

Specification For 36 Watts/ Switching Mode Power Supply

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1、Electrical Specification/电气特性

1.1、SCOPE/概述

The document details the electrical, mechanical and environmental specifications of a SMPS, the power supply provides 36 W continuous output power.

资料详细描述了一款 36W(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 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、Input Characteristics/输入特性

1.2.1. Input Voltage & Frequency/输入电压与频率

The range of input voltage is from 90Vac to 264Vac with a single phase.

输入电压范围: 从 90Vac 到 264Vac, 单相输入.

	Minimum/最小	Rating/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

1.2.2. Input AC Current/输入交流电流

1.0Amax. @ 90Vac input & Full load/在 90Vac 输入和满载条件下最大 1.0A

1.3.3. 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)。

1.2.4. Average Efficiency /平均效率

While input 115Vac and 230Vac, the average efficiency is more than 88.3%.The test point is at 25%,50%,75% and 100% of max load respectively.(warm up after 30 minutes)

在输入 115Vac 和 230Vac 条件下, 平均效率不小于 88.3%。测试点分别是最大载的 25%,50%,75%和 100%。(热机半小时后测试)

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

While input 115Vac or 230Vac and the output is no load, the input power loss must be less than 75mW. 在输入 115Vac/230Vac, 空载功耗小于 75mW.

1.3、 Output Characteristics/输出特性

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

Output Rating	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
	Min. Load	Max. Load				
+12.0V	0A	3A		11.4V ~ 12.6V	150mVp-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)

1.3.2.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	3A	± 2%	± 5%	

1.3.3.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

1.3.4. Hold-up Time/关机维持时间

10mS 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 10mS

1.3.5.Rise Time/上升时间

30mS max. @ Full load/在满载条件下最大 30mS

1.3.6.Fall Time/下降时间

20mS max. @ Full load/在满载条件下最大 20mS

1.3.7.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%

1.3.8.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: 0.2A/uS, periods: 4mS, the maximum of comeback time is 200uS.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: 0.2A/uS,周期: 4mS, 恢复时间最大为 200uS。输出过冲应小于±5%.

1.3.9.Capacitance Load/容性负载

While input 115Vac/230Vac & full load, and the output is paralleled a 2000uF electrolysis capacitor, the output voltage shall be single assurgent

在输入 115Vac/230Vac、满载并在输出端并联一个 2000uF 的电解电容负载条件下,适配器的输出为单调上升

1.4、Protection Requirements/保护要求

1.4.1.Over Current Protection/过流保护

OCP Point Limited: 3.5A~6.0A /保护点限制: 3.5A~6.0A

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

1.4.2.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

1.4.3.Over Voltage Protection/过压保护

OVP Point limited: 16V of Max. /保护点限制: 最大 16V

The power supply shall be protected when the output is over voltage, and the power supply shall not be damaged

当输出过压时,产品保护且不会损伤

2、Environment Requirements/环境要求

2.1、Operating Temperature and Relative Humidity/操作温度和湿度要求

0°C to +45°C

5%RH to 95%RH

2.2、Storage Temperature and Relative Humidity/存储温度和湿度要求

-20°C to +70°C

5%RH to 95%RH (non-condensing) @ Sea level shall below 5,000 meter

在海拔低于 5,000 米的条件下,低温存储下限为-20°C (无结冰环境); 高温存储上限为

+70°C,相对湿度为 5%RH to 95%RH。

3、Reliability Requirements/可靠性要求

3.1.Vibration/振动

5 to 500Hz sweep at a shift gears for 20 minute for each of the perpendicular axes X, Y, Z thereinto :acceleration frequency for 10 m2/s3 at 5~10HZ; acceleration frequency for 3 m2/s3 at 10~200HZ; acceleration frequency for 1 m2/s3 at 200~500HZ

扫描频率: 5 to 500Hz 随机振动, X, Y, Z 三垂直坐标轴向各振动 20 分钟,其中: 5~10HZ 频率范围的加速度频率为 10 m2/s3 , 10~200HZ 频率范围的加速度频率为 3 m2/s3, 200~500HZ 频率范围的加速度频率为 1 m2/s3

3.2.Drop in/跌落

6 Surfaces each once, Height: 80cm, on the cement plane

6 面各一次, 跌落高度: 80 厘米, 跌落到水泥面上。

3.3.MTBF Qualification/平均间隔故障时间估算

The MTBF shall be at least **50,000**hours at 25°C, Full load and normal input condition
平均间隔故障时间: 至少 **50,000** 小时,25°C 环境及额定输入与满载条件下

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

The lifetime of electrolyte capacitor shall be at least **26280**hours at 30°C of full load and **115Vac/230Vac** input condition
电解电容寿命至少 **26280** 小时,30°C 环境及 **115Vac/230Vac** 输入与满载条件下

4、EMI/EMS Standards/EMI/EMS 标准

4.1.EMI Standards/EMI 标准

EN 55032: 2015
EN 61000-3-2:2014
EN 61000-3-3:2013
满足最新标准

4.2.EMS Standards/EMS 标准

EN 61000-4-2:2009	Electrostatic Discharge(ESD): 15kV air discharge, 8kV contact discharge
EN61000-4-3 : 2006+ A1 : 2008 + A2: 2010	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN61000-4-4: 2012	Electrical Fast Transient/Burst-EFT ±2kV
EN 61000-4-5:2014	Surge Immunity Test: Differential mode ±2kV,Common mode ±4kV
EN61000-4-6: 2014	Conducted Radio Frequency Disturbances Test-CS
EN61000-4-8: 2010	Power Frequency Magnetic Field Test
EN61000-4-11:2004	Voltage Dips

5、Safety Standards/安规标准

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

Primary to Secondary: **3000Vac / 3.5mA / 60 seconds**
Or **4242Vdc / 3.5mA / 60 seconds**

初级对次级: **3000Vac / 3.5mA / 60 秒**
或 **4242Vdc / 3.5mA / 60 秒**

5.2.Leakage Current/漏电流

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

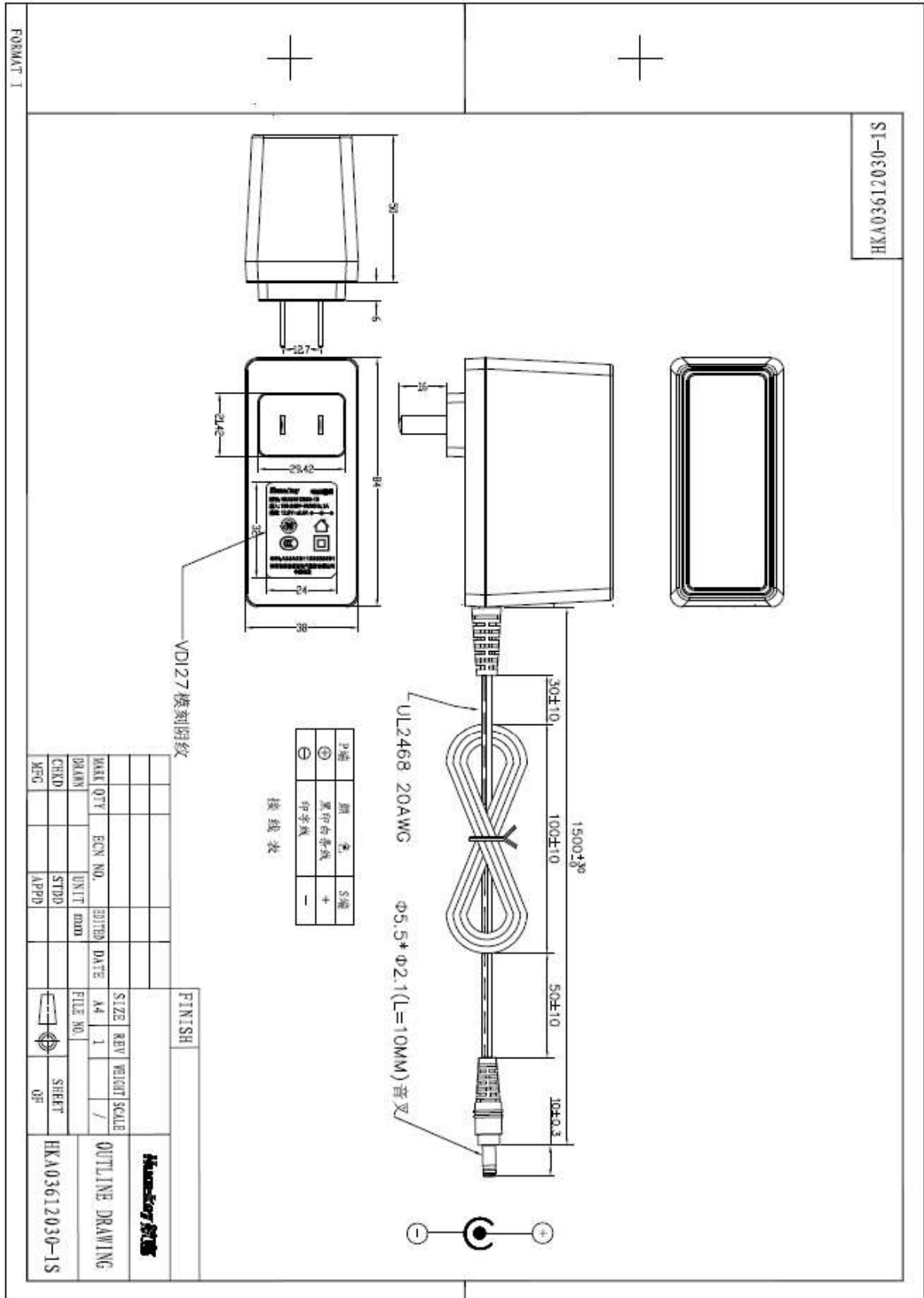
5.3.Insulation Resistance/绝缘阻抗

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**

5.4.Regulatory Standards/安规标准

Type	Country	Standard	Type	Country	Standard
<input 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

6、Mach. Outline Drawing/外观图



7、Label Drawing/标贴图

技术要素:

- 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砂纸摩擦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: 日期以供应商送货日为准(即航嘉产品的出货日)
字体为Arial Unicode Ms

S/N: A36A2G1123000001

1. 制造日期
2. 机种名称
3. 客户代码
4. 制造日期
5. 产品流水号 (999999-000001)

S/N内容镭雕, 其它内容为模刻

模刻: 1:1

注:

- 1、生产线别: 用数字1-9、字母A-R表示, 由制造部门来控制(数字0, 字母I, 0不使用).
- 2、机种名称: 36代表36W系列, A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.

FORMAT

MARK QTY	EON NO.	EDITED	DATE	SIZE	REV	WEIGHT	SCALE
DRAWN	20180525	UNIT	mm	A4	01		1:1
CHKD	20180525	STDD	20180525			SHEET	
MFG	APPD	20180525			1 OF 1		

模刻

HKA03612030-1S