



WRB_CS-2W Series

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

multi-country patent protection **RoHS**

FEATURES

- Miniature Sip Package
- Wide (2:1) Input Range
- 1500VDC Isolation
- Operating Temperature: -40°C~+85°C
- No Heat Sink Required
- Short Circuit Protection (Automatic Recovery)
- External on/off
- RoHS Compliance

APPLICATIONS

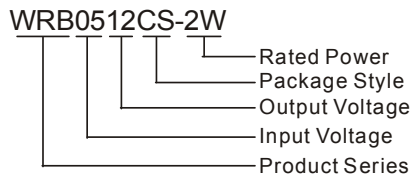
The WRB_CS-2W Series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

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 \leq 1500VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.

PRODUCT PROGRAM								
Part Number	Input			No-load Current (mA .typ)	Output		Efficiency (% , Typ)	
	Voltage (VDC)				Voltage (VDC)	Current (mA)		
	Range	Nominal	Max			Max		Min
WRB0503CS-1W6	4.5-9.0	5	11	40	3.3	500	50	65
WRB0505CS-2W					5	400	40	68
WRB0509CS-2W					9	222	22	72
WRB0512CS-2W					12	167	16	73
WRB0515CS-2W					15	133	13	72
WRB0524CS-2W					24	80	8	73
WRB1203CS-1W6	9.0-18	12	22	20	3.3	500	50	72
WRB1205CS-2W					5	400	40	75
WRB1209CS-2W					9	222	22	78
WRB1212CS-2W					12	167	16	82
WRB1215CS-2W					15	133	13	80
WRB1224CS-2W					24	80	8	82
WRB2403CS-1W6	18-36	24	40	10	3.3	500	50	72
WRB2405CS-2W					5	400	40	77
WRB2409CS-2W					9	222	22	80
WRB2412CS-2W					12	167	16	82
WRB2415CS-2W					15	133	13	81
WRB2424CS-2W					24	80	8	82
WRB4803CS-1W6	36-72	48	80	5	3.3	500	50	71
WRB4805CS-2W					5	400	40	73
WRB4809CS-2W					9	222	22	79
WRB4812CS-2W					12	167	16	80
WRB4815CS-2W					15	133	13	78
WRB4824CS-2W					24	80	8	80

MODEL SELECTION



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		85		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	±0.75	
Line Regulation	Input Voltage From Low To High		±0.2	±0.5	%/°C
Temperature Drift(Vout)	Refer To Recommended Circuit			±0.03	
Ripple	20MHz Bandwidth		10	50	mVp-p
Noise	20MHz Bandwidth		80	150	p
Switching Frequency	100% Load, Nominal Input Voltage	80-550(TYP)			KHz

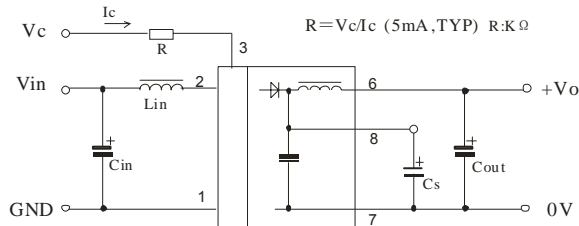
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Note:
 1.All specifications measured at T_A=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
 2.See below recommended circuits for more details.

COMMON SPECIFICATION

Output Short Circuit Protection	Continuous ,Automatic Recovery
Temperature Rise at Full Load	15°C (typ) 35°C (max)
Cooling	Free Air Convection
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
Weigh	6g
***Lead Temperature 1.5mm from case for 10 seconds.	

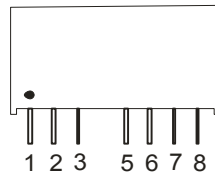
TYPICAL APPLICATION



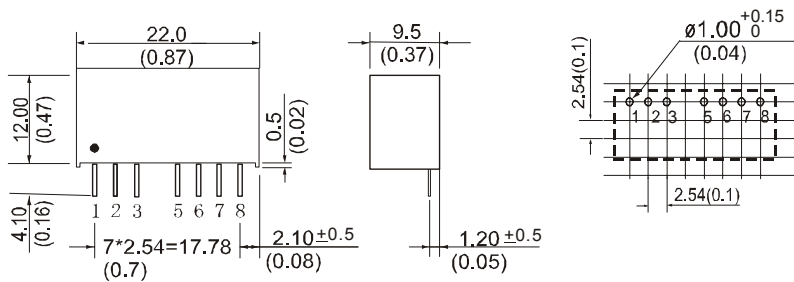
(Figure 1)

FOOTPRINT DETAILS

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



OUTLINE DIMENSIONS&RECOMMENDED FOOTPRINT mm(inches)



Note: All Pin diameter :0.5(0.02)* 0.3(0.01), ±0.05 (0.002) ; Tolerances: ± 0.25(0.01)

APPLICATION NOTE

Recommended Circuit

All the WRB_CS-2W Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load(Figure 1). If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high(Table 2).If you want to use the products in high EMI, please choose our metal packaged products.

NC terminal

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.;

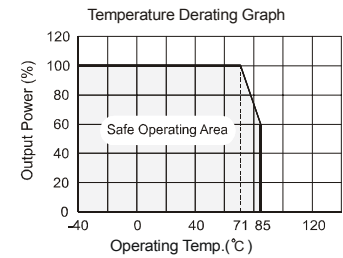
CS Pin

By connecting a low ESR capacitor between this terminal and the pin-7 (Figure 1). the output ripple and noise may be further improved. Generally, the capacitance is no greater than 100uF(Table 1),

CTRL

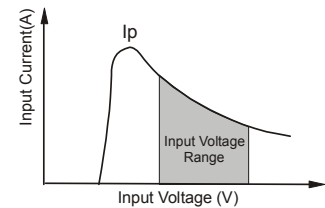
When open or high impedance, converter work well.; When this pin is 'high',the converter shutdown; Please note that the input current of this pin should between 5-10mA,exceeding the maximum 20mA will cause permanence damage to converter

Typical temperature curve



Input Current

Nominal input voltage range. The input current of the power supply must be sufficient to the startup current (Ip) of the DC/DC converter module (Figure 2)



(Figure 2)

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.

No parallel connection or plug and play.

CS Capacitor Table(Table 1)

Vout	3.3V	5V	9V	12V	15V	24V
CS	47uF-100uF			10uF-47uF		

External Capacitor Table(Table 2)

Vout	Cout (Max)
5	1000uF
9	680uF
12	470uF
15	220uF
24	68uF