

参考规格书

SPECIFICATION FOR REFERENCE

CUSTOMER: 客 户:	
CUSTOMER P.N.: 客户料号:	
MODEL NO.: 产品型号:	V30-Z4000R120-048F0-Q
PRODUCT NO.: 产品编号:	SDXXX-Q0
SAMPLE DATE: 送样日期:	2024-11-01

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

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

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1. SCOPE/简述

The document details the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 48W continuous output power.

资料详细描述了一款 48W 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 <input checked="" type="checkbox"/> , NO/否 <input type="checkbox"/>)
1	USA/美国	DoE VI	<input type="checkbox"/>
2		CEC	<input type="checkbox"/>
3	Canada/加拿大	NRCAN	<input type="checkbox"/>
4	Australia/New Zealand/ 澳大利亚/新西兰	GEMS	<input type="checkbox"/>
5	Europe/欧盟	Erp VI	<input checked="" type="checkbox"/>
6		CoC V5 Tier 2	<input type="checkbox"/>
7	South Korea/韩国	KMEPS	<input type="checkbox"/>
8	Mexico/墨西哥	MEPS	<input type="checkbox"/>
9	Byelorussia/白俄罗斯	MEPS	<input type="checkbox"/>

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	50Hz /60Hz	63Hz

2.2. Input AC Current/AC 输入电流

1.3A max. @ 100-240Vac input & Full load.

输入电压 100-240Vac 满载时, 输入电流不超过 1.3A。

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

100A max. @ 240Vac input.

输入电压 240Vac 时, 输入电流不超过 100A。

2.4. Averaged Efficiency/平均效率

87.77% min. @ 115/230Vac input (@25%, 50%, 75% and 100% of max. load).

输入电压 115V/ 60Hz,230Vac/50Hz 时, 25%、50%、75%和 100%载时的平均效率不低于 87.77%。

2.5. Energy Consumption /空载功耗

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

With a load of 12mA less than 0.3W, with a load of 23mA less than 0.5W.

输入电压 115Vac/60Hz,230Vac/50Hz 时,空载功耗均小于 0.1W; 带载 12mA 小于 0.3W, 带载 23mA 小于 0.5W。

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	4A	11.4V-12.6V	<120mV	100-240Vac

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor. (test under the condition of rated input and rated output).

纹波与噪声: 测量时, 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 47uF 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	4A	$\pm 3\%$	$\pm 5\%$	

3.3. Turn - on Delay Time/开机延迟时间

2S max. @ 100Vac to 240Vac input & Full load.

输入电压 **100-240Vac** 满载时, 开机延迟时间不超过 **2S**。

3.4. Hold-up Time/关机维持时间

10mS min. @ Full load & 100Vac/60Hz input turn off at the worst case.

输入电压 **100Vac/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

20mS max. @ Rated load, output voltage from 10% to 90%.

额定负载时, 输出电压从 **10%** 上升 **90%**. 上升时间不超过 **20 毫秒**。

3.6. Fall Time/下降时间

20mS max. @ Full load

满载时, 下降时间不超过 **20 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, 输入全电压时, 全负载时, 输出电压小于 **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 0- 80%, R/S: 2.5A/uS

Frequency: 100Hz.

输出电压在 **11.4-12.6V** 时, 负载从 **0-80%**, 斜率 **2.5A/uS**, 频率: **100Hz** 以上。

3.9. Capacitive Load Test/容性负载测试

Start normally @ Full Load & C=1500uF at 100Vac/240Vac.

输入电压 **100-240Vac** 满载时, 电解电容 =**1500uF**. 正常启动。

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: $7.2A > I > 5.2A$ (90-264Vac)

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

过流时, 输出将进入打嗝模式, 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. $OVP < 18V$ 。

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. 过压保护 **<18V**。

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
温度 0°C 到 +40°C, 湿度 10% RH 到 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/跌落测试

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

跌落高度: 1m, 并跌落到厚度为 20mm 的木板上, 每面各 1 次, 共 6 次, 在跌落后电气性能及安全测试 OK.

5.5. Salt Spray Test /盐雾测试

Pretreatment at 35°C for 2 hours, concentration of 5MNaCl solution, continuous spray at 35°C for 48 hours, remove for 2 hours to dry, no oxidation, no discoloration.

35°C 2 小时预处理, 浓度 5MNaCl 溶液, 35°C 下连续喷雾 48 小时, 移出 2 小时晾干, 无氧化, 无变色现象

6. Reliability Requirements/可靠性要求

6.1. Burn-in/老化

The power supply shall be burn-in for 4 Hours under normal input and 80% rated load at 40°C ± 5°C. the electric performance and Hi-Pot test must be OK.

电源在额定输入和 80% 负载下, 在 40°C ± 5°C 环境温度下老化 4 小时。

6.2. MTBF/平均失效时间

The MTBF shall be at least 50,000 hours at 25°C, Full load and nominal input condition.

平均间隔故障时间: 在 25°C, 满载条件下, 至少工作 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 30,000 hours at 25°C with 100% load @ 100Vac/60Hz input, 240Vac/50Hz input.

25°C 下, 在 100% 负载和 100Vac/60Hz、240Vac/50Hz 输入条件, 电解电容寿命必须 30,000 小时。

7. EMI/EMS Standards/EMI/EMS 标准

7.1. EMI Standards/EMI 标准

GB/T9254 GB17625.1 FCC Part15 EN55032 EN55035

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	judgment criteria/评定标准
Air discharge/空气放电	+/-15KV	B
Contact discharge/接触放电	+/-8KV	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	judgment criteria/评定标准
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	judgment criteria/评定标准
AC-input/交流输入	+/-2KV	A
AC-input/交流输入	+/-2KV	A

7-2-4EN 61000-4-5,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	judgment criteria/评定标准
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: 1500Vac /10mA max. / 60S (when safety testing)

初级对次级: 1500Vac / 10mA max. / 60 秒 (安规试验)

Primary to Secondary: 1800Vac /10mA max. / 3S (when production)

初级对次级: 1800Vac / 10mA max. /3S(生产作业)

8.2. Leakage Current/漏电流

3.5mA max. at 264Vac / 50Hz

8.3. Insulation Resistance/绝缘阻抗

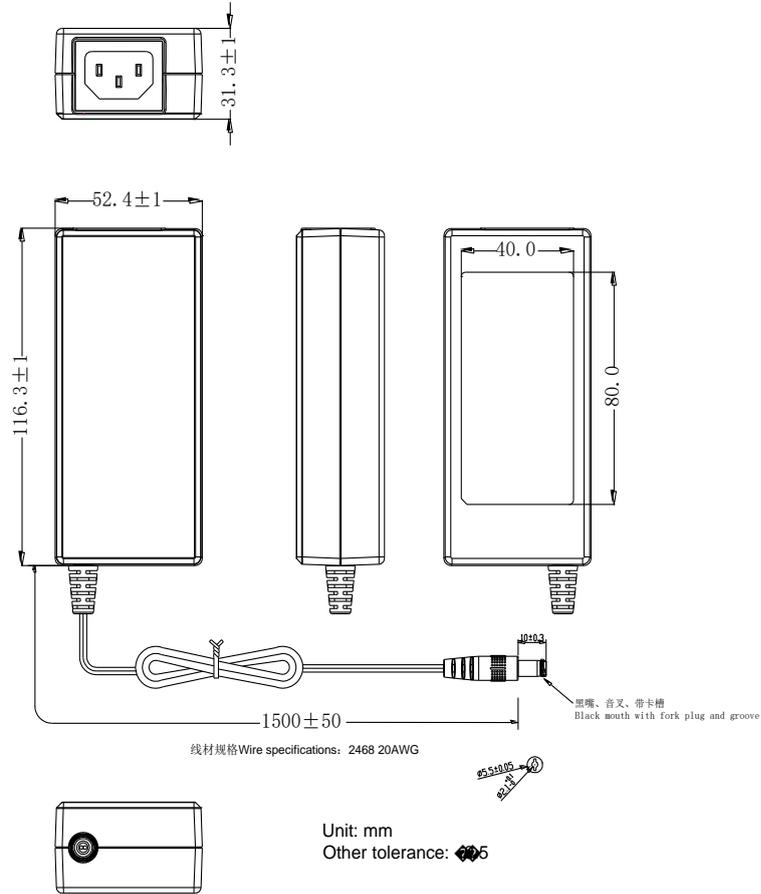
50MΩ min. at primary to secondary add 500Vdc test voltage.

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
CCC	China	GB4943.1	APPROVAL	
UL	USA	UL62368-1	APPROVAL	
CE	Europe	EN62368-1	APPROVAL	

9. Mechanical Outline Drawing/外观示意图



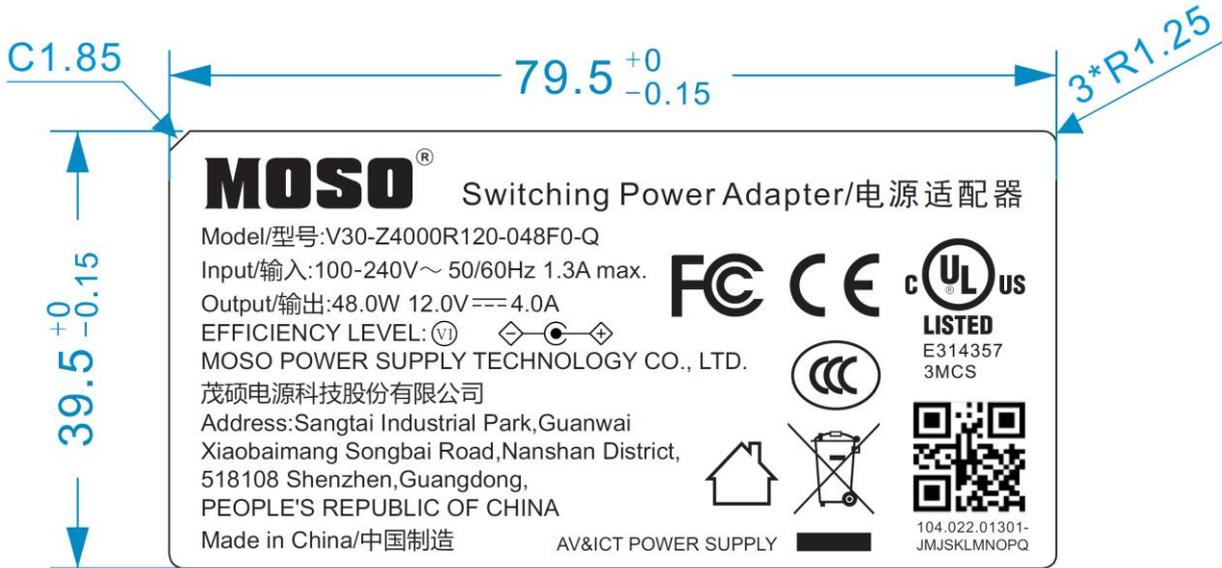
外壳材质: ■PC 耐温: 120°C.

□PC+ABS 耐温: 95°C.

备注: 1)PC 材质符合球压测试要求.

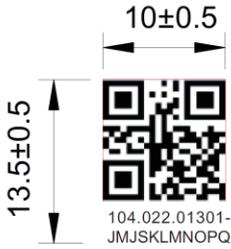
2)外壳与线材为黑色.

10. I/O Marking Drawing/铭牌示意图



Remark:

1. Above label is laser engraved.
2. The dimension of garbage bin mark can NOT less than 7mm.



下方内容与二维码居中
字体Arial

KLMN 材料批次信息 (生产日期) Naming Rule					
代码	定义	备注			
K	年	公元年最后一码: 1 - 9;10:A;11:B;12:C			
L	月	1 - 9;10:A;11:B;12:C			
MN	日	日期编码如下:			
Date	Code	Date	Code	Date	Code
1	01	11	11	21	21
2	02	12	12	22	22
3	03	13	13	23	23
4	04	14	14	24	24
5	05	15	15	25	25
6	06	16	16	26	26
7	07	17	17	27	27
8	08	18	18	28	28
9	09	19	19	29	29
10	10	20	20	30/31	30/31

二维码格式/Code format: QR code

二维码尺寸/Code size :10*10mm(±0.2)

二维码扫描内容/Code content:104.022.01301-JMJSKLMNOPQ
总共25位/25digits in total

二维码解析如下/Code analysis:

104.022.01301:料号, 固定不变

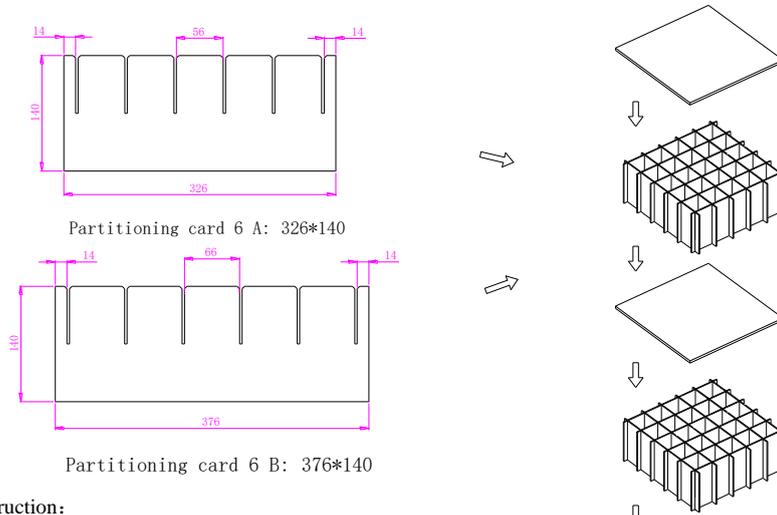
JMJS:茂硕代码, 固定不变

KLMN:产品实际生产日期, 定义如上表

OPQ:流水码, 数字0-9+26个英文字母(除去I、O、S、Z四个字母)32进制;

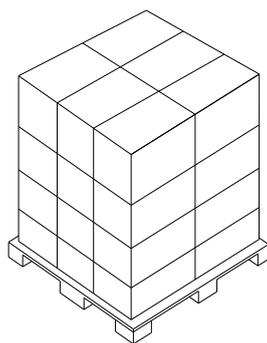
如001、002...009、00A、00B...00H、00J、00K...

11. Package Drawing/包装示意图

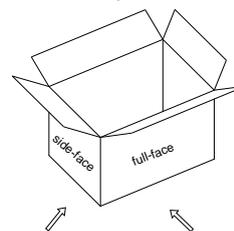


Packing Instruction:

- 一、the product put in the PE bag ,
then the packing product put in the
partitioning 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



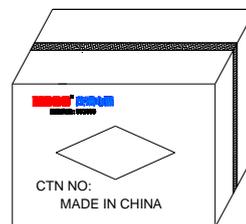
The pallet stack drawing



P/O NO.:
ITEM NO.:
QTY:
G.W.: N.W.:
CTN SIZE:L390*W340*H310


CTN NO:
MADE IN CHINA

CARTON BOX: 390L*340W*310H



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

- 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.