

# 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-Z1040R480-048G0-Q

PRODUCT NO./产品编号: SCXXX-Q0/XXXXXX

SAMPLE DATE/送样日期: 2023-09-19

CUSTOMER AUTHORIZED SIGNATURE/客户承认签核		

Please return to us one copy of "SPECIFICATION FOR APPROVAL"  
with your 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 49.92W continuous output power.

资料详细描述了一款 **49.92W**(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	Normal/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

1.2A max. @ 100-240Vac input & Full load.

输入电压 **100-240Vac** 满载时, 输入电流不超过 **1.2A**。

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

No component was damaged and input fuse shall not blow./保险及元件器不能损伤。

### 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 **115Vac/60Hz, 230Vac/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  $\leq 0.21W$ (115Vac/60Hz, 230Vac/50Hz input)

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			
+48.0V	0.0A	1.04A	45.6V ~ 50.4V	300mVp-p	

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1uF ceramic capacitor and a 22uF 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 **22uF** 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			
+48.0V	0.0A	1.04A	± 2%	± 5%	

### 3.3.Turn - on Delay Time/开机延迟时间

5S 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 **5S**。

### 3.4.Hold-up Time/关机维持时间

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

50mS max. @ Rated load.

额定负载时, 上升时间不超过 **50** 毫秒。

### 3.6.Output Overshoot / Undershoot/输出过冲/欠冲

10% max. When the power on or off/当电源开/关机时。

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

Output voltage within 45.6V~ 50.4V for load step from 20% to 80%, R/S: 0.1A/uS, frequency: 100Hz duration and 8mS at 80%.

输出电压在 **45.6V -50.4V** 之间, 负载变化: 从 **20%**到 **80%**, 斜率: **0.1A/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:  $2.0A > I > 1.2A$  (100-240Vac)

The output shall hiccup when the over current 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, 产品输出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。

## 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

20%RH to 85%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 5,000 meters/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, and the hardwood should be put on the base of the cement or on the ground without flexibility. 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,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 4 Hours under normal input and 80% rated load at 40°C ± 5°C.

产品至少要在 **40°C ± 5°C** 的环境及 **80%**额定负载条件下煲机 **4** 小时.

### 6.2.MTBF Qualification/平均间隔故障时间估算

The MTBF shall be at least 100,000hours at 25°C, Full load and Normal input condition  
平均间隔故障时间: 至少 **100,000** 小时,**25°C**环境及额定输入与满载条件下.

### 6.3.E-caps lifetime/寿命

The E-caps used in this PSU must be with lifetime of 2 years, at 40°C of full load with Normal input voltage.

在 **100Vac/50Hz 240Vac/60Hz** 输入,**100%**负载输出,**40°C**环境下,所有电解电容寿命至少 **2** 年.

## 7. EMI/EMS Standards/EMI/EMS 标准

### 7.1.EMI Standards/EMI 标准

GB/T9254 GB17625.1 FCC Part15 EN55032 EN55035 CNS 15936

AS/NZS CISPR32

### 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

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	A
AC-input/交流输入	2KV	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 +/-2KV	B
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: 1500Vac / 10mA max. / 60 second (3second for production)  
初级对次级: 1500Vac / 10mA max. / 60 秒(生产时高压测试时间: 3 秒)

**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**

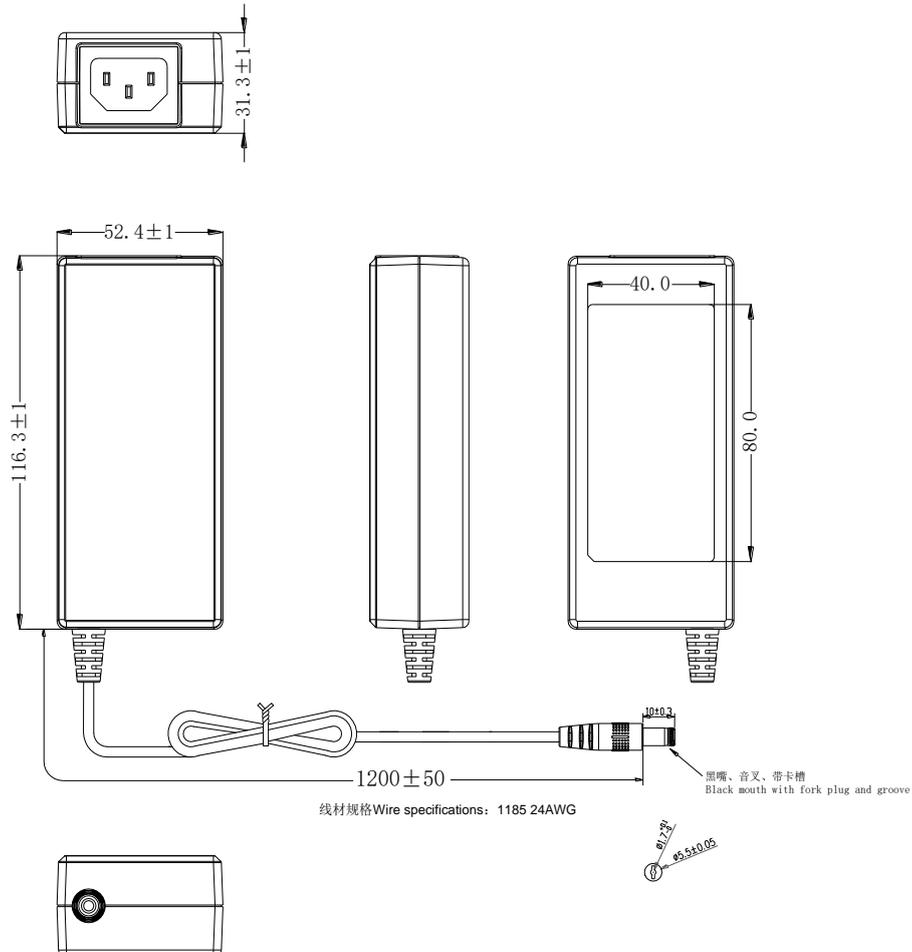
Earthing Resistance : <0.1Ω at 12Vdc/25A/1S.

**8.5.Regulatory Standards/安规标准**

Type/安规	Country/国家	Standard/标准	State/状况	
CCC	China	GB4943.1	Approved	
CE	Europe	EN62368-1	Approved	
UKCA	UK	EN62368-1	Approved	
UL	USA	UL62368-1	Approved	
GOST-U	Ukraine	EN62368-1	Approved	

EAC	Russia	IEC62368-1	Approved	
BSMI	China taiwan	CNS15598-1	Approved	
NOM	Mexico	NOM-001-SCFI-2018	Approved	
RCM	Australia	AS/NZS62368.1	Approved	
S-mark	Argentina	IEC62368-1	Approved	
BIS	India	IS13252(Part1)	Approved	

## 9. Mechanical Outline Drawing/外观示意图



Unit: mm  
Other tolerance:  $\pm 0.5$

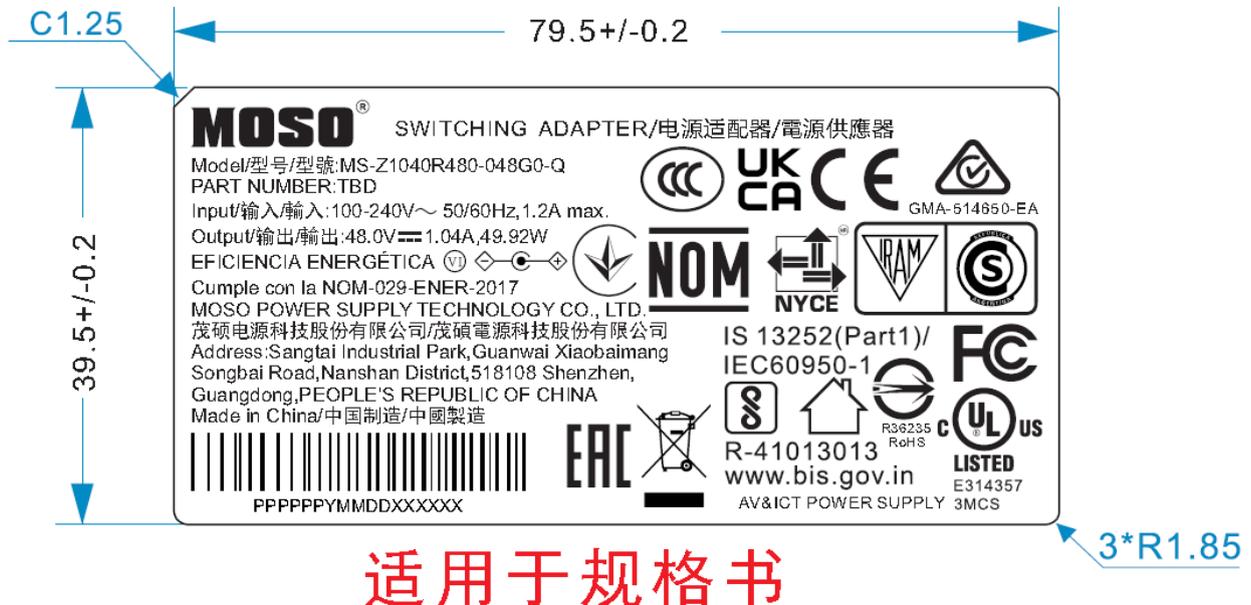
外壳材质: ■PC 耐温:  $125^{\circ}\text{C}$

□PC+ABS 耐温:  $95^{\circ}\text{C}$

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



**适用于规格书**

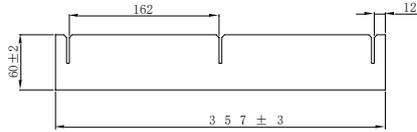
**Remark:**

- Above lable is laser engraved.
- The dimension of garbage bin mark can NOT less than 7mm.
- The dimension of CE mark and UKCA mark can NOT less than 5mm.

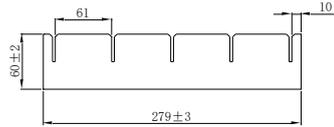


- product code(产品编码:实际S编码后六位, 如SC520-Q0, 取C520Q0)
- producing year(产品实际生产年份,年份最后一位, 如2023年, 取3)
- producing month(产品实际生产月份, 如11月, 取11)
- producing date(产品实际生产日期, 如12日, 取12)
- product listing number(产品序列号, 000001-999999)

## 11. Package Drawing/包装示意图



三刀卡357\*60



五刀卡279\*60

### 包装说明:

- 一、将产品每PCS装入PE袋中包好，  
再将包装的产品放入刀卡槽中，每层装8PCS，  
共装4层，每箱装32PCS

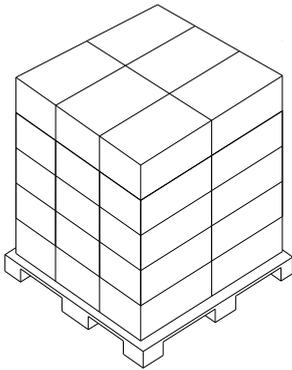
即：8pcs/层\*4层=32PCS/箱

### 二、包装材料使用说明为:

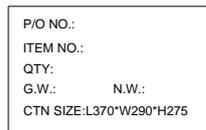
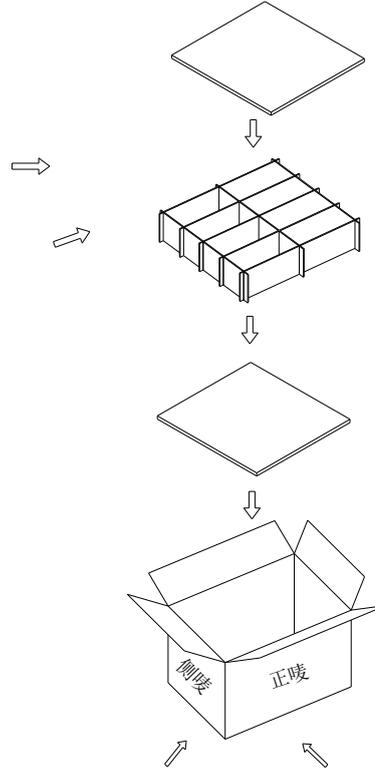
- 1、三刀卡357\*60用量: 20PCS
- 2、五刀卡279\*60用量: 12PCS
- 3、PE袋用量: 32PCS
- 4、平卡357\*279用量: 5PCS
- 5、纸箱370\*290\*275: 1PCS

### 三、栈板堆放说明为:

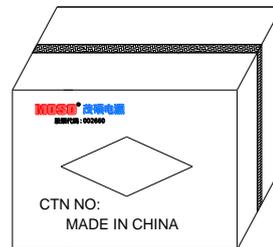
- 1、栈板尺寸为: L1000\*W800\*H100mm
- 2、每层放2行\*3列=6箱
- 3、竖直堆放5层\*6箱共30箱



栈板堆放示意图



纸箱的外尺寸: 370L\*290W\*275H



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.