

Typical Performance

- 7 Pin SIP international standard pin
- Isolation voltage: 1500VDC
- Low quiescent current and high conversion
- Low ripple factor and low noise
- Working environment temperature: -40°C~+85°C
- MTBF≥3.5 million hours (3500000Hrs)
- Output short circuit protection: continuous short
- Built-in soft start technology
- Special specification products can be designed according to customer needs

- The IB_S-2WR3 series is specially designed for applications where a power supply that is isolated from the input power supply is required in a distributed power system. This product is suitable for:
 - relatively stable voltage of the input power supply (voltage variation $\text{van} \pm 5\%V_{in}$);
 - Isolation required between inputs and outputs (isolation voltage $\leq 1500\text{VDC}$);
 - Applications with high requirements for output voltage stability and output ripple noise;
 - Typical applications: pure digital circuits, general low frequency analog circuits, relay drive circuits, data exchange circuits, etc.

2W, constant voltage input, isolated and regulated single output, DC/DC module power



Product Coding Rules



Product Selection Table

Product model ^①	Input voltage range (Vdc)	Output voltage/current		Ripple and noise	Efficiency @ Full load	Maximum capacitive load
	Nominal value ^② (Range values)	Output voltage (Vdc)	Output current(mA) (Max.Min.)	Fully load (mVp-p) Typ./Max.	% Min./Typ.	uF
IB0303S-2WR3	3.3 (3.135-3.465)	3.3	400/40	50/100	70/74	2400
IB0305S-2WR3		5	400/40	50/100	70/74	2400
IB0503S-2WR3	5 (4.75-5.25)	3.3	400/40	50/100	70/74	2400
IB0505S-2WR3		5	400/40	50/100	70/74	2400
IB0509S-2WR3		9	222/10	50/100	70/74	1200
IB0512S-2WR3		12	166/16	50/100	70/74	560
IB0515S-2WR3		15	133/13	50/100	70/74	560
IB0524S-2WR3		24	83/8	100/200	70/74	100
IB0903S-2WR3		3.3	400/40	50/100	70/74	2400

IB0905S-2WR3		5	400/40	50/100	70/74	2400
IB0909S-2WR3	9 (8.55-9.45)	9	222/22	50/100	70/74	560
IB0912S-2WR3		12	167/16	50/100	70/74	560
IB0915S-2WR3		15	133/13	50/100	70/74	220
IB0924S-2WR3		24	83/13	50/100	70/74	100
IB1203S-2WR3	12 (11.4-12.6)	3.3	400/40	50/100	70/74	2400
IB1205S-2WR3		5	400/40	50/100	70/74	2400
IB1209S-2WR3		9	222/22	50/100	70/74	560
IB1212S-2WR3		12	167/16	50/100	70/74	560
IB1215S-2WR3		15	133/13	50/100	70/74	220
IB1224S-2WR3		24	83/13	50/100	70/74	100
IB1503S-2WR3	15 (14.25-15.75)	3.3	400/40	50/100	70/74	2400
IB1505S-2WR3		5	400/40	50/100	70/74	2400
IB1509S-2WR3		9	222/22	50/100	70/74	560
IB1512S-2WR3		12	167/16	50/100	70/74	560
IB1515S-2WR3		15	133/13	50/100	70/74	220
IB1524S-2WR3		24	83/13	50/100	70/74	100
IB2403S-2WR3	24 (22.8-25.2)	3.3	400/40	50/100	70/74	2400
IB2405S-2WR3		5	400/40	50/100	70/74	2400
IB2409S-2WR3		9	222/22	50/100	70/74	560
IB2412S-2WR3		12	167/16	50/100	70/74	560
IB2415S-2WR3		15	133/13	50/100	70/74	220
IB2424S-2WR3		24	83/13	50/100	70/74	100

Note: The no-load power consumption of each model above is about 10% of the rated output power.

1. Due to limited space, the above is only a typical product list, if you need products outside the list, please contact our sales department;
2. nominal output voltage is the input voltage at nominal value and output current tested under full load conditions;
3. Maximum capacitive load is to characterize the maximum capacity of the module power supply output with capacitive load, the general external output capacitance can not exceed the maximum capacitive load value of the module power supply, otherwise it will cause poor module start-up and affect the long-term reliability of the module work.

Test conditions: If not specified, all parameters are measured at nominal input voltage, pure resistive rated load and 25°C room temperature.

Input Characteristics

Project	Working conditions	Min.	Typ.	Max.	Unit
Input voltage range	5VDC input series	4.75	5	5.25	Vdc
	12VDC input series	10.8	12	13.2	
	24VDC input series	22.8	24	25.2	
Maximum output		--	--	2	W
Reflected ripple		Capacitive filtering			

Input filter type		Not support			
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*This series of modules does not have the function of input reverse connection protection. It is strictly forbidden to connect the positive and negative inputs in reverse, otherwise it will cause irreversible damage to the module.

Output Characteristics

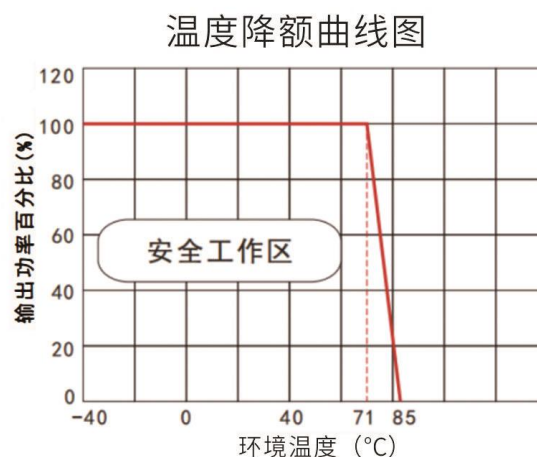
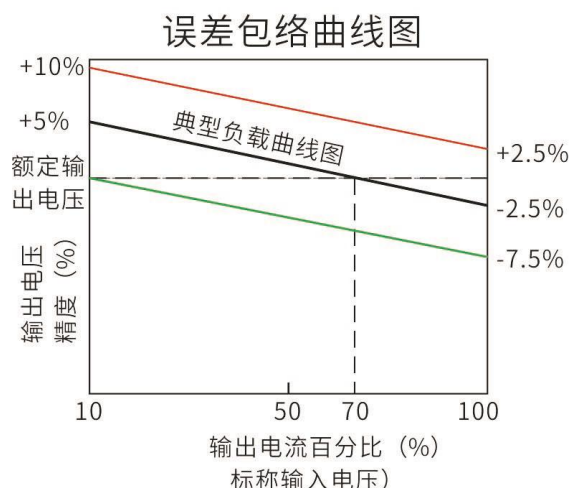
Project	Working and testing conditions	Min.	Typ.	Max.	Unit
Output Load	Load percentage	10	--	100	%
Output voltage accuracy	Refer to error envelope curve (100% load)	--	--	±1	%
Linear adjustment rate	Input voltage difference ±5%	--	--	±0.5	%
Load adjustment rate	10%~100% load	--	±1	±2	%
Ripple & noise	Pure resistance load, 20MHz bandwidth, peak-to-peak value	--	30	--	mVp-p
Temperature drift coefficient	Full load	--	--	±0.03	%/°C
Output short circuit protection	Continuous short circuit protection, automatic recovery				

Note: ① The test method for ripple and noise is the twisted pair test method.

General Characteristics

Project	Working conditions	Min.	Typ.	Max.	Unit
Insulation voltage	Input-output, test time 1 minute, leakage current less than 1mA	1500	--	--	VDC
Insulation resistance	Input-output, insulation Voltage 500VDC	1000	--	--	MΩ
Isolation capacitor	Input-output, 100KHz/0.1V	--	40	--	pF
Operating temperature	Refer to temperature derating graph	-40	--	+85	°C
Storage temperature		-40	--	+125	
Case temperature rise during operation		--	25	--	
Storage humidity	No condensation	5	--	95	%RH
Pin soldering temperature resistance	Solder joint distance from housing 1.5mm,10s	--	--	+300	°C
Switching frequency	Full load, nominal voltage input	--	100	300	KHz
Vibrations		10-55Hz, 10G, 30 Min. along X, Y and Z			
Housing material		Black flame retardant and heat resistant plastic (UL94 V-0)			
Minimum trouble-free interval	MIL-HDBK-217F@25°C	3.5X10 ⁶	--	--	Hrs

Product Characteristics Curve Chart



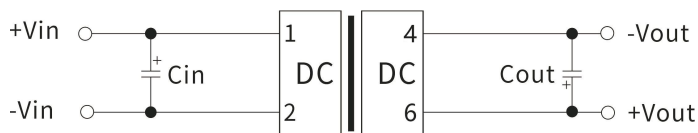
Typical Application Reference Circuit (Recommended Parameters)

1. Conventional applications:

To further reduce the input and output ripple, a capacitor filter network can be connected to the input and output terminals, and the application circuit is shown in Figure 1.

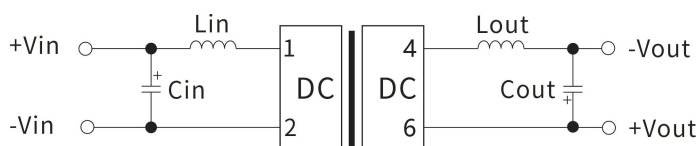
However, care should be taken to select the appropriate filtering capacitor. If the capacitor is too large, it is likely to cause start-up problems. For each output, under the condition of ensuring safe and reliable operation, the recommended capacitive load value is detailed in Table 1. recommended capacitive load value details (Table 1).

Recommended capacitive load values are detailed in Table 1.



Vin (Vdc)	Cin (u F)	Vo (Vdc)	Cout (u F)
3.3/5	10uF/16V	3.3/5	10uF/16V
9/12	4.7uF/25V	9	4.7uF/25V
15/24	2.2uF/25V	12	1uF/50V

2. EMI typical application circuit



图(2)

Recommended EMI reference circuit value details (Table 2)

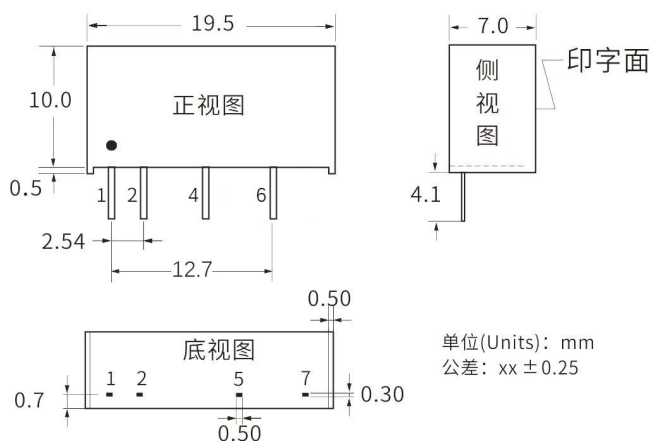
Vin (Vdc)	3.3/5/9/12/15/24
Cin	4.7 μ F/50V
Cout	Refer to Table 1
Lin	4.7 μ H
Lout	4.7 μ H

3. Output load requirements

To ensure that the module works efficiently and reliably, the minimum output load must not be less than 10% of the rated load when in use. If the power you need is really small, please connect a resistor in parallel between the positive and negative terminals of the output (the sum of the actual power used by the resistor is greater than or equal to 10% of the rated power and the rated power of the selected resistor must be more than 5 times the actual power used, otherwise the temperature of the resistor will be higher).

Product Dimensions And Pin Definition, Suggested Printing Layout

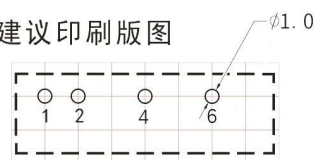
1) 外观尺寸



2) 引脚定义

1	2	3	4	5	6	7
+Vin	-Vin	No Pin	-Vout	No Pin	+Vout	No Pin
输入正	输入负	空脚	输出负	空脚	输出正	空脚

3) 建议印刷版图



备注: 栅格距离为: 2.54*2.54mm

***Note: If the definition of each pin of the power supply module does not match with the selection manual, the label on the physical label shall prevail.**

Package Description

Package code	LxWxH	
S	19.5 x 7.0x 10.0 mm	0.768 × 0.276 × 0.394inch

Test Application Reference

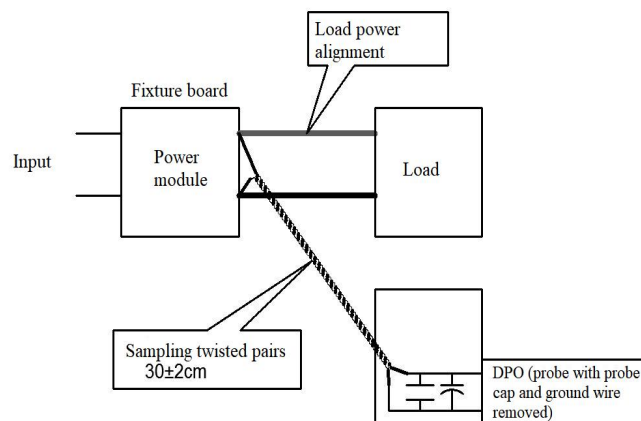
Ripple & Noise Test: (twisted pair method 20MHZ bandwidth)

Test method:

1. Ripple noise is connected using 12# twisted pair, oscilloscope bandwidth set to 20MHz, 100M bandwidth probe, and 0.1uF polypropylene capacitor and 4.7uF high frequency low resistance electrolytic capacitor connected in parallel on the probe end, oscilloscope sampling using Sample sampling mode.

2. Output ripple noise test schematic:

The power input is connected to the input power supply, the power output is connected to the electronic load through the fixture board, and the test is performed with a separate 30cm±2cm sampling line directly from the power output port. Power line according to the size of the output current to choose the corresponding wire diameter with insulation.



Application Notes

1. Input requirements: ensure that the output voltage fluctuation range of the power supply does not exceed the input requirements of the DC/DC module itself, the output power of the input power supply must be greater than the output power of the DC/DC module.
2. Recommended circuit for ripple noise requirements in general, the input and output terminals can be connected in parallel with a filter capacitor, the external circuit shown in Figure (1) below, the recommended value of the filter capacitor is detailed in Table (1). Output load requirements: try to avoid no-load use, when the actual power consumption of the load is less than 10% of the module output rated power or no-load phenomenon, it is recommended that the external dummy load at the output, dummy load (resistance) can be calculated in accordance with the module rated power 5 ~ 10%, resistance value = $U_{out} / (1WR3 * 10\%)$.
3. Overload protection: Under normal operating conditions, the output circuit of the product has no protection against overload, long time overload will overtemperature protection, shutting down the output;
4. Output can be continuously short-circuit protection, automatic recovery.
5. The capacitance of the external capacitor at the output should not be too large, otherwise it will easily cause over-current or bad start when the module is started.
6. If the product works below the minimum required load, the product performance is not guaranteed to meet all the performance indicators in this manual;

Contact information

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