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参考规格书
SPECIFICATION FOR REFERENCE

CUSTOMER: 客　　户：	平台
CUSTOMER P.N.： 客户料号：	
MODEL NO.： 产品型号：	**MSS-V1000WR120-018I0-US**
PRODUCT NO.： 产品编号：	**SDXXX-U0**
SAMPLE DATE： 送样日期：	**2024-01-18**

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
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E-mail:moso@mosopower.com　http://www.mosopower.com

MANUFACTURER AUTOGRAPH 制造商签名			
Reviser 修订	**Confirm** 确认	**Checked** 审查	**Approval** 批准

MOSO® 茂硕电源
股票代码：002660

茂硕电源科技股份有限公司
MOSO POWER SUPPLY TECHNOLOGY CO.,LTD

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E. C. LIST/变更履历表

Rev. 版本	Description of Change/变更内容描述		Changed Date/日期	ECN No.
	Before/变更前	After/变更后		
A.1	Original Release（初次发行）	---	2024-01-18	---

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 12W continuous output power.

资料详细描述了一款 12W(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 HSF requirement.

此款电源符合 HSF 要求.

1.1. Description /类型

☒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

1.2. Green Requirements/环保要求

☒RoHS:2011/65/EU & (EU) 2015/863;

☒REACH:1907/2006/EC;

☐Halogen-free:IEC 61249-2-21;

☐CA Prop 65;

☒POPs:(EU)2023/1608;

☒PAHs: 2005/69/EC;

☒Packaging Directive:94/62/EC;

☒US EPA Toxic Substances Control Act (TSCA);

☒MOSO Environmental standards: WI-QM006-G;

☐Others

1.3. Energy Efficiency Requirements/能效要求

No.	Country/国家地区	Energy efficiency abbreviation/能效简称	Whether it meets the requirements/是否符合 (YES/是☒，NO/否☐)
1	USA/美国	DoE VI	☒
2		CEC	☐
3	Canada/加拿大	NRCan	☐
4	Australia/New Zealand/ 澳大利亚/新西兰	GEMS	☐
5	Europe/欧盟	Erp VI	☐
6		CoC V5 Tier 2	☐
7	South Korea/韩国	KMEPS	☐
8	Mexico/墨西哥	MEPS	☐
9	Byelorussia/白俄罗斯	MEPS	☐

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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. Average Efficiency 平均效率

90% min. @115Vac 60Hz/230Vac 50Hz input (@25%, 50%, 75% and 100% of max load)

输入电压 115V 60Hz/230V 50Hz 时，25%、50%、75%和 100%载时的平均效率不低于 90%.

2.5. Energy Consumption /空载功耗

No load Consumption ≤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	Rated Load/额定负载		Output Range	R+N	Remark
Rate	Min. Load	Max. Load	输出电压范围	纹波与噪声	备 注
+12V	0.0A	1A	11.40~12.60V	120mVp-p	100-240V

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	Load Condition/负载条件		Line Regulation 线性调整率	Load Regulation 负载调整率	Remark 备 注
Rate	Min. Load	Max. Load			
+12V	0.0A	1A	±3%	±5%	

3.3. Turn - on Delay Time/开机延迟时间

3S max. @ 100-240Vac input & Full load.

输入电压 100-240Vac 满载时，开机延迟时间不超过 3S。

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3.4. Hold-up Time/关机维持时间

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

输入电压 115Vac/60Hz 满载时，关机时间最差情况不小于 10 毫秒。

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

输入电压 230Vac/50Hz 满载时，关机时间最差情况不小于 20 毫秒。

3.5. Rise Time/上升时间

30mS max. @ Rated load.

额定负载时，上升时间不超过 30 毫秒。

3.6. Fall Time/下降时间

30mS max. @ Full load.

满载时，下降时间不超过 30 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 时，负载从 20%到 80%，斜率 0.5A/uS,频率：100Hz. 80%负载持续时间为 8mS.

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：2A＞I＞1.2A(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℃ to +45℃

5%RH to 95%RH

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

-40℃ to +85℃

5%RH to 95%RH non-condensing.

5.3. Sea level 5,000 meters/海拔 5,000 米.

5.4. 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, 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.

5.5. Drop Test/跌落

Height: 1m; the product should be fell off on the hardwood with the thickness of 20mm, Apply one times on all surfaces, total 6 times. 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 ,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 under normal input and 80% rated load at 40℃±5℃. the electric performance and Hi-Pot test must be OK.

产品至少要在 40℃±5℃的环境及 80%额定负载条件下煲机 2 小时 ，电气性能及高压测试 OK.

6.2. MTBF/平均失效时间

The MTBF of power supply shall be over than 50,000 Hours @ 25℃ 80%Load .

平均间隔故障时间: 在 25℃，额定输入与 80%负载条件下，至少工作 50,000 小时.

MTBF calculation done according Bellcore SR-332。

MTBF 计算根据是： SR-332。

6.3. E-caps lifetime/电容寿命

The E-caps used in this PSU must be with lifetime of 3 years @25℃@ 115Vac/60Hz and 230Vac/50Hz input.

在 25 度环境下，在 115Vac/60Hz、230Vac/50Hz 输入电压，电容寿命至少达 3 年。

7. EMI/EMS Standards/EMI/EMS 标准

7.1. EMI Standards/EMI 标准

FCC Part15

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	+/-15KV	B
Contact discharge/接触放电	+/-8KV	B

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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	1KV	B
AC-input/交流输入	2KV	B

7-2-4 K.21, surge capability requirement/浪涌抗扰度要求

Surge voltage/雷击电压	judgment criteria/评定标准
Common mode/共模 +/-4KV	B
Differential mode/差模 +/-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 malfuncation 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

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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 / 10mAMax / 60 second (when safety testing)

初级对次级: 3000Vac / 10mAMax / 60 秒（安规试验）

Primary to Secondary: 3300Vac / 5mAMax /3S (when production)

初级对次级: 3300Vac / 5mAMax / 3S（生产作业）

8.2. Leakage Current/漏电流

0.25mA max. at 264Vac / 60Hz.

8.3. Insulation Resistance/绝缘阻抗

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

在初级与次级间加 500Vdc 进行测试

8.4. Regulatory Standards/安规标准

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

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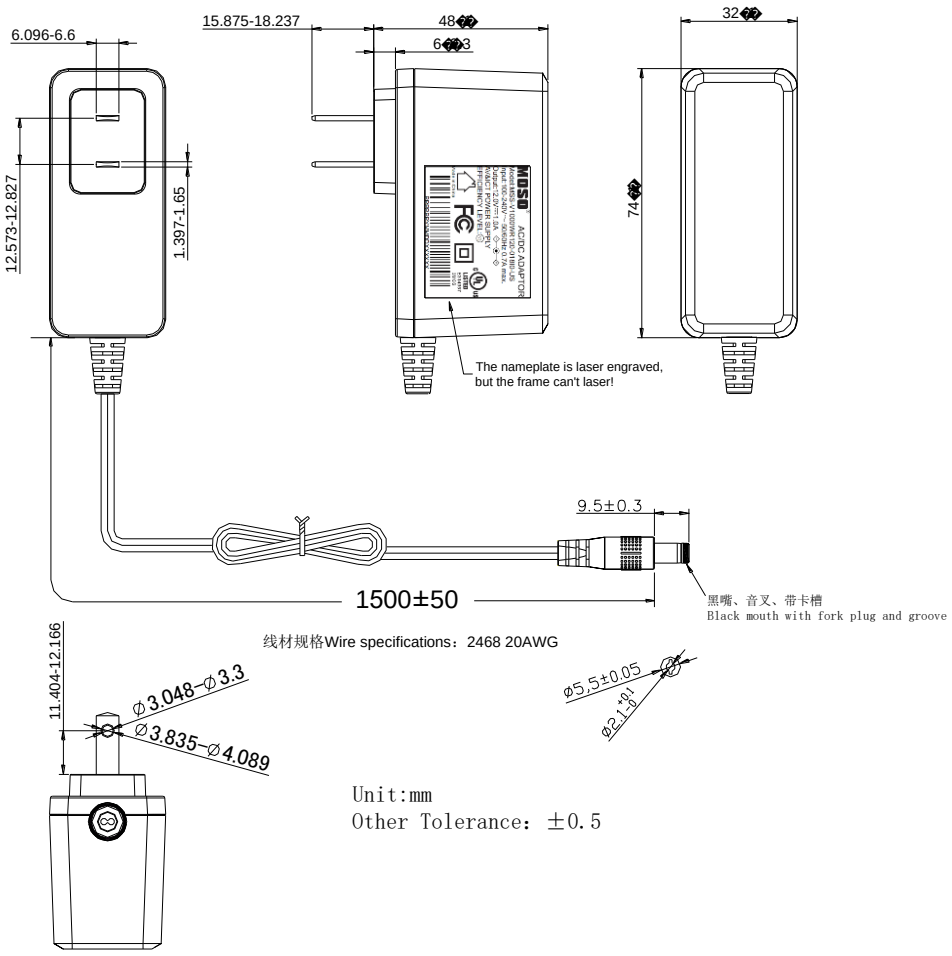
9. Mechanical Outline Drawing/外观示意图



外壳材质：☑PC 耐温：125℃

☐PC+ABS 耐温：95℃

备注：1)PC 材质符合球压测试要求;

2)外壳与 DC 线为黑色.

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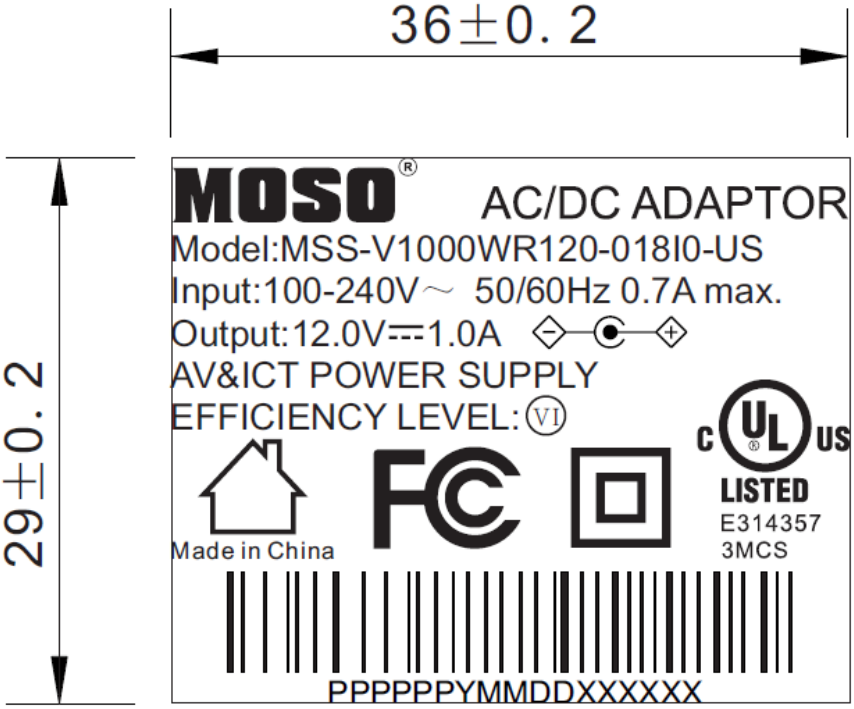
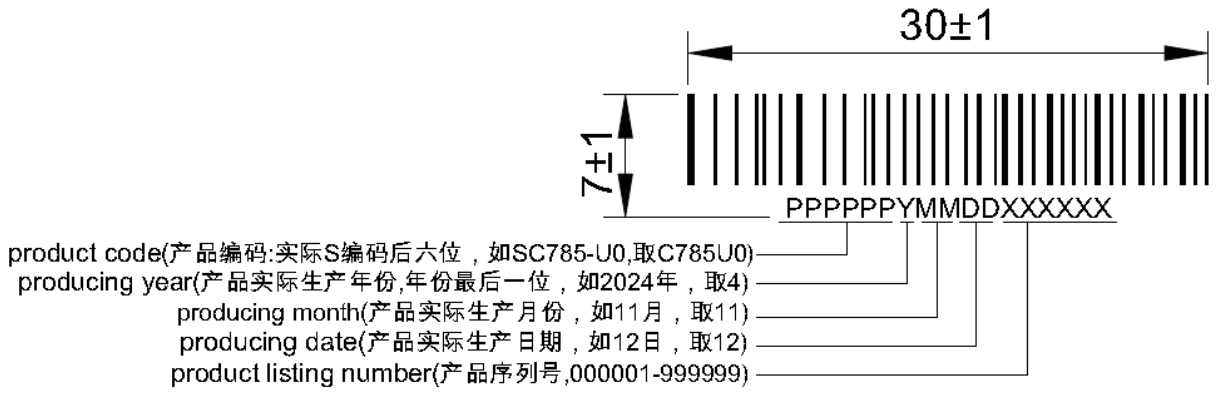
10. I/O Marking Drawing/铭牌示意图



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



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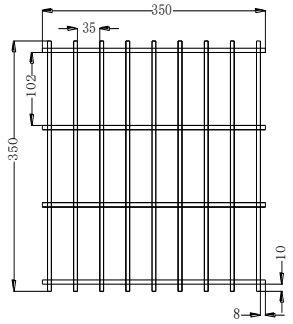
11. Package Drawing/包装示意图

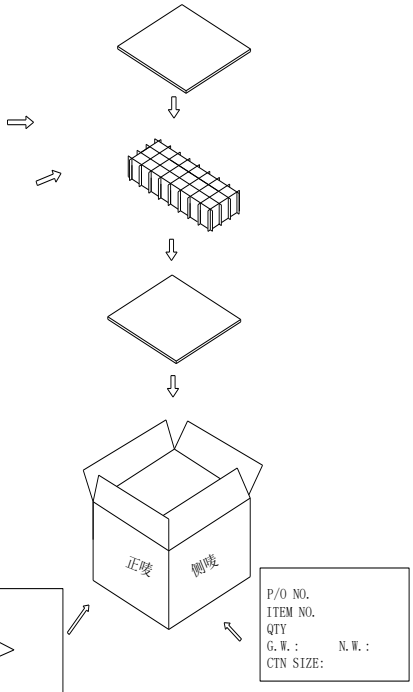


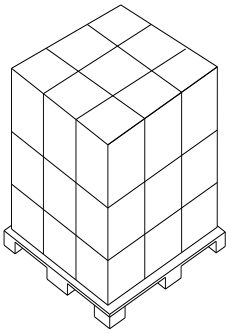
包装说明：

一、将产品每PCS装入250*120（mm)PE袋中包好，
再将包装的产品放入刀卡槽中，每层装24PCS，
共装4层，每箱装96PCS
即： 24pcs/层*4层=96PCS/箱

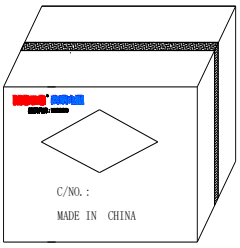
二、包装材料使用说明为：
1、刀卡用量350*350*74：4PCS
2、PE袋150*120用量：96PCS
3、平卡350*350用量:5PCS
4、纸箱365*365*335：1PCS

三、栈板堆放说明为：
1、栈板尺寸为：L1100*W1100*H125mm
2、每层放3行*3列=9箱
3、竖直堆放3层*9箱共27箱





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.