



*Shenzhen Sunlight Electronic CO., LTD*

# 承認書

## SPECIFICATION FOR APPROVAL

DOE VI AC DC Adapter 15V 1.5A Power Supply Switching 1500mA 15 Volt Adaptor

**CUSTOMER:** \_\_\_\_\_

**DESCRIPTION:** ADAPTER

**SPECS:** 15V1.5A AC/DC ADAPTER

**MODEL NO.:** GA150015

**DATE:** Feb-28-2015

<b>APPROVAL SIGNATURE</b>		
<b>DATE:</b>	<b>DATE:</b>	<b>DATE:</b>

**PLEASE RETURN TO US ONE COPY OF “SPECIFICATION FOR APPROVAL” WITH YOUR APPROVED SIGNATURE**

**ADD : A Area, 3F , Building B, Xinshidai Gongrong Industrial Area, NO.2, Shihuan Road, Shilong Community , Shiyan Streets, Bao’an District, Shenzhen City, Guangdong.**

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## SPECIFICATION FOR APPROVAL

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### 2. FEATURE :

- INPUT : UNIVERSAL 100-240 Vac/50-60 Hz INPUT, WITHOUT ANY SLIDE SWITCH
- OUTPUT : +15.0V / 0-1.5A
- DIMENSION : 80.0(D)\*50.0(W)\*35.0(T)
- EFFICIENCY : 86.0% TYPICAL
- SAFETY : UL/CB/GS/SAA/PSE/LVD/CCC/BSMI
- EMI : FCC CLASS B / EN55022 CLASS B; CONDUCTED & RADIATED MEETED
- HIGH FREQUENCY DESIGN, LESS POWER CONSUMPTION
- OVER VOLTAGE PROTECTION, SHORT CIRCUITED PROTECTION, OVER POWER PROTECTION
- CAN BE USED AT TELCOMMUNICATION, COMPUTER, INDUSTRIAL CONTORLLER & OA SYSTEM

### 3. INPUT :

3.1 VOLTAGE	UNIVERSAL 100~240Vac,SINGLE PHASE
3.2 FREQUENCY	50HZ~60HZ
3.3 CURRENT	1.0A Max
3.4 INRUSH CURRENT	20A Max/110Vac;40A Max/240Vac (COLD STABT AT 25°C FULL LOAD)
3.5 EFFICIENCY	86.0% TYPICAL (AT NOMINAL LINE VOLTAGE FULL LOAD)
3.6 INPUT POWER DISSIPATION	UNDER 0.1W < ZERO LOAD 115V/60HZ INPUT
	UNDER 0.1W < ZERO LOAD 230V/50HZ INPUT

### 4. OUTPUT :

4.1 DC OUTPUT	VOLTAGE	+15.0V
	CURRENT	1.5A Max
	REGULATION	14.30V Min~15.0V Typ.~15.70V Max
	RIPPLE & NOISE	120mV Max
	TOTAL POWER	22.5W Max

NOTE : FOR RIPPLE & NOISE MEASUREMENT, USE A 20MHZ BAND WIDTH FREQUENCY OSCILLOSCOPF, AND ADD A 0.1uF MULTILAYER CAP. AND A LOW ESR ELECTROLYTICCAP. (10uF) AT OUTPUT CONNECTOR TERMINALS. (AT NOMINAL LINE VOLTAGE FULL LOAD)

### 5. PROTECTION :

5.1 OVER VOLTAGE PROTECTION	16.8V MAX. The power supply shall be hiccupped when output voltage reaches to its over voltage protection trigger point.
5.2 SHORT CIRCUIT PROTECTION	The power supply shall be hiccupped when operating any output in a short circuit condition.



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5.3 OVER POWER PROTECTION	The adapter provide protection at 120%~200% of rated output power, the adapter shall be hiccupped but not damage.
5.4 OVER CURRENT PROTECTION	3.0A MAX. The power supply shall be hiccupped when output current reaches to its over current protection trigger point.

NOTE : WHEN PROTECTION CIRCUIT IS WORKING THE POWER SUPPLY WILL HICCUPPED, ONCE THE ABNORMAL CONDITIONS ARE REMOVED. THE POWER SUPPLY WILL RESTART AUTOMATICALLY.

## 6. SAFETY AND EMI REQUIREMENT :

### 6.1 SAFETY REQUIREMENT

a. SAFETY : UL/CB/GS/SAA/PSE/LVD/CCC/BSMI

b. DIELECTRIC STRENGTH :5mA Max. CUT OFF CUREN

(1):PRIMARY TO SECONDARY	3000Vac FOR 1 MINUTE
(2):PRIMARY TO FRAME GROUND	3000Vac FOR 1 MINUTE

c. INSULAION RESISTANCE :

(1):PRIMARY TO SECONDARY	50 M OHMS min FOR 500Vdc
(2):PRIMARY TO FRAME GROUND	50 M OHMS min FOR 500Vdc

d. LEAKAGE CURRENT :

(1) : 100VAC / 60HZ	< 0.25 mA
(2) : 240VAC / 50HZ	< 0.25 mA

### 6.2 EMI/EMS REQUIREMENT

a. EMI : FCC CLASS B / EN55022 CLASS B; CONDUCTED & RADIATED MEETED

b. Electron Static Discharge(ESD) :

Applicable Standard	CONDITION	SPECIFICATION
IEC/EN 61000-4-2	Contact discharge performance is 4KV; Air discharge performance is 8KV	Normal operation shall be continued



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c. Lightning Surge :

Applicable Standard	CONDITION	SPECIFICATION
IEC/EN 61000-4-5	+/- 1KV (Line to Line) +/- 2KV (Line to Ground)	Normal operation shall be continued

d. Electric Fast Transients :

Applicable Standard	CONDITION	SPECIFICATION
IEC/EN 61000-4-4	+/-1KV for Power Supply Line	Normal operation shall be continued

## 7. OPERATION & ENVIRONMENT PERFORMANCE:

### 7.1 TEMPERATURE RANGE

OPERATING	-10°C ~ +40°C
STORAGE	-40°C ~+70°C

### 7.2 HUMIDITY RANGE (NON CONDENSING)

OPERATING	10% ~ 90% RH
STORAGE	5% ~ 95% RH

### 7.3 Product operating/storage test requirement :

TEST ITEM	CONDITION	SPECIFICATION
<b>High Temperature Storage TEST</b>	70 degree C for 72H	There is no malfunction and deformation to be found after TEST.
<b>High Temperature Operation TEST</b>	40 degree C for 16H	There is no malfunction and deformation to be found after TEST.
<b>LowTemperature Storage TEST</b>	-20 degree C for 72H	There is no malfunction and deformation to be found after TEST.
<b>Low Temperature Operation TEST</b>	0 degree C for 16H	There is no malfunction and deformation to be found after TEST.



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<b>Termal Shock Operation TEST</b>	Apply 2 cycle from 0 degree C to +40 degree C as 24 Hours as 1 cycle	There is no malfunction and deformation to be found after TEST.
<b>Termal Shock Storage TEST</b>	Apply 2 cycle from -20 degree C to +70 degree C as 2 Hours as 1 cycle	There is no malfunction and deformation to be found after TEST.

7.4 COOLING : SHOULD OPERATE WITHOUT FAN

7.5 M.T.B.F. : 30000 HOURS Min ; 25°C SEE CONDITION

### 8. MECHANICAL REQUIREMENT :

8.1 DIMENSION : 80.0(D)\*50.0(W)\*35.0(T)

8.2 DROP TEST : From a height of 100cm onto concrete or similar material.  
No impairment of normal function, breaking away of any parts or change

8.3 VIBRATION TEST : Non-operating but with packing. Shock acceleration 50 G, sin, 100Ms.  
Directions of force : X , Y , Z . One time at 6 directions. There is no malfunction and deformation to be found after TEST.

8.4 APPEARANCE : There shall not be any remarkable defects such as clack, distortion, uneven color, dirty nameplate and its peeling

8.5 Tensile Strength of the Cord : A static load of 100N is applied to the cord for 1 minute  
The cord should not be deteriorated

8.6 Cord Bending TEST : Hang the specified weight and swing it to one direction and return to the original position, then swing to the opposite direction and return to the original position .The strain relief shall be subjected to the specified cycles and speed. Weight 200 (g), Angle  $\pm 60$  degree, 800 times, Cycles in every minute 30, Distance 300mm.

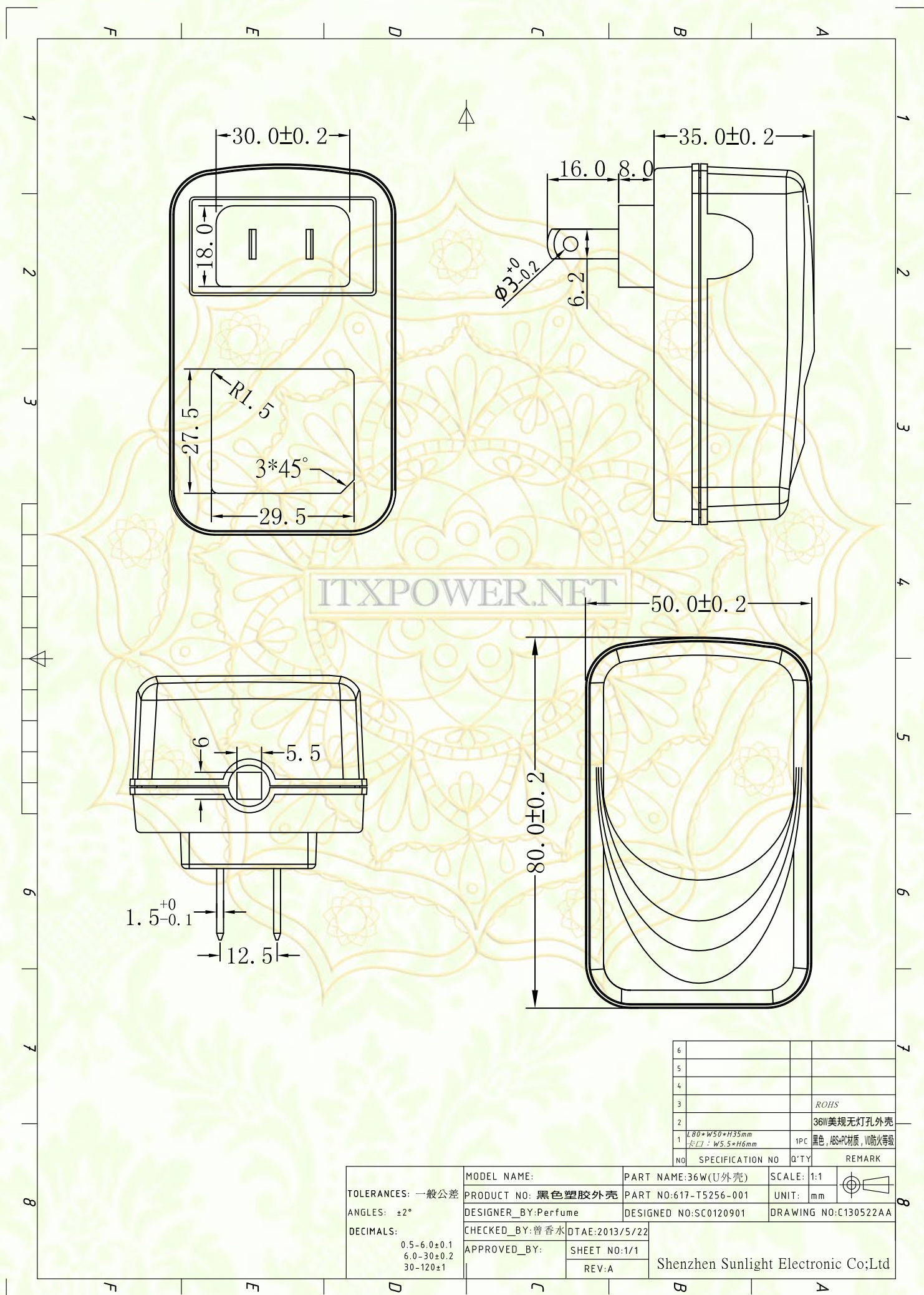
### 9. PRODUCT GUARANTEE : AFTER SHIPMENT 12 MONTHS.



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### 10. PRODUCT OUTLINE DRAWING:



6			
5			
4			
3			ROHS
2			36W美规无灯孔外壳
1	L80*W50*H35mm ±LJ: W5.5*H6mm	1PC	黑色, ABS+PC材质, V0防火等级
NO	SPECIFICATION NO	Q'TY	REMARK

<b>TOLERANCES:</b> 一般公差 <b>ANGLES:</b> $\pm 2^\circ$ <b>DECIMALS:</b> 0.5-6.0 $\pm 0.1$ 6.0-30 $\pm 0.2$ 30-120 $\pm 1$	MODEL NAME:	PART NAME:36W(U外壳)	SCALE: 1:1	
	PRODUCT NO: 黑色塑胶外壳	PART NO:617-T5256-001	UNIT: mm	
	DESIGNER_BY:Perfume	DESIGNED NO:SC0120901	DRAWING NO:C130522AA	
	CHECKED_BY:曾香水	DTAE:2013/5/22		
	APPROVED_BY:	SHEET NO:1/1	Shenzhen Sunlight Electronic Co;Ltd	
		REV:A		



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### 11. DC OUTPUT CORD DRAWING:



4			
3	线材尺寸: W5.4*H5.9mm	1PCS	与36W外壳新卡11配合
2	2468#20AWG PVC 80° 300V	1PCS	BLACK
1	Ø5.5*Ø2.1*L10mm 音叉接头无磁环	1PCS	

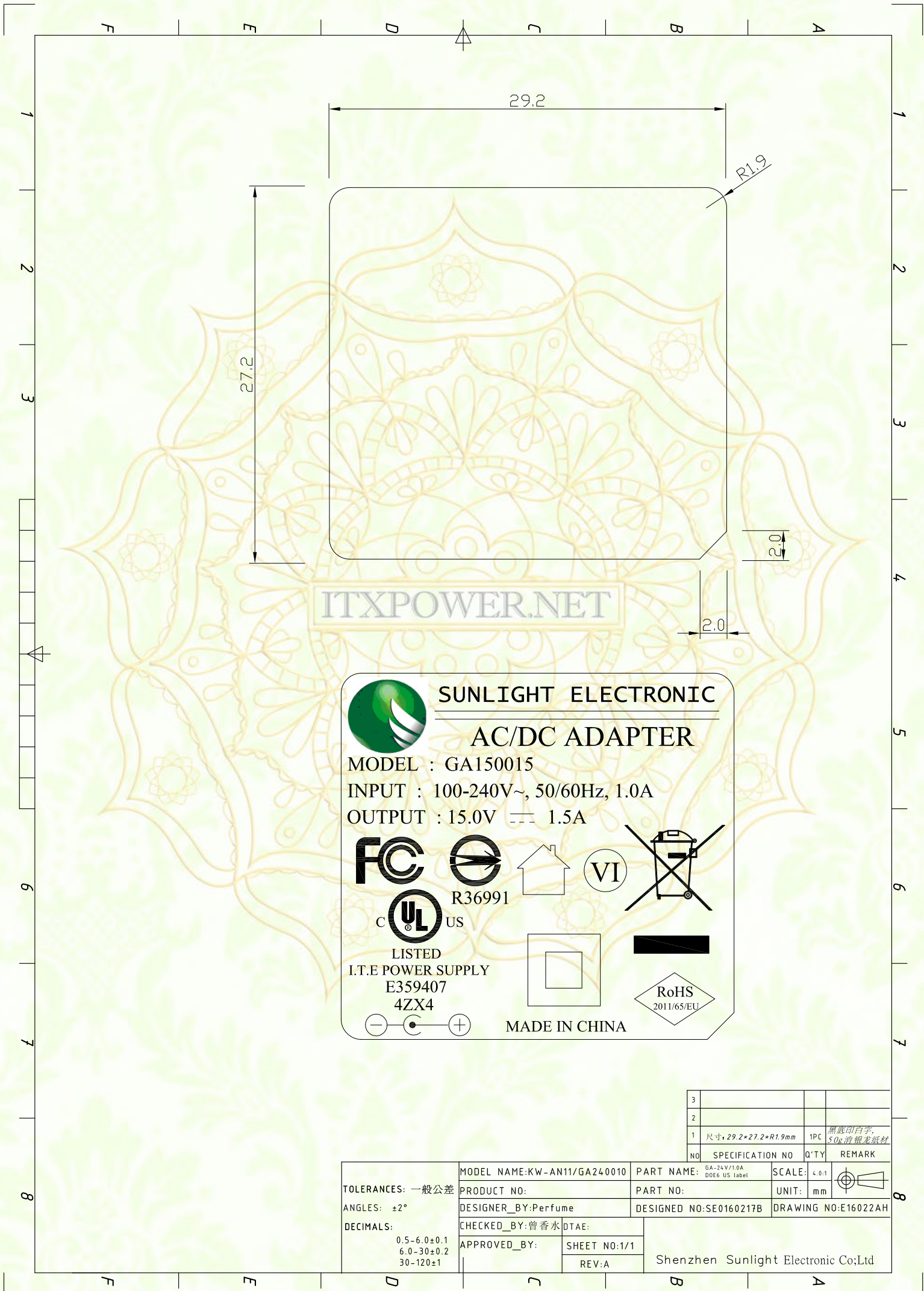
TOLERANCES: 一般公差 ANGLES: ±2° DECIMALS: 0.5-6.0±0.1 6.0-30±0.2 30-120±1	MODEL NAME:	PART NAME:DC线	SCALE: 1:1	
	PRODUCT NO:	PART NO:502-T2415-063	UNIT: mm	
	DESIGNER_BY:Perfume	DESIGNED NO:SW0160301	DRAWING NO:W16031AC	
	CHECKED_BY:	DTAE:	Shenzhen Sunlight Electronic Co;Ltd	
APPROVED_BY:	SHEET NO:1/1			
	REV:A			



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## SPECIFICATION FOR APPROVAL

### 12. RATING LABEL DRAWING :



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**SUNLIGHT ELECTRONIC**

**AC/DC ADAPTER**

MODEL : GA150015  
 INPUT : 100-240V~, 50/60Hz, 1.0A  
 OUTPUT : 15.0V 1.5A



LISTED  
 I.T.E POWER SUPPLY  
 E359407  
 4ZX4



MADE IN CHINA

3			
2			
1	尺寸: 29.2*27.2*R1.9mm	1PC	黑底印白字, 50g消银龙纸材
NO	SPECIFICATION NO	Q'TY	REMARK

TOLERANCES: 一般公差 ANGLES: ±2° DECIMALS: 0.5-6.0±0.1 6.0-30±0.2 30-120±1	MODEL NAME: KW-AN11/GA240010	PART NAME: GA-24V/1.0A DOE6 US Label	SCALE: 4.0:1	
	PRODUCT NO:	PART NO:	UNIT: mm	
	DESIGNER_BY: Perfume	DESIGNED NO: SE0160217B	DRAWING NO: E16022AH	
	CHECKED_BY: 曾香水 DTAE:	APPROVED_BY:		Shenzhen Sunlight Electronic Co;Ltd
	SHEET NO: 1/1	REV: A		



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### 13. PCB LAYOUT :

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### 14.TEST REPORT:

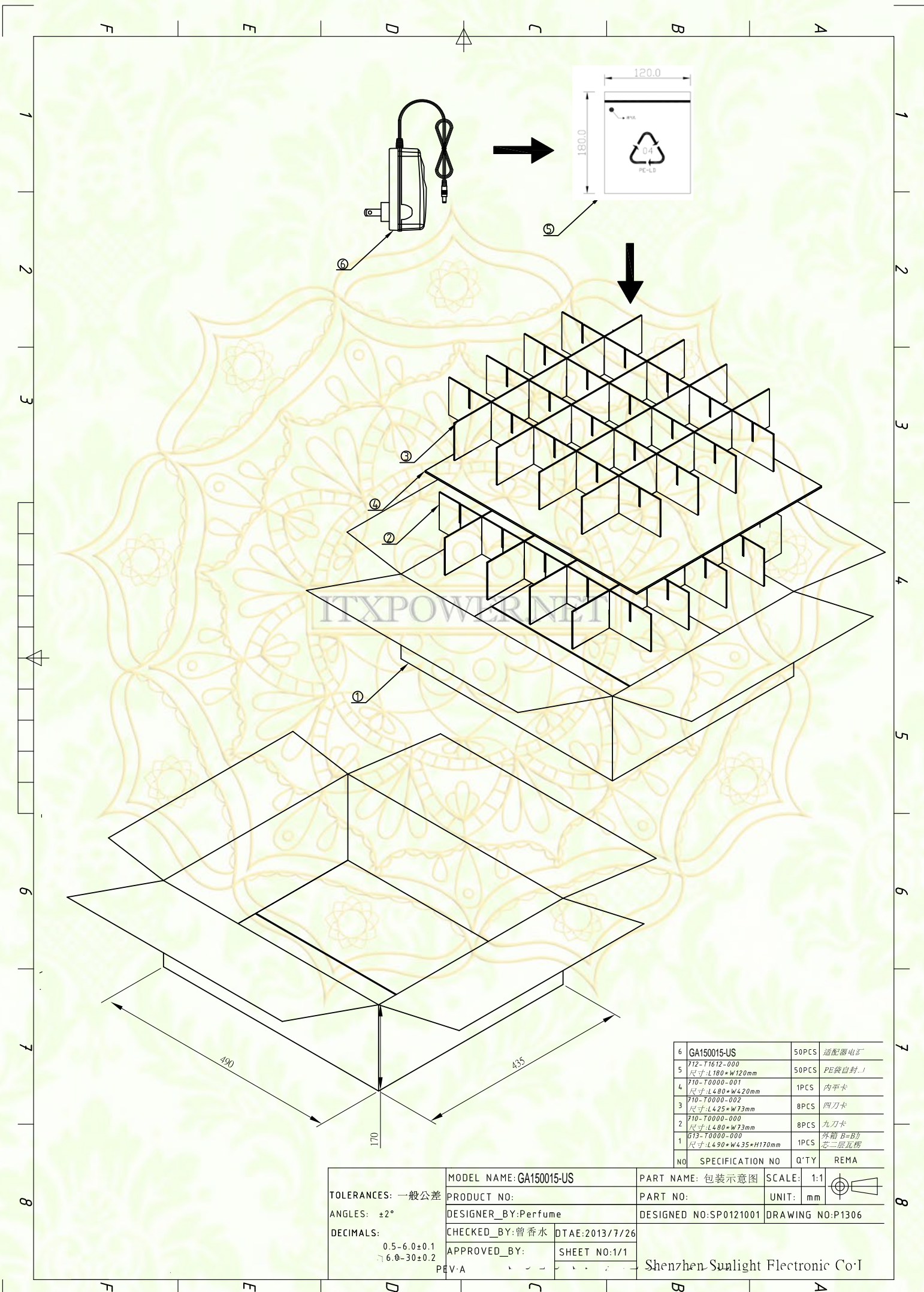
电源适配器样品测试报告											
客 户		客户编号		室 温	25℃						
产品型号	GA150015	产品编号	SAD1603-02	日 期	2015.01.12						
输入电压/频率	100Vac-240Vac	50/60Hz	输出电压/电流				15V 1.5A				
测试内容		1#样机				2#样机				判定	
测试项目	测试标准	90V	100V	240V	264V	90V	100V	240V	264V	PASS/NG	
空载电压	14.30V-15.70V	15.23	15.23	15.23	15.23	/	/	/	/	PASS	
空载纹波与噪声	≤120mV	51	50	47	43	/	/	/	/	PASS	
满载电压	14.30V-15.70V	15.02	15.02	15.02	15.02	/	/	/	/	PASS	
满载纹波与噪声	≤120mV	68	65	56	55	/	/	/	/	PASS	
最大输入电流	<1000mA	483	469	198	191	/	/	/	/	PASS	
短路保护	无损坏, 可恢复 OK/NG	OK	OK	OK	OK	/	/	/	/	PASS	
过流保护	>1.8A <3.0A	2.09	2.12	2.36	2.4	/	/	/	/	PASS	
过压保护 (光耦开环)	<1V/满载	OK	OK	OK	OK	/	/	/	/	PASS	
启动延迟时间	< 4 s	3	2.8	2	2	/	/	/	/	PASS	
输出保持时间	> 10 ms	√	√	√	√	/	/	/	/	PASS	
上升时间	< 20 ms	16.5	15.9	15.3	15.1	/	/	/	/	PASS	
下降时间	< 30 ms	26.3	27.7	25.9	26.9	/	/	/	/	PASS	
开机过冲	< 5 %	0	0	0	0	/	/	/	/	PASS	
雷击电压	共模: (L/N-GND)	± 2KV				差模: (L-N)	± 1KV				PASS
绝缘强度测试	AC3.0KV 60S	< 5mA	泄漏电流 0.6mA: 绝缘击穿: <input type="checkbox"/> 有 <input checked="" type="checkbox"/> 无								PASS
绝缘阻抗测试	DC500V 60S	>100MΩ	绝缘阻抗 100MΩ: 绝缘击穿: <input type="checkbox"/> 有 <input checked="" type="checkbox"/> 无								PASS
泄漏电流测试	264V	<0.25mA	泄漏电流 0.06mA								PASS
能效测试	平均效率 > 85.96% 空载功耗 < 0.10W	输入电压	100%	75%	50%	25%	平均效率	10%负载效率 > 74.682%	空载输入功耗	PASS	
		115Vac	85.69%	86.39%	86.90%	86.92%	86.47%	83.56%	0.041W	PASS	
		230Vac	86.87%	87.62%	87.15%	85.61%	86.81%	80.23%	0.072W	PASS	
DC输出短路30分钟	264V输入	短路30分不损坏: <input checked="" type="checkbox"/> OK <input type="checkbox"/> NG: 可恢复工作: <input checked="" type="checkbox"/> OK <input type="checkbox"/> NG								PASS	
90V/264V输入时满载开关机测试	各10次	正常开机: <input checked="" type="checkbox"/> OK <input type="checkbox"/> NG								PASS	
PASS											
测 试					核 准				KIKIN		



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### 15. PACKING DRAWING :



6	GA150015-US	50PCS	适配器电源
5	F12-T1612-000 尺寸-L180*W120mm	50PCS	PE袋自封...
4	F10-T0000-001 尺寸-L480*W420mm	1PCS	内平卡
3	F10-T0000-002 尺寸-L425*W73mm	8PCS	四刀卡
2	F10-T0000-000 尺寸-L480*W73mm	8PCS	九刀卡
1	G13-T0000-000 尺寸-L490*W435*H170mm	1PCS	外箱 B=B功 芯二层瓦楞
NO	SPECIFICATION NO	Q'TY	REMA

<b>TOLERANCES:</b> 一般公差 <b>ANGLES:</b> ±2° <b>DECIMALS:</b> 0.5-6.0±0.1 7.0-30±0.2	MODEL NAME: GA150015-US	PART NAME: 包装示意图	SCALE: 1:1	
	PRODUCT NO:	PART NO:	UNIT: mm	
	DESIGNER_BY: Perfume	DESIGNED NO: SP0121001	DRAWING NO: P1306	
	CHECKED_BY: 曾香水	DTAE: 2013/7/26		
APPROVED_BY:	SHEET NO: 1/1	Shenzhen Sunlight Electronic Co.,L		
PEV: A				



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16. SAFETY LICENSE : (UL+FCC)

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