



Via L.da Vinci, 47 -20030 Senago (MI)
Tel.029989684 info@larsonnuova.it
www.larsonnuova.com

SPECIFICATION FOR APPROVAL

CUSTOMER/客户 : 01061
ARTICLE/品名: SWITCHING MODE POWER SUPPLY
SPECIFICATION /规格: DESK-TOP
MODEL NO/产品型号.: 6480-4801000P
OUR PART NO./产品编号: 6480-4801000-20725
CUSTOMER P. N/客户料号:
INPUT/输入 : 100-240V AC 50/60Hz
OUTPUT/输出: 48.0V DC 10.0A
INPUT/输入 : 100-240V AC 50/60Hz
REV/DATE:/版本/日期: 01 2020/07/27

1. Compendium/简述

The document details the electrical, mechanical and environmental specifications of a SMPS, the power supply provides **480W** continuous output power.

资料详细描述了一款 **480 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** requirements.

此款电源符合 **RoHS** 要求.

1.1 Description/描述

SMPS Adapter(Wall mount)/插墙式适配器

SMPS Adapter(Interchangeable)/可换头适配器

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** with a 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	100Vac~240Vac	264Vac
Input Frequency/输入频率	47Hz	60Hz/50Hz	63Hz

2.2 Input AC Current/AC 输入电流

7.0Amax @ 100-240Vac input & Full load/在 **100 – 240 Vac** 输入和满载条件下最大 **7.0A** 有效值

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

The inrush current will not exceed **140A** at 100-240Vac input and Max load for a cold start at **25°C**

在 100-240V 交流电输入和最大负载冷启动环境 **25°C**时浪涌电流不能超过 **140A**

2.4 Average Efficiency/平均效率

While input 115Vac and 230Vac, the average efficiency is more than **87.5%**.

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 **87.5%**。

测试点分别是最大载的 **25%,50%,75%**和 **100%**。

2.5 Energy Consumption /空载功耗

While input 115Vac or 230Vac and the output is no load,the input power loss must be less than **0.5W**

在输入 **115Vac/230Vac** 时,空载功耗小于 **0.5W**

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 Rate	Rated Load/额定负载		Output Range 输出电压范围	R+N 纹波与噪声	Remark 备注
	Min. Load	Max. Load			
+48.0V	0.0A	10.0A	45.6V-50.4V	480mVp-p	

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1uF ceramic capacitor and a 10uF electrolysis 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 10uF 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 Rate	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			
+48.0V	0.0A	10.0A	± 3%	± 5%	

3.3 Turn - on Delay Time/开机延迟时间

3S max. @ 100 Vac to 240 Vac input & Full load
在 100Vac 到 240Vac 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 & 100Vac/60Hz input turn off at worst case
在 100Vac 输入,满载同时最差情况下关机, 最小 5mS

3.5 Capacitance Load/容性负载

While input 100~240Vac and capacitance load is 2200uF, the adapter can turn on normally and the output is in the rated range.

在输入 100~240Vac, 2200uF 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。

3.6 Output Overshoot / Undershoot/输出过冲/欠冲

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

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

the output shall not exceed 10% of the nominal output voltage, load fluctuation: from 20% to 80%, R/S: 0.5A/uS, frequency: 100Hz duration and 8mS at 80%.

输出电压不能超过额定电压的 10%,负载变化: 从 20%到 80%, 斜率: 0.5A/uS, 频率: 100Hz, 80%负载持续时间为 8mS.

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: $I > 13.0A$

The output shall hiccup when the over currents applied to the output rail, 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

The power supply shall protection when the output over voltage。

当输出发生过压时, 产品进入保护模式。

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 +80°C

5%RH to 95%RH non-condensing @ Sea level shall be low 10,000 feet/低于 10,000 英尺

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 at least 4 Hours under normal input and

80% rated load at 40°C ± 5°C

产品至少要在 40°C ± 5°C 的环境及 80%以上额定负载条件下煲机 4 小时

6.2 MTBF Qualification/平均间隔故障时间估算

The MTBF shall be at least 50,000hours at 25°C, Full load and nominal

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

7. EMI/EMS Standards/EMI/EMS 标准

7.1 EMI Standards/EMI 标准

- FCC Part15 class B
 EN55032
 AS/NZS CISPR32
 GB9254
 J55022
 KN22
 CNS13438
- EN55014-1
 AS/NZS CISPR14.1
 GB17625.1
 J55014-1
 KN14-1
- EN61204-3 (CISPR 22)
- GB13837
 J55013
 KN13

7.2 EMS Standards/EMS 标准

- EN55035
 EN55020
 EN55014-2
 EN61204-3

7.2.1 IEC 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	+/-4 KV	B

7.2.2 IEC 61000-4-4, electric fast transients(EFT) 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	0.5KV	A
AC-input/交流输入	1KV	B

7.2.3 IEC 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
Differential mode/差模 +/-1KV	A
Common mode/共模 +/-2KV	

7.2.4 Assessment criteria /评估标准

Acceptable criteria 可接受标准	Performance 性能
A	Performance is not allowed to be changed, any changes should be 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	During the testing process, the performance degradation is allowed within the specifications of the product specification. After the elimination, the equipment can return to normal and no reset or any manual intervention is allowed. 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。

8. Safety Standards/安规标准

8.1 Safety Accord with/安全:符合标准

- UL62368-1, CSA C22. 2 NO. 62368-1 UL60065, CSA C22. 2 NO. 60065
 UL1310
 IEC62368-1 IEC60065 IEC61558-1, IEC61558-2-16
 EN62368-1 EN60065 EN61558-1, EN61558-2-16
 AS/NZS 62368. 1 AS/NZS 60065 AS/NZS 61558. 1, AS/NZS 61558. 2. 16
 GB4943. 1 GB8898
 J60950-1 J60065 J61558-1, J61558-2-16
 K60950-1 K60065
 CNS14336-1 CNS14408

Note: AC pins corresponding to relative national standards.

注：相应的 AC 插脚对应相应国家的标准。

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

Primary to Secondary: **1500VAC** / **5mA**Max / 60second(3 seconds for mass production)

初级对次级: **1500VAC** / **5mA**Max / **60** 秒(生产时高压测试时间: **3** 秒)

8.3 Leakage Current/漏电流

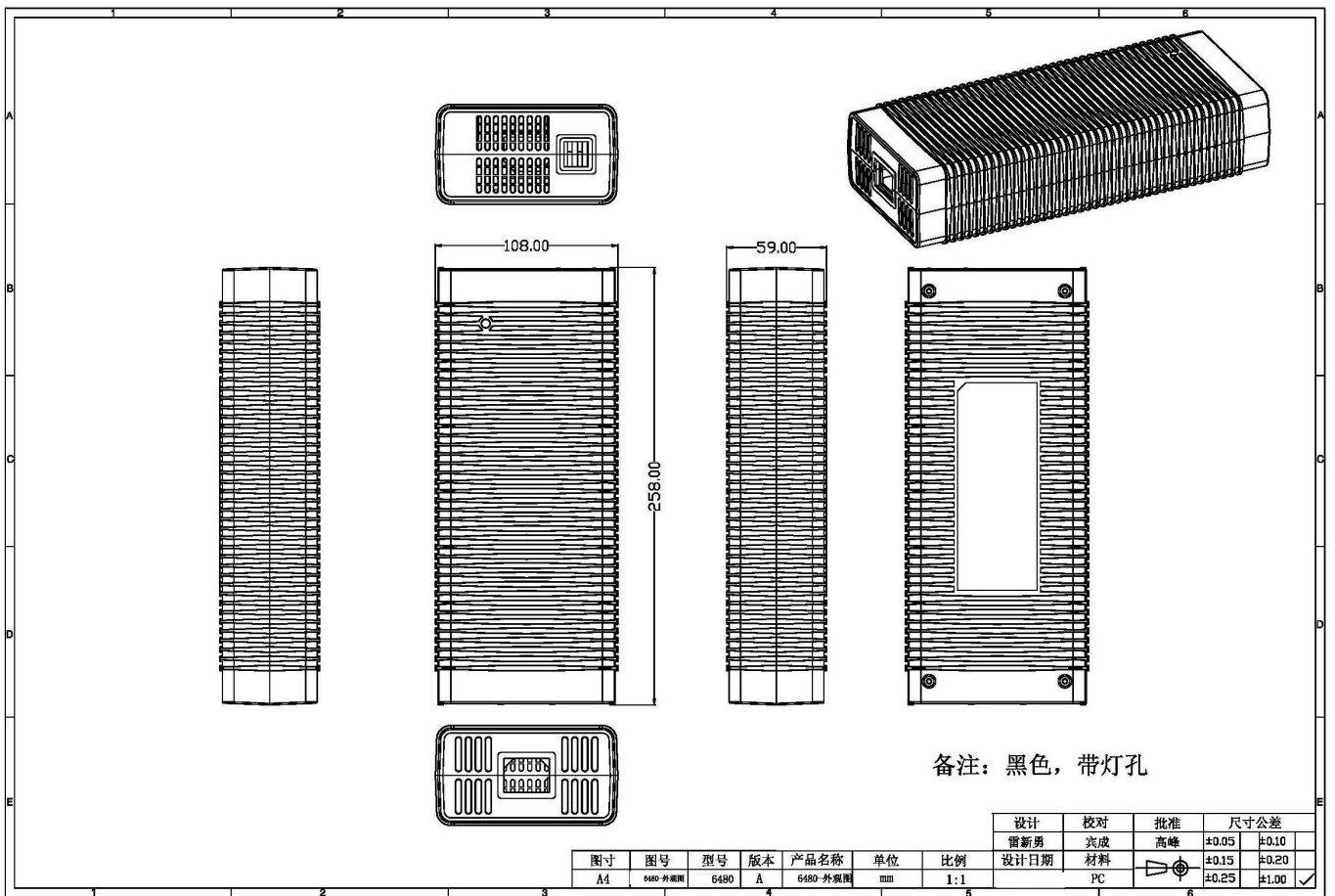
3.5mAmax. at 264Vac / 50Hz / 在 **264Vac** / **50Hz** 输入时, 最大漏电流 **3.5mA**

8.4 Insulation Resistance/绝缘阻抗

50M Ω min. at primary to secondary add 500Vdc test voltage

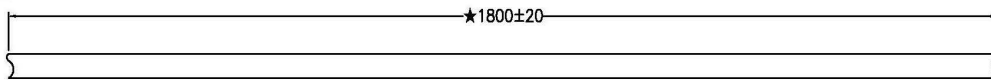
在初级与次级间加 **500Vdc** 进行测试,最小绝缘阻抗 **50M Ω**

9. Outline Drawing/外观示意图:



10. DC Cord Drawing/DC 线示意图:

半成品线材:



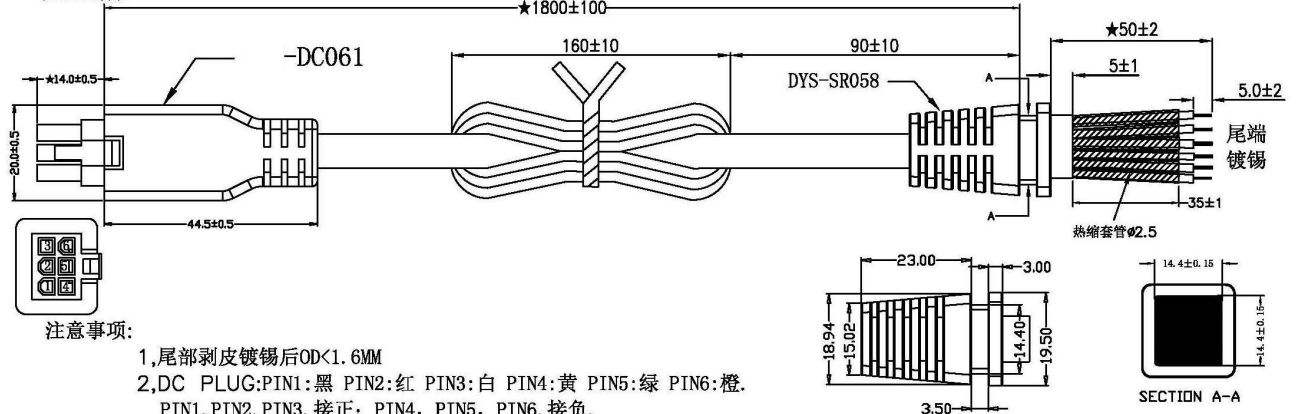
线材规格:

- 1, UL 2464 18AWG*6C 圆线 OD: 8.5 ± 0.1 , 外被黑色(印字)
- 2, 芯线颜色: 白, 绿, 橙, 黑, 红, 黄.

拉力试验:
5Kg SR不脱落. DC线本体至少承受10Kg的拉力.
摇摆试验:
荷重200g 120° 角, 45回/分钟4500次Min

芯线	黄, 绿, 橙	黄, 绿, 橙, 接负极.
颜色	黑, 红, 白	黑, 红, 白, 接正极.

成品线材:



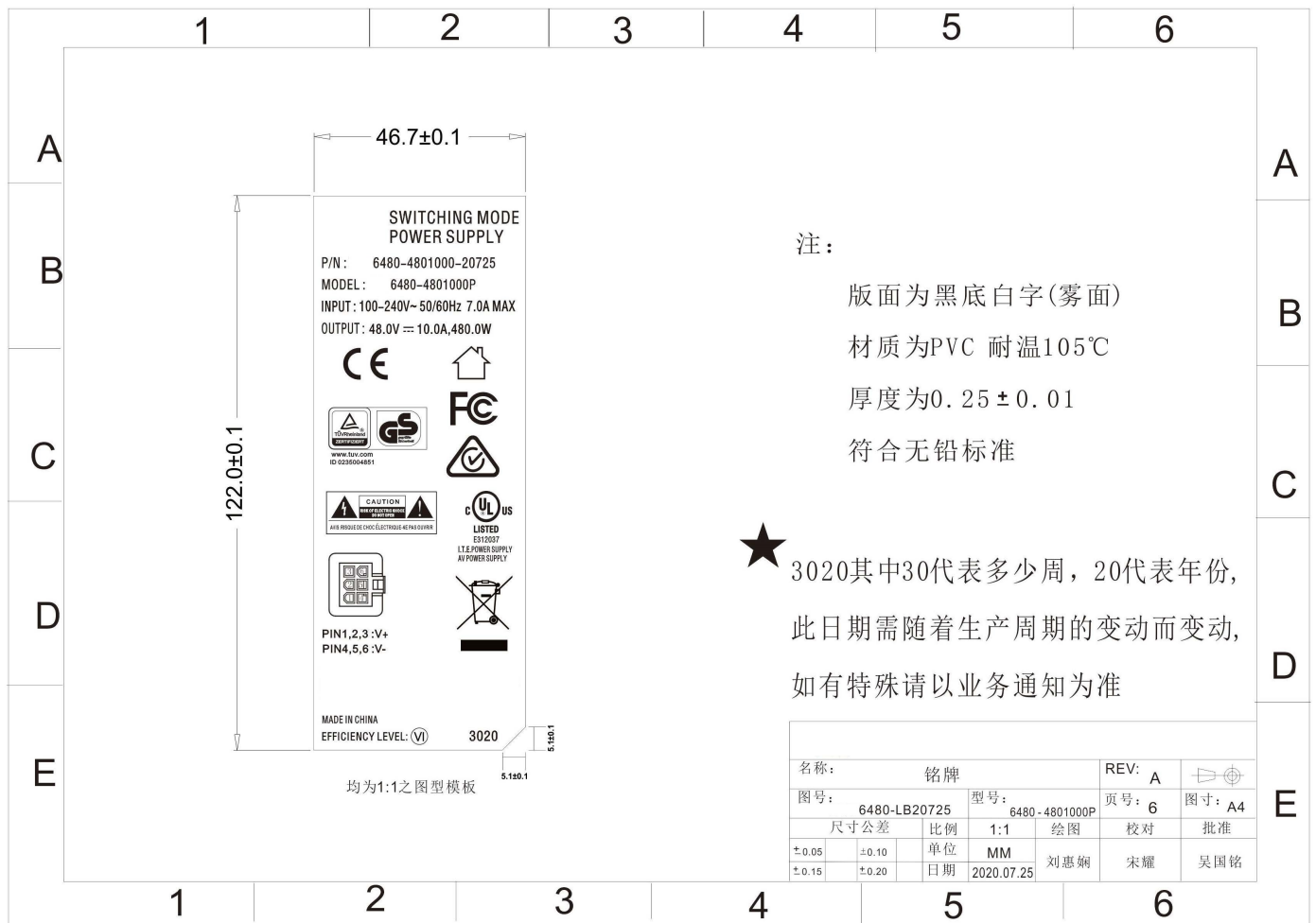
注意事项:

- 1, 尾部剥皮镀锡后OD<1.6MM
- 2, DC PLUG: PIN1: 黑 PIN2: 红 PIN3: 白 PIN4: 黄 PIN5: 绿 PIN6: 橙.
PIN1, PIN2, PIN3, 接正; PIN4, PIN5, PIN6, 接负.
- 3, SR SIZE: 14.4*14.4*3.5
- 4, 端子为MOLEX: 5556T 39-00-0038
连接器MOLEX: 6PIN 39-01-2060
- 5, 尾部剥皮镀锡后OD<1.6MM
- 6, ★符号为重要参数项

图号	图号	型号	产品名称	单位	版本
A4	-DC2450	6480	DC线	mm	A

设计	校对	批准	尺寸公差	
韦琴丽	宾成	高峰	±0.05	±0.10
设计日期	材料	PVC	±0.15	±0.20
			±0.25	±0.30

11. Marking Drawing/铭牌示意图:



注:

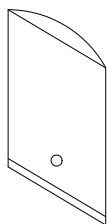
版面为黑底白字(雾面)
 材质为PVC 耐温105℃
 厚度为 0.25 ± 0.01
 符合无铅标准

★ 3020其中30代表多少周，20代表年份，此日期需随着生产周期的变动而变动，如有特殊请以业务通知为准

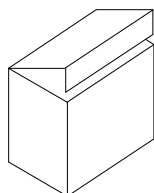
名称:	铭牌	REV:	A	
图号:	6480-LB20725	型号:	6480-4801000P	页号: 6 图寸: A4
尺寸公差	比例	1:1	绘图	校对
± 0.05	± 0.10	单位	MM	批准
± 0.15	± 0.20	日期	2020.07.25	刘惠娟 宋耀 吴国铭

12. Package Drawing/包装示意图:

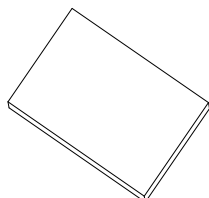
PLASTIC BAG/PE袋



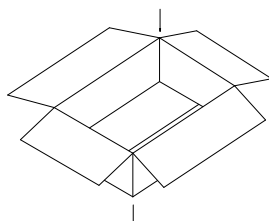
WHITE BOX/白盒



CARDBOARD/纸板



PAPER CASE/纸箱



MECHANICAL DIMENSION:

	L(mm)	W(mm)	H(mm)
PLASTIC BAG	370	240	
WHITE BOX	320	120	95
CARDBOARD	365	320	
PAPER CASE	375	330	320

PACKING METHOD:

PACKING METHOD	3PCS/LAYER *3LAYERS
QTY	9PCS
N.W	16.3Kg
G.W	17.8Kg

13. Sample Test Report/样品测试报告:

Customer:01061		Product Name: Swithing Mode Power Supply			P/N:DYS6480-4801000-20725				
Product Specification: AC100-240V 50/60Hz DC48.0V/10.0A				Safety: 桌上式					
Items	Testing Title		Test Result	Sample Number and Test Result					
	Items	Condition		1	2	3	4	5	PASS
Basic Electrical Characteristics	1、No load voltage	AC90V/60Hz	DC 48.0 ± 2.4 V	48.40					PASS
		AC180V/50Hz	DC 48.0 ± 2.4 V	48.40					PASS
		AC264V/50Hz	DC 48.0 ± 2.4 V	48.40					PASS
	2、Full Load voltage	AC90V/60Hz	DC 48.0 ± 2.4 V	47.86					PASS
		AC180V/50Hz	DC 48.0 ± 2.4 V	47.89					PASS
		AC264V/50Hz	DC 48.0 ± 2.4 V	47.89					PASS
	3、Full Load input power	AC90V/60Hz	FULL LOAD (W)	555.4					PASS
		AC180V/50Hz	FULL LOAD (W)	516.4					PASS
		AC264V/50Hz	FULL LOAD (W)	510.2					PASS
	4、Efficiency	AC115V/60Hz	≥ 87.50%(Average Of 25/50/75/100% Loads)	90.73					PASS
		AC230V/50Hz	≥ 87.50%(Average Of 25/50/75/100% Loads)	93.75					PASS
		AC115V/60Hz	/(10% Load)	86.24					
		AC230V/50Hz	/(10% Load)	85.40					
	5、Ripple & noise	AC90V/60Hz	≤480 mV(FULL LOAD)	220					PASS
		AC180V/50Hz	≤480 mV(FULL LOAD)	230					PASS
		AC264V/50Hz	≤480 mV(FULL LOAD)	240					PASS
	6、Standby power		< 0.5 W	0.46					PASS
	7、Short-circuit test		No output when short circuit happens work normally after recovery (100Vac)	0.02					
			No output when short circuit happens work normally after recovery (240Vac)	0.13					PASS
8、over-current		13.0 - 20.0 A (100Vac)	16.70					PASS	
9、over-current		13.0 - 20.0 A (240Vac)	16.40					PASS	
10、Noise test		40db MAX, 10CM	OK					PASS	
11、Hi-pot test		AC1500V 60S<5mA	OK					PASS	
12、Temperature rise		At normal temperature 25℃, case surface temperature rise ≤52℃	OK					PASS	
13、DC Cable size		Customer Request: 6PIN		6PIN				PASS	
Test status	1、High temperature		□ 60℃ ■ 80℃ ■ 48H □ 96H	OK				PASS	
	2、Low temperature		■ -20℃ □ -40℃ ■ 48H □ 96H	OK				PASS	
	3、Constant humidity		■ 40℃ 95%RH ■ 48H □ 96H	OK				PASS	
	4、Plugfest(male to female)		3000 times Min	OK				PASS	
	5、Burn-in test		≥8hours AC100/240V each 4H full load	OK				PASS	