

# **SPECIFICATION**

## **产品规格书**

**Revision: 1.0**

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**Model :MPT50-24V**

**Description: POWER SUPPLY SPECIFICATION**

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## 修订履历

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## 1. Electrical Specification (电气规格)

### 1.1 Table 1 Input Electrical Characteristics (输入特性)

|                                       |                                                                                    |
|---------------------------------------|------------------------------------------------------------------------------------|
| Input Voltage Range 输入电压              | AC85V to AC264V                                                                    |
| Nominal Voltage Range 标称输入            | AC100V to AC240V                                                                   |
| Frequency Range 频率范围                  | (50Hz or 60Hz)±5%                                                                  |
| Input AC Current 输入电流                 | Max. 1.5A at AC115V input and full load<br>Max. 0.8A at AC230V input and full load |
| Inrush Current (cold start)<br>冷启浪涌电流 | <35A at AC230V input                                                               |
| Efficiency 效率                         | Typ. 87.0% at AC230V input and full load                                           |
| Touch Current 接触电流                    | Less than 0.25mA (RMS)/3.5mA(RMS)                                                  |
| Input Fuse 输入保险                       | T3.15A 250V~                                                                       |

Note: When AC input voltage is under 100V,output should be reduced according to the derating curve. 交流输入电压低于 100V 时, 输出需降额使用, 参考降额曲线。

### 1.2 Output Electrical Characteristics (输出特性)

#### 1.2.1 Table 2 Constant Voltage Output Specification (恒压输出规格)

| Output Channel<br>输出通道 | Output Rated Voltage<br>输出额定电压 | Output Voltage Adjustable Range<br>输出电压可调范围 | Line Regulation<br>线性调整率 | Load Regulation<br>负载调整率 | Min. Current<br>最小电流 | Rated Current<br>额定电流<br>(Full Load) |
|------------------------|--------------------------------|---------------------------------------------|--------------------------|--------------------------|----------------------|--------------------------------------|
| +V                     | +24.0V                         | +21.6V~+26.4V                               | ±0.5%                    | ±0.5%                    | 0A                   | 2.2A                                 |

Note: When output voltage is adjusted exceeding 24V, the total power should not exceed 52.8W .  
输出电压调节至 24V 以上时, 输出功率不得超过 52.8W。

#### 1.2.2 Table 3 DC Output Ripple & Noise (输出纹波和噪声)

| Output Channel | Ripple & Noise (Peak-peak, 峰-峰值) |                            |
|----------------|----------------------------------|----------------------------|
|                | Ta:25℃                           | AC230V Input and Full Load |
| +V             | 150mV                            |                            |

Note: Ripple & Noise test 纹波和噪声测试

1) The Bandwidth of oscilloscope is set to 20MHz.

示波器带宽设置在 20 兆赫兹。

2) Use a 0.1uF ceramic capacitor in parallel with a 10uF electrolytic capacitor at output connector terminals for ripple & noise measurements.

输出端并联一个 0.1uF 的陶瓷电容和一个 10uF 的电解电容来测试纹波和噪声。

1.2.3 Table 4 Dynamic Response Of Output (输出动态响应)

| Output Channel | Response Regulation of Output Voltage 输出电压响应调整率 |           |                |                   |           |                |
|----------------|-------------------------------------------------|-----------|----------------|-------------------|-----------|----------------|
|                | Step Load                                       | Slew Rate | Frequency Rang | Step Load         | Slew Rate | Frequency Rang |
|                | 0.1A to 50%<br>or<br>50% to<br>Rating           | 0.2A/us   | 50Hz~<br>100Hz | 0.1A to<br>Rating | 0.2A/us   | 50Hz~<br>100Hz |
| +V             | ±5%                                             |           |                | ±5%               |           |                |

1.2.4 Table 5 Hold-Up Time (输出保持时间)

| Output Channel | Hold-Up Time |           |
|----------------|--------------|-----------|
|                | AC230V Input | Full Load |
| +V             | ≥45 ms       |           |

Note: Tested under room temperature.

常温下测得。

1.2.5 Table 6 DC Output Overshoot During Turn-On/Off (输出超调)

| Output Channel | Overshoot voltage 超调电压 & Normal Input |             |
|----------------|---------------------------------------|-------------|
|                | Turn-on 开机                            | Turn-off 关机 |
| +V             | ≤5%                                   | ≤5%         |

Note: All of dc output current from Min. to Rating. 测试时负载范围：最小到额定。

1.2.6 Table 7 Start Up Time (启动时间)

| Output Channel | Start Up Time |           |              |           |
|----------------|---------------|-----------|--------------|-----------|
|                | AC115V Input  | Full Load | AC240V Input | Full Load |
| +V             | ≤3s           |           | ≤3s          |           |

Note: Tested under room temperature. 常温下测试。

1.2.7 Table 8 DC Output Voltage Rise Time (输出上升时间)

| Output Channel | Rise Time    |           |              |           |
|----------------|--------------|-----------|--------------|-----------|
|                | AC115V Input | Full Load | AC240V Input | Full Load |
| +V             | ≤50 ms       |           | ≤50 ms       |           |

Note: The rise time measured is when the output voltages rise from 10% to 90% of specified output voltage observed on the channel waveform. Tested under room temperature.

上升时间为输出电压从 10% 上升到 90% 的时间。常温下测试。

### 1.3 Protection (保护功能)

#### 1.3.1 Table 9 DC Output Over Current Protection (输出过流保护)

| Output Channel | Over Current | Comments     |
|----------------|--------------|--------------|
| +V             | $\geq 2.6A$  | Hiccup 保护后重启 |

Note: Tested under room temperature, nominal input voltage. 标称输入电压, 常温下测试。

#### 1.3.2 Table 10 DC Output Short Circuit Protection (输出短路保护)

| Output Channel | Comments     |
|----------------|--------------|
| +V             | Hiccup 保护后重启 |

#### 1.3.3 Table 11 DC Output Over Voltage Protection (输出过压保护)

| Output Channel | Over Voltage | Comments             |
|----------------|--------------|----------------------|
| +V             | 28.8V~33.6V  | Shut Down 锁死保护, 上电重启 |

Note: Over Voltage Protection should be tested under Max. AC input voltage and Min. load.

过压保护测试应该在最大交流输入电压和轻载下测试。

## 2. Safety (安全)

### 2.1 Standards (标准)

The power supply should meet the following Standards:

电源安全满足下列标准:

- 1) IEC/EN62368-1
- 2) UL 62368-1
- 3) GB4943.1

The DC output circuit meets SELV . 直流输出端满足 SELV 电路要求。

### 2.2 Precaution Class for protection against electric shock (防电击保护措施类别)

Class I

## 2.3 Ingress Protection (防护等级)

IP20

## 2.4 Insulation (绝缘性能)

### 2.4.1 Table 12 Insulation Resistance (绝缘阻抗)

|                 |                                                     |
|-----------------|-----------------------------------------------------|
| Input To Output | $\geq 100M\Omega$ (with DC500V at room temperature) |
| Input To GND    | $\geq 100M\Omega$ (with DC500V at room temperature) |
| Output To GND   | $\geq 100M\Omega$ (with DC500V at room temperature) |

### 2.4.2 Table 13 Dielectric strength (绝缘强度)

|                 |                                  |
|-----------------|----------------------------------|
| Input To Output | AC3000V 50Hz 1minute $\leq 10mA$ |
| Input To GND    | AC1500V 50Hz 1minute $\leq 10mA$ |
| Output To GND   | AC500V 50Hz 1minute $\leq 10mA$  |

## 3. EMC (电磁兼容性)

### 3.1 EMI (电磁干扰)

The power supply should meet the following standards:

电源电磁干扰满足下列标准:

1) Conduction Emission (传导干扰度)

\*EN55032 Class B

2) Radiated Emission (辐射干扰度)

\*EN55032 Class B

3) Voltage Fluctuation and Flicker (电压波动和闪烁)

\*IEC/EN61000-3-3

Note: 1. The power supply should be assembled in customer product to test for passing the above criterion. 电源需配合用户整机测试通过上述标准。

2. It can also meet the standards to connect “-V” to “GND”(see “Pin Connection” part), same as PELV circuit. 输出负接地时也要满足上述标准。

### 3.2 EMS（电磁抗扰）

The power supply should meet the following Standards:

电源电磁抗扰满足下列标准:

1) ESD（静电放电抗干扰度）

\*GB/T17626.2

\*IEC/EN61000-4-2

±6kV/±8kV Criterion A

2) RS（射频电磁场辐射抗扰度）

\*GB/T 17626.3

\*IEC/EN61000-4-3

10V/m,80MHz-1000MHz,1kHz AM 80% Criterion A

3) EFT（电快速瞬变脉冲群抗扰度）

\*GB/T 17626.4

\*IEC/EN61000-4-4

2KV/4KV(N-L/N-GND,L-GND),0.5KV/0.5KV(output to GND,between output cable) Criterion A

4) SURGE（浪涌（冲击）抗扰度）

\*GB/T 17626.5

\*IEC/EN61000-4-5

2kV/4kV Criterion A

5) CS（射频场感应的传导骚扰抗扰度）

\*GB/T 17626.6

\*IEC/EN61000-4-6

10V,0.1MHz-80MHz,1kHz AM 80% Criterion A

6) PFMF（工频磁场抗扰度）

\*GB/T 17626.8

\*IEC/EN61000-4-8

30A/M Criterion A

7) DIP（电压暂降抗扰度）

\*GB/T 17626.11

\*IEC/EN61000-4-11

>20ms@220Vac Criterion A

Note: The power supply should be assembled in customer product to test for passing the above criterion.需配合用户整机通过上述标准。

## 4. Environmental Requirement（工作环境）

### 4.1 Temperature（环境温度）

\* Operating 工作温度: -20℃ to +70℃.

Note: 50~70°C referring to the derating curve. 50~70°C时需降额工作，参考降额曲线。  
\* Storage 存储温度: -40°C to +85°C.

#### 4.2 Humidity (环境湿度)

- \* Operating 工作: From 20% to 90% relative humidity (non-condensing).
- \* Storage 存储: From 10% to 95% relative humidity (non-condensing).

#### 4.3 Altitude (海拔高度)

- \* Operating: Less than 5000m (适用于在海拔低于 5000 米条件下使用)
- \* Storage: Less than 5000m (适用于在海拔低于 5000 米条件下储存)

Note: The output power should have a derating of 7%/1000m when operating altitude is higher than 2000m. 海拔高于 2000m 时，负载按 7%/1000 米降额。

#### 4.4 Climates (气候要求)

- \* For tropical climates (适用于热带气候)

#### 4.5 Cooling Method (冷却方式)

- \* Ventilation cooling . 风道自然冷却

#### 4.6 Vibration (振动耐受)

- \* 10-500Hz, 49m/s<sup>2</sup>(5G), 60 minutes each along X, Y and Z axis.

#### 4.7 Shock (冲击耐受)

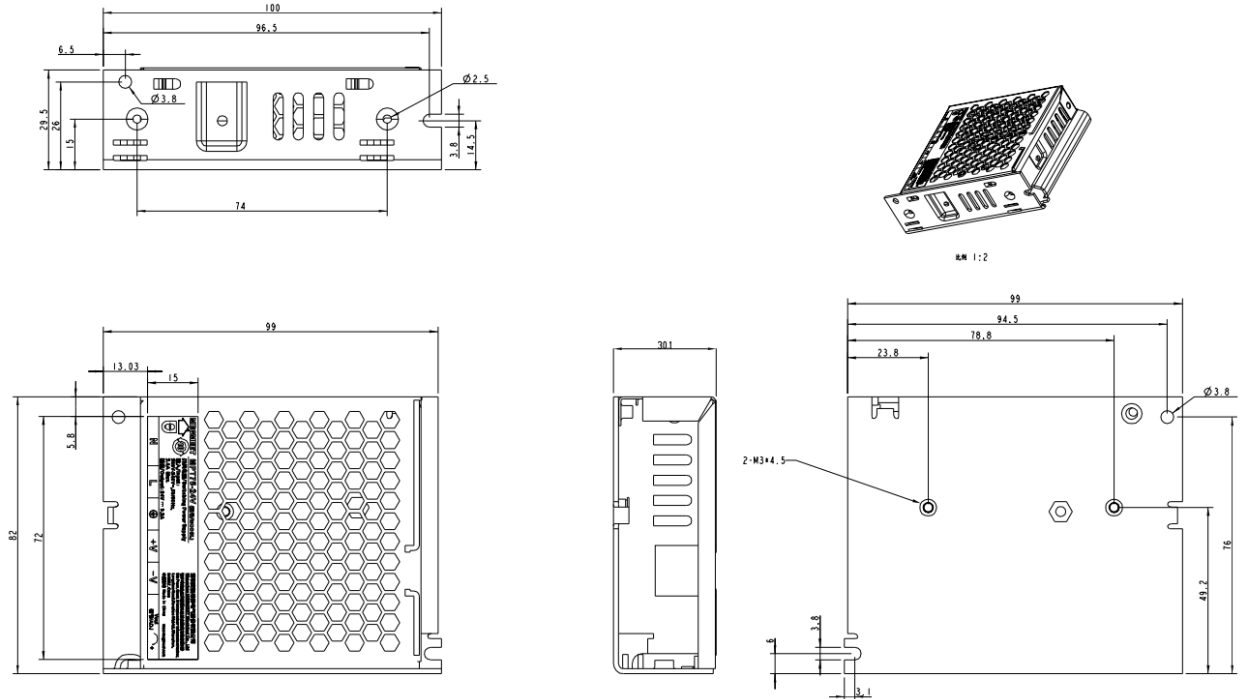
- \* 294m/s<sup>2</sup> (30G), 11ms on 3 axes, total 18 times

#### 4.8 Pollution Degree (污染等级)

- \* PD2

### 5. Dimension (物理尺寸)

\* 100 X 82 X 30.1mm (长 L \* 宽 W \* 高 H ).  
Mechanical Drawing



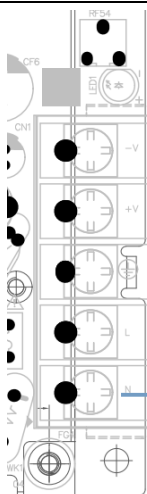
## 6. Weight (重量)

\* 222g $\pm$ 5%

## 7. Pin Connection (连接器脚位定义)

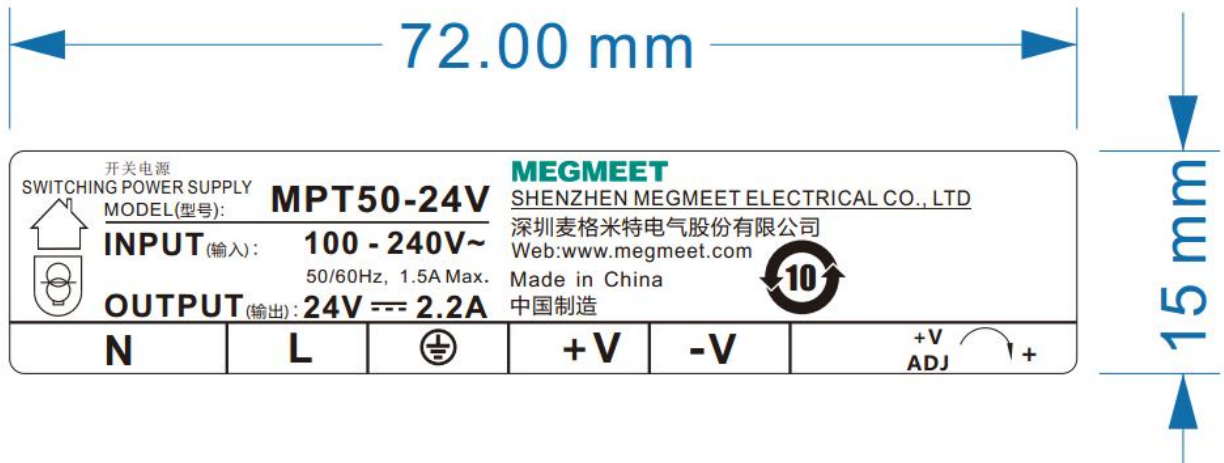
Table 14 CN1(5Pin)

| NO. | Pin Connection | Function             |
|-----|----------------|----------------------|
| ①   | N              | AC INPUT NEUTRAL     |
| ②   | L              | AC INPUT LINE        |
| ③   | GND            | PROTECTIVE GROUNDING |
| ④   | +V             | +V CHANNEL DC OUTPUT |
| ⑤   | -V             | -V CHANNEL DC OUTPUT |



CN1 Pin ① ( Top  
view 顶部视图)

## 8. Label (标签)



## 9. Package (包装)

TBD

## 10. Derating Curve (降额曲线)

