

SPECIFICATION

产品规格书

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Model No.: MUP150

Description: POWER SUPPLY

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1. Electrical Specification 电气规格:

1.1 Input Electrical Characteristics (输入特性)

Table 1

Input voltage range 输入电压	176Vac to 264Vac
Normal voltage range 标称输入	200Vac to 240Vac
Frequency range 频率范围	47Hz-63Hz
Max input ac current 最大输入电流	3A
Inrush current 浪涌电流	小于 10A @220Vac
Efficiency (full load) 效率	大于 89% @5.0Vout&220Vac/额定负载 大于 87% @4.2Vout&220Vac/额定负载
PF 功率因数	大于 0.97@220Vac/额定负载
Leakage Current 泄漏电流	小于 0.25 mA,@ 240Vac
Normal output power 额定功率	150W
Input Fuse 输入保险	3.5A/250Vac

1.2 Output Electrical Characteristics (输出特性)

1.2.1 Output Voltage & Current Regulation (输出电压电流)

Table 2

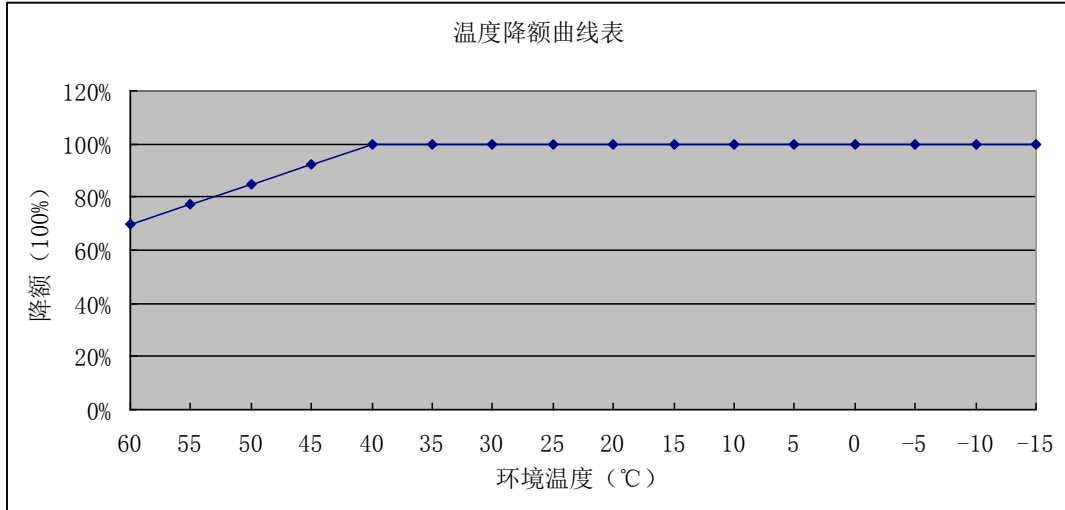
Module 型号	Output Voltage 输出电压 (半 载)	Setting 设定精度 (空载)	Regulation 调整率	Min. current 最小电流	Rated current 额定电流	Peak current 峰值电流
MUP150-5.0	5.0V	5.1 V \pm 10mV	\pm 3%	1A	30A	60A
MUP150-4.6	4.6V	4.7 V \pm 10mV	\pm 3%	1A	30A	60A
MUP150-4.2	4.2V	4.3 V \pm 10mV	\pm 3%	1A	30A	60A

Note: The test conditions of the peak current pulse is 100ms-1s.

峰值电流的测试条件是脉宽 100ms-1s。

1.2.2 Operate temperature rating Guideline (工作温度降额曲线)

Table 3



1.2.3 DC Output Ripple & Noise. (输出纹波和噪声)

Table 4

Output Voltage	Ripple & Noise (Max.)
4.2V/4.6V/5.0V	200mVp-p@ 25°C
	300mVp-p@ -20°C (满载工作半小时后测试)

Note: 1) Ripple & Noise test: Ripple & Noise bandwidth is set to 20MHz.

纹波和噪声测试: 纹波和噪音带宽设置在 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。

1.2.4 Output Transient Response. (输出动态响应)

Table 5

Voltage Limit	Slew Rate	Load Change
<±5%	1.5A/uS	@ Min. to 50% load and 50% to Max load

Note: Load change repetition rate: 50Hz to 10kHz . 跳变负载频率 50~10kHz.

1.2.5 DC Output Overshoot During Turn-On & Turn-Off (输出超调)

Table 6

Output Voltage	Overshoot voltage(V)超调电压	
	Turn-on 开机	Turn-off 关机
4.2V/4.6V/5.0V	≤10%	≤10%

Note: All of dc output current from Min. to Max.

测试时负载范围：最小到最大。

1.2.6 DC output voltage rise time (输出上升时间)

Table 7

Output Voltage	120Vac input &Full Load	220Vac input &Full Load
4.2V/4.6V/5.0V	≤100 mS	≤100mS

Note: The rise time measured is when the output voltages rise from 10% to 90% of specified output voltage V_{out} observed on the channel waveform.

上升时间为输出电压从 10%上升到 90%的时间。

1.2.7 Power on delay time (开机输出延迟时间)

Table 8

Output Voltage	220Vac input @ 25 °C	220Vac input @ -10 °C
4.2V/4.6V/5.0V	≤3S	≤5S

Note: The Power delay time measured is when AC power on to 10% of specified output voltage observed on the channel waveform.

开机延迟时间为 AC 上电到输出电压 10%的时间。

1.2.8 Current load sharing (模块均流)

Table 9

Output Voltage	不均流度
4.2V/4.6V/5.0V	≤10% (50-100%load)

Note: 1) Usually using two parallel power modules, up to four, using the method droop

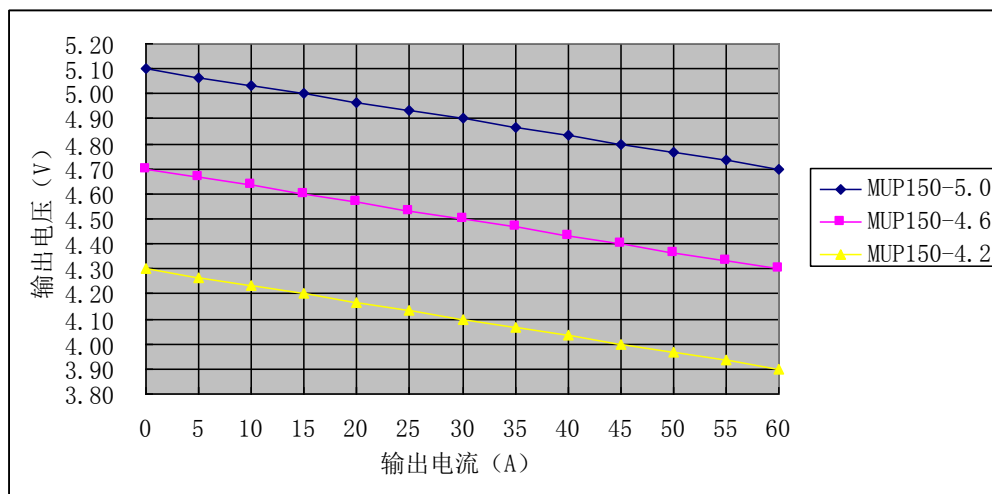
current sharing. the line impedance from each parallel modules to common connection point must be substantially equal (ie. the wire diameter and length, from connected module to the common point, must be substantially equal).

并联的电源模块一般两个，最多 4 个，采用下垂法均流。因此，要求用户在使用时各个并联模块到公共连接点之间的线路阻抗基本相等（即连接模块到公共点之间的导线直径和长度基本相等）。

2) Power modules from no load to rated load, voltage drops by 0.2V ± 10%, as shown below.

电源模块从空载到额定负载，电压下降 0.2V±10%，如下图所示。

Table 10



1.2.9 Warning Signal (告警信号)

alarm status is an Optocoupler emitter open outputs,(a pull-up 10K resistor is needed to outside + 3.3V)including two cases of warnings- overload and crash down:

告警状态为光耦发射极开路输出（需外加上拉 10K 电阻到外部+3.3V），包括过载和死机两种情况告警：

1) it will alarm when output current is over 33A,and last for 1ms at least. You must download by 50% in 200ms after testing the alarming. And you should lock load at 50% after repeatedly warning(the number of repeating determined by you).The module will lock off,if you did not turn down the loading over 1s after the alarm.

输出电流大于 33A 后发出告警，告警最小时间为 1mS。客户端检测到告警信号后，需在 200mS 内减载 50%。连续多次告警后客户端需锁定为 50%的负载（次数由客户自己决定）。如果告警时间超过 1S，客户端没做减载处理，模块将关机锁死，只有重新下电后才能再次启动。

2) With out fault, this module will send an alarm signal within 2s.(At this time, if the parallel module overload, the other module will immediately send a fault signal to the system, to makesure that the system will low down the power in time.)

模块故障无输出时，本模块在 2S 以内发出告警信号。（此时，如果与其并联的模块过载，则另一个模块会立即给系统发故障信号，以保证系统能够及时进行功率处理。）

1.3 Protection（保护功能）

1.3.1 DC Output Over load Protection（输出过流保护）

Table 11

Output Voltage	Over Current	Comments
4.2V/4.6V/5.0V	>60A	Short delay locked 短时延时锁死
4.2V/4.6V/5.0V	>33A	lockup, 1s after alarming. 输出报警，1s 后锁死。

Note: 见 1.2.11

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

Table 12

Output Voltage	Comments
4.2V/4.6V/5.0V	Short delay locked 短时延时锁死

1.3.3 Over voltage Protection（输出过压保护）

Table 13

Output Voltage	Comments
4.2V/4.6V/5.0V	7V Max. lockup 锁死

Note: The power supply shall restart after recycling power.

进入锁机保护状态后，需要先断开 AC 电源，再重新上电，电源才能重新工作。

1.3.4 Over temperature Protection（过温保护）

Table 14

Output Voltage	Comments
4.2V/4.6V/5.0V	Over temperature Protection 具有过温保护功能。

2. Isolation (绝缘性能)

2.1 Insulation Resistance (绝缘阻抗)

Table 15

Input To Output	DC500V 10 M Ω min. (at room temperature)
Input To FG	DC500V 10 M Ω min. (at room temperature)
Output To FG	DC500V 10 M Ω min. (at room temperature)

2.2 Dielectric Strength (绝缘耐压)

Table 16

Input To Output	3000Vac 50Hz 1minute \leq 10mA
Input To FG	1500Vac 50Hz 1minute \leq 10mA

3. Safety (安全规格)

The power supply shall comply with the following criterion:

电源安全性满足下列标准:

- 1) UL60950/IEC60950/EN60950
- 2) GB4943-2001

4. EMC (电磁兼容性)

4.1 EMI (电磁干扰)

The power supply shall comply with the following criterion:

电源电磁干扰满足下列标准:

- 1) Conduction Emission : (传导干扰度)
*EN55022, CLASS A
- 2) Radiated Emission : (辐射干扰度)
*EN55022, CLASS A

Note: Megmeet can work together with customer to modify the power and the system to meet above criterion.

如果客户需要, 可以配合在客户整机上进行更改, 达到标准

4.2 EMS (电磁抗扰)

The power supply shall comply with the following criterion:

电源电磁抗扰满足下列标准:

- 1) ESD (静电抗扰度)
*GB17626.2-1998/IEC61000-4-2 Lever 3 判据: A
- 2) EFT (脉冲群抗扰度)
*GB17626.4-1998/IEC61000-4-4 Lever 3 判据: A
- 3) SURGE (浪涌)
*GB17626.5-1998/IEC61000-4-5 Lever 3 判据: B
- 4) DIP (电压跌落)
*GB17626.11-1998/IEC61000-4-11

Power DIP voltage drop Requirements Table

电源 DIP 电压跌落要求表

Drop to 跌落至	Dropping time 跌落时间	Performance criteria 性能判据
0%Ut	10ms	B
70%Ut	500ms	C
40%Ut	200ms	C
0%Ut	5000ms	C

5. Environmental Requirement (工作环境)

5.1 Temperature (环境温度)

* Operating 工作温度: -20°C to +60°C.

Note: the power can power on and work @ -40°C

-40°C低温能够开机工作

* Storage 存储温度: -40°C to +85°C.

5.2 Humidity (环境湿度)

* Operating 工作: From 10% to 90% relative humidity (non-condensing).

* Storage 存储: From 5 to 95% relative humidity (non-condensing).

5.3 Altitude (海拔高度)

* Operating: -60 to 2000 m

5.4 Cooling Method (冷却方式)

* Natural cooling

Natural cooling. module cool down by its own chassis, so users should install the module

avoiding cover it surface, witch impact its cooling down. Attentions:

自然冷却。模块靠自身机壳散热，因此用户安装时应尽量避免模块散热面被遮挡而影响其自身散热。主要注意以下两点：

- 1) the bottom shell of module should be installed on a thermal conductivity metal or be vacant to avoid bottom radiating surface be bloked by a plastic ,wood or other non-thermally conductive material.

模块底壳应安装在具有一定导热能力的金属面上或悬空，避免底壳散热面被塑胶或木质等非导热材料遮挡。

- 2) a distance of 10mm or more should be placed between the parallel modules, to avoid impacting cooling between side shells.

并联模块放置时之间最好有 10mm 以上的间隔距离，避免散热侧壳之间互相遮挡影响散热。

5.5 Vibration （振动耐受）

* 10-55Hz, 19.6m/s²(2G), 20minutes each along X, Y and Z axis.

5.6 Shock （冲击耐受）

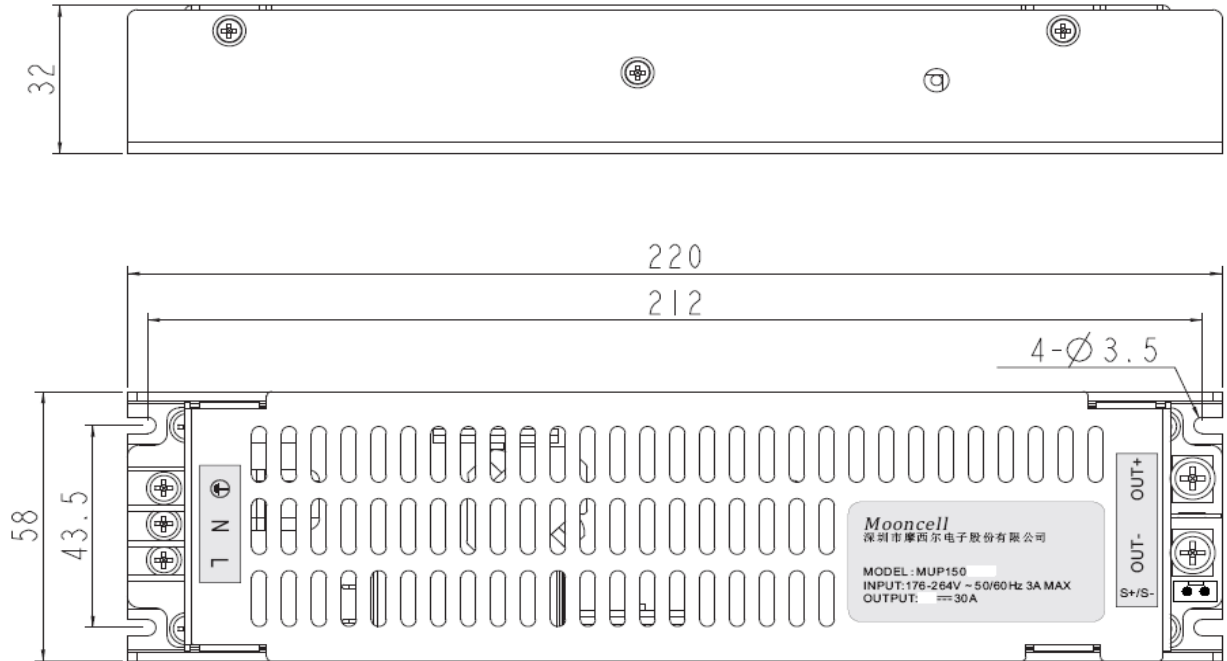
* 49m/s²(5G),11ms, once each X, Y and Z axis.

6. Dimension （物理尺寸）

* 220mm X 58mm X 32mm (长 L *宽 W * 高 H).

Module mounting structure is shown below:

模块安装结构图如下所示：



7. Weight (重量)

Net Weight 446g.

8.MTBF

The MTBF shall be at least 100, 000 hours at 25 °C, full load and normal input condition.

9. Pin Connection (连接器脚位定义)

Input 输入:

No. 序号	Mark 标识	Pin definition 引脚定义
PIN1		Protective earth line 保护地线
PIN2	N	Line N N 线
PIN3	L	Line L L 线

Output 输出:

No. 序号	Mark 标识	Pin definition 引脚定义
PIN1	OUT+	Output positive line 输出正线
PIN2	OUT-	Output negative line 输出负线

Signal output 信号输出: XH CONNECTION TYPE ,pitch2.5mm ,2PIN

No. 序号	Mark 标识	Pin definition 引脚定义
PIN1	S+	Signal output positive line 故障信号正线
PIN2	S-	Signal output negative line 故障信号负线

10.Picture(实物图片)