

# Luoding Ruilvte Electronic Technology Co., Ltd.

## WRE\*\*\*\*S-1WR2 Series

DC-DC Power Supply Module/3000V Isolation  
Wide input voltage range/Regulated Dual Output

### Product features

2:1 wide input voltage range  
Short circuit and overcurrent protection:  
resettable  
Isolation Voltage: 3000Vdc isolation  
Operating Temperature: -45°C-85°C  
No additional components required  
Stable performance, high reliability,  
MTBF≥1 million hours  
Metal packaging, six-sided shielding  
Compliant with the RoHS Directive

### Module selection guide

Model number	Input		Output			Conversion efficiency (%)
	Nominal voltage (V)	Voltage range (V)	Rated voltage (V)	Minimum current (A)	Maximum current (A)	
WRE1205S- 1WR2	12	9-18	±5	±10	±100	80
WRE1209S- 1WR2			±9	±5	±55	81
WRE1212S- 1WR2			±12	±4	±42	82
WRE1215S- 1WR2			±15	±3	±33	82
WRE1224S- 1WR2			±24	±2	±21	83
WRE2405S- 1WR2	24	18-36	±5	±10	±100	80
WRE2409S- 1WR2			±9	±5	±55	81
WRE2412S- 1WR2			±12	±4	±42	82
WRE2415S- 1WR2			±15	±3	±33	82
WRE2424S- 1WR2			±24	±2	±21	83
WRE4805S- 1WR2	48	36-72	±5	±10	±100	80
WRE4809S- 1WR2			±9	±5	±55	81
WRE4812S- 1WR2			±12	±4	±42	82
WRE4815S- 1WR2			±15	±3	±33	82
WRE4824S- 1WR2			±24	±2	±21	83

### Input characteristics

Input specifications	Item	Test conditions	Minimum value	Typical value	Maximum value	Unit
	Maximum input voltage		12Vdc input (9-18Vdc)			
		24Vdc input (18-36Vdc)			40	
		48Vdc input (36-72Vdc)			80	
Control pin (Ctrl)		<b>Close:</b> high impedance	3.2			
		<b>Open:</b> NC				
Hot swap		Non hot-swap				

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## General characteristics

Switching frequency	200KHz	Nominal input voltage, 100% load
Output short-circuit duration	Durable, resettable	
Casing's temperature rise during operation	35°C (Typ.)	
Temperature coefficient	0.03%/°C	100% full load
Pin soldering temperature	300°C	Soldering time≤3s
Isolation voltage (input and output)	3000VDC	Test time 1 minute, leakage current less than 1mA.
Insulation resistance	1000MΩ	Insulation voltage: 500V
Isolation capacitor	100pF(Typ.)	Input/Output 100KHz/V
No-load power consumption	500mW (Typ.)	
Operating temperature	-40~+85°C	Operating ambient temperature
Storage temperature	-55~+125°C	
Storage humidity	<95%	Non-condensing
Cooling method	Natural air cooling	
Weight	15g	Standard

## Input characteristics

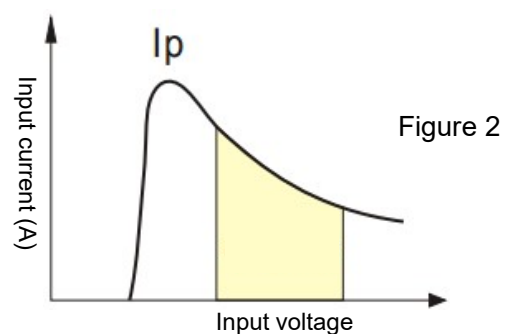
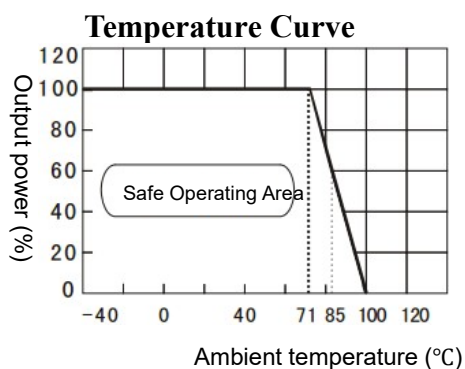
Input voltage (Vdc)		Maximum value (Vdc)	No-load current	*The input voltage must not exceed this value, otherwise it may cause permanent damage to the module.
2:1	9-18	20	35	
	18-36	40	20	
	36-72	80	10	

## Output characteristics

Item	Test conditions	Typical value	Maximum value	
Linear voltage regulation rate	From the lowest to the highest input voltage	<0.2%	<0.5%	
Load regulation	10% to 100% load	<0.5%	<1.0%	
Output voltage accuracy	Specified input range and load	±1%	±3%	
Overcurrent protection	Full voltage input range	≥ 1.5 times the rated output current		
Ripple and noise	20MHz bandwidth	±3.3V/±5V/±12V/±15V	±50mVp-p	±100mVp-p
		±24V	±100mVp-p	±150mVp-p

Unless otherwise specified, all parameters are tested under nominal input voltage, resistive load, and at room temperature of 25°C.

## Curves for typical characteristics



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## Caution

1. Recommended circuit: If input and output ripple needs further reduction, connect an 'LC' filter network at the input and output ends with appropriate filter capacitors. It is recommended to use ceramic capacitors or high-frequency low-impedance electrolytic capacitors. Using tantalum capacitors may cause module damage. Excessive capacitance and low ESR values may cause instability in module operation, or lower current limit and output voltage. The recommended value for output capacitance is  $220\mu\text{F}/\text{A}$  (the current here is the rated output current). For each output, the maximum capacitive load value, ensuring safe and reliable operating conditions, can be found in the Maximum Capacitive Load Value Table.
2. Input current: When using an unstable power supply, please ensure that the power supply's fluctuation range and ripple voltage are within the module's input requirements. The input current of the power source must be sufficient to accommodate the DC/DC module's instantaneous start-up current  $I_p$  (Figure 2), which is approximately 1.4 times the average input current, i.e.,  $I_p \leq 1.4 * I_{in-max}$ .
3. Load requirements: The minimum load should be no less than 10%. Otherwise, the output ripple will increase rapidly. If the product operates below the minimum required load, the module will not be damaged, but the performance specified in this datasheet cannot be guaranteed.
4. This product cannot be used in parallel and does not support hot swapping.

### Recommended circuit for basic application

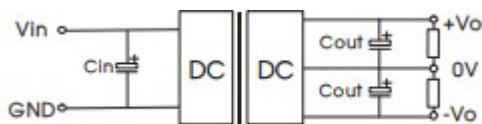


Figure 1

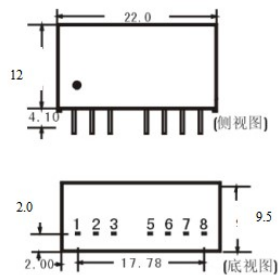
### Maximum Capacitive Load

Single output (Vdc)	External capacitor	Dual output (Vdc)	External capacitor
3.3	2200	±5	680
5	1000	±9	470
12	470	±12	330
15	330	±15	220
24	220	±24	100

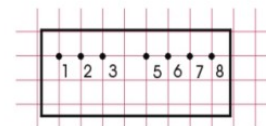
## Dimensions and pinout

### Recommended PCB layout

产品尺寸图:



PCB 布板图:



格子: 2.54\*2.54mm.  
引脚直径: 0.5mm  
一般偏差: 0.20mm

引脚功能表:

GND	Vin	CTRL	NC	+VO	OV	NC
1	2	3	5	6	7	8

单位: mm

端子长度偏差: 0.2mm

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