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

MOSO Industrial Park, Nanshan District, Shenzhen, Guangdong 518108, P. R. China
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参考规格书

SPECIFICATION FOR REFERENCE

CUSTOMER: 客　　户：	
CUSTOMER P.N.： 客户料号：	
MODEL NO.： 产品型号：	**V40-Z6320R190-120I0-E**
PRODUCT NO.： 产品编号：	
SAMPLE DATE： 送样日期：	**2025-11-07**

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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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

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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		
A1	Original Release（初次发行）	---	2025-11-07	---

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** Table Of Content/目录 **

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 120W continuous output power.

资料详细描述了一款 120W **(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	100 Vac~ 240 Vac	264Vac
Input Frequency/输入频率	47 Hz	60 Hz/ 50Hz	63Hz

2.2.Input AC Current/AC 输入电流

Input Voltage /输入电压	100Vac	240Vac	Full load
Input AC Current /AC 输入电流	2.0A Max	0.8A Max	Full load

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

The energy of inrush current should :I_{FSM} < 180A，I^2T < 119.9 A^2S.

冷启动时，浪涌能量要满足以下两个要求: I_{FSM} < 180A，I^2T < 119.9 A^2S.

Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	180	A
I^2T rating for fusing (1ms< t < 10ms)	I^2T	119.9	A^2S

2.4.Averaged Efficiency/平均效率

While input 115Vac/60Hz and 230Vac/50Hz, the average efficiency is more than 90%.The test point is at 25%,50%,75% and 100% of max load respectively.

输入电压 **115Vac**/60Hz 和 **230Vac**/50Hz 条件下，平均效率不低于 **90%**。测试点分别是最大载的 **25%,50%,75%**和 **100%**。

2.5.Energy Consumption /空载功耗

No load Consumption ≤0.21W(115V/60Hz&230Vac/50Hz).

在额定输入 **115V/60Hz** 和 **230Vac/50Hz** 时,空载功耗**≤0.21W.**

2.6.Power Factor /功率因数

The PF should not be lower than 0.9 at 115/230Vac＆full load.

输入电压 115Vac/230Vac 满载时，PF 值不低于 0.9

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	Rate.Load	输出电压范围	纹波与噪声	备 注
+19V	0.0A	6.32A	18.05～19.95V	190mVp-p	100-240V

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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	Rate.Load			
+19V	0.0A	6.32A	±3%	±5 %	

3.3.Turn - on Delay Time/开机延迟时间

3S max. @115Vac to 230Vac input & Full load.

输入电压 115Vac to 230Vac 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 &230Vac/50Hz input turn off at worst case

输入电压 230Vac/50Hz 满载时，关机时间最差情况不小于 10 毫秒。

3.5.Rise Time/上升时间

100 mS max. @ Rated load.

额定负载时，上升时间不超过 100 毫秒。

3.6.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%。

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

Output voltage within 17.10～20.90V for load step from 25% to 50% to 25%,50% to 75% to 50% R/S: 0.25A/uS, Transient Response Recovery Time :500uS，Dynamic response overshoot ±10%.

输出电压在 17.10～20.90V **之间,负载变化：从 25% to 50% to 25%, 50% to 75% to 50%斜率: 0.25A/uS,动态响应恢复时间：200uS, 动态响应过冲±10%.**

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:** 6.9 < I < 12.6A@100Vac/60Hz&240Vac/50Hz. The output shall hiccup when the over current applied to the output rail, and shall be auto-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 auto-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.

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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 the AC voltage will be restarted after removal of the over voltage condition.OVP＜30V。

当过压保护时,产品输出功率不会损伤,当过压情况解除后,重启 AC 电压，产品恢复正常。OVP＜30V。

5. Environment Requirements/环境要求

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

0℃ to +40℃

10%RH to 90%RH

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

-30℃ to +80℃

10%RH to 95%RH non-condensing @ Sea level shall be low 2,000 meters/**低于 2,000 米.**

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，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.

6. Reliability Requirements/可靠性要求

6.1.Burn-in/烫机

The power supply shall be burn-in for 2 Hours under normal input and 80% rated load at 40℃±5℃.

产品至少要在 40℃±5℃的环境及 80%额定负载条件下烫机 2 小时.

6.2.MTBF

The MTBF of power supply shall be over than 50,000H @ 25℃ 100% load. Test standard: SR-332.

平均间隔故障时间: 在 25℃，额定输入与满载条件下，至少工作 50,000 小时。测试标准：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。

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7. EMI/EMS Standards/EMI/EMS 标准

7.1.EMI Standards/EMI 标准

FCC Part 15　CLASS B CISPR 22 EN55032 CLASS B

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**	+/-8 KV	B
Contact discharge/**接触放电**	+/-4 KV	B

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	B
AC-input/**交流输入**	1KV	B

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**
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**
AC-input/交流输入 220V	B
DC-output/直流输出 FULL LOAD	

7-2-6 谐波 Harmonic: EN61000-3-2

Test level/**测试条件**	Test criteria/**测试标准**
3V	A
0.15-30 MHz,80%AM(1KHz)	

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7-2-7 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,干拢消除后,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: 1800Vac / 10mA max. / 60 second.

初级对次级: 1800Vac / 10mA max. / 60 秒(安规试验) .

Primary to Secondary: 1800Vac / 10mA max. / 3 S.

初级对次级:　1800Vac / 10mA max. / 3 秒(生产作业).

8.2.Leakage Current/漏电流

0.5mA max. at 264Vac / 60Hz.

8.3.Insulation Resistance/绝缘阻抗

100MΩ 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 **100MΩ.**

8.4.Earthing Resistance/接地阻抗测试

Earthing Resistance：<0.1Ω　at 12VDC/25A/1S.

8.5.Regulatory Standards/安规标准

Type/安规	Country/国家	Standard/标准	State/状况	
CE	Europe	EN62368-1	MEET	

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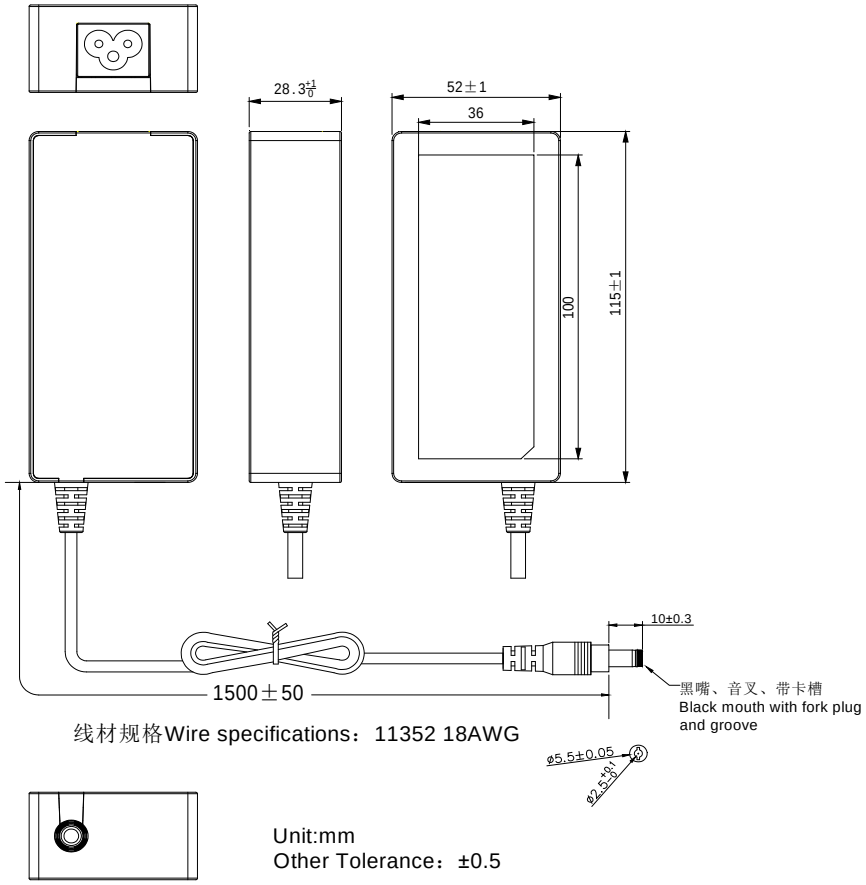
9. Mechanical Outline Drawing/外观示意图



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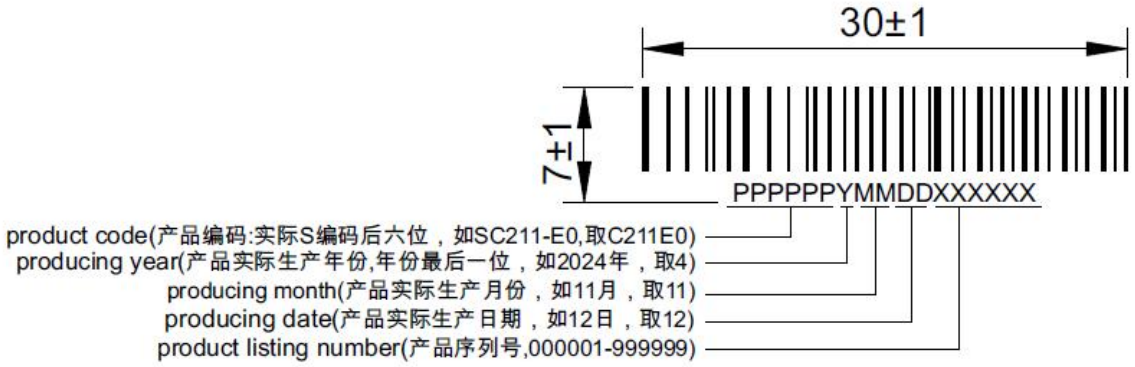
10. I/O Marking Drawing/铭牌示意图

Remark:
1.Material:50#合成纸+fog film(雾膜)
2.Color: Black words with white ground(白底黑字)
3.Adhesively
4.REACH,HSF and conform to MOSO
Renviroment Protection Request
背胶耐温80℃,24h内不翘角,不脱落,不起泡.



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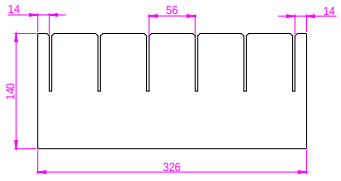
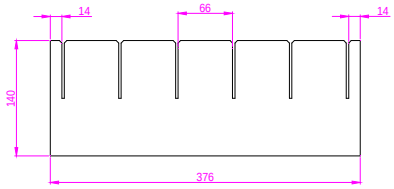
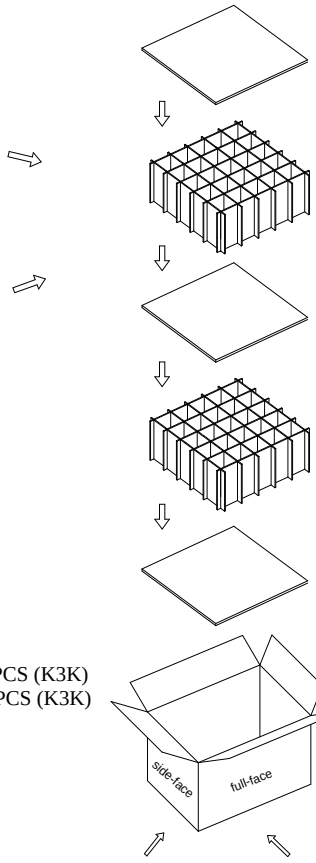
11. Package Drawing/包装示意图



Partitioning card 6 A: 326*140



Partitioning card 6 B: 376*140

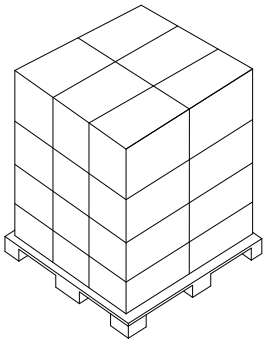


Packing Instruction：

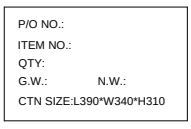
一、the product put in the PE bag，
then the packing product put in the
pattitioning card groove，25PCS/floor，
2 floors in all，50PCS/box
such as： 25pcs/floor*2floor=50PCS/box

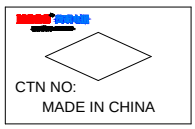
二、the usage of the packing materials：
1、the usage of the six partitioning card A 326*140：12PCS (K3K)
2、the usage of the six partitioning card B 376*140：12PCS (K3K)
3、the usage of the PE bag 250*120：50PCS
4、the usage of the flat 376*326: 3PCS (K3K)
5、carton box 390*340*310：1PCS (K=K)

三、Pallet stacke instruction:
1、Pallet size is:L1200*W800*H135mm
2、per floor set 6pcs
3、stacke per 4floor*6pcs carton
total 24 pcs carton

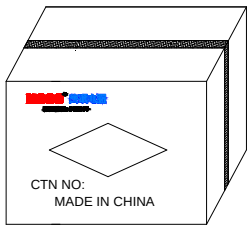


The pallet stact drawing





CARTON BOX：390L*340W*310H



The product will be packed in the carton box
and the box will be seled by the sticker

The requirement of PE bag packing: ☐PE bag without sealing by adhesive tape.
☐PE bag with sealing by adhesive tape
☐Other requirement

Remark: If the customer has not chose the PE bag packing way,
we will use the PE bag without sealing by adhesive tape.