



WRA_CS-2W Series

WIDE INPUT 2W DUAL OUTPUT

RoHS
multi-country patent protection

FEATURES

- Miniature SIP Package
- Wide (2:1) Input Range
- Regulated Outputs
- I/O Isolation 1500VDC
- Operating Temperature: -40°C~+85°C
- Short Circuit Protection (automatic recovery)
- External On/Off control
- RoHS Compliance

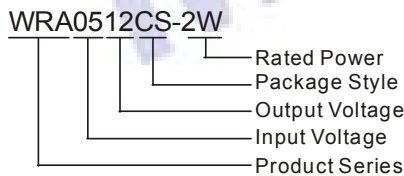
APPLICATIONS

The WRA_CS-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



PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (% Typ)
	Voltage (VDC)			Voltage (VDC)	Current (mA)		
	Nominal	Range	Max*		Max	Min	
WRA0505CS-2W	5	4.5-9	11	±5	±200	±20	67
WRA0509CS-2W				±9	±111	±11	71
WRA0512CS-2W				±12	±83	±8	72
WRA0515CS-2W				±15	±67	±6	73
WRA1205CS-2W	12	9.0-18	22	20	±200	±20	73
WRA1209CS-2W				±9	±111	±11	76
WRA1212CS-2W				±12	±83	±8	78
WRA1215CS-2W				±15	±67	±6	78
WRA2405CS-2W	24	18-36	40	10	±200	±20	76
WRA2409CS-2W				±9	±111	±11	78
WRA2412CS-2W				±12	±83	±8	78
WRA2415CS-2W				±15	±67	±6	77
WRA4805CS-2W	48	36-72	80	±5	±200	±20	71
WRA4809CS-2W				±9	±111	±11	78
WRA4812CS-2W				±12	±83	±8	80
WRA4815CS-2W				±15	±67	±6	80

ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Flash tested for 60 seconds	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation Capacitance	Input/Output		80		PF

OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Output Power	See Below Products Program	0.2		2	W
Output Voltage Accuracy	Refer To Recommended Circuit		±1	±3	%
Load Regulation	From 10% To 100% Load		±0.5	±1	
Line Regulation	Input Voltage From Low To High		±0.2	±0.5	
Temperature Drift (Vout)	Refer To Recommended Circuit			±0.03	%/°C
Ripple	20MHz Bandwidth		50	100	mVp-p
Noise	20MHz Bandwidth		80	150	
Switching Frequency	100% Load, Nominal Input Voltage	80-550(PFM)			KHz



MORNSUN Science& Technology Ltd.

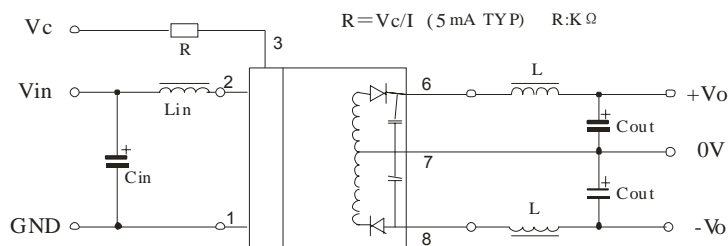
Address: 8th floor 8th building, Huangzhou Industrial District, Guangzhou, China
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Http://www.mornsun-power.com

Note:

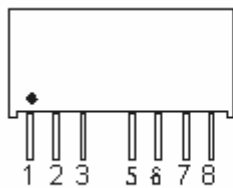
- 1.All specifications measured at T_A=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
- 2.See below recommended circuits for more details.

COMMON SPECIFICATION	
Output Short Circuit Protection	Continuous
Temperature Rise at Full Load	15°C (TYP), 35°C (MAX)
Cooling	Free Air Convection
No-load Power Consumption	100mW (typical)
Operating Temperature Range	-40°C~+85°C
Storage Temperature Range	-50°C ~+125°C
Lead Temperature***	300°C (1.5mm from case for 10 seconds)
Storage Humidity Range	≤ 95%
Case Material	Plastic (UL94-V0)
MTBF	>1,000,000 hours
***Lead Temperature 1.5mm from case for 10 seconds.	

TYPICAL Application Circuit

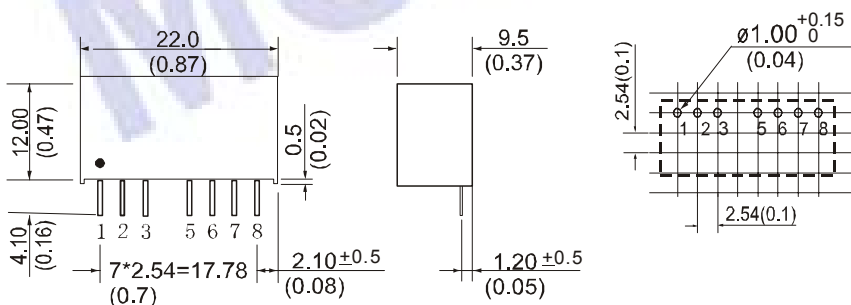


FOOTPRINT DETAILS



Pin	Function
1	GND
2	Vin
3	CTRL
5	NC
6	+Vo
7	0V
8	-Vo

PACKAGE STYLE AND PINNING mm(inches)



Note: All Pins on a 2.54mm pitch; All Pin diameters are 0.50 mm.

APPLICATION NOTE

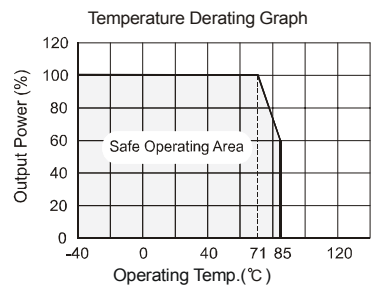
1 NC terminals

Unless otherwise specified, NC terminals of all series are used for converter's interior circuit connection, and are not allowed connection of any external circuit;

2 CTRL Terminal

When open or high impedance, the converter work well; When this pin is 'high'; the converter shutdown; It should be note that the input current should between 5-10mA,exceeding the maximum 20mA will cause permanence damage to the converter

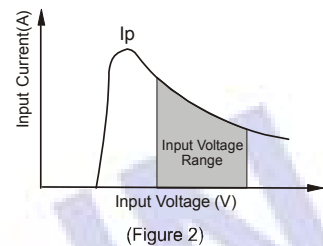
3 Typical temperature curve



4 Input current

It is best to test under load, To future reduce output ripple, you may increase the external capacitor, choose capacitor with low ESR or add external inductor to the circuit as shown on the left..

General: $I_p \leq 1.4 * I_{in-max}$



5 Recommended circuit

It is best to test with full load, and not allowed to test without load. To future reduce output ripple, you may increase the external capacitor, choose capacitor with low ESR or add external inductor to the circuit as shown on the left.

General:

Cin: 5V,12V 100uF

24V,48V 10uF or22uF

Cout:100uF(typ)

Lin:10uH-120 uH

6 Minimum load requirement

To ensure the converter working efficiently and stably, the converter has a minimum load requirement besides the maximum load requirement. The converter should operate with input voltage in the specified range and with load no less than the 10% of full load. If the application includes loading lower than required, please add an appropriate resistor as extra loading.

7 No parallel connection or plug and play.

External Capacitor Table (Table 2)

Vout	Cout (Max)
±5	±470uF
±9	±220uF
±12	±100uF
±15	±47uF