

参考规格书

SPECIFICATION FOR REFERENCE

CUSTOMER: 客 户:	
CUSTOMER P.N.: 客户料号:	
MODEL NO.: 产品型号:	MS-Z1870R480-090G0-E
PRODUCT NO.: 产品编号:	SCXXX-E0/XXXXXX
SAMPLE DATE: 送样日期:	2024-03-05

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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Reviser 修订	Confirm 确认	Checked 审查	Approval 批准

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 89.76W continuous output power.

资料详细描述了一款 89.76 W (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 Tire 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	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

1.8A max. @ 100-240Vac input & Full load.

输入电压 **100-240Vac** 满载时, 输入电流不超过 **1.8A**。

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. Averaged Efficiency/平均效率

88% min. @115Vac/60Hz input, (@25%, 50%, 75% and 100% of max load)

89% min 230Vac/50Hz input (@25%, 50%, 75% and 100% of max load)

输入电压 **115V/60Hz** 时, **25%、50%、75%和 100%**载时的平均效率不低于 **88%**

输入电压 **230V/50Hz** 时, **25%、50%、75%和 100%**载时的平均效率不低于 **89%**

2.5. Energy Consumption /空载功耗

No load Consumption ≤0.15W(**115V/60Hz, 230V/50Hz**).

在额定输入 **115V/60Hz, 230V/50Hz** 时,空载功耗≤**0.15W**.

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	Rate.Load			
+48V	0.0A	1.87A	45.6V ~ 50.4V	250mVp-p	100-240V

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: 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 **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	Rate.Load			
+48V	0.0A	1.87A	± 2%	± 5%	

3.3. Turn - on Delay Time/开机延迟时间

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

输入电压 **100Vac to 240Vac** 满载时, 开机延迟时间不超过 **3S**。

3.4. Hold-up Time/关机维持时间

20mS 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 20 毫秒。

3.5. Rise Time/上升时间

50 mS 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

50 mS 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 45.6V ~ 50.4V for load step from 20% to 80%, R/S: 0.25A/uS,
Frequency: 100Hz, 50%duty.
输出电压在 45.6V~50.4V 范围内, 负载阶跃为 20%至 80%, R / S: 0.25A / uS,
频率: 100Hz, 50% 占空比

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 to 3.2A (100-240Vac)
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。

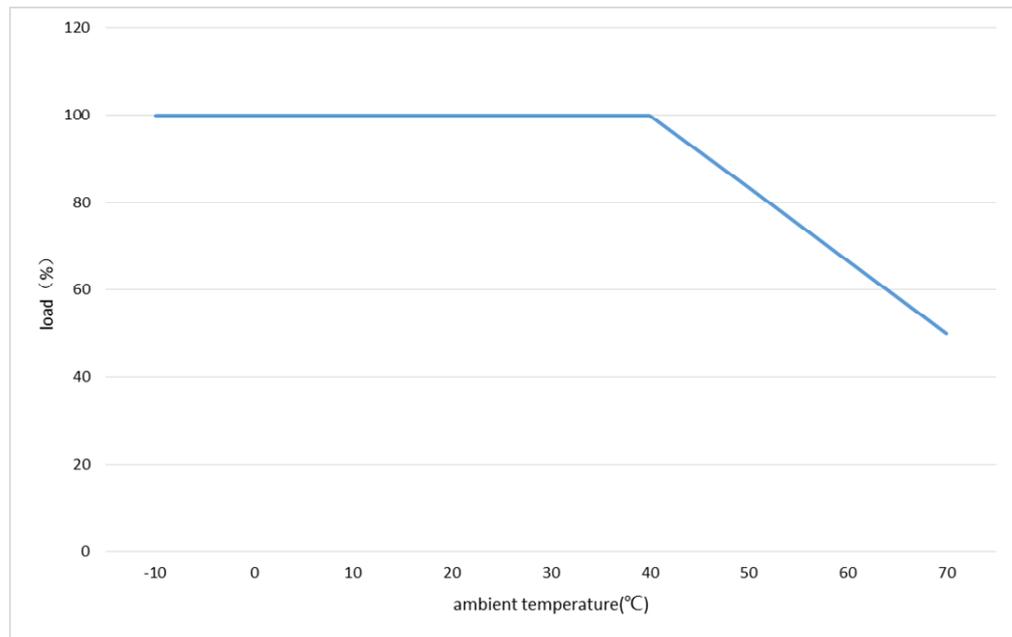
4.3. Over Voltage Protection/过压保护

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. Over Voltage Point Limited: 68VDC Max.
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

-10°C to +40°C , The 50°C to 70°C descending curve is as follows
10%RH to 90%RH



Reduced curve

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.

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°C ± 5°C, the electric performance and Hi-Pot test must be OK.

电源应在正常输入和 40°C ± 5°C 的 80% 额定负载下老化 2 小时, 电性能和 Hi-Pot 测试必须正常。

7. EMI/EMS Standards/EMI/EMS 标准

7.1. EMI Standards/EMI 标准

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	+/- 4KV	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
10V/m (r.m.s)	A
30-1000MHz,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	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
0.15-30 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.

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

Primary to Secondary: 1800Vac / 5mA max. / 3 S.

初级对次级: **1800Vac / 5mA max. / 3S(生产作业)**.

8.2. Leakage Current/漏电流

0.5mAmax. 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

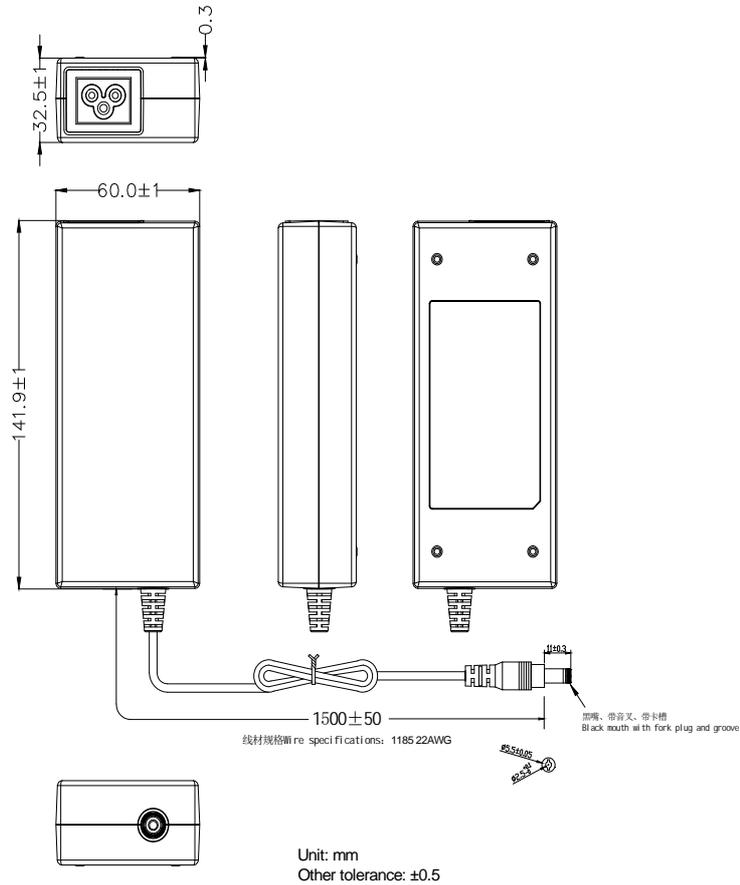
8.4. Earthing Resistance/接地阻抗测试

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	
CCC	China	GB4943.1	MEET	

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。

11. I/O Marking Drawing/铭牌示意图



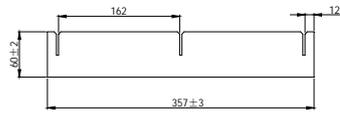
Remark:

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

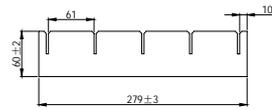


- product code(产品编码:实际S编码后六位, 如SC818-E0, 取C818E0)
- producing year(产品实际生产年份,年份最后一位, 如2024年, 取4)
- producing month(产品实际生产月份, 如11月, 取11)
- producing date(产品实际生产日期, 如12日, 取12)
- product listing number(产品序列号, 000001-999999)

12. 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

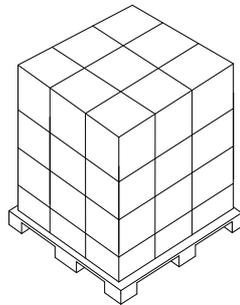
即：8pcs/层*4层=32PCS/箱

二、包装材料使用说明为:

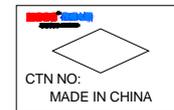
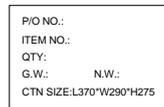
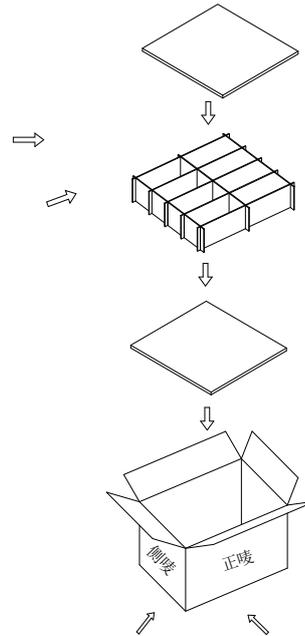
- 1、刀卡357*279*60用量: 4PCS
- 2、PE袋250*140用量: 32PCS
- 3、平卡357*279用量: 5PCS
- 4、纸箱370*290*275: 1PCS

三、栈板堆放说明为:

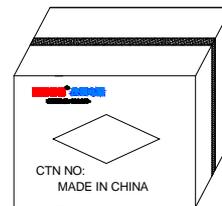
- 1、栈板尺寸为: L1200*W950*H135mm
- 2、每层放3行*3列=9箱
- 3、坚直堆放4层*9箱共36箱



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.

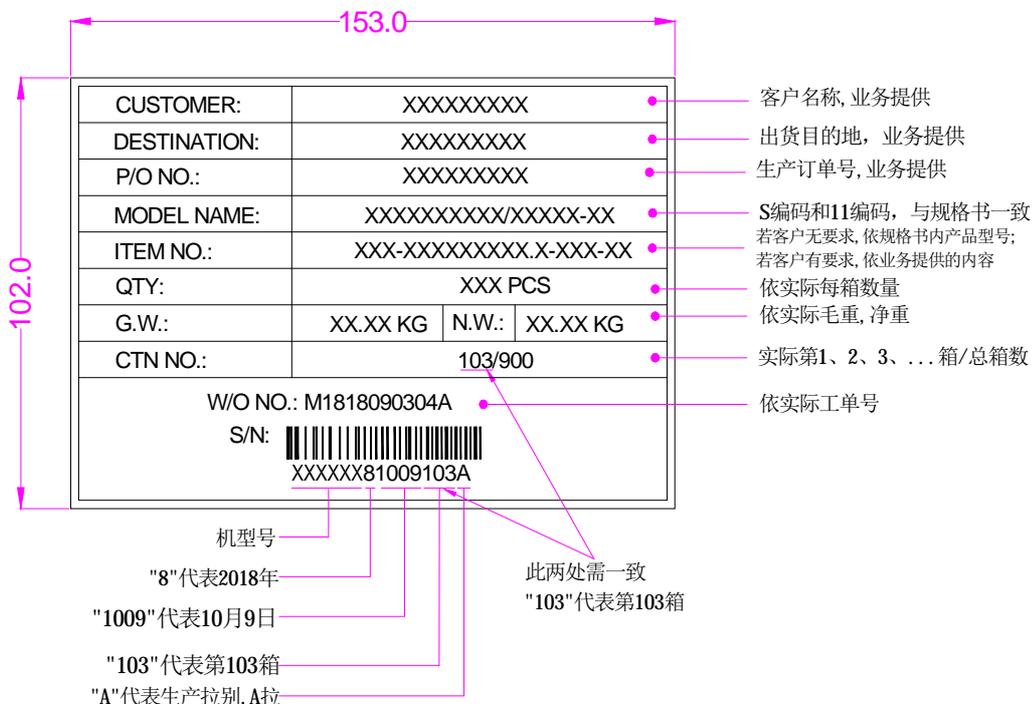
PE 袋包装要求: PE 袋不用胶带封口;

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

Carton label



技术要求:

1. 材质: 80P铜版纸(来料为空白标签)
2. 颜色: 白底黑字, 公司内部打印
3. 背附胶, 粘贴在纸箱上后, 无翘边等不良;
4. 符合ROHS标准及茂硕环保要求
5. 使用空白料号3230200011