



*Shenzhen Sunlight Electronic CO., LTD*

# 承認書

## SPECIFICATION FOR APPROVAL

GB4706 CCC AC DC Adapter 12V 1.5A Power Supply Switching 1500mA 12 Volt Adaptor

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

**DESCRIPTION:** \_\_\_\_\_ **ADAPTER** \_\_\_\_\_

**SPECS:** \_\_\_\_\_ **12V1.5A AC/DC ADAPTER** \_\_\_\_\_

**MODEL NO.:** \_\_\_\_\_ **GA120015** \_\_\_\_\_

**DATE:** \_\_\_\_\_ **June-23-2014** \_\_\_\_\_

<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**

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## SPECIFICATION FOR APPROVAL

### 1. FEATURE :

- INPUT : UNIVERSAL 180-240 Vac/50-60 Hz INPUT, WITHOUT ANY SLIDE SWITCH
- OUTPUT : +12.0V /0-1.5A
- DIMENSION : 81.5(D)\*50.0(W)\*34.5(T)
- EFFICIENCY : 82% TYPICAL
- SAFETY : UL/CB/GS/SAA/PSE/LVD/CCC
- 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

### 2. INPUT :

2.1 VOLTAGE	UNIVERSAL 180~240Vac,SINGLE PHASE
2.2 FREQUENCY	50HZ~60HZ
2.3 CURRENT	1.0A Max
2.4 INRUSH CURRENT	20A Max/110Vac;40A Max/240Vac (COLD STABT AT 25°C FULL LOAD)
2.5 EFFICIENCY	82% TYPICAL (AT NOMINAL LINE VOLTAGE FULL LOAD)
2.6 INPUT POWER DISSIPATION	UNDER 0.3W < ZERO LOAD 180V/50HZ INPUT
	UNDER 0.3W < ZERO LOAD 230V/50HZ INPUT

### 3. OUTPUT :

3.1 DC OUTPUT	VOLTAGE	+12.0V
	CURRENT	1.5A Max
	REGULATION	11.40V Min~12.0V Typ.~12.60V Max
	RIPPLE & NOISE	120mV Max
	TOTAL POWER	18W Max

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

### 4. PROTECTION :

4.1 OVER VOLTAGE PROTECTION	14.2V MAX. The power supply shall be hiccupped when output voltage reaches to its over voltage protection trigger point.
4.2 SHORT CIRCUIT PROTECTION	The power supply shall be hiccupped when operating any output in a short circuit condition.



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## SPECIFICATION FOR APPROVAL

4.3 OVER POWER PROTECTION	The adapter provide protection at 120%~200% of rated output power, the adapter shall be hiccupped but not damage.
4.4 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 HICUPPED, ONCE THE ABNORMAL CONDITIONS ARE REMOVED. THE POWER SUPPLY WILL RESTART AUTOMATICALLY.

### 5. SAFETY AND EMI REQUIREMENT :

#### 5.1 SAFETY REQUIREMENT

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

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

(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

#### 5.2 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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## SPECIFICATION FOR APPROVAL

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

## 6. OPERATION & ENVIRONMENT PERFORMANCE:

### 6.1 TEMPERATURE RANGE

OPERATING	0°C ~ +40°C
STORAGE	-40°C ~+70°C

### 6.2 HUMIDITY RANGE (NON CONDENSING)

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

### 6.3 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>Low Temperature 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.

6.4 COOLING : SHOULD OPERATE WITHOUT FAN

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

### 7. MECHANICAL REQUIREMENT :

7.1 DIMENSION : 81.5(D)\*50.0(W)\*34.5(T)

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

7.3 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.

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

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

7.6 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.

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



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### ( I ). LINE REGULATION TEST

Test result:

Test condition	Spec.	Reading1	Reading2	Reading3
180Vac / 50% load	11.4~12.6V	12.01V		
230Vac / 50% load	11.4~12.6V	12.01V		
264Vac / 50% load	11.4~12.6V	12.01V		
180Vac / 50% load	11.4~12.6V	12.01V		
230Vac / 50% load	11.4~12.6V	12.01V		
264Vac / 50% load	11.4~12.6V	12.01V		

### (II). EFFICENCY TEST

Test result:

Test condition	Spec.	Reading1	Reading2	Reading3
180Vac / 100% load	82% Typical	82.1%		
230Vac / 100% load	82% Typical	83.2%		

### (III). LOAD REGULATION TEST

Test result:

Test condition	Spec.	Reading1	Reading2	Reading3
180Vac / 0% load	11.4~12.6V	12.26V		
180Vac / 50% load	11.4~12.6V	12.01V		
180Vac / 100% load	11.4~12.6V	11.78V		
264Vac / 0% load	11.4~12.6V	12.26V		
264Vac / 50% load	11.4~12.6V	12.01V		
264Vac / 100% load	11.4~12.6V	11.78V		

### (IV). RIPPLE & NOISE TEST

Test result:

Test condition	Spec.	Reading1	Reading2	Reading3
180Vac / 100% load	120mV Max	80mV		
230Vac / 100% load	120mV Max	75mV		



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### (VI). OVER VOLTAGE PROTECTION

Test result:

Test condition	Spec.	Reading1	Reading2	Reading3
180Vac / 100% load	Vout*(14.2V MAX)	OK		
230Vac / 100% load	Vout*(14.2V MAX)	OK		

### (VII). RISE TIME

Test result:

Test condition	Spec.	Reading1	Reading2	Reading3
180Vac / 100% load	50mS Max	38mS		
230Vac / 100% load	50mS Max	29mS		

### (VIII). OVER CURRENT PROTECTION

Test result:

Test condition	Spec.	Reading1	Reading2	Reading3
180Vac / 100% load	Iout*(120%~180%)	161%		
230Vac / 100% load	Iout*(120%~180%)	173%		

### (IX). SHORT CIRCUIT PROTECTION

Test result:

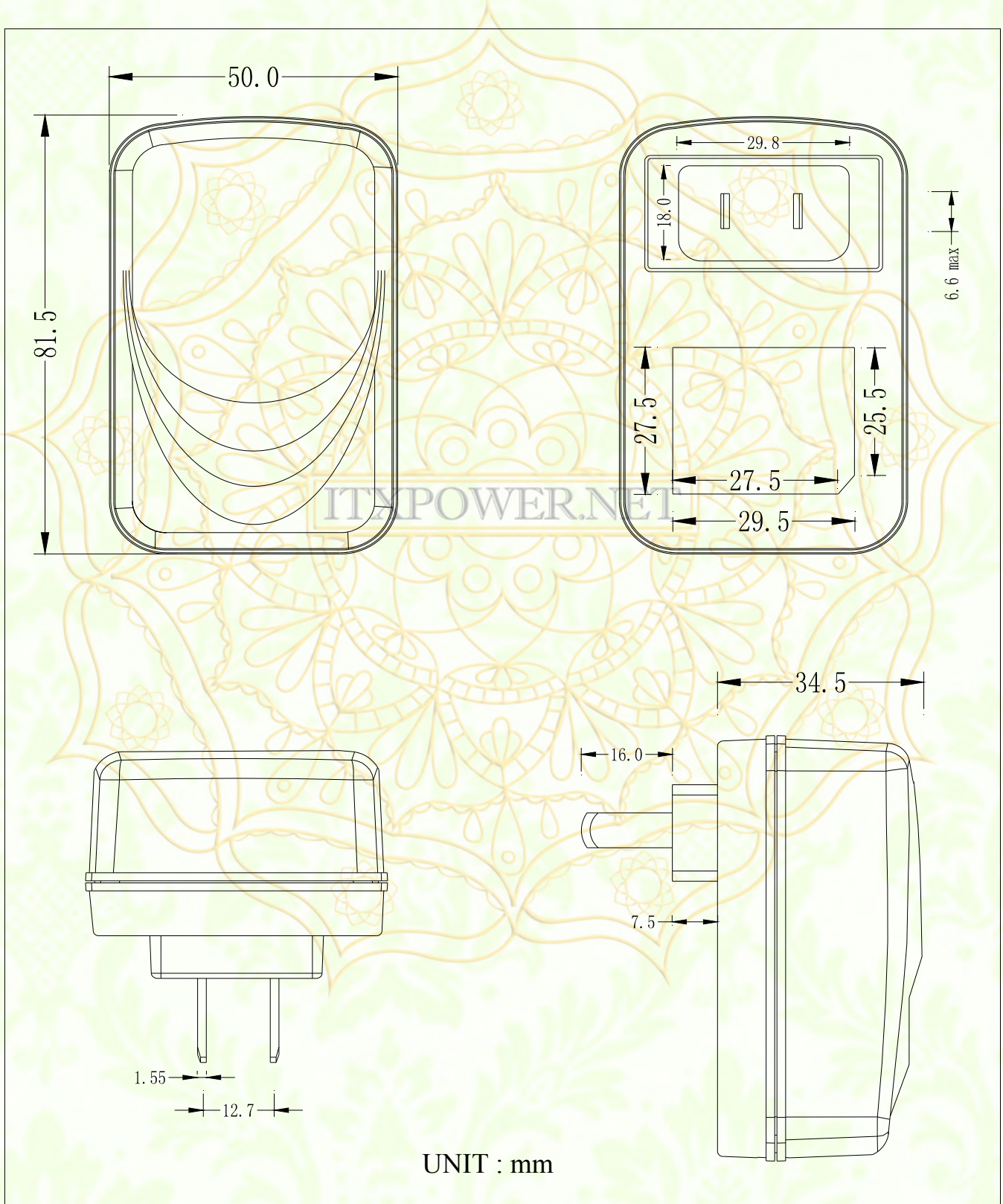
Test condition	Spec.	Reading1	Reading2	Reading3
180Vac / 100% load	Under 1.0W	OK		
230Vac / 100% load	Under 1.0W	OK		



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The housing is in black color. The appearance should be even, clear, no scar, no burr And Mechanical damages. There is no rust with the outer metal. The connector and Connector Plugs pin should be connect with the wire firmly. There is no looseness and fall. The housing should be fastness with ultrasonically welding.





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Output Wire and Connector:





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3C/GB4706 LABEL : (UNIT : mm)

### AC/DC ADAPTER

(插墙式) 电源适配器

MODEL(型号) : GA120015

INPUT(输入) : 180-240V ~, 50/60Hz, 1.0A

OUTPUT(输出) : 12V  $\overline{\text{---}}$  1.5A  $\oplus \ominus$



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