

Specification For 12 Watts/ Switching Mode Power Supply

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1. SCOPE/概述

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 12.0 W continuous output power.

资料详细描述了一款 12.0W(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.

Description/描述:

- SMPS Adapter (Wall mount)/插墙式适配器 SMPS Adapter(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

0.5Amax. @ 90Vac input & Full load/在 90Vac 输入和满载条件下最大 0.5A

2.3. 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, 浪涌电流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)。

2.4. Average Efficiency /平均效率

While input 115Vac and 230Vac, the average efficiency is more than 82.96%.The test point is at 25%, 50%, 75% and 100% of max load respectively.

在输入 115Vac 和 230Vac 条件下, 平均效率不小于 82.96%。测试点分别是最大载的 25%,50%,75%和 100%

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

Input 230Vac, output no load, the input power loss is less than 0.1W.

输入 230Vac, 在输出空载条件, 输入功耗小于 0.1W

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
Rating	Rated. Load	输出电压范围	纹波与噪声	备注
+12.0V	1.0A	11.4V ~ 12.6V	180mVp-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 Rating	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			
+12.0V	0A	1.0A	±2%	±3%	

3.3. Turn - on Delay Time/开机延迟时间

3S max. @ 90Vac input & Full load/在 90Vac 输入和满载条件下最大 3S

3.4. Hold-up Time/关机维持时间

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

在 115Vac/60Hz 输入,满载同时最差情况下关机, 最小 5mS

10mS min. @ Full load & 230Vac/50Hz input turn off at worst case

在 230Vac/50Hz 输入,满载同时最差情况下关机, 最小 10mS

3.5. Rise Time/上升时间

200mS max. @ Full load/满载条件下最大 200mS

3.6. Fall Time/下降时间

50mS max. @ Full load/满载条件下最大 50mS

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

5% max. When the power on or off/当电源开/关机时最大±5%

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

Output voltage is within 11.4-12.6V while the load step is from 25% to 50% to 25% of max load or 50% to 75% to 50% of max load, R/S: 0.1A/uS, periods: 4mS, Output Overshoot is less then ±5%.

输出电压在 11.4-12.6V 之间,负载变化: 从最大载的 25%到 50%再到 25%或从最大载的 50%到 75%再到 50%,斜率: 0.1A/uS,周期: 4mS, 输出过冲应小于±5%.

3.9. Capacitance Load/容性负载

When input 115Vac/230Vac and capacitance load is 1000uF, the adapter can turn on normally and the output is in the rated range.

在输入 115Vac/230Vac, 1000uF 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内

4. Protection Requirements/保护要求

4.1. Over Current Protection/过流保护

Ocp Point Limited: 1.05A~1.6A /保护点限制:最大为 1.05A~1.6A

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 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

OVP Point Limited: < 16V/过压保护点限制: 小于 16V

The power supply shall be hiccup mode, when the output is over voltage, and the power supply shall not be damaged.

当输出过压时,电源进入打嗝保护模式,产品不会损伤

5. Environment Requirements/环境要求

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

0°C to +45°C

10%RH to 95%RH

Note: The power adapter can operate normally at 0°C/+45°C.

电源在 0°C/+45°C能正常工作。

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

-40°C to +70°C

5%RH to 95%RH non-condensing @ Sea level shall be low 5000 meter

在海拔低于 5000M 的条件下,低温存储下限为-40°C (无结冰环境); 高温存储上限为 +70°C,相对湿度为 10%RH to 95%RH。

5.3. Vibration/振动

9 to 200Hz 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: 9 to 200Hz, 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 in/跌落

6 Surfaces each once. Drop on the cement plane, Height: 100cm

6 面各一次,跌落在水泥面上,高度: 100CM。

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 60,000hours at 25°C, 100% Full load and nominal input condition

平均间隔故障时间: 至少 60,000 小时,25°C 环境及额定输入与 100%满载条件下

6.2. The lifetime electrolyte capacitor/电解电容寿命

The lifetime of electrolyte capacitor shall be at least 26280hours at 30°C of full load and 100Vac/240Vac input condition

电解电容寿命 26280 小时,30°C 环境及 100Vac/240Vac/输入与 100%负载条件下

7. EMI/EMS Standards/EMI/EMS 标准

7.1. EMI Standards/EMI 标准

EN 55022:2006+A1:2007 Class B
CISPR 22:2005+2006, Class B
AS/NZS CISPR 22: 2009, 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): 15kV air discharge, 8kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient/Burst-EFT
EN 61000-4-5	Surge Immunity Test: Differential mode $\pm 2kV$, Common mode $\pm 4kV$
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

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 / 10mA / 60second
Or 4242Vdc / 10mA / 60second

8.2. Leakage Current/漏电流

0.25mAmax. at 264Vac / 50Hz/在输入 264Vac/50Hz 的条件下最大 0.25mA

8.3. Insulation Resistance/绝缘阻抗

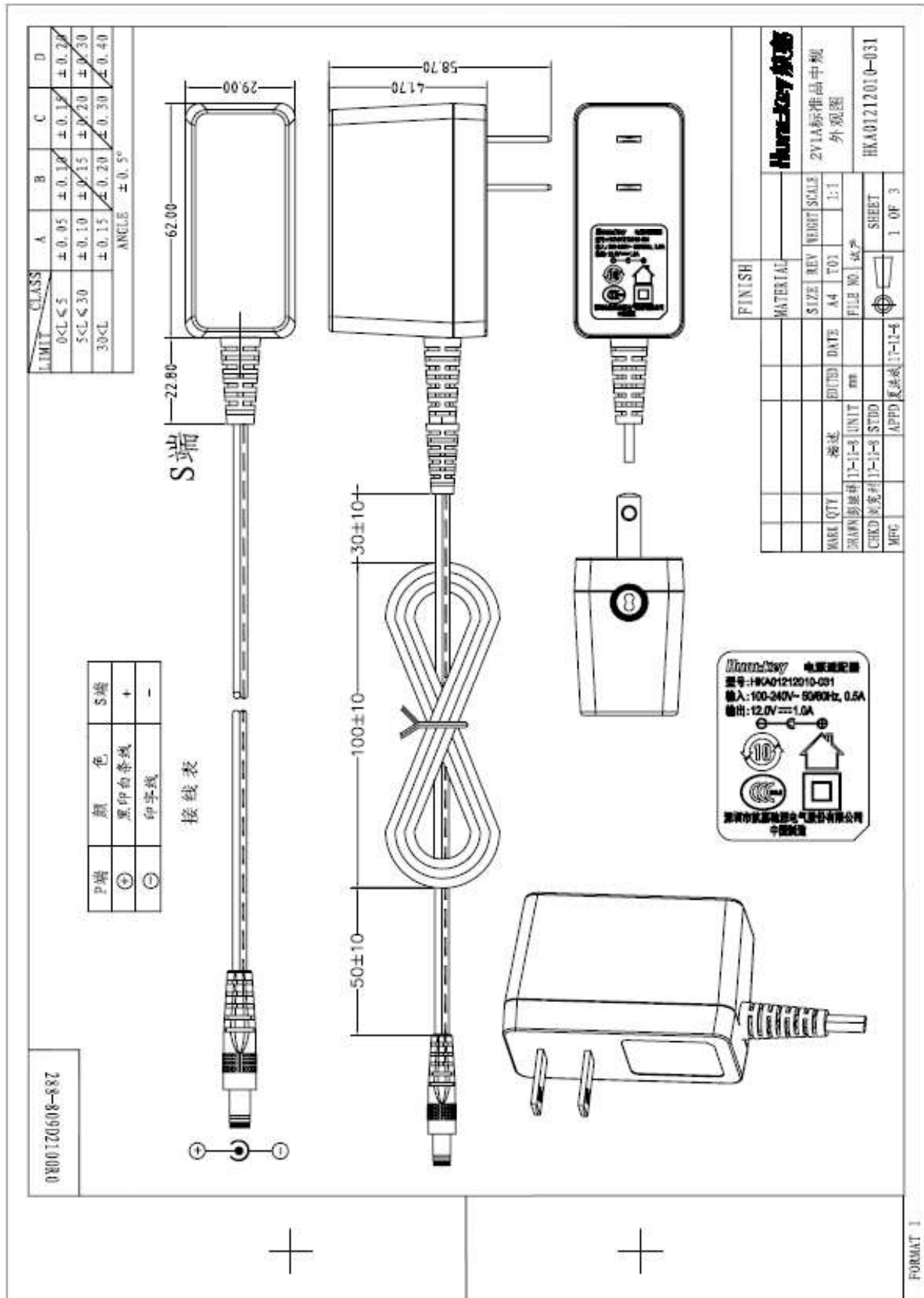
100M Ω min. at primary to secondary add 500Vdc test voltage

在初级与次级间加 500Vdc 进行测试，绝缘阻抗最小 100 M Ω 。

8.4. MEET Regulatory Standards/符合安规标准

Type	Country	Standard	Type	Country	Standard
<input checked="" type="checkbox"/> UL/CUL	USA	UL60950-1	<input type="checkbox"/> PSB	Singapore	IEC60950-1
<input type="checkbox"/> TUV	Europe	EN60950-1	<input type="checkbox"/> PSE	Japan	J60950
<input checked="" type="checkbox"/> CCC	China	GB4943	<input type="checkbox"/> NOM	Mexico	NOM-001
<input type="checkbox"/> CE	Europe	EN60950-1	<input type="checkbox"/> GOST	Russia	MEK60950

9. Mach. Outline Drawing/外观图



10. Packing Drawing/包装图

S/N内容镭雕(标贴内容为模刻)

镭雕: 1 : 1

S/N: A12E2J1123000001

1、生产 2、机种 3、客户 4、制造
裁别 名称 代码 年月日

5、产品流水号 (999999-000001)

技术要求:

- 一、下盖, S/N内容为镭雕, 标贴为模刻, 颜色以封样为准;
- 二、字体清晰、颜色均匀、无毛边。
- 三、可靠性测试: 用50g砝码耐酒精擦拭50次无不良;
- 四、安规LOGO大小比例不允许变动
- 五、镭雕位置尺寸: ± 0.5
- 六、编码规则: 日期以供商送货日为准 (即航嘉产品的出货日)
字体为Arial Unicode Ms

注:

- 1、生产线别: 用数字1-9, 字母A-R表示, 由制造部门来管控(数字0, 字母I、O不使用)。
- 2、机种名称: 12代表12W系列, E代表成品料号。
- 3、客户代码: 按现有客户编码。
- 4、制造年月日: 11代表2011年, 12代表2012年, 以此类推;
2代表月份, C代表12月, B代表11月, A代表10月, 1-9月用自然数字表示;
3代表日, 1=1, 2=2, 3=3, 4=4, 5=5, 6=6, 7=7, 8=8, 9=9,
A=10, B=11, C=12, D=13, E=14, F=15, G=16, H=17, J=18, K=19, L=20, M=21,
N=22, P=23, R=24, S=25, T=26, V=27, W=28, X=29, Y=30, Z=31。
- 5、产品流水号: 依生产顺序编码, 日期变, 流水号从头开始。

S/N: A12E2J1123000001

镭雕: 2 : 1

MARK QTY		ECN NO.	UNIT	STDD	APPD	MFG
290-809D1122R1			mm	2017/11/21	夏洪斌	2017/11/21
DRAWN 郭伟强		2017/11/21	mm	2017/11/21	夏洪斌	2017/11/21
CHKD 刘深利		2017/11/21	mm	2017/11/21	夏洪斌	2017/11/21
MATERIAL		Huntkey 航嘉		SHEET		
SIZE		A4		1 OF 1		
REV		T01		1:1		
DATE		2017/11/21		试产		
SCALE		1:1		HKA01212010-031		
FILE NO.		290-809D1122R1		290-809D1122R1		

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