1. SCOPE/概述

The document details the electrical, mechanical and environmental specifications of a SMPS, the power supply provides 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 **RoHS** requirements.

此款电源符合 RoHS 要求.

Description/描述：

SMPS Adapter(Wall mount)/(WA安规，WN非安规）插墙式适配器

SMPS Adapter(Desk-top)/(DA安规，DN非安) 桌面型适配器

Open Frame/开放式结构 ,SMPS Unit (With Case)/带铁壳型 ,Others/其他W

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 100Vac to 240Vac with a single phase.

输入电压范围：从 100Vac 到 240Vac, 单相输入.

	Minimum/最小	Rating/额定值	Maximum/最大
Input Voltage/输入电压	100Vac	100Vac~240Vac	240Vac
Input Frequency/输入频率	50Hz	60Hz/50Hz	50Hz

2.2. Input AC Current/输入交流电流

1.5Amax. @ 100Vac input & Full load/在 100Vac 输入和满载条件下最大 1.5Amax

2.3. AC Receptacle/交流输入插座

The inlet receptacle shall comply with IEC 320 standard sheet (2pin CA)

输入交流插座符合 IEC 320 规范要求(2 pin 中规)。

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

Power supply inrush current shall be less than the ratings of its critical components (including bulk rectifiers, fuses, and surge limiting device) under all conditions of line voltage of Section 2.1.

在 2.1 中所有输入条件下，浪涌应小于关键器件的额定值(包括保险丝、桥整等浪涌限制元件）

2.5. Average Efficiency /平均效率

While input 100Vac and 240Vac,the average efficiency is more than 82%.The test point is at 25%,50%,75% and 100% of max load respectively.

在输入 100Vac 和240Vac 条件下，平均效率不小于 82%。测试点分别是最大载的 25%,50%,75%和100%。

2.6. No-Load Input Power Dissipation/输入空载功率损耗

While input 100Vac or 240Vac and the output is no load, the input power loss must be less than 0.20W.

在输入 100Vac/240Vac，空载功耗小于 0.20W.

3. Output Characteristics/输出特性

3.1. Static Output Characteristics <Vo & R+N>/静态输出特性<输出&纹波+噪音>

Output	Rated Load/额定负载		Peak Load	Output Range 输出电压范围	R+N 纹波与噪声	Remark 备 注
Rating	Min. Load	Max. Load				
+12.0V	0.0A	4.0A	/	11.40V ~ 12.60V	120mVp-p	

Ripple & Noise: Tested by a oscilloscope using 20MHz bandwidth and the output is paralleled a 0.1uF ceramic capacitor and a 10uF electrolysis capacitor. (Under the input Voltage 100~240Vac)

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(输入电压 100~240Vac)

3.2. Line/ Load Regulation/线性/负载调整率

Output	Load Condition/负载条件		Line Regulation 线性调整率	Load Regulation 负载调整率	Remark 备 注
Rating	Min. Load	Max. Load			
+12.0V	0.0A	4.0A	2%	5%	

3.3. Turn - on Delay Time/开机延迟时间

3S max. @ 100Vac input & Full load/在 100Vac 输入和满载条件下最大 3S

3.4. Hold-up Time/关机维持时间

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

在 100Vac/60Hz 输入,满载同时最差情况下关机，最小 10mS

20mS min. @ Full load &240Vac/50Hz input turn off at worst case

在 240Vac/50Hz 输入,满载同时最差情况下关机，最小 20mS

3.5. Rise Time/上升时间

30mS max. @ Full load/在满载条件下最大 30mS

3.6. Fall Time/下降时间

20mS max. @ Full load/在满载条件下最大 20mS

3.7. Output Overshoot / Undershoot/输出过冲/欠冲

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

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

Output voltage is within11.40V ~ 12.60V while the load step is from 20% to 80% of max load, R/S: 0.5A/uS, frequency: 100Hz, and 8mS duration at 80% of max load.

输出电压在11.40V ~ 12.60V 之间,负载变化: 从最大载的 20%到80%,斜率: 0.5A/uS,频率: 100Hz, 80% 负载持续时间为 8mS.

3.9. Capacitance Load/容性负载

While input 100~240Vac and capacitance load is 470uF, the adapter can turn on normally and the output is in the rated range.

在输入 100~240Vac，470uF 容性负载条件下，适配器能正常开机。并且输出电压范围在额定范围下。

4. Protection Requirements/保护要求

4.1. Over Current Protection/过流保护

OCP Point Limited: 110%~150% of Max. Load/保护点限制: 小于最大负载的 110%~150%

The output shall hiccup when the over current applied to the output, 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 is short to GND, the power supply shall not damage, and shall be self-recovery when the fault condition is removed

当输出对地短路时,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 adapter will latch off that means no output while over voltage happened at output terminal that caused by internal fault, the output trip voltage will be less than 26V.

当输出过压超过 26V 时, 输出将进入自锁模式，交流断电再上电，产品将会恢复正常。

4.4. Over Temperature Protection 过温保护

A temperature sensor and associated protection circuitry are installed inside the adapter to detect the case internal temperature and provide protection against damage to the adapter. and the input power shall be latched off when the unit works in OTP mode.

过温保护电路被设置在适配器内部，避免适配器损坏,且当温度超过 OTP 点时，产品会进入自锁模式。

5. Environment Requirements/环境要求

5.1. Operating Temperature and Relative Humidity/操作温度和湿度要求

Operating Ambient temperature: 0℃ to +40℃

Relative Ambient humidity:20%RH to 80%RH

Sea level shall below or no more than16,000 feet

在海拔小于或等于 5000米的条件下，工作环境温度为 0℃ ~ +40℃，湿度为 20% ~ 80%。

5.2. Storage Temperature and Relative Humidity/存储温度和湿度要求

Storage Ambient Temperature : -30℃to +70℃

Storage Ambient Relative Humidity : 10%RH to 90%RH (non-condensing)

Sea level shall below 30,000 feet

在海拔低于 30,000 英尺的条件下，低温存储下限为-30℃（无结冰环境）；高温存储上限为 +70℃,相对湿度为 10%RH ~ 90%RH。

6. Reliability Requirements/可靠性要求

6.1. MTBF Qualification/平均间隔故障时间估算

The MTBF shall be at least 50,000hours at 25℃, Full load and normal input condition

平均间隔故障时间: 至少 50,000 小时,25℃环境及额定输入与满载条件下

6.2. 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

7. EMI/EMS Standards/EMI/EMS 标准

7.1. EMI Standards/EMI 标准

EN 55022:1998, +A1:2000 +A2:2003, Class B
CISPR 22:2003, Class B
AS/NZS CISPR 22: 2004, Class B

7.2. EMS Standards/EMS 标准

EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
EN 61000-4-2	Electrostatic Discharge(ESD): 8kV air discharge, 6kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient/Burst-EFT: ±1kV on AC power port.
EN 61000-4-5	Surge Immunity Test: Differential mode ±1kV,Common mode ±2kV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test
EN 61000-4-11	Voltage Dips: >95% dip, 0.5 period; 30% dip.

8. Safety Standards/安规标准

8.1. Dielectric Strength(Hi-pot)/介电耐压强度(高压)

Primary to Secondary: 3000Vac / 3.5mA / 60 seconds(3 seconds for production)
or 4242Vdc / 3.5mA / 60 seconds(3 seconds for production)

初级对次级: 3000Vac / 3.5mA / 60 秒(生产时高压测试时间: 3 秒)
或 4242Vdc / 3.5mA / 60 秒(生产时高压测试时间: 3 秒)

8.2. Leakage Current/漏电流

0.25mAmax. at 240Vac / 50Hz input/在输入 240Vac/50Hz 的条件下最大 0.25mA

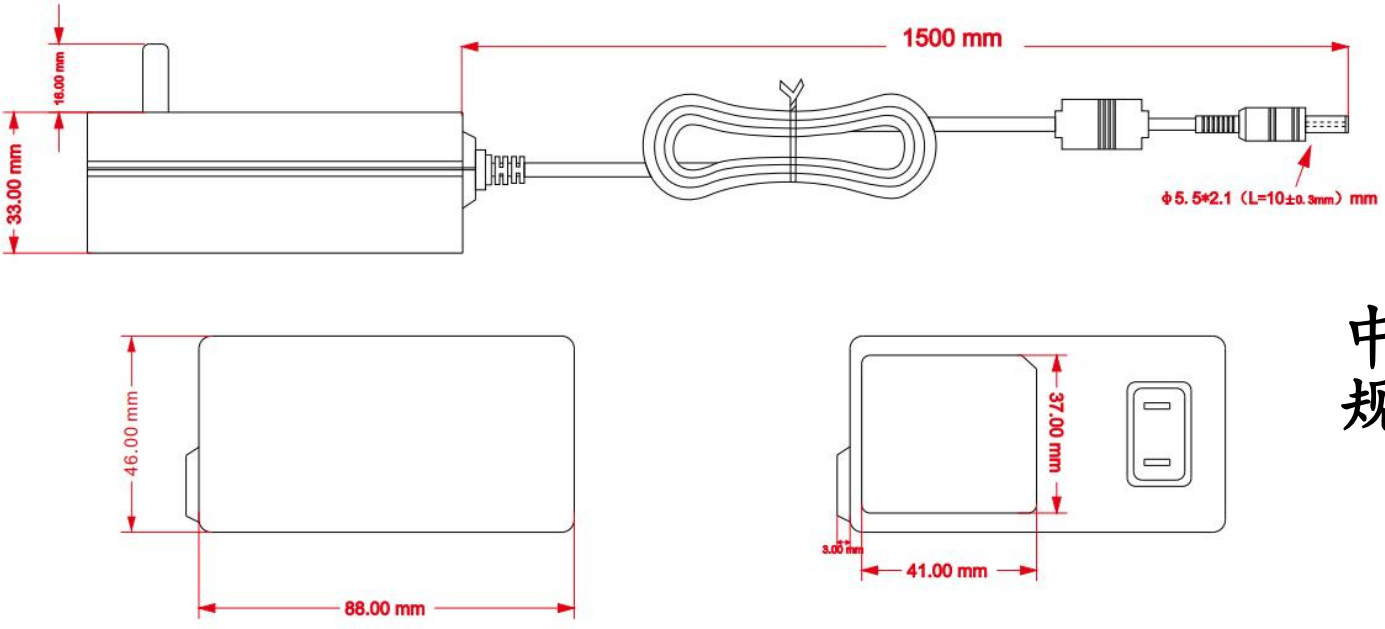
8.3. Insulation Resistance/绝缘阻抗

100MΩ min. @ primary to secondary add a 500Vdc test voltage
在初级与次级间加 500Vdc 进行测试,最小 100MΩ

8.4. Regulatory Standards/安规标准

Type	Country	Standard		Type	Country	Standard
☐ FCC	USA	UL60950-1		☐ PSB	Singapore	IEC60950-1
☐ TUV	Europe	EN60950-1		☐ PSE	Japan	J60950
☑ CCC	China	GB4943		☐ KC	korea	K60950
☑ CE	Europe	EN60950-1		☑ CB	IECEE	IEC62368

9. Mach. Outline Drawing/外观图



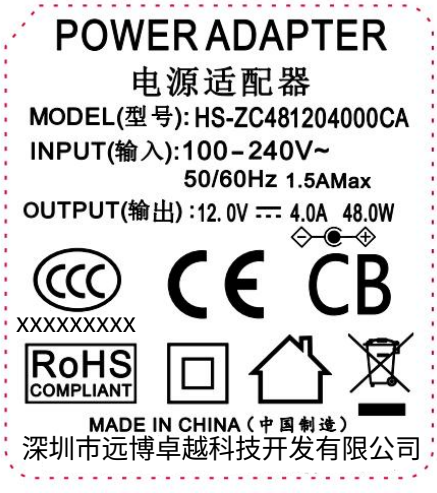
中规

输出线规格：1.5 米，带磁环，20AWG，2464，DC 头 5.5*2.5

Output line specification: 1.5 m, with magnetic ring, 20AWG, 2464, DC head 5.5 * 2.5

可根据客户要求订制其它输出插口：5.5X2.5MM,4.0X1.7MM,3.5X1.35MM,TYPEC，裸线上锡等

镭雕铭牌：



Package Drawing/包装示意图