

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-Z2500R240-060B0-Q

PRODUCT NO./产品编号: SCXXX-Q0/XXXXXX

SAMPLE DATE/送样日期: 2023-03-28

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.

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 60W continuous output power.

资料详细描述了一款 **60W**(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

1.5A max. @ 100-240Vac input & Full load.

输入电压 **100-240Vac** 满载时, 输入电流不超过 **1.5A**。

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

The energy of inrush current should not be over the I²T of fuse & bridge diodes

冷启动时, 浪涌能量不能超过整流桥和保险丝的 I²T, 且不能有损坏.

2.4. Average Efficiency 平均效率

88% 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 **88%**

2.5. Energy Consumption /空载功耗

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

输入电压 **115Vac/60Hz,230Vac/50Hz** 时,空载功耗均小于 **0.21W**。

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			
+24V	0.0A	2.5A	22.8V ~ 25.2V	300mVp-p	

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			
+24.0V	0.0A	2.5A	±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 **100-240V** 满载时, 开机延迟时间不超过 **3S**。

3.4. Hold-up Time/关机维持时间

5mS min. @ Full load & 115Vac/60Hz input turn off at worst case

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

输入电压 115Vac/60Hz 时, 关机时间最差情况不小于 **5 毫秒**。

输入电压 230Vac/50Hz 时, 关机时间最差情况不小于 **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 22.8V ~25.2V for load step from 25% to 50% to 25%, 50% to 75% to 50% R/S: 0.25A/uS, Transient Response Recovery Time :200uS, Dynamic response overshoot ±5%.

输出电压 **22.8V -25.2V** 时, 负载从 **25% 到 50%到 25%**, 或 **50% 到 75%到 50%**逐步变化, 斜率 **0.25A/uS**, 动态响应恢复时间 **200uS**, 动态响应过冲均保持 **±5%**。

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: $I > 2.75A$ (200-240Vac)

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

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

输出短路时, 输入功率会降低, 且电源不会损坏, 当短路情况解除后, 电源将会自动恢复正常

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 +80°C

5%RH to 95%RH non-condensing @ Sea level shall be low 5,000 meter/低于 5,000 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

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:1m, 并跌落到厚度为 20mm 的硬木上,6 个面, 每个面各跌落一次,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/老化

The power supply shall be burn-in for 2 Hours under normal input and 80% rated load at 40°C ± 5°C, the electric performance and Hi-Pot test must be OK

40°C ± 5°C, 电源在正常输入电压和 80%额定负载条件下老化 2 小时后, 电气性能及高压测试 OK。

6.2. MTBF/平均无故障时间

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

平均间隔故障时间: 在 25°C, 额定输入与满载条件下, 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 3 years @ 25°C @ 115Vac/60Hz、230Vac/50Hz Input.

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

7. EMI/EMS Standards/EMI/EMS 标准

7.1. EMI Standards/EMI 标准

FCC Part15
EN 55032 EN 55035
GB/T9254 GB17625.1

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	B
Contact discharge/接触放电	+/-6KV	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	A
AC-input/交流输入	1KV	

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 +/-2KV	A
Differential mode/差模 +/-1KV	

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: 1800Vac /10mA max. / 60S (when safety testing).

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

Primary to Secondary: 1800Vac /5mA max. / 3S (when production).

初级对次级: 1800Vac / 5mA max. /3S(生产作业).

8.2. Leakage Current/漏电流

3.5mA 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.

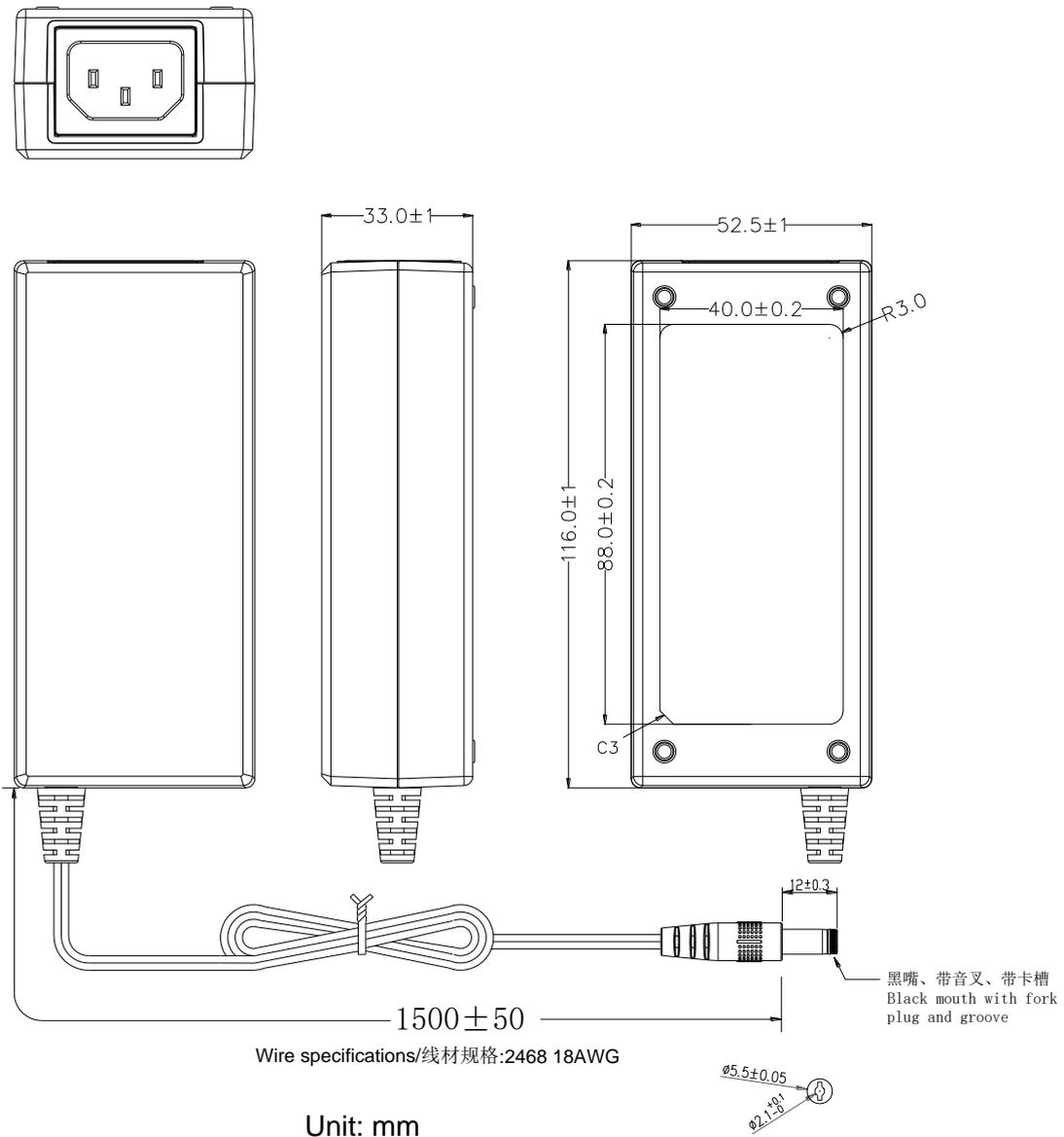
8.4. Earthing Resistance/接地阻抗测试

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

8.5. Regulatory Standards/安规标准

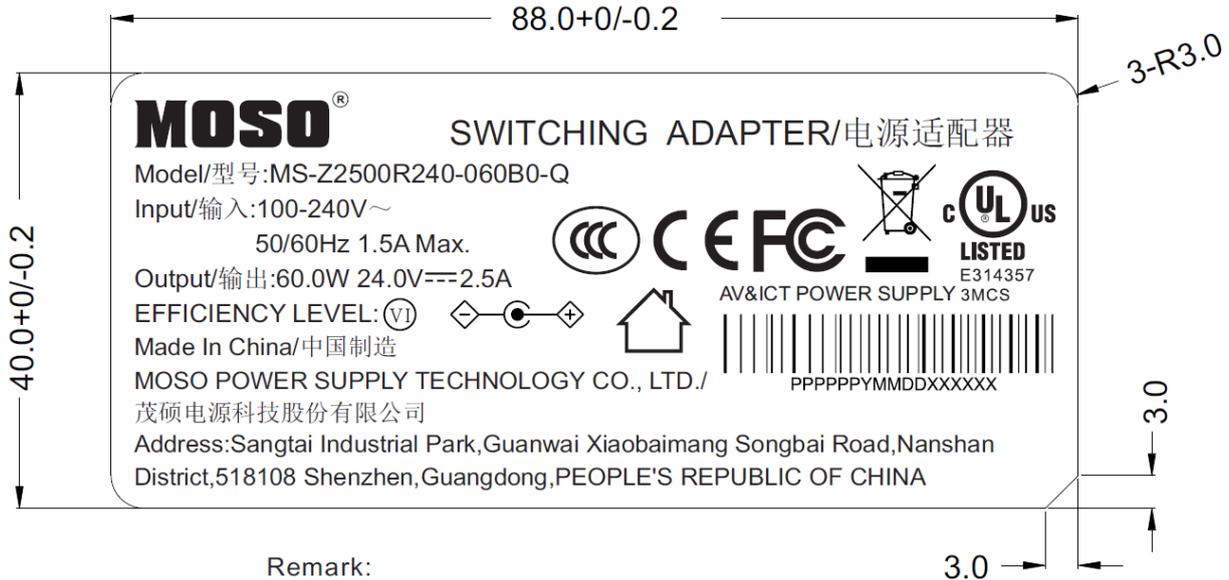
Type/安规	Country/国家	Standard/标准	State/状况	
CE	Europe	EN62368-1	APPROVAL	
UL	USA	UL62368-1	APPROVAL	
CCC	China	GB4943.1	APPROVAL	

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)外壳与线材为黑色

10. I/O Marking Drawing/铭牌示意图



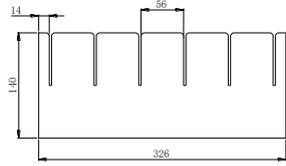
Remark:

- 1.Above label is laser engraved.
- 2.The height dimension of double insulation mark and CE mark can NOT less than 5mm.
- 3.The height dimension of garbage bin mark can NOT less than 7mm.

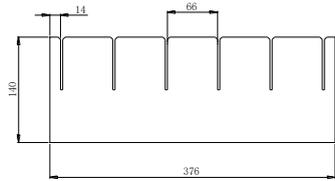


- product code(产品编码:实际S编码后六位, 如SC258-Q0, 取C258Q0)
- producing year(产品实际生产年份,年份最后一位, 如2023年, 取3)
- producing month(产品实际生产月份, 如11月, 取11)
- producing date(产品实际生产日期, 如12日, 取12)
- product listing number(产品序列号, 000001-999999)

11. Package Drawing/包装示意图



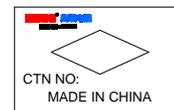
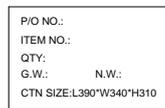
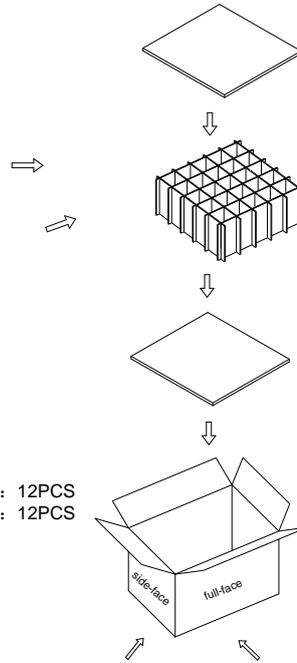
Partitioning card 6 A: 326*140



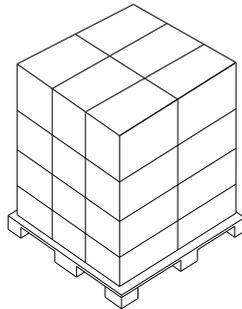
Partitioning card 6 B: 376*140

Packing Instruction:

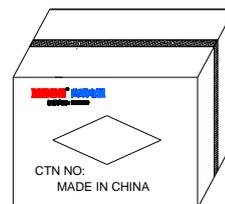
- 1、the product put in the PE bag ,
then the packing product put in the
partitioning card groove, 25PCS/floor.
2 floors in all, 50PCS/box
such as: 25pcs/floor*2floor=50PCS/box
- 2、the usage of the packing materials:
 - 1)the usage of the six partitioning card A 326*140: 12PCS
 - 2)the usage of the six partitioning card B 376*140: 12PCS
 - 3)the usage of the PE bag 250*120: 50PCS
 - 4)the usage of the flat 376*326:3PCS
 - 5)carton box 390*340*310: 1PCS
- 3、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



CARTON BOX: 390L*340W*310H



The pallet stack drawing



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.