

### Features

- Fixed input voltage, Isolated unregulated output
- High efficiency
- Working Temperature: -40°C~+85°C
- Isolation 1500VDC 0.5mA 1Minute
- DIP Package
- Highly Flame-retardant Plastic Shell Packaging
- Cooling Nature
- Output short circuit, over current, over voltage protection

### Product Picture

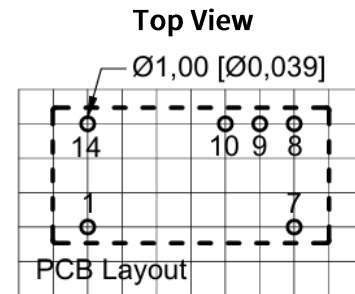
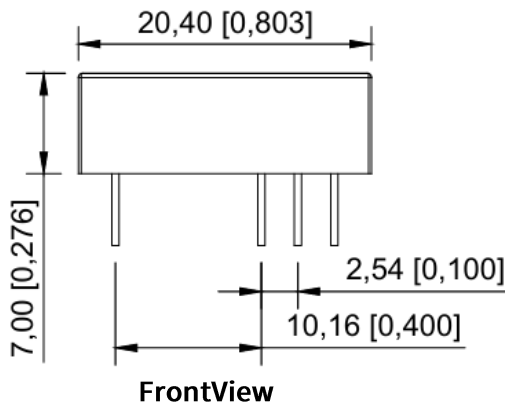


EMC-EN55032  
EN55035  
LVD-EN62368

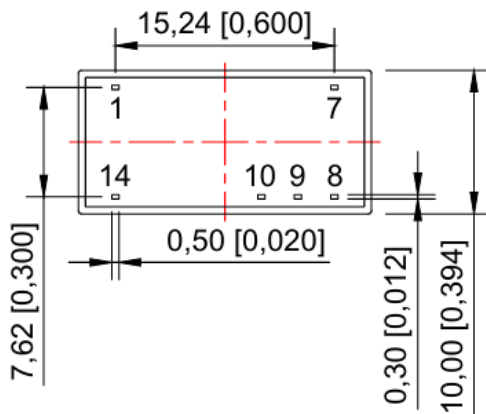


### Dimensions

#### Dimension of D\_S\_-1WH2 Series



Note: The grid distance is 2.54\*2.54mm



| Pin Mode |           |
|----------|-----------|
| Pin      | Single(S) |
| 1        | GND       |
| 7        | NC        |
| 8        | +XXVDC    |
| 9        | No Pin    |
| 10       | 0V        |
| 14       | Vin       |

Note:

Unit: mm[inch]

Pin Section Tolerance :  $\pm 0.1[\pm 0.004]$

General Tolerance:  $\pm 0.25[\pm 0.01]$

The device layout is for reference only

Application

Communication interface converter (RS232/485) cellular phone, semiconductor laser, operational amplifier power supply, portable instrument, automatic control device, etc.

Selection Guide

| Model       | Vin<br>(V±5%)                                                                          | Vout<br>(V±4%) | Current(mA) | Efficiency(%) | Isolation(VDC) |
|-------------|----------------------------------------------------------------------------------------|----------------|-------------|---------------|----------------|
| D_S3.3-1WH2 | 3.3(3.135-3.465)<br>5(4.75-5.25)<br>12(11.4-12.6)<br>15(14.25-15.75)<br>24(22.8-25.2)) | 3.3            | 303         | ≥75           | 1500           |
| D_S05-1WH2  |                                                                                        | 5              | 200         | ≥80           | 1500           |
| D_S09-1WH2  |                                                                                        | 9              | 111         | ≥78           | 1500           |
| D_S12-1WH2  |                                                                                        | 12             | 83          | ≥78           | 1500           |
| D_S15-1WH2  |                                                                                        | 15             | 67          | ≥76           | 1500           |
| D_S24-1WH2  |                                                                                        | 24             | 42          | ≥75           | 1500           |

Note: Our company can customize any input and output module power supply for customers. If you have special needs, please call our company. Unless otherwise specified, input = Vi. The characteristics of the module power supply should comply with the provisions of Table 1 and be applicable to the full temperature range (-40°C ≤ Tc ≤ 85°C)

Electrical Characteristics

| Characteristics       | Symbol | Condition Vi , -40°C ≤ Tc ≤ 85<br>(Unless Otherwise Specified ) | Min   | Max                        | Unit |
|-----------------------|--------|-----------------------------------------------------------------|-------|----------------------------|------|
| Output Voltage        | Vo     | Full Load                                                       | Vo-4% | Vo+4%                      | V    |
| Output Current        | Iomax  | —                                                               | —     | P(Power)/U(Output Voltage) | A    |
| Output Ripple Voltage | Vp-p   | Full Load, Vi, BW=20MHz, Normal Temperature                     | 50    | 100                        | mV   |
| Output Noise Voltage  | Vp-p   | Full Load, Vi, BW=20MHz, Normal Temperature                     | 70    | 120                        | mV   |
| Voltage Regulation    | Sv     | Vimin、Vi、Vimax, Full Load                                       | —     | ≤±2%                       | %    |
| Load Regulation       | Si     | Vi, Io=(10%~100%)Iomax                                          | —     | ≤±2%                       | %    |
| Efficiency            | η      | Vi, Full Load, Normal Temperature                               | 75    | —                          | %    |
| Insulation Resistance | RI     | Input/Output , Test Voltage: 500VDC                             | 1000  | —                          | MΩ   |

General Characteristics

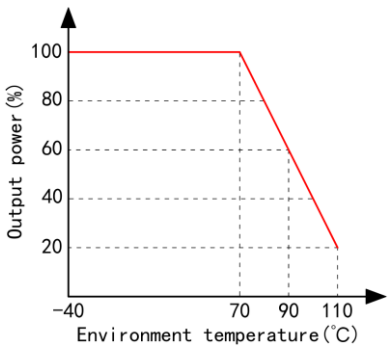
|                       |                                          |         |
|-----------------------|------------------------------------------|---------|
| EMC Specifications    | Magnetic Field Sensitivity Test          | GB-4943 |
|                       | Electrostatic Discharge Sensitivity Test | GB-4943 |
|                       | Radiation Sensitivity Test               | GB-4943 |
|                       | Conductivity Sensitivity Test            | GB-4943 |
| Temperature Excursion | ≤±0.02%/°C                               |         |
| Storage Temperature   | -40°C~125°C                              |         |
| Switching Frequency   | 50KHz~120KHz                             |         |
| Humidity              | 10%-90%RH                                |         |
| MTBF                  | >500000H                                 |         |

Mechanical Specifications

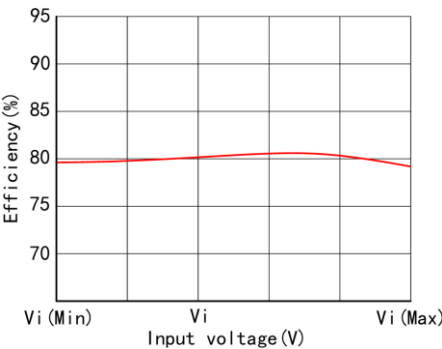
|      |                     |
|------|---------------------|
| Size | 20.40*10.00*7.00 mm |
|------|---------------------|

### Product Characteristic Curves

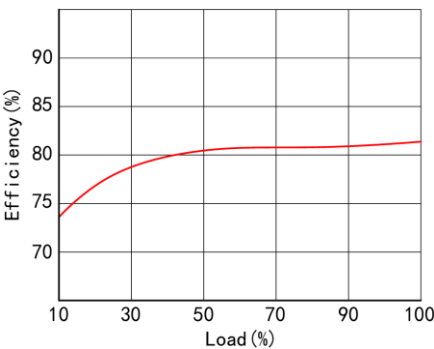
Temperature chart



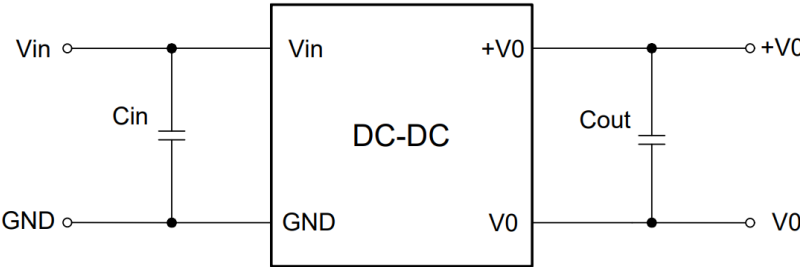
Efficiency/Input voltage graph



Efficiency/Load graph



### Typical Application



### Recommendation Test

**Filtering:** In some circuits sensitive to noise and ripple, filtering capacitors can be externally connected to the input and output terminals of the DC/DC converter to reduce the impact of ripple on the system. However, the value of the filtering capacitor should be appropriate. If the capacitor is too large, it may cause startup problems. For each output, under the condition of ensuring safe and reliable operation, the maximum capacitance value of the filtering capacitor can refer to the external capacitance table. In order to obtain very low ripple, an "LC" filtering network can be connected to the input and output terminals of the DC/DC converter, so that the filtering effect will be better. At the same time, attention should be paid to the size of the inductance value and the frequency of the "LC" filtering network itself, which should be staggered with the frequency of the DC/DC module power supply to avoid mutual interference. For each output, under safe and reliable working conditions, it is recommended that its capacitive load value be detailed in Table 1.

| Input (Vin+) | Input Capacitor(Cin) | Output(Vout) | Output Capacitor(Cout) |
|--------------|----------------------|--------------|------------------------|
| 5V           | 4.7uF/25V            | 5V           | 4.7uF/25V              |
| 12V          | 2.2uF/25V            | 12V          | 2.2uF/25V              |
| 24V          | 1uF/50v              | 24V          | 1uF/50v                |

Table of recommended capacitive load values (Table 1)

Note: Please note that the grounding of the main output circuit and the grounding of the load carried should be connected to the ground, so that even if there is a problem with the product, it will not cause harm to personnel. The grounding requirement for auxiliary roads is that they are isolated and do not need to be grounded.

**Notice**

**Package**

This series of modules are packed with tubes.



**Transport**

The package is allowed to be transported by any means of transport, which shall avoid direct rain or snow and mechanical damage.

**Storage**

The module should be stored in a warehouse with an ambient temperature of -40 ° C to 125 ° C, a relative humidity of 20% to 95%, and no acidic, alkaline, or other harmful gases in the surrounding environment.

Note: The above are the performance indicators of the product series listed in this manual. Some indicators of non-standard models may exceed the above requirements. If there is any inconsistency between the manual and the product specification document, please refer to the specification document. If you have special requirements, please contact our company directly.