

## HLK-1D1212

### CONVERTIDOR DC-DC ENTRADA 5V SALIDA 12V 84mA 1W



DC/DC1W-12V power module selection table

#### MULTIPLE SPECIFICATIONS AVAILABLE

Constant voltage 12V ( $\pm 10\%V_{in}$ ) input/isolated unregulated output

MODEL	POWER	VOLTAGE	ELECTRICITY
HLK-1D1205	1W	5V	200mA
HLK-1D1212	1W	12V	84mA
HLK-1D1215	1W	15V	67mA
HLK-1D1224	1W	24V	42mA

\*The same type of power module package size

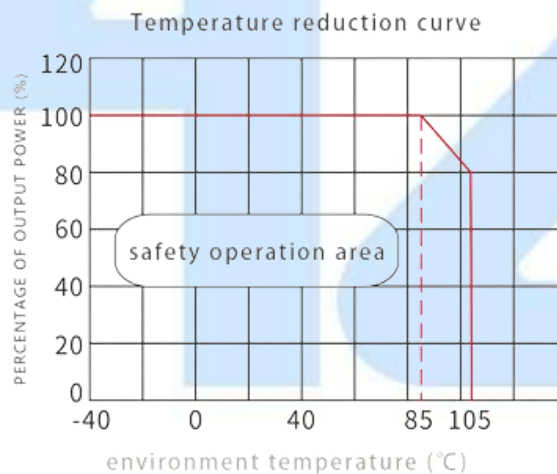
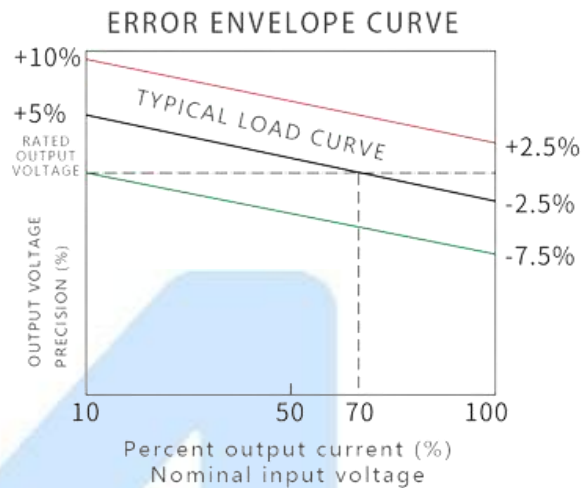
\*International standard pin, appearance size 11.5×10×6mm

#### Product features



- Ultra-miniature standard package SIP package and standard pins
- Constant voltage input, isolated unregulated single output, 1W
- Input and output isolation withstand voltage 1500VDC
- Low ripple/noise (20MH bandwidth) < 100mVp-p
- High efficiency, conversion efficiency up to 80% (MAX)
- Operating temperature range: -40°C~+85°C
- Good output short circuit and over current protection and self-recovery
- High reliability, long life design, MTBF≥3500000H
- Potting and sealing with high-quality environmentally friendly waterproof and thermal conductive glue, dustproof, moistureproof, shockproof and flame retardant
- Meet UL/CE/EMC and safety testing requirements
- It can be used in medical, industrial control, electric power, instrumentation, communication, railway and other fields

## Product characteristic curve

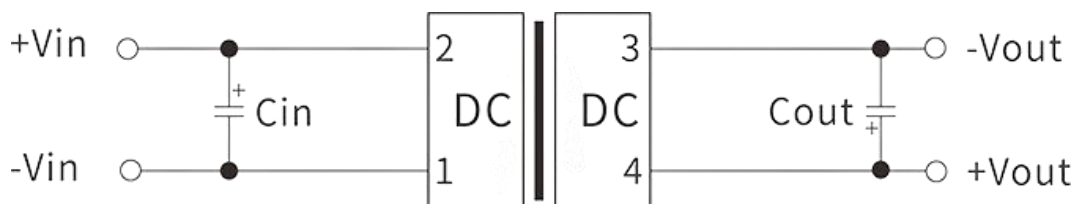


## Typical application circuit

### Recommended test circuit

If it is required to further reduce the input and output ripple, a capacitor filter network can be connected to the input and output ends. The application circuit is shown in the figure.

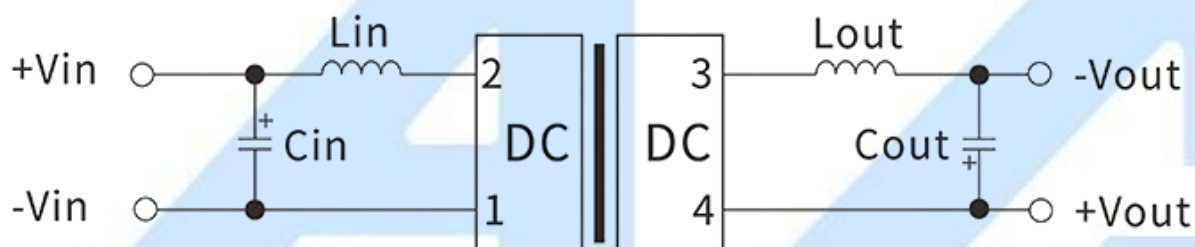
But care should be taken to select an appropriate filter capacitor. If the capacitance is too large, it may cause startup problems. For each output, under the condition of ensuring safe and reliable operation, the recommended capacitive load value is shown in the attached table.



Vin (Vdc)	3.3/5/12/15/24
Cin	4.7u F/50V
Count	Refer to Table 1
Lin	4.7uH
Lout	4.7uH

Recommended capacitive load values are detailed (Table 1)

### EMI typical application circuit



### Recommended parameters:

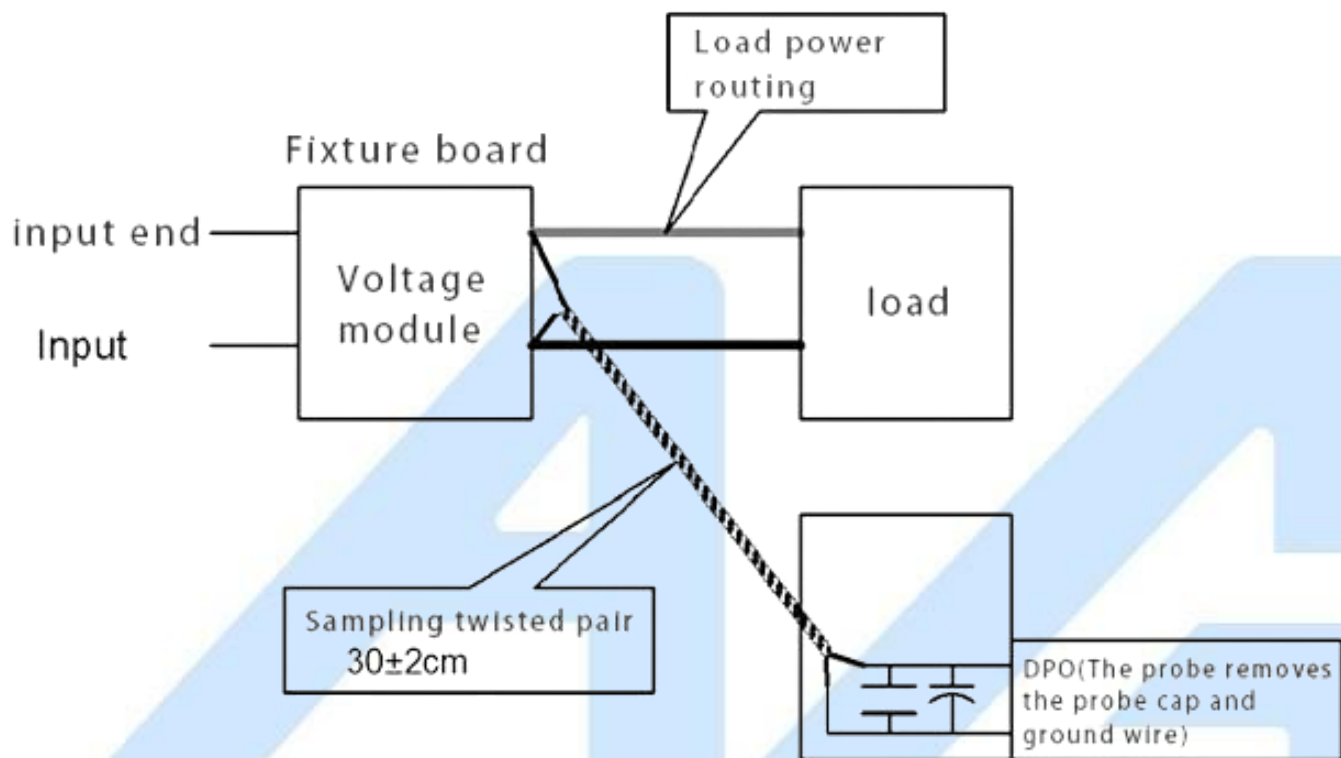
Vin (Vdc)	5/12/15/24
Cin	4.7u F/50V
Count	Refer to Table 1
Lin	4.7uH
Lout	4.7uH

Recommended EMI reference circuit values are detailed (Table 2)

### Output load requirement

In order to ensure that the module can work efficiently and reliably, when in use, its minimum output load cannot be less than 10% of the rated load. If the power you need is really small, please connect a resistor in parallel between the positive and negative poles of the output (the sum of the actual power used by the resistors 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 used. , Otherwise the temperature of the resistor will be higher).

## Ripple & noise test: twisted pair method 20MHz bandwidth



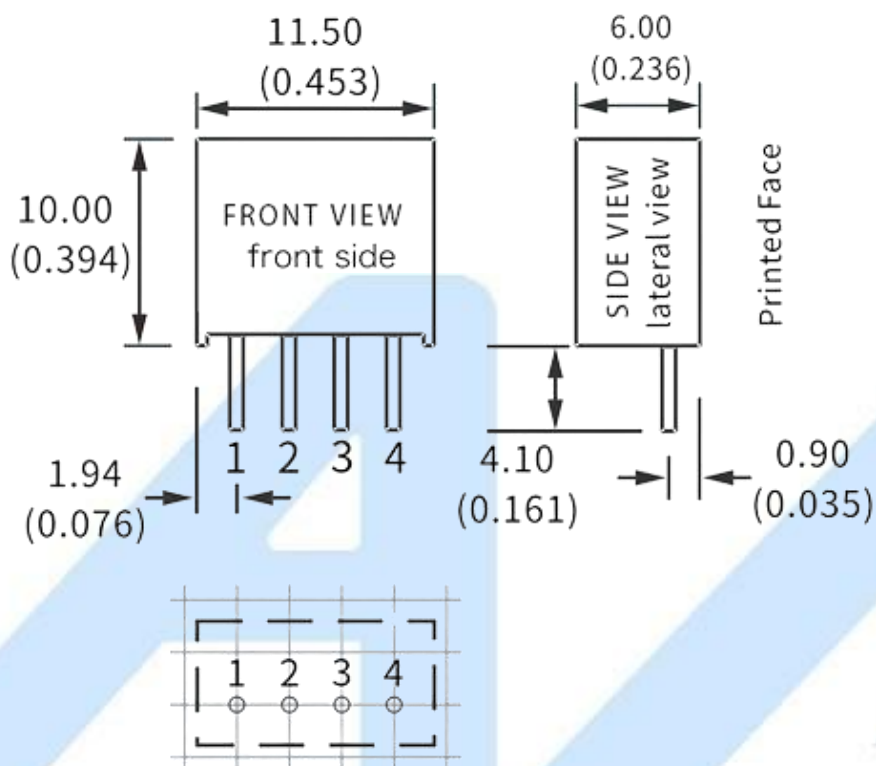
### testing method:

1. Ripple noise is connected using 12# twisted pair, the oscilloscope bandwidth is set to 20MHz, 100M bandwidth probe, and 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor are connected in parallel to the probe end, and the oscilloscope sampling uses Sample sampling mode .
2. Connect the power input terminal to the input power supply, and the power output is connected to the electronic load through the fixture board. For testing, use a 30cm±2cm sampling line to sample directly from the power output port. The power line selects the corresponding wire diameter wire with insulation according to the output current. (As shown in FIG)

## Product 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, and the output power of the input power supply must be greater than the output power of the DC/DC module;
2. Recommended circuit 1: For occasions with general requirements for ripple and noise, a filter capacitor can be connected in parallel to the input and output ends. The external circuit is shown in the above figure (1). The recommended value of the filter capacitor is shown 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 there is no-load phenomenon, it is recommended to connect a dummy load to the output end. The dummy load (resistance) can be in accordance with the rated power of the module. 5~10% calculation, resistance value= $U_{out}/(1W*10\%)$ ;
3. Overload protection: Under normal working conditions, the output circuit of this product has no protection against overload. The easiest way is to connect a self-recovery fuse in series at the input end, or add a circuit breaker to the circuit;
4. The capacitance value of the external capacitor at the output end should not be too large, otherwise it will easily cause overcurrent or poor startup when the module starts;
5. If the product works below the minimum required load, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;
6. The maximum capacitive load is tested under the input voltage range and full load conditions;
7. Except for special instructions, all indicators in this manual are measured at  $T_a=25^{\circ}\text{C}$ /humidity < 75%RH, nominal input voltage and output rated load;
8. All index test methods in this product manual are based on our company's standards;
9. Our company can provide product customization, and you can directly contact our technical staff for specific information;
10. Product specifications are subject to change without notice.

## Dimensions



UNIT: mm  
 Printed board vertical view  
 Lattice spacing: 2.54mm(0.1inch)  
 Unmarked dimensional tolerances  $\pm 0.25$ mm

### Pin description:

1 : GND ; 2 : +Vin ; 3 : -Vo 4 : +Vo ;

\*Note: If the definition of each pin of the power module is not consistent with the selection manual, the marking on the physical label shall prevail.

		AG Electrónica S.A.P.I. de C.V. República del Salvador N° 20 Segundo Piso Teléfono: 55 5130 - 7210	
ACOTACIÓN: N/A	<a href="http://www.agelectronica.com">http://www.agelectronica.com</a>	ESCALA: N/A	REALIZO: OGJ  REV: JFRR
TOLERANCIA: N/A	<b>CONVERTIDOR DC-DC ENTRADA 5V SALIDA                  12V 84mA 1W</b>		
TOLERANCIA: N/A	Fecha: 19/05/2022	<b>No. Parte: HLK-1D1212</b>	