout

Derating Curve

