# HI-LINK IB-LS-1W Power Module Instructions

Contents



## IB_LS-1W Power Module Model Table

## SELECTION OF POWER SUPPLY MODULE

**Rated voltage input, isolated stabilized single output 1W**


- 4 Pin, SIP international standard pins
- Isolation voltage ≤ 1500VDC
- Low staic current and high conversion efficiency
- Low ripple coefficient and low noise
- Continuous short-circuit protection
- Working temperature -40°C  -+85°C Model

| Model | Nominal Value(±10%) | Output Voltage/Current |
|---|---|---|
| IB0503LS-1WR3 | 5V(4.75V-5.25V) | 3.3V/303mA |
| IB0505LS-1WR3 | | 5V/200mA |
| IB0509LS-1WR3 | | 9V/111mA |
| IB0512LS-1WR3 | | 12V/84mA |
| IB0515LS-1WR3 | | 15V/67mA |
| IB0524LS-1WR3 | | 24V/42mA |
| IB1203LS-1WR3 | 5V(11.4V-12.6V) | 3.3V/303mA |
| IB1205LS-1WR3 | | 5V/200mA |
| IB1209LS-1WR3 | | 9V/111mA |
| IB1212LS-1WR3 | | 12V/84mA |
| IB1215LS-1WR3 | | 15V/67mA |
| IB1224LS-1WR3 | | 24V/42mA |
| IB2403LS-1WR3 | 5V(22.8V-25.2V) | 3.3V/303mA |
| IB2405LS-1WR3 | | 5V/200mA |
| IB2409LS-1WR3 | | 9V/111mA |
| IB2412LS-1WR3 | | 12V/84mA |
| IB2415LS-1WR3 | | 15V/67mA |
| IB2424LS-1WR3 | | 24V/42mA |

- **The picture only for reference, please refer to the actual product**

**Product Feature**

1. characteristic: Constant voltage input, isolated non stabilized voltage single output,1W
2. Isolation voltage ≤1500VDC
3. output short-circuit protection
4. The voltage of the input power supply is relatively stable. (Voltage variation range±10%Vin)
5. operating temperature range -40°C~+85°C
6. The stability of output voltage is not required.
7. Small SIP package, plastic housing
8. International standard pin out method
9. Adopts high quality environmental protection, waterproof and heat conducting adhesive for filling and sealing, moisture-proof and vibration proof, meeting the waterproof and dustproof IP65 standard
10. High reliability and long life design, continuous working time MTBF≥3.5 million hours (3500000Hrs)

**Environment Condition**

| Project name | Qualification | Unit | Notes |
|---|---|---|---|
| Working environment temperature | -40—+85 | ℃ | |
| Storage temperature | -40—+125 ℃ | ℃ | |
| Relative humidity | 5—95 | % | |
| Heat dissipation mode | natural cooling | | |
| Atmospheric pressure | 80—106 Kpa | Kpa | |
| Ripple & Noise | 30/80(max) | Mvp-p | |

**Input Characteristics**

| Item | Working conditions | Min. | Typ. | Max | Unit |
|---|---|---|---|---|---|
| Reflection ripple current Impulse voltage | | — | 15 | — | m'A |
| | 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 Hot plugged | | Capacitive filtering Non-support | | | |

**Output Characteristics**

| Project name | Working and testing condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Output load | load percentage | 10 | — | 100 | % |
| Output Voltage Accuracy | 100% load | — | — | ±3 | % |
| Linear adjustment rate | Input voltage 3.3V output | — | — | ±3 | % |
| | variation ±1% others output | — | — | ±2 | % |
| Load adjustment rate | 10%~100% load | — | — | ±3 | % |
| | 3.3VDC Output others output | — | — | ±2 | % |
| Ripple & Noise | Pure resistive load, 20HMz bandwidth, peak-to-peak | — | 50 | — | mVp-p |
| Temperature Drift Coefficient | Full load | — | — | ±0.03 | %/℃ |
| Output short circuit protection | 1s | | | | |

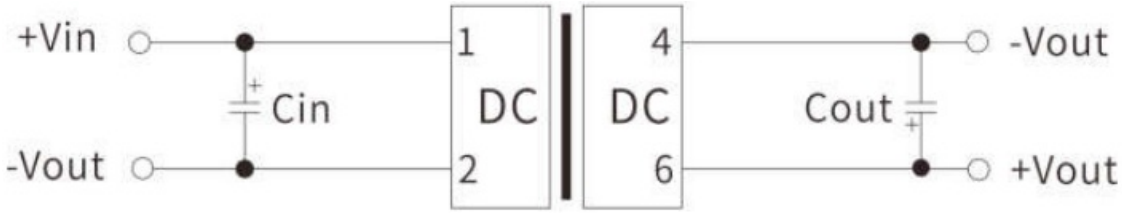
Note:
(1) The test method of ripple and noise twisted pair test method.
(2) The series module does not have the input anti-reverse function, it is strictly forbidden to reverse the in put positive and negative connection, otherwise it will cause irreversible damage to the module

**Typical Application Reference Circuit( Recommended Parameters)**

**1. Conventinal 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).

**Single circuit**




**Positive and negative dual circuit**

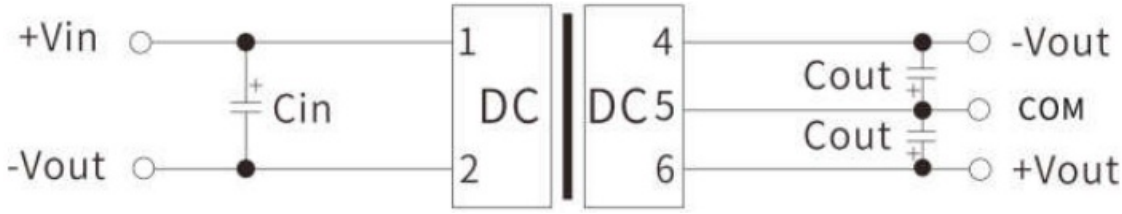


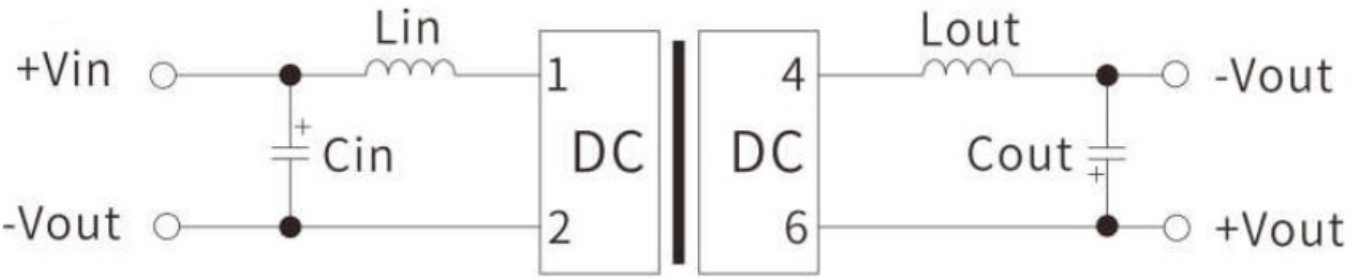

Figure 1

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

Table(1)

#### 2. EMI typical application circuit

### Single circuit




Recommended EMI reference circuit value details (Table 2)

| Vin (Vdc) | 3.3/5/9/12/15/24 |
|---|---|
| Cin | Refer to Table 1 |
| Cout | Refer to Table 1 |
| Lin | 4.7uH |
| Lout | 4.7uH |

#### 3. Output load requirements

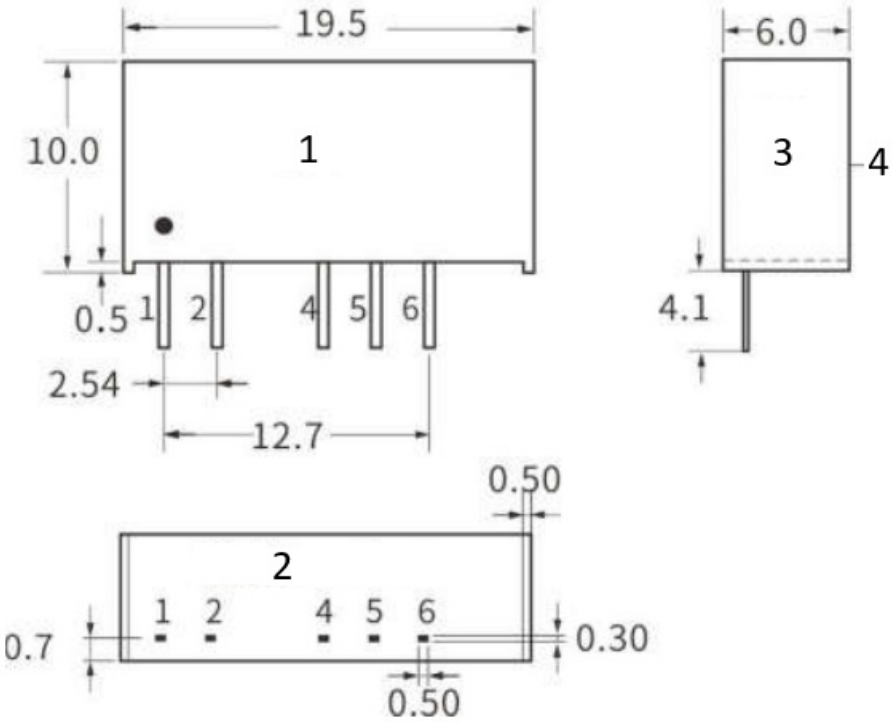
To ensure that the module works efficiently and reliably, the minimum output load must not be less than 10% of the rated load when in use. If the power you need is really small, please connect a resistor in parallel between the positive and negative terminals of the output (the sum of the actual power 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).

Note:

1. The above is only a list of typical products. If you need products beyond the list, please contact our sales.
2. The maximum capacitive load indicates the maximum capacitive load that + VO or – vo can be connected to, If the value is exceeded, the product will not start normally..

#### Product dimensions and pin definition, suggested printing layout

### 1) Appearance dimensions (unit: mm, tolerance: xx±0.25)

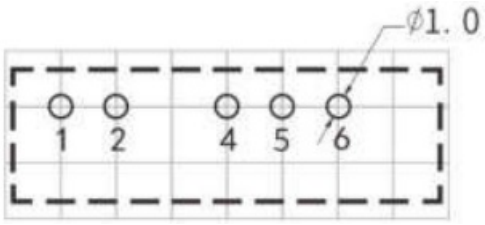



1. Front view
2. Bottom View
3. Side view
4. Printed side

**2) Pin definition**

| **Pin** | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| **Single circuit** | +Vin | -Vin | No Pin | -Vout | No Pin | +Vout |

**3) Suggested print version**




**Note: Grid distance: 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.

## Documents / Resources

| | |
|---|---|
|  | **HI-LINK IB-LS-1W Power Module** [pdf] Instructions<br>IB-LS-1W, IB-LS-1W Power Module, Power Module, Module |

## References

- **User Manual**