SWRA_N-2W & SWRB_N-2W Series

2W, WIDE INPUT, ISOLATED & REGULATED
DUAL/SINGLE OUTPUT DC-DC CONVERTER

FEATURES

- Miniature DIP package
- 2:1 wide input voltage range
- Operating temperature: -40°C to +85°C
- 1500VDC isolation
- No heat sink required
- No external component required
- Industry standard pinout
- Internal SMD construction
- Short circuit protection (automatic recovery)
- RoHS Compliance

APPLICATIONS

The SWRA_N-2W & SWRB_N-2W series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board. These products apply to:

1) Where the voltage of the input power supply is wide range (voltage range≤2:1);
2) Where isolation is necessary between input and output(isolation voltage≤1500VDC);
3) Where the regulation of the output voltage and the output ripple noise are demanded.

MODEL SELECTION

SWRB2405N-2W

- Rated Power
- Package Style
- Output Voltage
- Input Voltage
- Product Series

PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (%, Typ.)
	Voltage (VDC)			Voltage (VDC)	Current (mA)		
	Nominal	Range	Max*		Max.	Min.	
SWRA1205N-2W	12	9-18	22	±5	±200	±20	75
SWRA1212N-2W				±12	±83	±8	78
SWRA1215N-2W				±15	±67	±7	78
SWRB1203N-1W6				3.3	455	45	70
SWRB1205N-2W				5	400	40	74
SWRB1209N-2W				9	222	22	76
SWRB1212N-2W				12	167	16	78
SWRB1215N-2W				15	133	13	78
SWRA2405N-2W	24	18-36	40	±5	±200	±20	76
SWRA2412N-2W				±12	±83	±8	78
SWRA2415N-2W				±15	±67	±7	79
SWRB2403N-1W6				3.3	455	45	72
SWRB2405N-2W				5	400	40	76
SWRB2409N-2W				9	222	22	78
SWRB2412N-2W				12	167	16	80
SWRB2415N-2W				15	133	13	79

*Input voltage can't exceed this value, or will cause the permanent damage.□Still not design.

OUTPUT SPECIFICATIONS

Item	Test conditions	Min.	Typ.	Max.	Units
Storage humidity				95	%
Operating temperature		-40		85	℃
Storage temperature		-55		125	
Temp. rise at full load			15		
Lead temperature	1.5mm from case for 10 seconds			300	
No-load power consumption			0.2		W
Cooling		Free air convection			
Short circuit protection		Continuous, automatic recovery			
Case material		Plastic(UL94-V0)			
MTBF		1000			K hours
Weight			4.8		g

ISOLATION SPECIFICATIONS

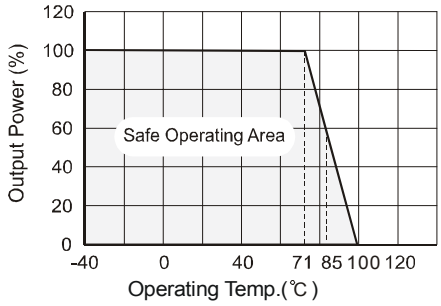
Item	Test conditions	Min.	Typ.	Max.	Units
Isolation voltage	Tested for 1 minute and 1 mA max	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation Capacitance	Input/Output, 100KHz/1V		85		pF

COMMON SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Units
Output power	See above products program	0.2		2	W
Positive voltage accuracy	Refer to recommended circuit		±1	±3	%
Negative voltage accuracy	Refer to recommended circuit		±3	±5	
Load regulation	From 10% to 100% load		±0.5	±1*	
Line regulation	Input voltage from low to high		±0.2	±0.5	
Temperature drift	Refer to recommended circuit			±0.03	%/°C
Ripple & Noise**	20MHz Bandwidth		50	100	mVp-p
Switching frequency	100% load, input voltage range		300		KHz

*Dual output models unbalanced load: ±5%.
**Test ripple and noise by “parallel cable” method. See detailed operation instructions at Testing of Power Converter section, application notes.

TYPICAL CHARACTERISTICS



APPLICATION NOTE

1) Requirement on Output Load

In order to ensure the product operate efficiently and reliably, in addition to a max load (namely full load), a minimum load is specified for this kind of DC/DC converter. Make sure the specified range of input voltage is not exceeded, the minimum output load ***no less than 10% load.*** If the actual load is less than the specified minimum load, the output ripple may increase sharply while its efficiency and reliability will reduce greatly. If the actual output power is very small, please add an appropriate resistor as extra loading, or contact our company for other lower output power products.

2) Recommended Circuit

All the SWRA_N-2W & SWRB_N-2W series have been tested according to the following recommended testing circuit before leaving factory (Figure 1). This series should be tested under load.

If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees (Table 1).General:

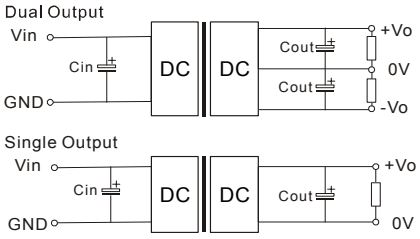
Cin: 12V 100μF
24V 10μF~47μF
Cout: 10μF/100mA

3) Input Current

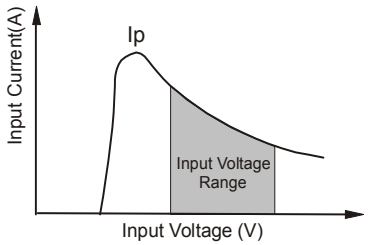
When it is used in unregulated power supply, be sure that the fluctuating range of the power supply and the rippled voltage do not exceed the module standard. Input current of power supply should afford the startup current of this kind of DC/DC module (Figure 2)
General: Ip ≤1.4*Iin-max:

4) No parallel connection or plug and play

RECOMMENDED CIRCUIT



(Figure 1)

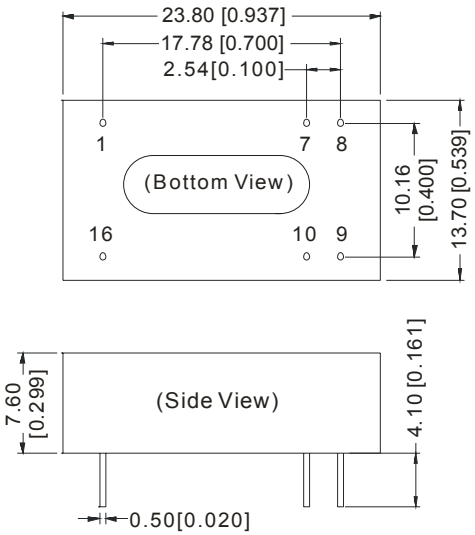


(Figure 2)

Output External Capacitor Table (Table 1)

Single Vout (VDC)	Cout (uF)	Dual Vout (VDC)	Cout (uF)
3.3	2200	±5	680
5	1000	±12	330
9	680	±15	220
12	470	-	-
15	330	-	-

MECHANICAL DIMENSIONS

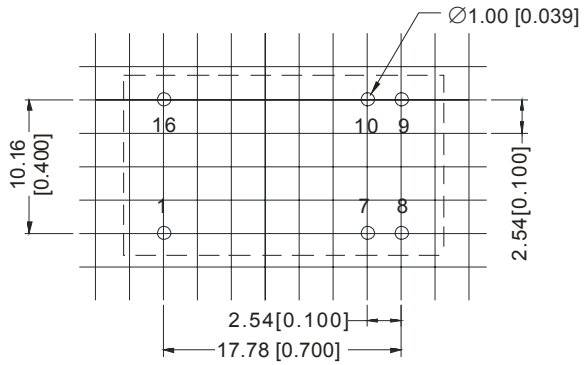


Note:
Unit:mm[inch]
Pin section tolerances: ±0.10mm[±0.004inch]
General tolerances: ±0.25mm[±0.010inch]

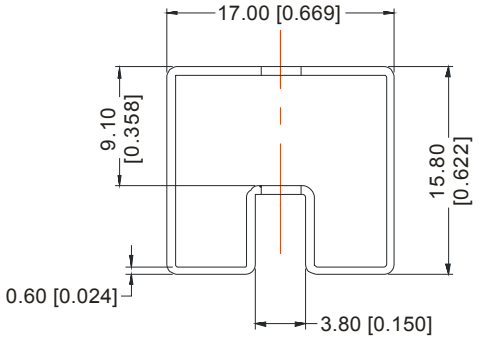
FOOTPRINT DETAILS		
Pin	Single	Dual
1	GND	GND
7	NC	NC
8	NC	0V
9	+Vo	+Vo
10	0V	-Vo
16	Vin	Vin

NC: No connection

RECOMMENDED FOOTPRINT(TOP VIEW)



TUBE OUTLINE DIMENSIONS



Note:
Unit :mm[inch]
General tolerances: ±0.50mm[±0.020inch]
L=530mm[20.866inch] Tube Quantity: 21pcs
L=220mm[8.661inch] Tube Quantity: 8pcs

Note:

1. The load shouldn't be less than 10%, otherwise ripple will increase dramatically.
2. Operation under 10% load will not damage the converter; However, they may not meet all specification listed.
3. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
4. In this datasheet, all the test methods of indications are based on corporate standards.
5. Only typical models listed, other models may be different, please contact our technical person for more details.