

参考规格书

SPECIFICATION FOR REFERENCE

CUSTOMER/客户: _____

CUSTOMER P.N./客户物料号: _____

MODEL NO./产品型号: MS-V2000R120-024Q0-US

PRODUCT NO./产品编号: SCxxx-U0/XXXXX

SAMPLE DATE/送样日期: 2023-03-29

CUSTOMER AUTHORIZED SIGNATURE/客户承认签核		

Please return to us one copy of "SPECIFICATION FOR APPROVAL"
with you approved signature./客户确认签字,
盖章后请回传一份承认书给我司.

ADD: MOSO Industrial Park, Nanshan District, Shenzhen, Guangdong
518108, P. R. China

地址: 深圳市南山区茂硕科技园

TEL: 86-755-27657000 27657555

P.C.: 518108

FAX: 86-755-27657908 27657599

E-mail: moso@mosopower.com

<http://www.mosopower.com>

拟 制:	项目工程师:	安规工程师:	批 准:

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 24W continuous output power.

资料详细描述了一款 **24.0W**(连续输出功率)开关电源的电气性,结构性及环境等要求。

The power supply shall meet the **RoHS** requirement.

此款电源符合 **RoHS** 要求。

1.1. Description

- SMPS Adaptor(Wall mount)/插墙式适配器 SMPS Adaptor(Desk-top)/桌面型适配器
 Open Frame/开放式结构 SMPS Unit (With Case)/带铁壳型
 Others/其他

2. Input Characteristics/输入特性

2.1. Input Voltage & Frequency/输入电压与频率

The range of input voltage is from 90Vac to 264Vac single phase.

输入电压范围: 从 **90Vac** 到 **264Vac**, 单相输入。

	Minimum/最小	Nominal/额定值	Maximum/最大
Input Voltage/输入电压	90Vac	100Vac~240Vac	264Vac
Input Frequency/输入频率	47Hz	60Hz/50Hz	63Hz

2.2. Input AC Current/AC 输入电流

0.7A max. @ 100-240Vac input & Full load.

输入电压 **100-240Vac** 满载时, 输入电流不超过 **0.7A**。

2.3. Inrush Current (cold start)/浪涌电流(冷启动)

No damage shall be presented at the cold start

冷启动时不能有损坏。

2.4. Averaged Efficiency /平均效率

86.20 % min. @ 115/230Vac input (@25%, 50%, 75% and 100% of max load);

输入电压 **115/230V** 时, **25%、50%、75%和 100%**载时的平均效率不低于 **86.20%**。

2.5. Energy Consumption /空载功耗

No load Consumption $\leq 0.1W$ (115Vac/60Hz, 230Vac/50Hz).

输入电压 **115Vac/60Hz, 230Vac/50Hz** 时,空载功耗均小于 **0.1W**。

3. Output Characteristics/输出特性

3.1. Static Output Characteristics <Vo & R+N>/静态输出特性

Output Rate	Rated Load/额定负载		Output Range 输出电压范围	R+N 纹波与噪声	Remark 备注
	Min. Load	Max. Load			
+12.0V	0.0A	2.0A	11.4V~ 12.6V	<120mVp-p	100-240Vac

Note 1 :Ripple & Noise : Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor. (test under the condition of rated input and rated output).

纹波与噪声: 量测时示波器选用 **20MHz** 带宽限制, 输出端要并联一颗 **0.1uF** 的陶瓷电容和一颗 **10uF** 的电解电容。(在额定输入及输出的条件下检测)。

3.2. Line/ Load Regulation/线性/负载调整率

Output Rate	Load Condition/负载条件		Line Regulation 线性调整率	Load Regulation 负载调整率	Remark 备注
	Min. Load	Max. Load			
+12.0V	0.0A	2.0A	±2%	±5%	

3.3. Turn - on Delay Time/开机延迟时间

3S max. @ Minimum input & Full load.

输入电压满载时, 开机延迟时间不超过 **3S**。

3.4. Hold-up Time/关机维持时间

10mS min. @ Full load & 115Vac/60Hz input turn off

输入电压 **115Vac/60Hz** 满载时, 关机时间不小于 **10** 毫秒。

20mS min. @ Full load & 230Vac/50Hz input turn off

输入电压 **230Vac/50Hz** 满载时, 关机时间不小于 **20** 毫秒。

3.5. Rise Time/上升时间

50mS max. @ Rated load.

额定负载时, 上升时间不超过 **50** 毫秒。

3.6. Fall Time/下降时间

50mS max. @ Full load.

满载时, 下降时间不超过 **50** 毫秒。

3.7. Output Overshoot / Undershoot/输出过冲/欠冲

10% max. When the power on or off, when it is the full input voltage and full load.

开关机时, 输出过冲/欠冲均不大于 **10%**。

3.8. Output Load Transient Response/输出负载瞬态响应

Output voltage within 11.4-12.6V for load step from 20% to 80%, R/S: 0.5A/uS,

Frequency: 100Hz duration and 8mS at 80%.

输出电压在 **11.4-12.6V** 之间, 负载变化: 从 **20%**到 **80%**, 斜率 **0.5A/uS**, 频率: 在 **80%**负载 **100Hz** 持续 **8 mS**。

4. Protection Requirements/保护要求

4.1. Over Current Protection/过流保护

Over Current Point Limited/过流点限制: $4.0A > I > 2.2A$ (100-240Vac)

The output shall hiccup when the over currents applied to the output rail, and shall be self-recovery when the fault condition is removed.

当过电流时, 输出将进入打嗝模式, 当过流情况解除后, 产品将会自动恢复正常。

4.2. Short Circuit Protection/短路保护

The input power shall decrease when the output rail short, the power supply shall no damage, and shall be self-recovery when the fault condition is removed.

当输出短路时, 产品输入功率降低且不会损伤, 当短路情况解除后, 产品将会自动恢复正常。

4.3. Over Voltage Protection/过压保护

The power supply has to be protected against over voltage conditions. No damage allowed. The power supply must come back to nominal working without on/off powering after removal of the over voltage condition.

当过压保护时,产品输出功率不会损伤,当过压情况解除后,产品恢复正常。

5. Environment Requirements/环境要求

5.1. Operating Temperature and Relative Humidity/操作温/湿度要求

0°C to +40°C

10%RH to 90%RH

5.2. Storage Temperature and Relative Humidity/存储温/湿度要求

-20°C to +70°C, 5%RH to 95%RH non-condensing @ Sea level shall be low 5,000m.

海拔 5,000 米以下, 温度-20°C to +70°C, 湿度 5%RH to 95%RH。

5.3. Vibration/振动

10 to 300Hz sweep at a constant acceleration of 1.0G(Breadth: 3.5mm) for 1Hour for each of the perpendicular axes X, Y, Z.

扫描频率: 10 to 300Hz, 恒定加速度: 1.0G(位移: 3.5mm), X, Y, Z 三垂直坐标轴向各振动 1 小时。

5.4. Drop Test/跌落

Height: 1m; the product should be fell off on the hardwood with the thickness of 20mm. Apply one time on all surfaces, totally 6 surfaces. The electric performance and Hi-Pot test must be OK after the drop tests.

跌落高度:1 米, 并跌落到厚度为 20mm 的硬木上,且硬木应放在水泥基座或等同的无弹性地面上,6 个面, 每面各 1 次,在跌落后电气性能及高压测试 OK.

6. Reliability Requirements/可靠性要求

6.1. Burn-in/煲机

The power supply shall be burn-in for 2 Hours @230Vac, Max load at 40°C ± 5°C..

产品至少要在 40°C ± 5°C 的环境及 230 VAC 输入条件下煲机 2 小时。

6.2. MTBF Qualification/平均间隔故障时间估算

The MTBF shall be at least 50,000H at 25°C, under 100% load and 115V/230VAC input condition.

25°C 环境下, 在 100%负载和 115V/230VAC 输入条件, 平均故障时间至少 50,000 小时。

6.3. E-caps lifetime/电容寿命

The E-caps used in this PSU must be with lifetime of 3years at 25°C @ 115Vac/230Vac with full load.

25°C 下, 在满载和 115V/230VAC 输入条件, 电解电容寿命必须有 3 年。

7. EMC Standards/ EMC 标准

7.1. EMI Standards/EMI 标准

FCC Part 15

7.2. EMS Standards/EMS 标准

7-2-1 EN 61000-4-2,electrostatic discharge(ESD) requirement/静电抗扰度要求

Discharge characteristic/静电规格	Test level/测试条件	Test criteria/测试标准
Air discharge/空气放电	+/-8KV	A
Contact discharge/接触放电	+/-4KV	A

7-2-2 EN 61000-4-3, radiated electromagnetic field susceptibility(rs)/辐射骚扰场强

Test level/测试条件	Test criteria/测试标准
3V/m (r.m.s)	A
80-1000MHz,80%AM(1KHz) sine-wave	

7-2-3 EN 61000-4-4,electric fast transients(burst) immunity requirement/电快速瞬变脉冲群

Coupling/测试端口	Test level/测试条件	Test criteria/测试标准
AC-input/交流输入	0.5KV	A
AC-input/交流输入	1KV	A

7-2-4 EN 61000-4-5,surge capability requirement/浪涌抗扰度要求

Surge voltage/雷击电压	Test criteria/测试标准
Differential mode/差模 +/-1KV	A
Common mode/共模 +/-2KV	

7-2-5 EN 61000-4-6, Induced radio frequency fields conducted disturbances immunity requirement/电源端子传导骚扰实验

Test level/测试条件	Test criteria/测试标准
3V	A
0.15-80 MHz,80%AM(1KHz)	

7-2-6 Assessment criteria /评估标准

Acceptance criteria 可接受标准	Performance 性能
A	Agreed operational behavior within the specified limits 性能不允许变化; 如果性能会发生变化, 则变化的范围在产品规格书规定的范围内.
B	Time limited functional diminishment or malfunction during the tests is permitted. The function is self-reactivated by the unit following completion of the tests. 设备在测试过程中, 性能降低允许在产品规格书要求范围内, 干扰消除后, 设备能恢复正常, 不允许出现复位和任何方式的人工干预.
C	Malfunction is permitted .The function can be reactivated either by reconnection to the mains or by operator intervention. 在测试过程中, 设备允许出现业务中断, 测试完毕后允许自行恢复或者人工干预恢复(包括硬件上干预); 测试中只允许初级防护器件损坏, 并且更换损坏的初级防护器件后, 设备能恢复正常

8. Safety Standards/安规标准

8.1. Dielectric Strength(Hi-pot)/介电耐压强度(高压)

Primary to Secondary: 3000Vac /10mA max. / 60S.

初级对次级: 3000Vac / 10mA max. / 60 秒. (安规试验).

Primary to Secondary: 3300Vac /5mA max. / 3S.

初级对次级: 3300Vac / 5mA max. /3S. (生产作业).

8.2. Leakage Current/漏电流

0.25mAmax. at 264Vac / 60Hz

8.3. Insulation Resistance/绝缘阻抗

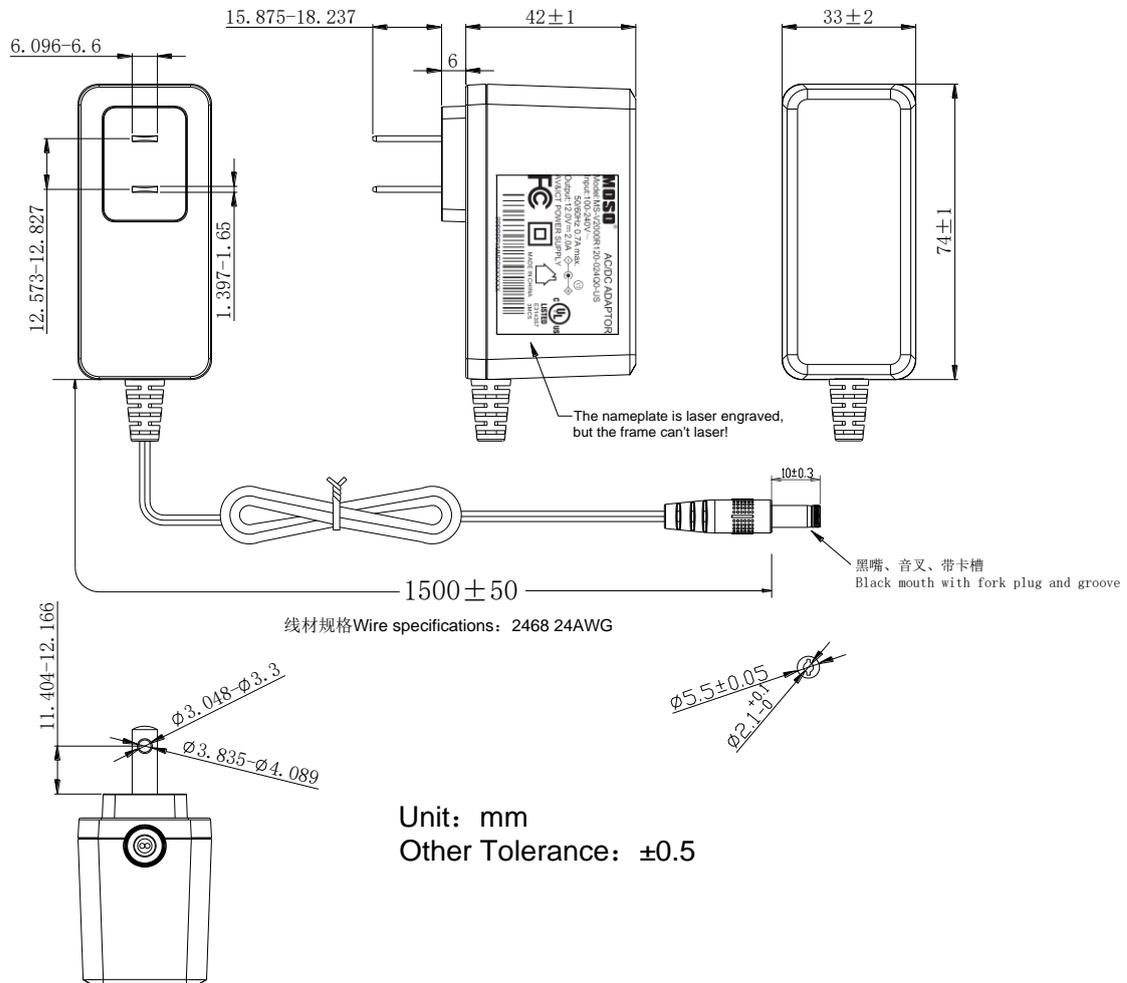
50MΩ min. at primary to secondary add 500Vdc test voltage.

在初级与次级之间加载测试电压 500V 测试, 绝缘阻抗最小 50MΩ.

8.4. Regulatory Standards/安规标准

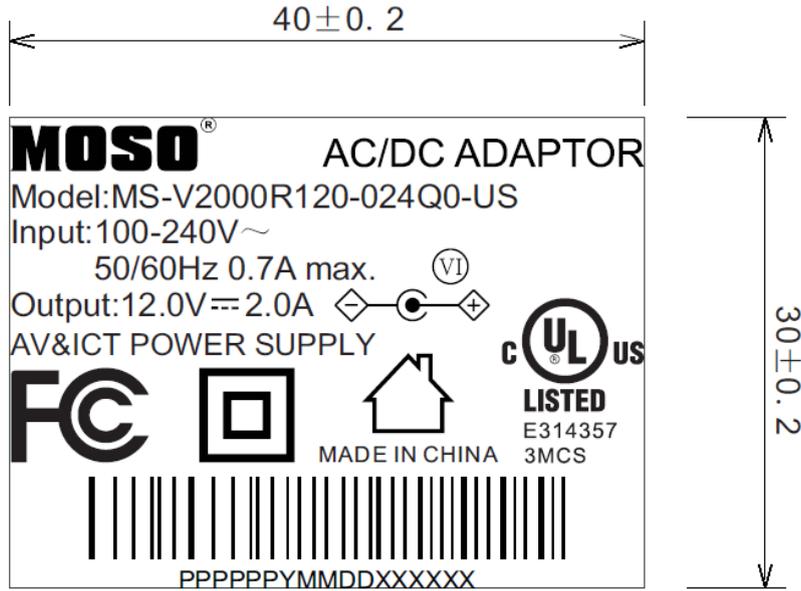
Type/安规	Country/国家	Standard/标准	State/状况	Note/备注
UL	USA	UL62368-1	APPROVAL	

9. Mechanical Outline Drawing/外观示意图



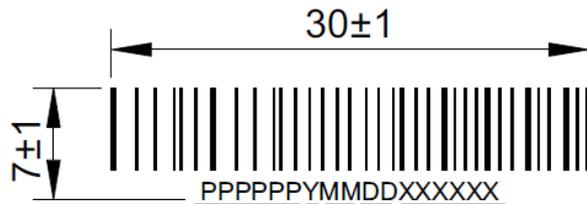
外壳材质: PC 耐温: 125°C
 PC+ABS 耐温: 95°C
 备注: 1)PC 材质符合球压测试要求;
 2)外壳与 DC 线为黑色.

10. I/O Marking Drawing/铭牌示意图



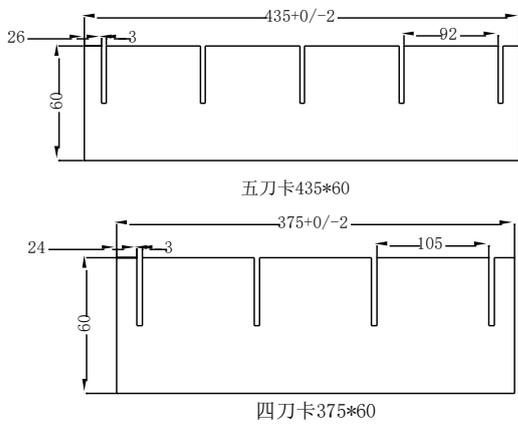
Remark:

1. Above label is laser engraved.
2. The height dimension of double insulation mark can NOT less than 5mm.



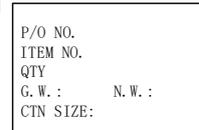
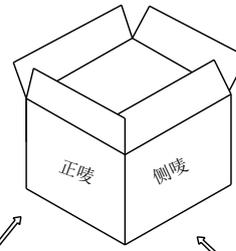
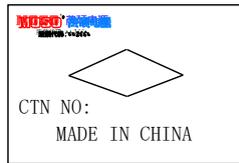
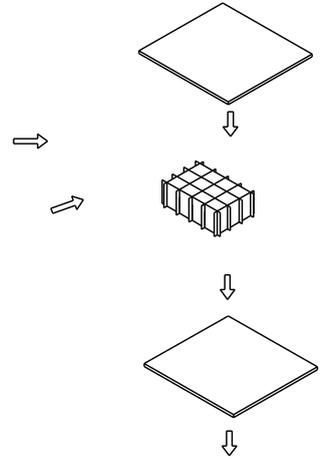
- product code(产品编码:实际S编码后六位, 如SC279-U0, 取C279U0)
- producing year(产品实际生产年份,年份最后一位, 如2023年, 取3)
- producing month(产品实际生产月份, 如2月, 取02)
- producing date(产品实际生产日期, 如12日, 取12)
- product listing number(产品序列号, 000001-999999)

11. Package Drawing/包装示意图



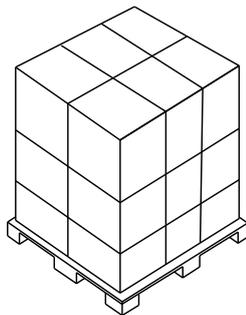
包装说明:

- 一、将产品每PCS装入150*120 (mm)PE袋中包好, 再将包装的产品放入刀卡槽中, 每层装12 PCS, 共装5层, 每箱装60 PCS
即: 12pcs/层*5层=60PCS/箱
- 二、包装材料使用说明为:
 - 1、五刀卡435*60用量: 20 PCS
 - 2、四刀卡375*60用量: 25 PCS
 - 3、PE袋150*120用量: 60 PCS
 - 4、平卡435*375用量: 6 PCS
 - 5、纸箱450*390*335: 1 PCS
- 三、栈板堆放说明为:
 - 1、栈板尺寸为: L1200*W950*H135mm
 - 2、每层放2行*3列=6箱
 - 3、竖直堆放3层*6箱共18箱

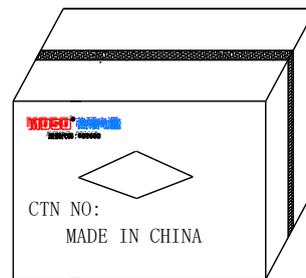


450*390*335MM

纸箱的外尺寸: 450L*390W*335H



栈板堆放示意图



产品装入包装箱用胶袋封箱, 位置参考图中所示.

- PE 袋包装要求: PE 袋不用胶带封口;
 PE 袋用胶带封口;
 其它要求;

备注: 若客户未进行选择 PE 袋包装要求或备注时, 我司默认采用 PE 袋不用胶带封口包装方式.