



茂硕电源科技股份有限公司

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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-Z4740R190-090C0-E

PRODUCT NO./产品编号: _____

SAMPLE DATE/送样日期: 2021-06-21

CUSTOMER AUTHORIZED SIGNATURE/客户承认签核		

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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 90.06W continuous output power.

资料详细描述了一款 90.06 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 **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	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 I^2T of fuse & bridge diodes.

冷启动时, 浪涌能量不能超过整流桥和保险丝的 I^2T , 且不能有损坏.

2.4. Averaged 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 $\leq 0.21W$ (**115V/60Hz, 230V/50Hz**).

在额定输入 **115V/60Hz, 230V/50Hz** 时,空载功耗 $\leq 0.21W$.

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	4.74A	18.05V ~ 19.95V	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	Load Condition/负载条件		Line Regulation	Load Regulation	Remark
Rate	Min. Load	Rate.Load	线性调整率	负载调整率	备注
+19V	0.0A	4.74A	± 3%	± 5 %	

3.3. Turn - on Delay Time/开机延迟时间

3S max. @90Vac to 264Vac input & Full load.

输入电压 **90Vac to 264Vac** 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

输入电压 **115Vac/60Hz** 满载时, 关机时间最差情况不小于 **5 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 18.05V~19.95V for load step from 20% to 80%, R/S: 0.25A/uS, Frequency: 100Hz, 50%duty.

输出电压在 **18.05V~19.95V** 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: $I > 5.2A$ (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.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 +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

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	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

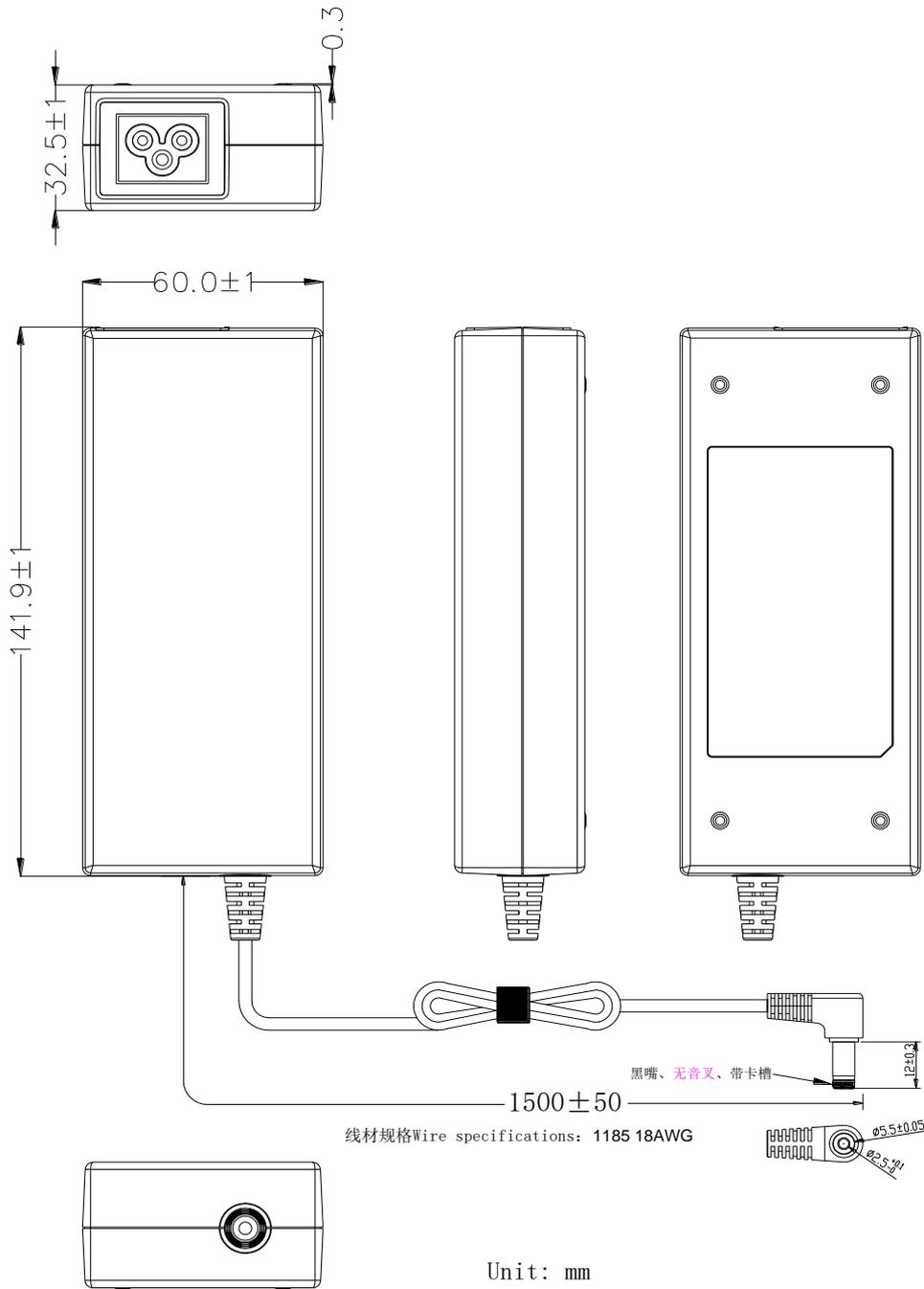
8.4. Earthing Resistance/接地阻抗测试

Earthing Resistance: <0.1Ω 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	APPROVAL	

9. Mechanical Outline Drawing/外观示意图



Unit: mm
Other tolerance: ± 0.5

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 (1101M).