

SPECIFICATION FOR APPROVAL  
AC/DC ADAPTORCUSTOMER SPEC: INPUT: 100-240V AC 50/60Hz OUTPUT: 12.0V DC 2000mA

CUSTOMER DWG./PART NO. \_\_\_\_\_

PART NO. SW4047GSAMPLE NO: \_\_\_\_\_ REV.: A ISSUE DATE: 2015-07-10

PRODUCT NO: \_\_\_\_\_

Unit Color: Black



White



## APPROVED SIGNATURES/客户确认

核准/APPROVED BY	审核/ CHECKED BY:	检测/TESTED BY:

## Manufacturer/制造商

业务/SALES	品管/QE	核准/APPROVED BY	制样/DESIGNED BY
刘伊倩	周松平	贺洪明	陈彩云

*Project Modify List*

<i>Item</i>	<i>Content</i>	<i>Rev.</i>	<i>Date</i>	<i>Designed By</i>	<i>Checked By</i>
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## 1 GENERAL

### 1.1 Description

This specification defines the performance characteristics for a class II adapter, single-phase 24.0 watts. Single output level power supply.

- Simple design philosophy.
- Reliability level of 50K hours MTBF @ 25° C (rated input voltage, and using the BELLCORE SR-332 method).
- DC output voltage must be Safe Extra Low Voltage (SELV) & Limited Power as defined by IEC60950-1

The maximum room ambient temperature ( $T_{mra}$ ), as mentioned in clause 1.4.12 of IEC60950-1, for the external power supply is 40°C.

- Cooling: natural convection.

## 2 INPUT REQUIREMENTS

### 2.1 Input Conditions

The Supply shall operate over the voltage ranges as follows:

Rated input voltage	100-240Vac
Operating range	90-264Vac
Rated input frequency	50/60Hz +/- 3Hz
Rated input current	0.6A max.
Maximum input power	29.31W
Input current (no loading)	≤25mA
Power consumption (no loading)	Max. 0.1W
Primary current protection	An adequate internal fuse on the AC input line is provide.
Configuration	<u>2</u> Conductor

### 2.2 AC Inrush Current

No damage shall be occurred and the input fuse shall not be blown up nominal input voltage full load 25°C cold start.

## 3 OUTPUT REQUIREMENTS

3.1	Nominal dc output voltage	+12.0V
3.2	Minimum load current	0.0A
3.3	Rating load current	2.0A
3.4	Peak load current	/
3.5	Rating output power	24.0W
3.6	Line regulation	The line regulation is less than <u>±5%</u> while measuring at rated load and +/-10% of input voltage changing.

3.7	Load regulation	The load regulation for <u>+12.0V</u> is less than <u>+/-5%</u> , at measured output load from 10% to 100% rated load .
3.8	Peak load regulation	The peak load regulation for <u>+12.0V</u> is less than <u>/</u> , at measured output load from 30% to 100% rated load.
3.9	Ripple and noise	150 mVp-p
		Add 0.1uF/50V ceramic capacitor and 10uF/50V aluminum electrolytic capacitor across the output terminal. Measured with 20MHz Bandwidth Oscilloscope.
3.10	Switching efficiency	<u>86.2%</u> minimum
		115V/60Hz and 230V/50Hz, output current from 100%, 75%, 50%, 25%.
3.11	Turn on delay time	<u>4000 mS</u> At Rated input AC voltage and full load
3.12	Rise time	The Supply shall have a start-up rise time of less than <u>50Ms</u> to rise to within regulation limits for all DC outputs.
3.13	Hold up time	<u>7 mS</u> minimum At nominal input AC voltage and full load
3.14	Output over-shoot	Less than <u>7%</u> of nominal voltage value
3.15	Temperature coefficient	Output voltage temperature coefficient $\pm 0.05\%/^{\circ}\text{C}$
3.16	LED indication function	/
3.17	Protection function	
	Over-voltage protection	The output voltage shall be clamped by internal protection.
	Short-circuit protection	The adapter shall not be damaged by short the DC output to Ground.The adapter shall resume normal operation when a short circuited fault condition is removed.
	Over current protection	The power supply will be protection when output power at <u>110-200%</u> of all rated dc output

## 4 MECHANICAL

### 4.1 Enclosure And Layout

Plastic case: UL94V-1  
 Weight : /g (Max.)  
 Dimensions: 88.5x43.3x40 mm  
 Colour : BLACK

### 4.2 Input and Output Configuration

Input pin: International Pin  
 Output connector : dc plug type: 5.5\*2.1\*12mm(Fork and Groove) "L"  
 Polarity: Center:"+"  
 Cable: 6FT VW-1 80°C 300V 2468 18AWG 2C BLACK+WHITE  
(PAHS+REACH+RoHS)

## 5 REGULATORY COMPLIANCE

### 5.1 EMC Specifications

The external power supply must meet all specification in this section. It is recommended that the external power supply be tested with the customer's equipment in order to get the best EMC solution.

#### 5.1.1 Radiated and Conducted Emission

The power supply shall comply to:

FCC part 15: Class B for radiated and conducted emissions.

EN55022:2010+A1:2007, Class B for radiated and conducted emissions.

GB9254-2008, GB17625.1-2012

### 5.2 Immunity

#### 5.2.1 Electrostatic Discharge Immunity

EN 55024:2010, EN 61000-4-2

- Air Discharge:  $\pm 8\text{kV}$

- Contact Discharge:  $\pm 4\text{kV}$

- Performance Criteria B

Electrostatic-discharge test by contact or air should be conducted with Static-discharge tester, energy storage capacitance of 150pF, and discharge resistance of  $330\Omega$ , 8KV air discharge, 4KV contact discharge.

#### 5.2.2 Radiated Field Immunity

EN 55024:2010, EN 61000-4-3

- Frequency Range: 80-1000MHz

- Field Strength: 3 V/m with 80% amplitude modulation of 1kHz

- Performance Criteria A

Radio-frequency electromagnetic field susceptibility test, RS 80-1000MHz, 3V/m, 80%AM(1KHz).

#### 5.2.3 Fast Transient Immunity

EN 55024:2010, EN 61000-4-4

- Power line: 1kV

- Signal line: 0.5kV

- Performance Criteria B

#### 5.2.4 Surge Immunity

EN 55024:2010, EN 61000-4-5

- 1.2/50 usec Open Circuit voltage

- 8/20 usec Short Circuit current

- Power line: 1kV

- Line to Earth: 2kV

Lightning Surge Voltage shall be applied in differential and common mode to AC input lines and cross primary ac input and secondary GND.

## 5.3 Safety Requirements and Certification

### 5.3.1 Regulatory Standard

The power supply shall comply with the following international regulatory standards

for short	Country	Certified Status	Standard/标准
UL	USA/美国	MEET	UL 60950-1
TUV	Europe/欧洲	MEET	TUV/VDE-EN60950-1
CE	Europe/欧洲	MEET	Declared& CE Mark
UK	Britain/英国	MEET	BS EN60950-1
TCA	Australia/澳洲	MEET	AS/NZS60950-1

### 5.3.2 Additional Safety Requirements

- ⊙ Dielectric Withstand Voltage, Primary(input AC short)-to-Secondary(output DC short): 3000Vac, 5m A, 1 minute.
- ⊙ Insulation Resistance, Input to output: 20MΩ(MIN.) at 500VDC.
- ⊙ Reinforced insulation system, Primary-to-Ground and Primary-to-Secondary.
- ⊙ The leakage current shall not exceed 0.25mA.

## 6 ENVIRONMENTAL REQUIREMENTS

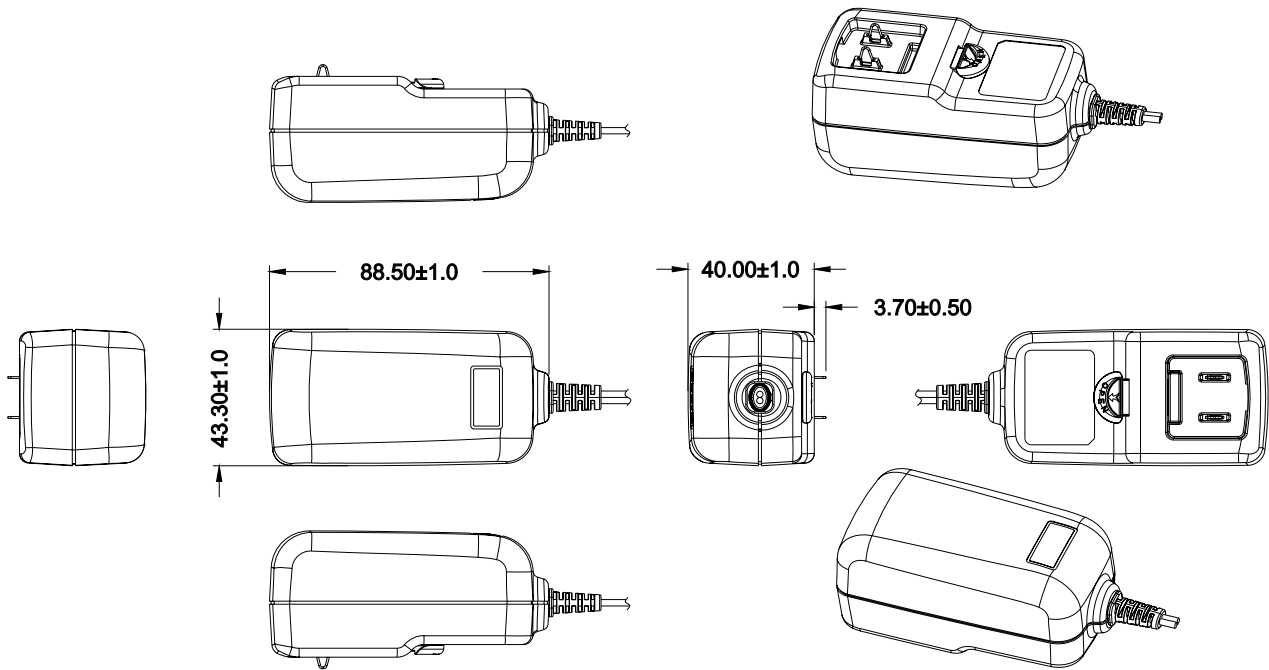
### 6.1 Temperature

- ⊙ Operating: 0 °C +40 °C
- ⊙ Non-Operating: -20 °C +80 °C

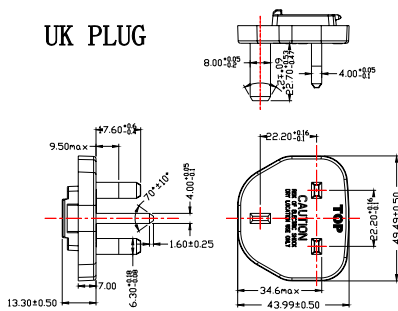
### 6.2 Humidity

- ⊙ Operating: 10%~90% (Non Condensing)
- ⊙ Non-Operating: 10%~90% (Non Condensing)

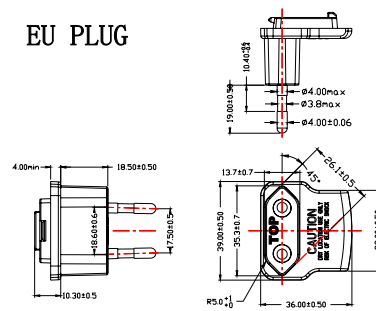
## 7 APPEARANCE DRAWING: (Unit: mm)



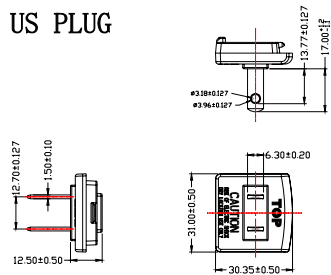
### UK PLUG



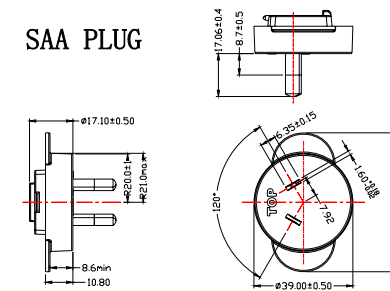
### EU PLUG



### US PLUG



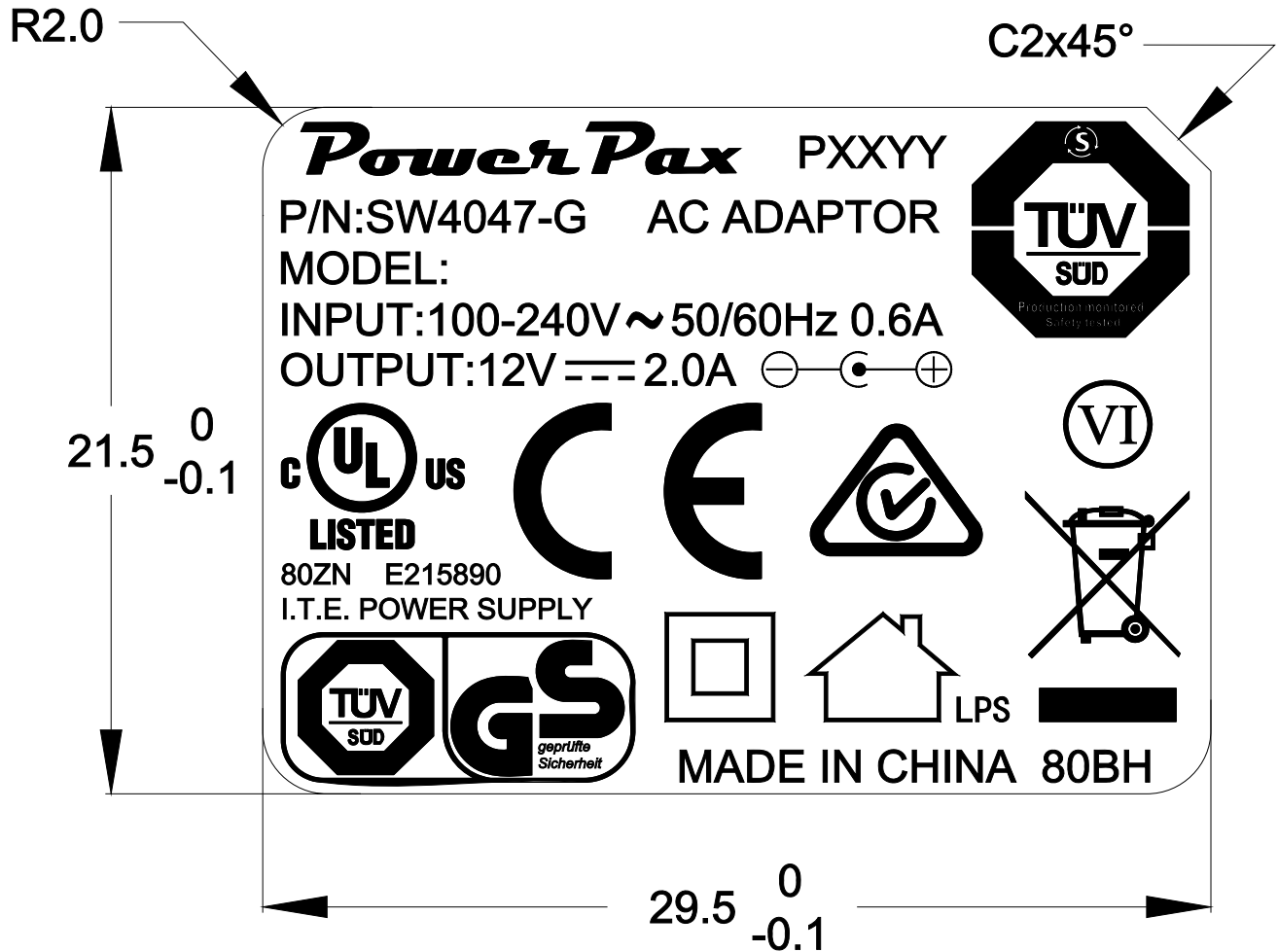
### SAA PLUG



NOTE: 1. Case cover & chassis material:  
 SE-1 BLACK (NO KTEC)  
 2. AC PIN MATERIAL: BRASS (NI PLATED)  
 3. PAHS+REACH+RoHS



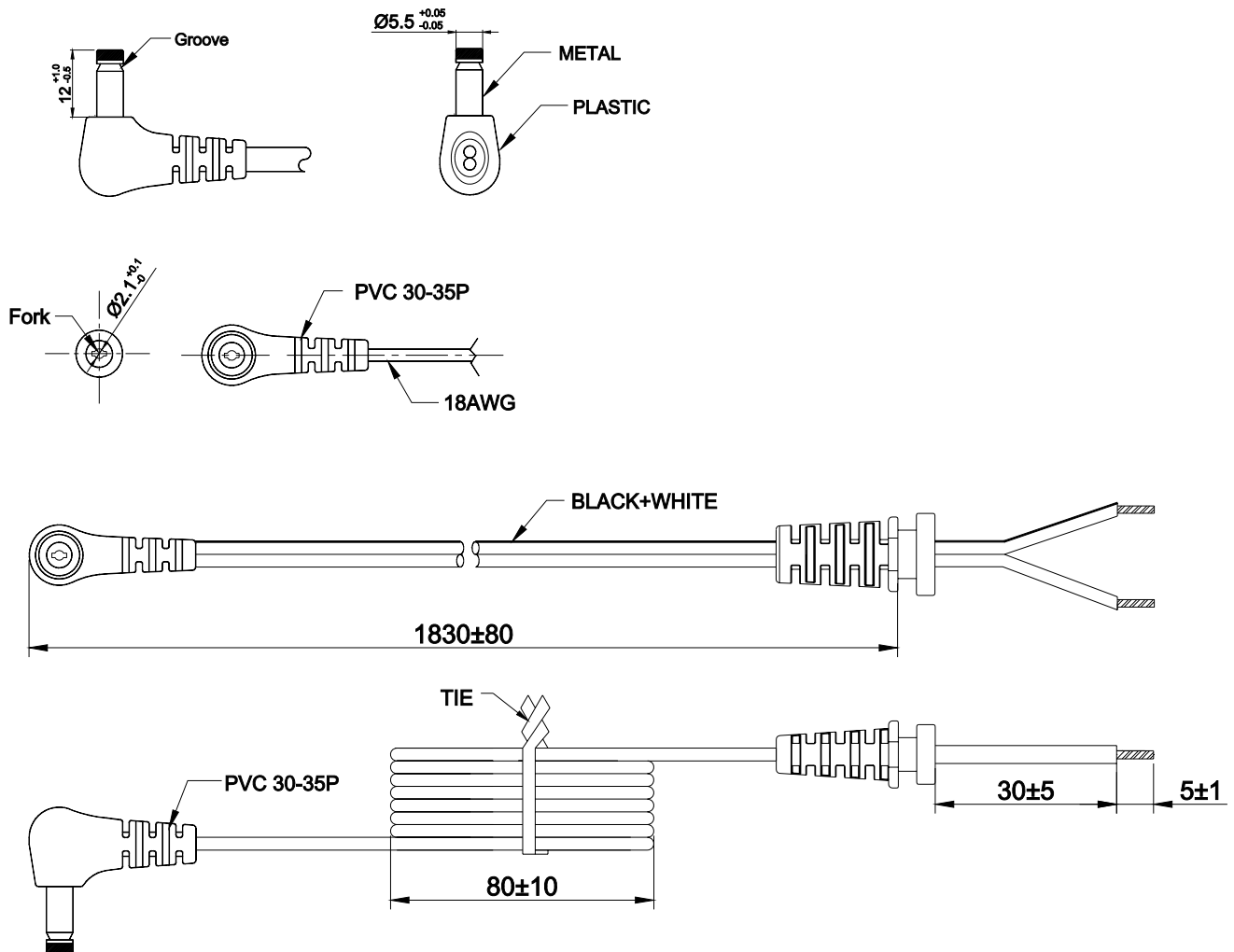
8 NAME PLATE:



Note:  1. MATERIAL: POLYESTER+PVC; COATING: 0.25+/-0.05mm  
White characters, Black background  
PAHS+REACH+RoHS

2. Laser 鐳射  
 Date code(PXXYY: P= PAHS+REACH+RoHS, XX=WEEK, YY=YEAR)  
 按实际生产日期

## 9 DIMENSION OF OUTPUT PLUG & DC CORD (Unit: mm)



NOTE: (unit:mm)

- 1). WIRE TYPE: VW-1 80°C 300V L=6FT(1830mm) 2468 18AWG 2C BLACK+WHITE  
BLACK and WHITE----Positive BLACK----Negative
- 2). THE POLARITY:  $\ominus \text{---} \oplus$
- 3). PAHS+REACH+RoHS

10 PACKING (Unit: mm)

此包装为公司标准品包装，可能与样品包装不同，请确认！

