## Features

- Wide input 85-305VAC/120-430VDC
- DIP package
- Operating temperature range：-40℃～+85℃
- Isolation 3000/4000VAC 5mA 1Minute
- Internal SMD design
- High flame retardant plastic shell package
- RoHS
- Natural cooling
- It has good shielding anti-interference performance and electromagnetic compatibility, lightning protection, output over current, short circuit protection, overheat protection, self-recovery and other functions

## Product Picture

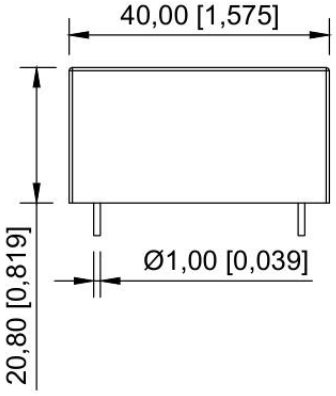
**Patent protection**

EMC-EN55032
EN55035
LVD-EN62368

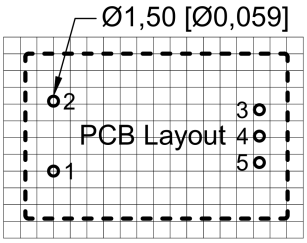
## Dimensions

### AC220S(D)__C1-10/12 Series Dimensions

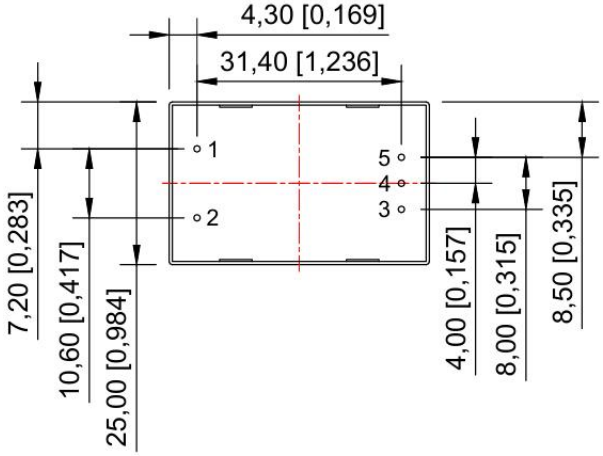
**Front view**




**Top view**




**Note: The grid distance :2.54*2.54mm**




**Bottom view**

| Pin mode | | |
|---|---|---|
| Pin | Single(S) | Dual(D) |
| 1 | AC(N) | AC(N) |
| 2 | AC(L) | AC(L) |
| 3 | 0V | -XXVDC |
| 4 | No Pin | COM |
| 5 | +XXVDC | +XXVDC |

Note:
Unit: mm[inch]　　Pin section tolerance: ±0.1[±0.004]　　Unmarked tolerance: ±0.25[±0.01]
The device layout is for reference only.

## Application

Industrial control and remote DC power supply system, switching system, AC/DC(5V products), railway communication, communication interface converter, cellular telephone, semiconductor laser, display screen, monitoring equipment, petrochemical, portable instrument, medical instrument, automatic control device, burglar alarm, handheld instrument, digital circuit, IC card meter, air conditioning computer controller, LED production Products, digital products, power adapters, etc.

## Selection Guide

| Model | Vin (V) | Vout (V±2%) | Full Load Output Current (mA) | Efficiency (%) | Isolation (VAC) | Weight (g±0.5) | Certification |
|---|---|---|---|---|---|---|---|
| AC220S05C1-10/12 | 85-305VAC (120-430VDC) | 5 | 2000/2400 | ⩾79 | 3000/4000 | | |
| AC220S09C1-10/12 | | 9 | 1111/556 | ⩾81 | 3000/4000 | | |
| AC220S12C1-10/12 | | 12 | 833/1000 | ⩾84 | 3000/4000 | | |
| AC220S15C1-10/12 | | 15 | 666/800 | ⩾84 | 3000/4000 | | |
| AC220S24C1-10/12 | | 24 | 416/500 | ⩾85 | 3000/4000 | | |
| AC220D05C1-10/12 | | ±5 | ±1000/±1200 | ⩾79 | 3000/4000 | | |
| AC220D09C1-10/12 | | ±9 | ±555/±667 | ⩾81 | 3000/4000 | | |
| AC220D12C1-10/12 | | ±12 | ±416/±500 | ⩾84 | 3000/4000 | | |
| AC220D15C1-10/12 | | ±15 | ±333/±400 | ⩾84 | 3000/4000 | | |
| AC220D24C1-10/12 | | ±24 | ±208/±250 | ⩾85 | 3000/4000 | | |

Note: The company for customers to customize any input and output module power supply, if you have special needs, please call our company, unless otherwise specified, input =Vi, the characteristics of the module power supply should meet the requirements of Table 1, and applicable to the full temperature range (-40℃⩽Tc⩽85℃)

## Electrical Characteristics

| Characteristic | Symbol | Conditions Vi ,-40℃⩽Tc⩽85 (Unless otherwise specified) | Min | Max | Unit |
|---|---|---|---|---|---|
| Output Voltage | Vo | Full load | Vo-2% | Vo+2% | V |
| Output Current | Iomax | — | — | P(Power)/U(Output voltage) | A |
| Output Ripple Voltage | Vp-p | Full load，Vi，BW=20MHz，Normal temperature | 120 | 150 | mV |
| Output Noise Voltage | Vp-p | Full load，Vi，BW=20MHz，Normal temperature | 150 | 200 | mV |
| Voltage Regulation | Sv | Vimin、Vi、Vimax，Full load | — | ＜0.5% | % |
| Load Regulation | Si | Vi，Io=(10%~100%)Iomax | — | ＜0.5% | % |
| Efficiency | η | Vi，Full load，Normal temperature | 79 | — | % |
| Insulation Resistance | Rl | Input and output, test voltage: 500VDC | 100 | — | MΩ |

## Mechanical Specifications

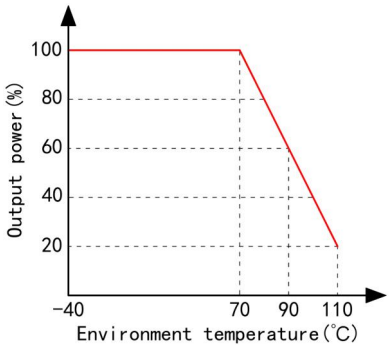
| | |
|---|---|
| Size | 40.00 x 25.00 x 20.80 mm |

## General Characteristics

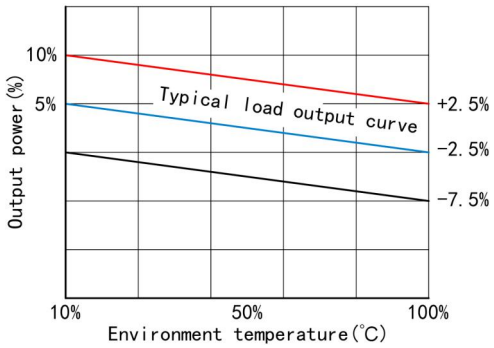
| | | |
|---|---|---|
| EMC Specifications | Magnetic Field Sensitivity Test | GB6833.2-87 |
| | Electrostatic Discharge Sensitivity Test | GB6833.3-87 |
| | Radiation Sensitivity Test | GB6833.5-87 |
| | Conduction Sensitivity Test | GB6833.6-87 |
| Temperature Excursion | ＜0.03%/°C | |
| Storage Temperature | -40°C~125°C | |
| Input Frequency | 47Hz~63Hz | |
| Humidity | 20%~95%RH | |
| Leakage Current | 5mA(max) | |
| MTBF | ＞500000H | |

## Typical Characteristic Curves

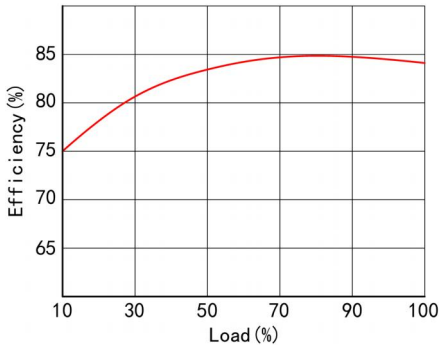
### Temperature chart



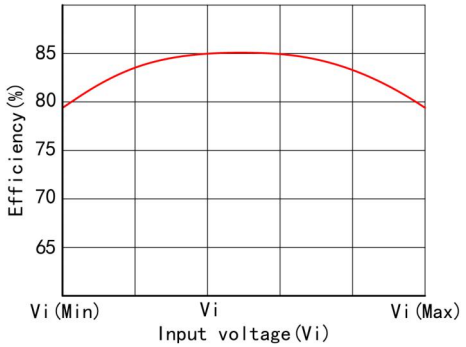

### Error envelope graph




### Efficiency/Load graph

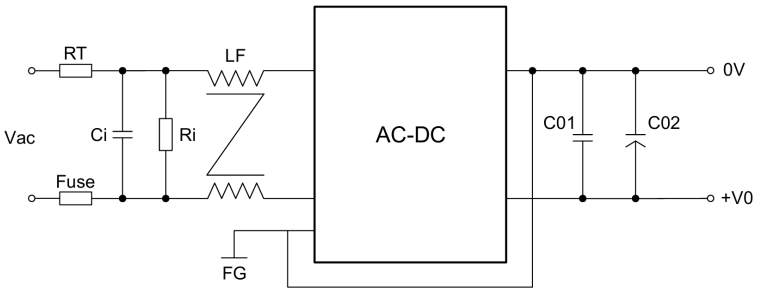



### Efficiency/Input voltage graph



## Typical Application

### Design Reference




### Recommendation Test

Filter: In some circuits that are sensitive to noise and ripple, the AC/DC input and output terminals can be connected with external filter capacitors to reduce the impact of ripple on the system, but the value of the filter capacitor should be appropriate, if the capacitor is too large, it is likely to cause startup problems, for each output, under the condition of ensuring safe and reliable operation, the maximum capacitance of the filter capacitor can be referred to the external capacitance table. In order to obtain very low ripple, an "LC" filter network can be connected to the input and output end of the AC/DC converter, so that the filtering effect will be better, and it should be noted that the size of the inductance value and the frequency of the "LC" filter network should be staggered from the frequency of the AC/DC module power supply to avoid mutual interference. For each output, under safe and reliable working conditions, the recommended capacitive load value is shown in Table 1.

| Input voltage（Vin+） | C01 | C02 | RT | Ci(UF) | Ri(KR) | LF(mH) |
|---|---|---|---|---|---|---|
| 85-305V | 104M/50V | 1000uF/16V | 8D-7 | 0.1/275V | 560 | 8-10 |

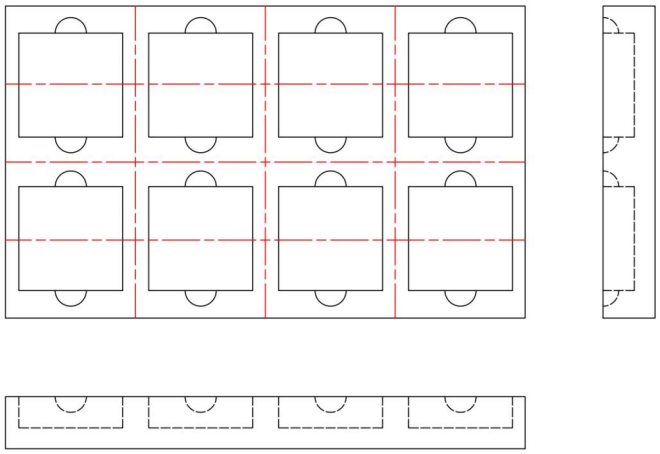
Recommended capacitive load values Table (Table 1)

Note: Please note that the main grounding of the output and the grounding of the load are connected to the ground, so that even if the product has problems, it will not cause harm to the human body. The ground requirements for the auxiliary roads are isolated and can be grounded without grounding.

## Notice

### Package

This series of modules are packed in shockproof and anti-static foam.



## Transport

The package containing the module is allowed to be transported by any means of transport, which should avoid direct rain and snow and mechanical damage.

## Storage

The module should be stored in a warehouse where the ambient temperature is -40 ℃ ~ 125 ℃, the relative humidity is 20%~95%, and the surrounding environment is free from acidic, alkaline and other harmful gases.

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