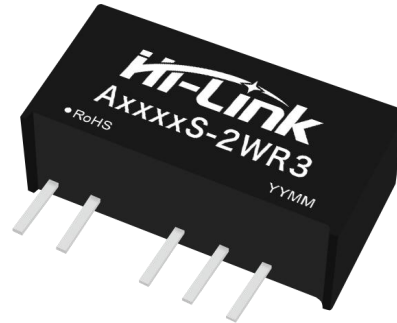


Typical Performance

- Constant Voltage Input, Isolated Unregulated Output, 2W Power
- Isolation voltage: 1500VDC
- Low quiescent current and high conversion efficiency
- Ripple/noise (20MHz bandwidth): 30mVp-p
- Working temperature: -40°C~+85°C
- MTBF $\geq$ 3.5 million hours (3500000Hrs)
- Output short circuit protection: sustainable short circuit protection, automatic recovery
- Small SIP Package, Plastic Housing
- International standard pin out

2W constant voltage input, isolated unregulated dual outputs



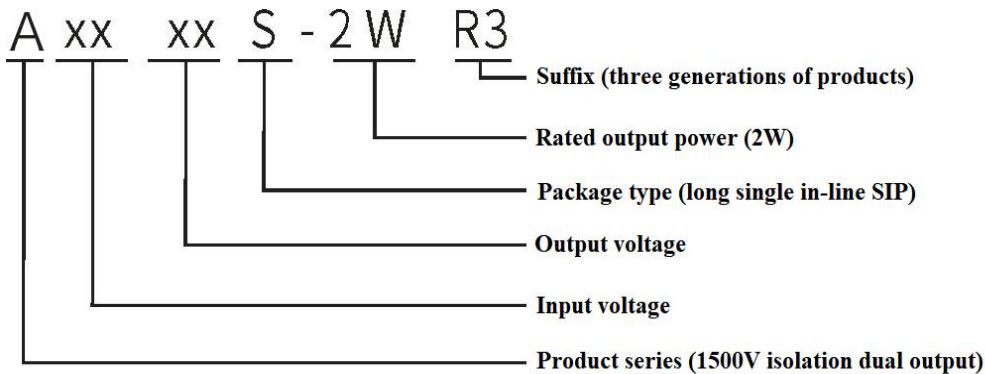
Over-temperature protection and output sustainable short-circuit protection RoHS

A_S-2WR3 series is a small size, high efficiency micro power, constant voltage input, isolated unregulated single output, DC/DC module power supply from Hi-Link;

This series of products is designed for applications in on-board power systems that require the generation of a set of voltages isolated from the input power supply. The product is suitable for:

- The voltage of the input power supply is relatively stable (voltage variation range $\pm 10\%$ V_{in});
- Isolation is required between input and output (isolation voltage $\leq 1500\text{VDC}$);
- Low requirement for output voltage stability;
- Typical applications: purely digital circuits, general low-frequency analog circuits, relay drive circuits, data exchange circuits, and so on.

Product Coding Rules



Product List

Product Model [®]	Input Voltage range (Vdc)	Output Voltage/Current		Ripple and Noise	Efficiency @ full load	Maximum capacitive load
	Nominal value [®] (range value)	Output voltage (Vdc)	Output current (mA) (Max.Min.)	Full load (mVp-p) Typ/Max.	% (Min./Typ.)	uF
A0303S-2WR3	3.3	± 3.3	$\pm 303/\pm 30$	30/80	72/76	100
A0305S-2WR3	(2.97-3.63)	± 5	$\pm 200/\pm 20$	30/80	76/80	100

A_S-2W series

A0309S-2WR3		±9	±112/±12	30/80	82/86	100
A0312S-2WR3		±12	±83/±8	30/80	82/86	100
A0315S-2WR3		±15	±67/±7	30/80	82/86	100
A0324S-2WR3		±24	±42/±4	30/80	82/86	100
A0503S-2WR3	5 (4.5~5.5)	±3.3	±303/±30	30/80	72/76	100
A0505S-2WR3		±5	±200/±20	30/80	76/80	100
A0509S-2WR3		±9	±112/±12	30/80	82/86	100
A0512S-2WR3		±12	±83/±8	30/80	82/86	100
A0515S-2WR3		±15	±67/±7	30/80	82/86	100
A0524S-2WR3		±24	±42/±4	30/80	82/86	100
A0903S-2WR3	9 (8.1~9.9)	±3.3	±303/±30	30/80	78/82	100
A0905S-2WR3		±5	±200/±20	30/80	82/86	100
A0909S-2WR3		±9	±112/±12	30/80	82/86	100
A0912S-2WR3		±12	±83/±8	30/80	82/86	100
A0915S-2WR3		±15	±67/±7	30/80	82/86	100
A0924S-2WR3		±24	±42/±4	30/80	82/86	100
A1203S-2WR3	12 (10.8~13.2)	±3.3	±303/±30	30/80	72/82	100
A1205S-2WR3		±5	±200/±20	30/80	82/86	100
A1209S-2WR3		±9	±112/±12	30/80	82/86	100
A1212S-2WR3		±12	±83/±8	30/80	82/86	100
A1215S-2WR3		±15	±67/±7	30/80	82/86	100
A1224S-2WR3		±24	±42/±4	30/80	82/86	100
A1503S-2WR3	15 (13.5~16.5)	±3.3	±303/±30	30/80	82/86	100
A1505S-2WR3		±5	±200/±20	30/80	82/86	100
A1509S-2WR3		±9	±112/±12	30/80	82/86	100
A1512S-2WR3		±12	±83/±8	30/80	82/86	100
A1515S-2WR3		±15	±67/±7	30/80	82/86	100
A1524S-2WR3		±24	±42/±4	30/80	82/86	100
A2403S-2WR3	24 (21.6~26.4)	±3.3	±303/±30	30/80	72/82	100
A2405S-2WR3		±5	±200/±20	30/80	82/86	100
A2409S-2WR3		±9	±112/±12	30/80	82/86	100
A2412S-2WR3		±12	±83/±8	30/80	82/86	100
A2415S-2WR3		±15	±67/±7	30/80	82/86	100
A2424S-2WR3		±24	±42/±4	30/80	82/87	100

Note:

1. Due to limited space, the above is only a typical product list, if you need products other than those listed, please contact our sales department.
2. Maximum Capacitive Load indicates the maximum capacitive load that can be connected to +Vo or -Vo. If this value is exceeded, the product will not start normally.

Test Conditions: Unless otherwise specified, all parameters are measured at nominal input voltage, purely resistive rated load and room temperature of 25°C.

Input Characteristics

Items	Working conditions	Min.	Typ.	Max.	Unit.
Input current (fully loaded/ unloaded)	5VDC input series	--	454/5	--/10	mA
	9VDC input series	--	250/5	--/10	
	12VDC input series	--	186/2	--/5	
	15VDC input series	--	148/2	--/4	
	24VDC input series	--	92/1	--/2	
Reflected ripple current		--	15	--	mA
Impulse voltage (Isec.max)	3.3VDC input series	-0.7	--	5	VDC
	5VDC input series	-0.7	--	9	
	9VDC input series	-0.7	--	15	
	12VDC input series	-0.7	--	18	
	15VDC input series	-0.7	--	21	
	24VDC input series	-0.7	--	30	
Input filter type		Capacitive filtering			
Hot plug		Not available			

Output Characteristics

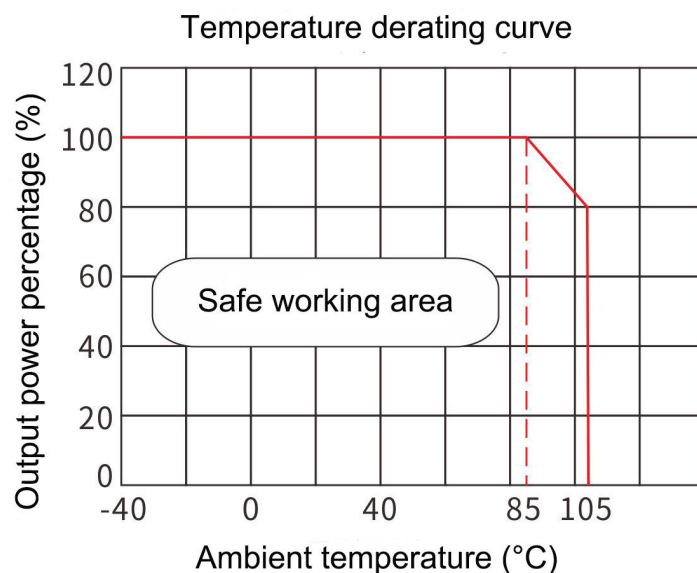
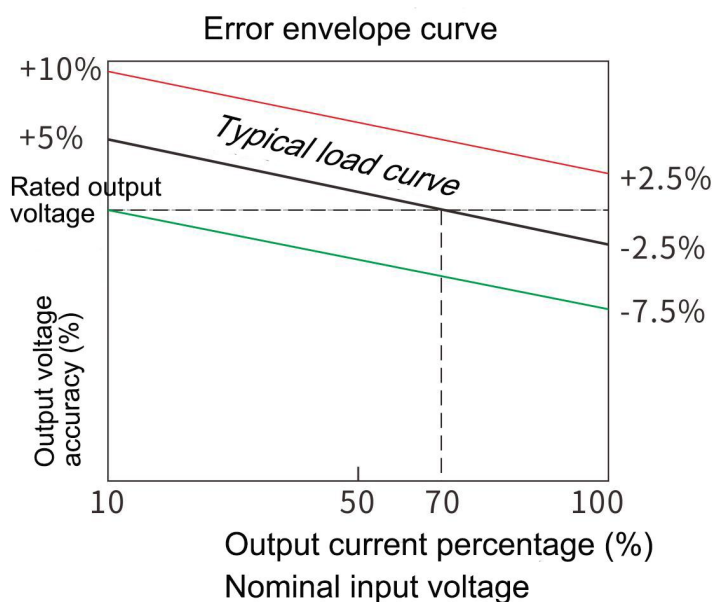
Items	Working and testing conditions		Min.	Typ.	Max.	Unit.
Output load	Load percentage		10	--	100	%
Output voltage accuracy	Refer to error envelope curve		--	--	±15.0	%
Linear adjustment rate	Input voltage variation ±1%	3.3VDC output	--	--	±1.5	%
		Others	--	--	±1.2	%
Load regulation	10%~100% Load	3.3VDC output	--	18	--	%
		5VDC output	--	12	--	%
		9VDC output	--	8	--	%
		12VDC output	--	7	--	%
		15VDC output	--	6	--	%
		24VDC output	--	5	--	%
Ripple & Noise	Pure resistive load, 20MHz bandwidth, peak-to-peak		--	30	80	mVp-p
Temperature drift coefficient	Full load		--	--	±0.03	%/°C
Output short circuit protection	Continuous short circuit protection, automatic recovery					

Note: The test method of ripple and noise is twisted pair test method.

General Characteristics

Items	Working conditions	Min.	Typ.	Max.	Unit.
Insulation voltage	Input-output, test time is 1 minute, leakage current is 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 curve	-40	--	+85	°C
Storage temperature		-40	--	+125	
Shell temperature rise during operation		--	25	--	
Storage humidity	No condensation	5	--	95	%RH
Pin soldering temperature	The solder joint is 1.5mm away from the shell, 10s	--	--	+300	°C
On-off level	Full load, nominal voltage input	--	100	--	KHz
Shock		10-55Hz, 10G, 30Min.alongX, Y and Z			
Shell material		Black flame retardant heat resistant plastic (UL94V-0)			
Minimum time between failures	MIL-HDBK-217F@25°C	3.5X10 ⁶	--	--	Hrs

Product Characteristic Curve

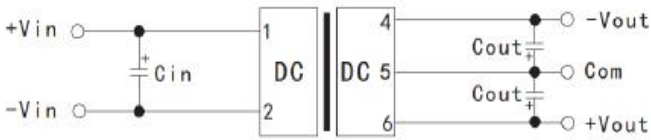


Typical Application Reference Circuit (Recommended Parameters)

1. General application:

If you require further reduction of input and output ripple, you can connect a capacitor filter network at the input and output terminals, the application circuit shown in Figure 1.

However, attention should be paid to the selection of suitable filter capacitors. If the capacitance 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.



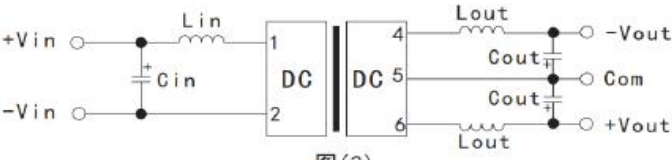
图(1)

Recommended capacitive load values detailed (Table 1)

Vin (Vdc)	Cin (uF)	Vo (Vdc)	Cout (uF)
3.3/5	4.7	±3.3/±5	4.7
9/12	2.2	±9/±12	1
15/24	2.2	±15/±24	0.47

Table 1

2.EMI typical application circuits



图(2)

Recommended EMI reference circuit values detailed

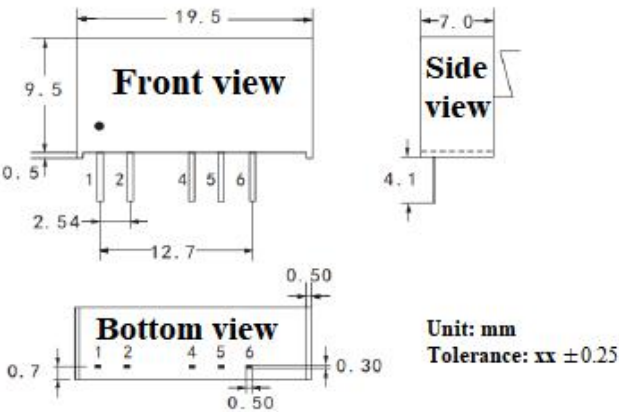
Vin (Vdc)	3.3/5/12/15/24
Cin	Reference table 1
Cout	Reference table 1
Lin	4.7uH
Lout	4.7uH

3. Output load requirements

In order to ensure that the module can work efficiently and reliably, when used, its output minimum load can not be less than 10% of the rated load. If you really need less power, please connect a resistor in parallel between the positive and negative poles of the output (the sum of the resistor's actual power is greater than or equal to 10% of the rated power and the rated power of the selected resistor must be greater than 5 times the actual power, otherwise the resistor's temperature will be higher).

Product Appearance Size and Pin Definition (Recommended Printing Layout)

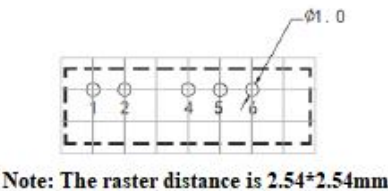
1. Exterior Dimensions



2. Pin Definitions

1	2	3	4	5	6
+Vin	-Vin	No Pin	-Vout	Com	+Vout

3. Suggested Printing Layout



Package Description

Package code	LxWxH	
S	19.5x7.0x10.0mm	0.768×0.276×0.394inch

Test Application Reference

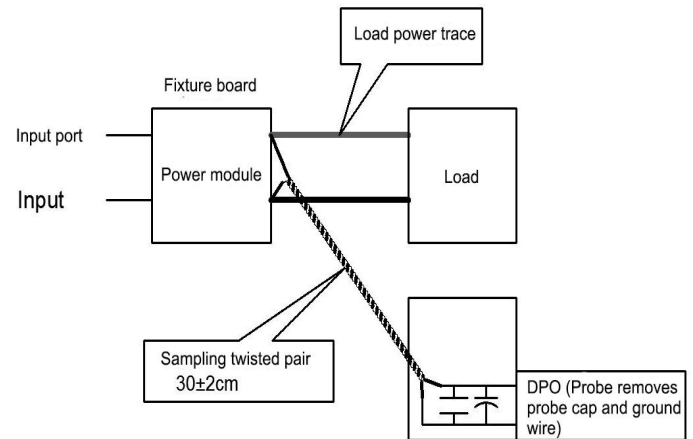
Ripple & Noise Test: (Twisted Pair Method 20MHZ Bandwidth)

Test method:

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

2. Output ripple noise test schematic:

Connect the power input 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 30cm±2cm sampling line directly from the power output port. Power line according to the size of the output current to select the appropriate wire diameter of the wire with insulation.



Application Considerations

1. Input requirements: Ensure that the power supply output voltage fluctuations do 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 a for the ripple noise requirements of the general occasion, can be in parallel with the input and output each a filter capacitor, external circuit shown in the following figure (1), the recommended value of its filter capacitors are 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's output rated power or no-load phenomenon, it is recommended that the output side of the external dummy load, the dummy load (resistance) can be calculated in accordance with the module's rated power of 5 to 10%, resistance value = $U_{out} / (1WR3 * 10\%)$;
3. Overload protection: under normal operating conditions, the output circuit of the product for the overload situation has no protection function, a long time overload will be over-temperature protection, shut down the output;
4. The output can be continuously short-circuit protection, automatic recovery.
5. The capacitance of the external capacitor of the output should not be too large, otherwise it will easily cause the module to start overcurrent or poor startup;
6. If the product works below the minimum required load, the product performance cannot be guaranteed to meet all the performance indicators in this manual;
7. Maximum capacitive load are tested in the input voltage range, full load conditions;
8. Unless otherwise specified, all specifications in this manual are measured at $T_a=25^{\circ}\text{C}$, humidity $<75\%\text{RH}$, nominal input voltage and output rated load;
9. The test methods of all indicators in this manual are based on the company's standards;
10. Our company can provide product customization, the specific conditions can be directly with our technical staff to contact;
11. Product specifications change without notice.

Contact

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