



*Shenzhen Sunlight Electronic Co., Ltd.*

# 承認書

## SPECIFICATION FOR APPROVAL

PSE AC DC Adapter 5V 0.5A Power Supply Switching 500mA 5 Volt Adaptor

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

**DESCRIPTION:** ADAPTER

**SPECS:** 5V500MA AC/DC ADAPTER

**MODEL NO.:** GA050050J

**DATE:** June-23-2014

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APPROVAL SIGNATURE

DATE:

DATE:

DATE:

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

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| REVISION CONTROL LIST |                        |       |                |         |
|-----------------------|------------------------|-------|----------------|---------|
| REV.                  | Descriptions Of Change |       | Changed Date : | ECN NO. |
|                       | Before                 | After |                |         |
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## SPECIFICATION FOR APPROVAL

### 1. FEATURE :

- INPUT : UNIVERSAL 100-240 Vac/47-63 Hz INPUT, WITHOUT ANY SLIDE SWITCH
- OUTPUT : +5.0V / 0-0.5A
- DIMENSION : 56.5(D)\*37.2(W)\*24.5(H)
- EFFICIENCY : 61.0% TYPICAL
- SAFETY : PSE/UL/CB/TUV/SAA/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 100~240Vac,SINGLE PHASE                           |
| 2.2 FREQUENCY               | 47HZ~63HZ   |
| 2.3 CURRENT                 | 0.3A Max  |
| 2.4 INRUSH CURRENT          | 5A Max/100Vac;10A Max/240Vac (COLD STABT AT 25°C FULL LOAD) |
| 2.5 EFFICIENCY              | 61.0% TYPICAL (AT NOMINAL LINE VOLTAGE FULL LOAD)           |
| 2.6 INPUT POWER DISSIPATION | UNDER 0.3W < ZERO LOAD 115V/60HZ INPUT                      |
|                             | UNDER 0.3W < ZERO LOAD 230V/50HZ INPUT                      |

### 3. OUTPUT :

|               |                |                               |
|---------------|----------------|-------------------------------|
| 3.1 DC OUTPUT | VOLTAGE        | +5.0V                         |
|               | CURRENT        | 0.5A Max                      |
|               | REGULATION     | 4.85V Min~5.0V Typ.~5.30V Max |
|               | RIPPLE & NOISE | 80mV Max                      |
|               | TOTAL POWER    | 2.5W 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)

### 4. PROTECTION :

|                              |   |
|------------------------------|---|
| 4.1 OVER VOLTAGE PROTECTION  | 7.2V 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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|                             |   |
|-----------------------------|---|
| 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 | 1.0A 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 : PSE/UL/CB/TUV/SAALVD/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;<br>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)<br>+/- 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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## SPECIFICATION FOR APPROVAL

|                                    |   |   |
|------------------------------------|---|---|
| <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 : 56.5(D)\*37.2(W)\*24.5(H)

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, 1000 times, Cycles in every minute 30, Distance 300mm.

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

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## SPECIFICATION FOR APPROVAL

### ( I ). LINE REGULATION TEST

Test result:

| Test condition    | Spec.      | Reading1 | Reading2 | Reading3 |
|-------------------|------------|----------|----------|----------|
| 90Vac / 50% load  | 4.85~5.30V | 4.95V    |          |          |
| 115Vac / 50% load | 4.85~5.30V | 4.95V    |          |          |
| 132Vac / 50% load | 4.85~5.30V | 4.95V    |          |          |
| 180Vac / 50% load | 4.85~5.30V | 4.95V    |          |          |
| 230Vac / 50% load | 4.85~5.30V | 4.95V    |          |          |
| 264Vac / 50% load | 4.85~5.30V | 4.95V    |          |          |

### (II). EFFICENCY TEST

Test result:

| Test condition     | Spec.         | Reading1 | Reading2 | Reading3 |
|--------------------|---------------|----------|----------|----------|
| 115Vac / 100% load | 61.0% Typical | 61.6%    |          |          |
| 230Vac / 100% load | 61.0% Typical | 62.3%    |          |          |

### (III). LOAD REGULATION TEST

Test result:

| Test condition     | Spec.      | Reading1 | Reading2 | Reading3 |
|--------------------|------------|----------|----------|----------|
| 115Vac / 0% load   | 4.85~5.30V | 5.08V    |          |          |
| 115Vac / 50% load  | 4.85~5.30V | 4.95V    |          |          |
| 115Vac / 100% load | 4.85~5.30V | 4.93V    |          |          |
| 230Vac / 0% load   | 4.85~5.30V | 5.08V    |          |          |
| 230Vac / 50% load  | 4.85~5.30V | 4.95V    |          |          |
| 230Vac / 100% load | 4.85~5.30V | 4.93V    |          |          |

### (IV). RIPPLE & NOISE TEST

Test result:

| Test condition     | Spec.    | Reading1 | Reading2 | Reading3 |
|--------------------|----------|----------|----------|----------|
| 115Vac / 100% load | 70mV Max | 50mV     |          |          |
| 230Vac / 100% load | 70mV Max | 50mV     |          |          |

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### (VI). OVER VOLTAGE PROTECTION

Test result:

| Test condition     | Spec.           | Reading1 | Reading2 | Reading3 |
|--------------------|-----------------|----------|----------|----------|
| 115Vac / 100% load | Vout*(7.2V MAX) | OK       |          |          |
| 230Vac / 100% load | Vout*(7.2V MAX) | OK       |          |          |

### (VII). RISE TIME

Test result:

| Test condition     | Spec.    | Reading1 | Reading2 | Reading3 |
|--------------------|----------|----------|----------|----------|
| 115Vac / 100% load | 50mS Max | 31mS     |          |          |
| 230Vac / 100% load | 50mS Max | 18mS     |          |          |

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### (VIII). OVER CURRENT PROTECTION

Test result:

| Test condition     | Spec.            | Reading1 | Reading2 | Reading3 |
|--------------------|------------------|----------|----------|----------|
| 115Vac / 100% load | Iout*(120%~200%) | 143%     |          |          |
| 230Vac / 100% load | Iout*(120%~200%) | 168%     |          |          |

### (IX). SHORT CIRCUIT PROTECTION

Test result:

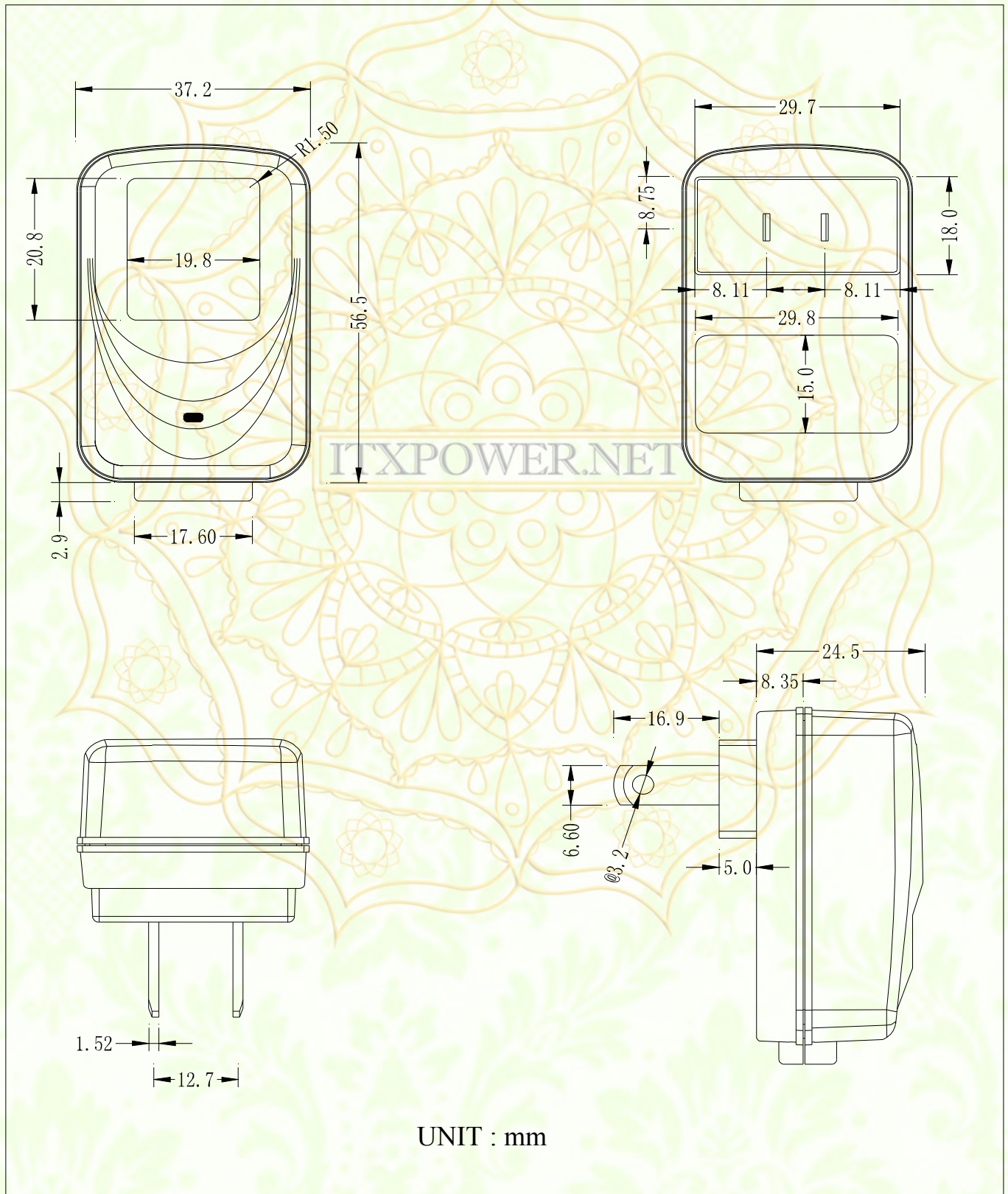
| Test condition     | Spec.      | Reading1 | Reading2 | Reading3 |
|--------------------|------------|----------|----------|----------|
| 115Vac / 100% load | Under 1.0W | OK       |          |          |
| 230Vac / 100% load | Under 1.0W | OK       |          |          |



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**Appearance and size(unit : mm) :** The housing is in white 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.

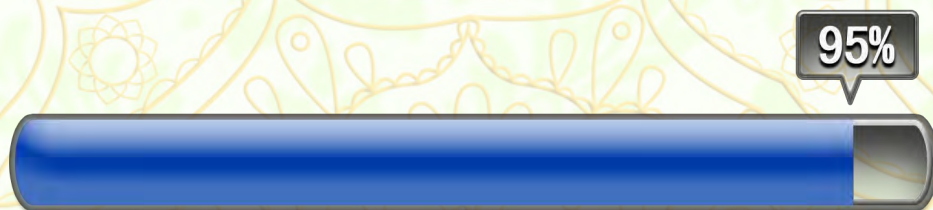


UNIT : mm

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## SPECIFICATION FOR APPROVAL

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## SPECIFICATION FOR APPROVAL

Japan LABEL : (UNIT : mm)



SUNLIGHT ELECTRONIC

AC/DC ADAPTER  
AC/DCアダプター

MODEL(機種) : GA050050J

INPUT (定格入力): 100-240V~, 50/60Hz, 0.30A

OUTPUT(定格出力) : 5.0V  $\overline{\text{---}}$  0.5A  $\oplus \rightarrow \ominus$



XXXX株式会社



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届出事業者