



厦门讯亨电子科技有限公司

产品承认规格书

SPECIFICATION FOR APPROVAL

客 户(CUSTOMER): _____

PART NAME (产品名称): SWITCHING POWER SUPPLY(开关电源)

MODEL NO. (产品型号): XH2400-2500

Internal model (内部型号): _____

PART SPEC (产品规格): 24V2.5A UL (LPS)

DATE (日 期): 2020-03-30

REVISION (版本号): REV1.0

生产商/Manufacturer:(签)		
制 作	审 核	批 准
MADE BY	CHECKED BY	APPROVED BY

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客户承认签字(印章) **Customer's Approval Stamp:**

承认日期: 年 月 日

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1. INTRODUCTION (介绍) :

This document define a switching power supply electronic process.
(本文件定义了一个开关电源的过程。)

2. INPUT REQUIREMENTS (输入规格要求) :

- 2.1 Operating Voltage range (工作电压范围) : 90-264VAC
- 2.2 Rated Input Voltage (额定输入电压) : 100-240VAC
- 2.3 Input Frequency Range (额定输入频率) : 50/60Hz +/-3Hz
- 2.4 Input Current (输入电流) : 1.5A max

3. OUTPUT REQUIREMENTS (输出规格要求) :

3.1 Output Voltage and Current (输出电压和电流)

Output (输出电压)	Output Regulation(V) (电压范围)		No Load (空载)	Rating Load(A) 额定负载
Voltage(V)	Minimum	Maximum	Current(A)	Continuous Current(A)
24V	22.8V	25.2V	0A	2.5A

3.2 Output Voltage Regulation (输出电压调整率)

The total output voltage regulation shall be +/-5%,including the effects of line voltage variations,load current,ripple and noise,and the AC component of the load current. (从输出端测试,输出电压调节为±5%,包括线路电压变化、负载电流、纹波和噪声的影响,以及负载电流的交流分量。)

3.3 Output Voltage Ripple (输出电压纹波)

The switching power supply shall not exceed the following limits in the indicated voltage for 60Hz or 50Hz ripple, switching frequency ripple and noise measured with 20MHz width. Ripple and Noise are measured at the end of output cables which are added a 0.1uF(104) Ceramic capacitor and a 22uF Electrolytic capacitor. (开关电源输出电压纹波小于以下限制值,电压纹波包括 50/60HZ 低频纹波及开关高频纹波,示波器测量时应设置 20MHZ 带宽限制,同时在示波器测量探头两端加上 0.1UF 瓷片电容及 22UF 电解电容。)

Output	Ripple
0-2.5A	<200mV

3.4 The ripple is measured by "peak to peak" (纹波的测量方法是峰到峰)

4. EFFICIENCY LEVEL (能效等级) :

- 4.1 When line input voltage AC 115V 50Hz/60Hz,the no-load condition power consumption shall not exceed 0.21W;(输入电压在 115Vac 时,空载功耗小于 0.21W)
- 4.2 When line input voltage AC 115V 60Hz and AC 230V 50Hz, ,average active efficiency of loading condition of output current 25%、50%、75% and 100% shall



be >88.00%; (输入电压在 115Vac 和 230Vac 时, 负载 25%, 50%, 75%, 100% 的平均效率大于 88.00%)

4.3 DOE level 6 compliant (符合 DOE level 6 能效)

5. DIELECTRIC STRENGTH (Hi-Pot) TEST (绝缘强度测试) :

Finished product withstands with AC 3300Vrms/50Hz, 5mA max, primary to secondary, 1 minute for type test.

Finished product withstands with AC 3300Vrms/50Hz, 5mA max, primary to secondary, 1 second for production test.

(成品输入输出端耐压标准: AC3300Vrms/50hz, 5mA MAX, 成品抽测一分钟, 产线生产测试 1 秒)

6. INSULATION RESISTANCE (绝缘阻抗) :

Primary to secondary: 100MΩ min at 500VDC.

(成品初次级绝缘阻抗: 100MΩ min at 500VDC)

7. PROTECTION (电气保护) :

7.1 Short Circuit Protection (输出短路保护)

If short circuit occurs, all the output should be protected. After the fault, the adapter automatically recovers. (电源输出端短路时, 电源会产生保护使电源不受损坏, 电源输出短路解除时, 电源会恢复正常输出)

7.2 Over Shoot (过冲保护)

The Output over shoot at turn-on shall not exceed 10% of normal voltage value with or without the load connected. (在开机后, 电源输出带额定负载或不带负载时, 输出电压过冲不超过正常输出电压的 10%)

7.3 Start-up time (启动时间)

The start-up time is less than 8 second (产品启动时间小于 8S) .

7.3.1 Output rise time less than 30ms (启动时输出的上升时间小于 30ms)

7.4 Over Current Protection (过流保护) :

Input Voltage (输入电压)	100V/60Hz	240V/50Hz
OCP(A) (过流点)	>5.0A	>5.0A

7.4.1 Overload 5.0A condition lasting for 1S (过载输出 5.0A 条件下持续工作 1S)

7.4.2 Overload 5.0A condition, output voltage less than 5% regulation



(variance) (过载电流在 2.0A 的条件下, 输出电压的误差小于 5%)

8.ENVIRONMENTAL CONDITIONS (环境条件) :

8.1 Temperature (温度)

Operating temperature: 0℃ to +40℃ (工作温度: 0℃ to +40℃)

Storage temperature: -20℃ to +60℃ (存储温度: -20℃ to +60℃)

8.2 Humidity (湿度)

Relative humidity: ≤95% (环境湿度: ≤95%)

8.3 Operating Ambient Altitude (工作海拔高度)

Altitude: 0-3000m (海拔高度: 0-3000 米)

8.4 Operating at the lower temperature (产品在低温环境)

At -0℃, with the rated voltage 100-240Vac charged to the primary and unloaded and full load on the secondary 8 hours, no abnormality in electric and mechanical characteristic, after 2 hours recovery at the room temperature.

(在 -0℃时, 输入电压在 100-240Vac, 输出在额定负载, 连续工作 8 小时, 然后经过 2 小时恢复到常温, 电气性能及机械性能没有损坏.)

8.5 Operating at the high temperature (产品在高温环境)

At +40℃, with the rated voltage 100-240Vac applied to the primary and unloaded and full Load on the secondary 8 hours, no abnormality in electric and mechanical characteristic, followed by 2 hours recovery at the room temperature.

(在 +40℃时, 输入电压在 100-240Vac, 输出在额定负载, 连续工作 8 小时, 然后经过 2 小时恢复到常温, 电气性能及机械性能没有损坏.)

9. COOLING (冷却) :

Cooling shall be with natural convection cooling.

(冷却是指电源放置室温下自然冷却) .

10. Burn-in (老化)

The burn-in test will be performed at least 4 hours at centigrade

degrees under full load Condition (产品需在老化室时经过 4 小时老化, 再测试) .

10.1 Burn-in test in 25℃ the ambient temperature the shell surface temperature less than 65℃ (老化测试在常温 25℃条件下, 外壳表面温度小于 65℃)

10.2 MTBF Number: More than 20,000 hours at rated load levels and an ambient temperature of 25℃; If 50% load and ambient temperature of 25℃ the MTBF will be 50,000 hours.

(平均无故障率大于 20,000 小时在额定负载和常温 25 度的条件下; 如果负载 50% 在常温 25 度下的平均无故障率为 50,000 小时)



11. Referenced standard (参考标准) :

11.1 EMI Standards (EMI 标准)

Reference EN50082-1, EN55022-B, GB-17625.1-2003, GB-9254-1998
产品符合: EN50082-1, EN55022-B, GB-17625.1-2003, GB-9254-1998

11.2 Safety Standards(安规标准)

The adapter shall be meet certified with the following safety standards.

UL60950-1, EN60950-1, GB4943-2001

(产品符合 UL60950-1, EN60950-1, GB4943-2001 安规标准)

11.3 Comply with certificate: “(符合证书)

Safety Certificate Name and Number	Test Standard
UL – E487555 /DK-60077-UL	IEC62368/UL62368
	CAN/CSA
	C22.2 No.62368-1-07
CB – DE 2-021395	IEC61558-2-16:2009+A1
	IEC61558-1:2005+A1
TUV-GS/CE – S 50359361	EN61558-2-16:2009+A1
	EN61558-1:2005+A1
CCC - A2016CCC0907-2391391	GB4943.1-2011
	GB9254-2008
	GB17625.1-2012
EMC- ED161221018E	EN55014-1:2006+A1
	EN61000-3-2:2014
	EN61000-3-3:2013
	EN55014-2:2015
KC - HU10920-17001A	K60950-1 (2011-12
BS - T50373713	BSEN61558-2-16:2009+A1
	BSEN61558-1:2005+A1
SAA - GMA-501378-EA	AS/NZS61558.2.16:2010
RCM – N5586	GMA-501378-EA
	AS/NZS CISPR22:2009+A1
BIS R-41074594	IS13252(part1):2010-A1+A2
FCC – SEM17095782	Part 15B

12. MOUNTING CONNECTORS (外部接口) :

12.1 AC Input Connector (输入接口)

Spec : C8 (fig8)

12.2 DC Output Cable (输出端接口)

Wire : UL1185 18AWG*2C L=1500mm Color: Black

Plug : 5.5*2.5*10mm Fork Groove plug



13. MECHANICAL FEATURES (结构特性) :

13.1 Dimension(Size) (尺寸)

Length (长) : 110.5mm

Width (宽) : 50.5mm

Height (高) : 33mm

13.2 Weight (重量)

The Power Supply unit (产品单个重量) : 220±10g

13.3 Vibration and shock (振动实验)

No Evidence of any mechanical or functional damage after the vibration and shock testing. (经过振动实验后,产品电气性能及机械性能没有损坏)

Test conditions (测试条件)		Acceptance Criteria (要求)
Frequency(频率)	10-55Hz	Nominal functional test should be satisfied after the test (产品电气性能及机械性能没有损坏)
Sweep (坐标)	For each axis(X,Y,Z)	
Displacement (位移)	0.15mm	
Periodicity (周期)	10	

13.4 Drop test (跌落实验)

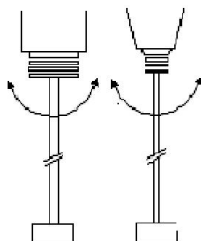
After Dropping from a height of 100 cm onto a wooden floor , Dropping at 6 sides totally, NO breakage should be happened in the test piece. (从高度 100 cm 自由掉落到木地板 , 每面一次,共 6 次, 产品电气性能没有损坏)

13.5 Bending Test (摇摆测试)

By using bending test equipment, to test each cord protect portion of DC Plug and AC Adapter with following conditions. (通过摇摆测试设备测试电源 DC 头, 产品需具备下表特性)

Test Conditions (测试条件)	
Weight for hanging (吊重)	2.9 N (300g)
Angle of rotation (旋转角度)	± 60°
Bending cycle (循环弯曲)	40 times / min.
Reciprocating time (重复次数)	2000

After the test,All function must work completely.Any internal changes must not be occurred which will damage the functions and cosmetics no broken and disconnection.

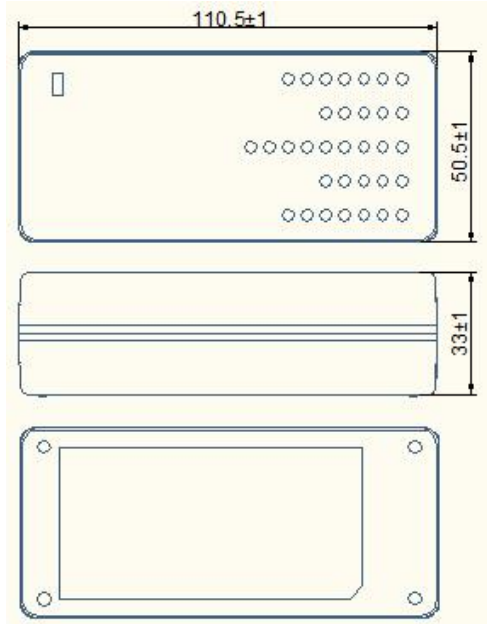




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14. DIAGRAM DATA (图纸) :(See to attach the diagram)

14.1. APPEARANCE DRAWING (外观图纸) :(Unit:mm)



NOTE (注意) :

Case Material (外壳材料) : PC+ABS ; Color (颜色) : Black(黑色);

14.2. NAME PLATE (铭板图纸) :(Unit:mm)

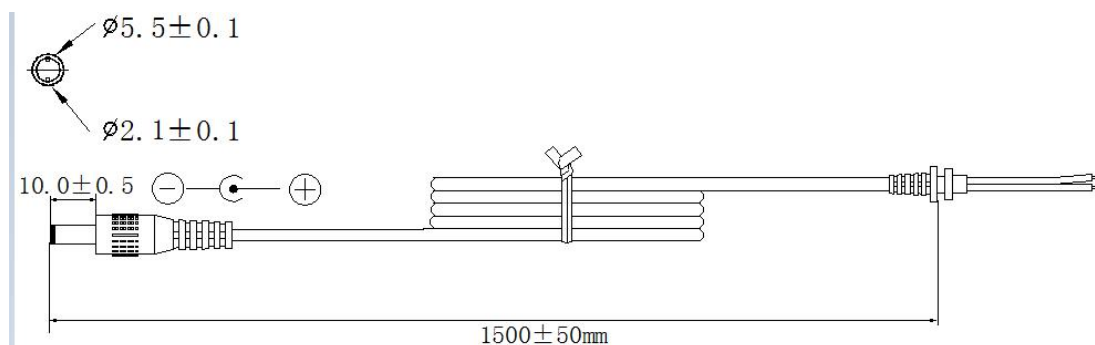




NOTE (注意):

1. 所有文字字体,间距,排列以图纸为准;
2. 黑底白字,字迹清楚。

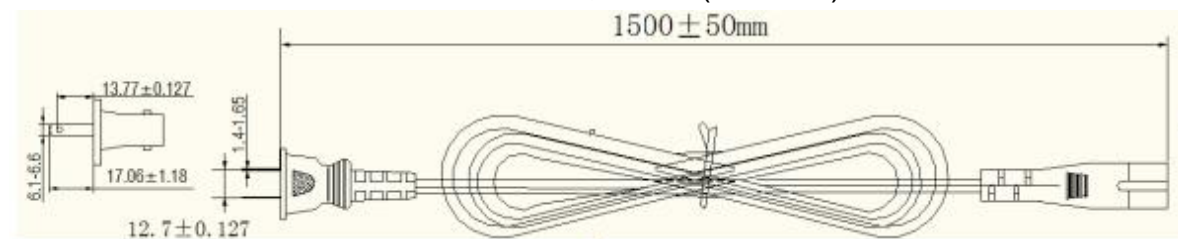
14.3. DIMENSION OF OUTPUT PLUG & DC CORD (DC 线图纸):(Unit:mm)



Remarks (说明):

- 1) DC Cable: UL1185 18AWG*2C L=1500mm Color: Black
- 2) PLUG (插头): 5.5*2.1*10mm Audio plug

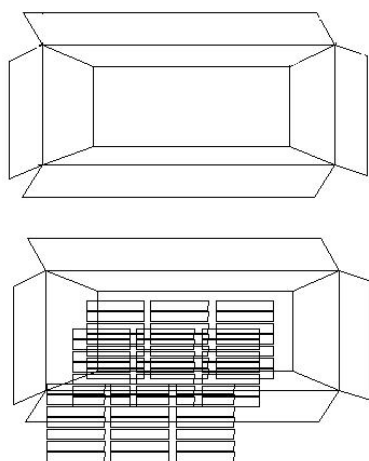
14.4. DIMENSION OF AC CORD (AC 线图纸):(Unit:mm)



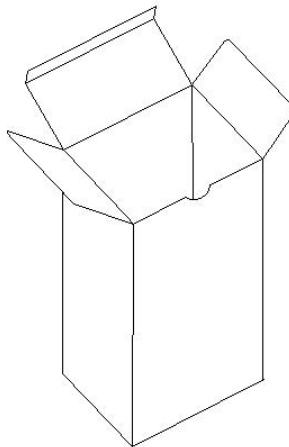
Remarks (说明):

- 1) AC Cord :UL C7 1.5M AC Cord SPT-2 2*0.824mm²

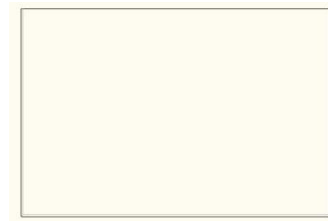
15. Packing Diagram(Unit:mm): (包装方式)



CARTON



WHITE BOX



PE BAG

Remarks:

包装方式为:CARTON (纸箱)+White Box (小白盒)+PE BAG (PE 袋)



16.TEST RESULT(测试结果):

16.1 Parameter (room temperature) Test (测试参数)

Reference Document(参考文档)		Test Operate Direct(测试操作指引)			
Test Conditions 测试条件	Test Location(测试地点)		Laboratory		
	Stabilization(稳定时间)		1Hour/s		
	Temperature(温度)		25 °C		
Test Equipment 测试仪器	Equipment 仪器	Manufac-t urer(厂商)	Type 类型	Number 编号	Checkout Date(校验日期)
	AC POWER SOURCE 电源	JINGJIU	JJ98DD	Xh-yfzx-01	2019.11
	DIGITAL POWER METER 数字功率计	YOKOGAW A	WT310E	Xh-yfzx-02	2019.11
	ELECTRONIC MAINFRAM 电子负载	PRODIGIT	3312D	Xh-yfzx-03	2019.11
	OSCILLOGRA PH 示波器	Tektronix	TDS 3032C	Xh-yfzx-04	2019.11
	Multimeter 万用表	FLUKE	15B+	Xh-yfzx-05	2019.11
	可程式恒温恒湿 试验机	ISPEC	SPEC -HT80L	Xh-yfzx-06	2019.11
	电磁兼容测试仪	FORWARD	EMC200A	Xh-yfzx-07	2019.11
Test Sample 测试样机	Sample Num. 样机编号	1# 2# 3#			
	Date Code 生产日期				
Test Results 测试结果	PASS				



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16.2 Test Data 测试数据

	Test Item 测试项目	Test Condition 测试条件	The rated range 额定范围	Room Temperture 常温				
				1#	2#	3#	4#	5#
INP UT PAR AMC TIC (输入 参数)	Full Load Power 满载功率	Vin.100 输入100V	<73W					
		Vin.240 输入240V						
	No Load Power 空载功率	Vin.115 输入115V	<0.21W					
	Input Current 输入电流	Vin.100 输入100V	<1500mA					
OUT PUT PAR AME TIC (输出 参数)	Output Voltage @Input Voltage 100V	0A 空载	22.8-25.2V					
		2.5A 满载	22.8-25.2V					
	Output Voltage @Input Voltage 240V	0A 空载	22.8-25.2V					
		2.5A 满载	22.8-25.2V					
	Ripple 纹波	0A 空载	<200mV					
		2.5A 满载	<200mV					
	Insulation R. (绝缘阻抗)	500Vdc	>100M Ω					
	Hi-Pot (高压)	3300Vac	$\leq$ 5mA					
测 试		确 认			批 准			
TESTED BY		DESIGNED BY			APPROVED BY			