

PowerPax UK Ltd

Approval Sheet

5 v d c 4 A AC/DC Adapter

Customer :

Customer Part No.:

Part No .: SW4127





Model No.: PA1030-050IB

Description: Input : 100V~240Vac

Output : DC5V/4000mA

Output Cable: UL2468 18AWG, plug: 5.5x2.1x12mm 90°

Approval No.: PA1030-050IB-520-01

	Approved	Checked	Drawing	Issued
Customer				
Powertron	Approved	Checked	Engineer	Issued
				
	Liliangjian	Xiyongping	ChenZhanhong	NingJiangYing

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Revision History

Approval No.	Description	Rev. date	Page	Rev No.
PA1030-050IB-520-01	Draft spec. released	2010/02/12	1/23~23/23	A0

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1. DESCRIPTION

This product is an 20W AC to DC plug-in, Class II, single output power device with constant voltage sources.

2. SCOPE

This specification is applied as description of electrical & mechanical characteristics for PA1030.

3. ELECTRICAL CHARACTERISTICS

3.1 Input Characteristics

3.1.1 AC input voltage

Rated input voltage: 100 ~ 240Vac

Operating input voltage range: 90~ 264Vac

3.1.2 AC input frequency

Rated Input frequency: 50/60 Hz

Operating input frequency range: 47~63 Hz

3.1.3 AC input current

Maximum: 800mA

3.1.4 AC inrush current

Inrush current will be less 45A at input 115Vac, 60A max/230VAC

cold start at input voltage 90-degrees cut angle for sine wave with full load.

3.2 Output Characteristics

3.2.1 Output voltage

Output voltage :DC 5V \pm 10%

3.2.2 Output current

Output current: 0~4000mA

3.3 Efficiency

3.3.1 The efficiency of power supply will be higher than 76% at input voltage range with average value.

3.3.2 Meet CEC regulation level IV.

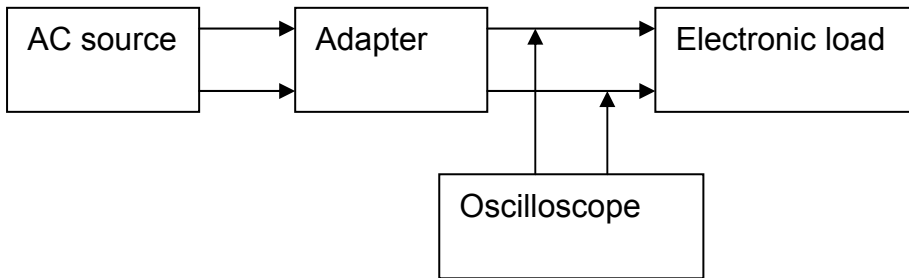
3.4 Ripple & Noise

Ripple limit: Output voltage 2% max.

Noise limit: Output voltage 2% max.

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Test condition: This is measured over bandwidth of 20MHz at the power supply output connector a 10 μ F electrolytic capacitor in parallel with a 0.1 μ F ceramic capacitor in 5 minutes after the supply starts up.



3.5 Turn on delay time & Rise time

3.5.1 Turn-on delay time

At turn on moment, From AC input voltage to output voltage rise to 90%, The time will less than 2 Secs. At input voltage range with full load.

3.5.2 Rise time

At turn on moment, The output voltage from 10% to 90% rise time will be less than 10mSecs. At input voltage range with full load.

3.5.3 Over shoot will be less than 8 % of normal voltage value.

3.5.4 Hold up time

At turn off moment, From AC input turn off to output voltage fall to 90%, The time will be more than 10mSecs. At input voltage range with full load.

3.6 Protection

3.6.1 Short circuit protection

When output short circuited, output voltage peak value will be less rating output voltage, AC input peak power will be less 5W at moment and with auto-recovery function

3.6.2 Over current protection

Over current protection point will be less than output current 220% with auto-recovery function.

3.6.3 Over voltage protection

Over voltage protection point will be less than output voltage 120%

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4 Safety & EMC requirement

Safety

Safety Refer Standards

UL(USA)	UL60950-1
CUL(Canada)	UL60950-1
CB scheme	IEC60950-1
TUV GS	EN60950-1
Taiwan	BSMI CNS14336

EMI

CE	EN55022:2006(Class B)	EN55024:1998/A1:2001/A2:2003
FCC	ANSI C63.4(2003)	Class B
VCCI	CISPR 22:1997+A1:2000	Class B
SMA	CISPR 22:1997+A1:2000	Class B
Australia C-Tick	SMA CISPR 22:1997+A1:2000	Class B AS/NZS CIPR22:2002
BSMI	CNS13438	

Referring Standards		Test Specification
ESD	IEC801-2	Contact $\pm 8KV$
		Air $\pm 15KV$
EFT	IEC801-4	2KV on AC power line.
SURGE	IEC61000-4-5	2.5KV on differential mode.

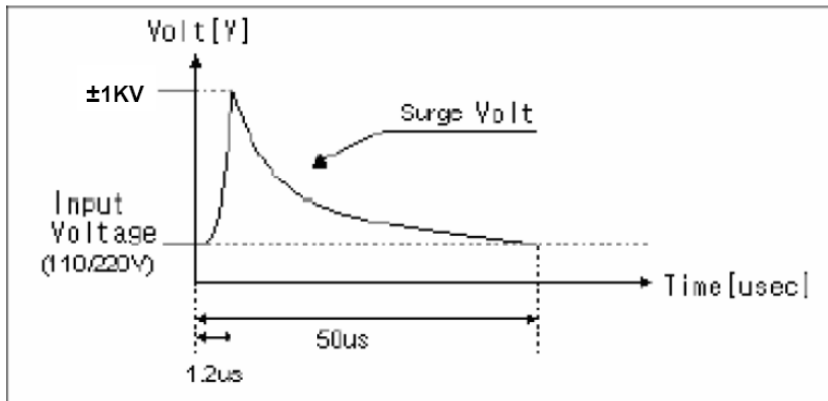
4.1 Surge Test

There must be no damage to the adaptor and it must continue to operate and meet all specifications after surge test.

Surge voltage condition: Full Load, voltage($\pm 1KV$)

Ring wave (0.5us/100KHz), -. Impulse(1.2/50us)

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4.2 Leakage Current

MAX Current: under 250uA

Y-capacitor between primary & secondary circuit is less than 4700pF.

4.3 HI-POT

Between primary to secondary: 3000Vac 50Hz for one minute,
3750Vac 50Hz for 3 Sec,

Test current will be less 10mA

Adapter is no damage after completion of the test

4.4 Insulation Resistance

Adapter will withstand 500VDC 50Mohms between input or output plug to plastic case

5. Reliability

5.1 MTBF

40,000 hour Power on at 25 °C

5.2 Temperature Rise (Delta-T).

Temperature rise will be less than 85°C and case temperature rise will be less than 35 °C
at normal AC input / DC output full loading

Environment temperature 25 ± 1°C

5.3 Burn-in

100% Burn - in at full loading and 4 hours at 40 +/- 5°C Environment temperature

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5.4 Drop Test

The adapter will be subjected to 3 drops from 1M height on a hard wooden surface.

5.5 AC input ON/OFF test (Dip test)

The adapter must meet all specifications after test.

AC input voltage: 115/230Vac

AC input ON/OFF cycle: min 5 Sec/ 5 Sec

AC input voltage drop: 30%/500mSec

AC input ON/OFF times: 10,000

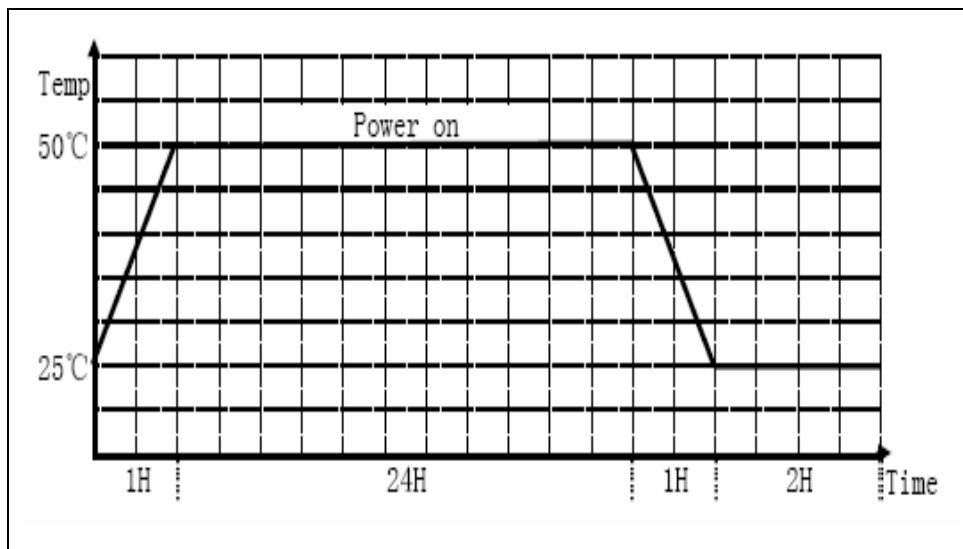
6. ENVIRONMENTAL CHARACTERISTICS.

6.1 Temperature

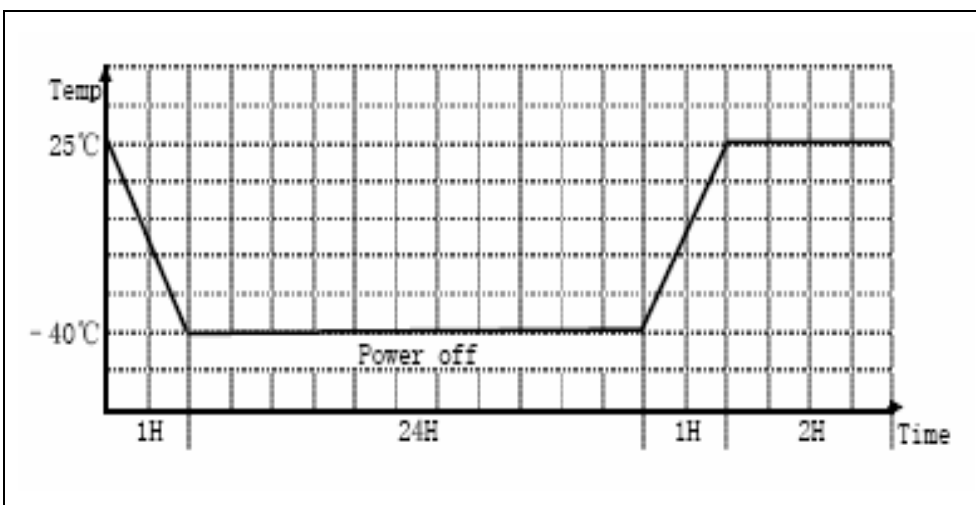
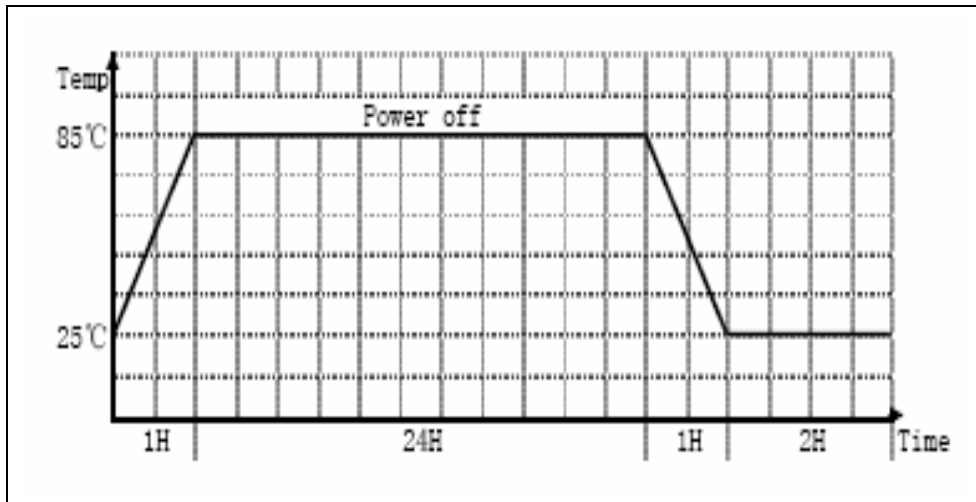
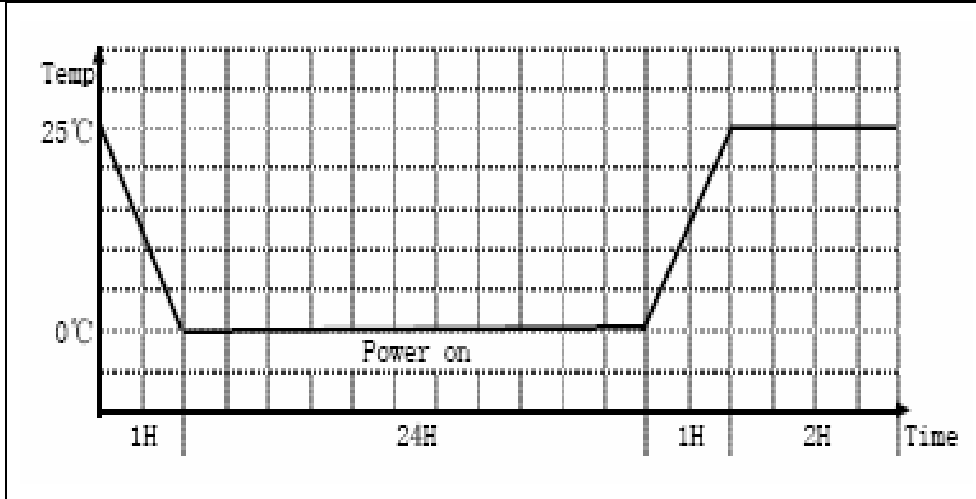
The adapter must meet all specifications after test.

Unit operating temperature range: 0 to 40°C

Storage temperature range: -20 to 70°C



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6.2 Max Temperature

The adaptor must meet all specifications after test.

Condition:

Measure the temperature continuously for more than 3 hours with max load.

6.3 Humidity

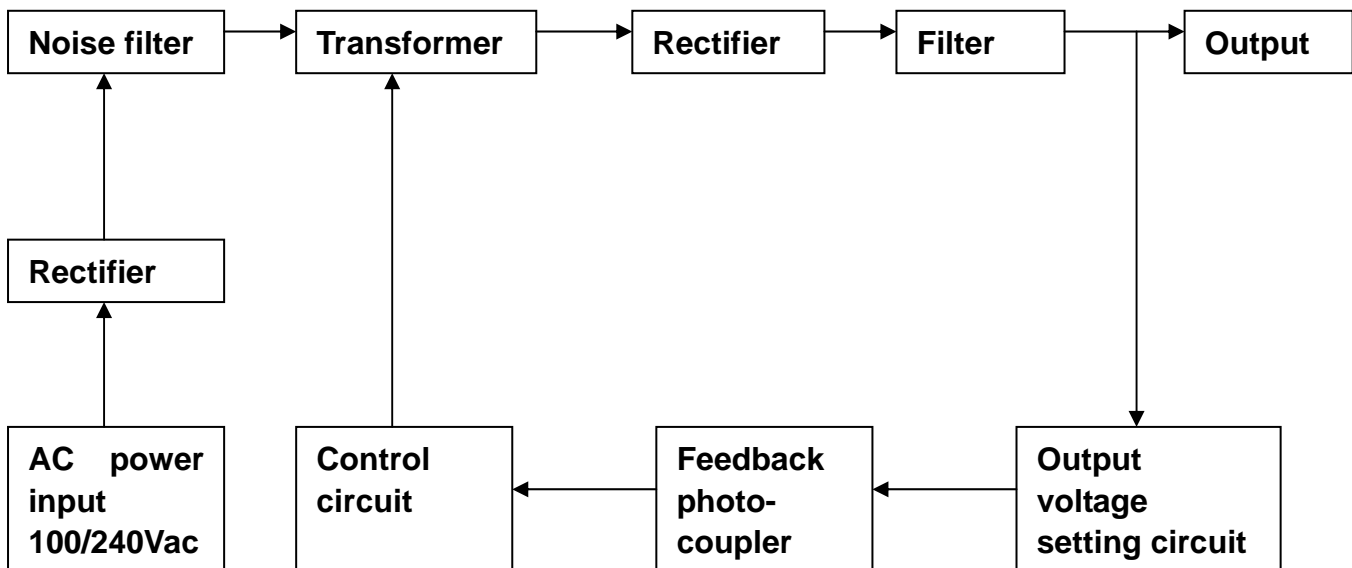
The adaptor must meet all specifications after test.

Operating humidity: Max 75%RH

Storage humidity: Max 95% RH

7 Block Diagram & Schematic Drawing

7.1 Block Diagram



8 Mechanical

8.1 Plastic Case material: "PC+ABS".

8.2 Physical Size: 79mm(L) X 50mm(W) X 39.5 mm(H).

8.3 Output Cable: UL2468, 18AWG, L=1800mm with plug 5.5x2.1x12mm 90°



8.4 AC input with 2 pins plug-in type.

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9 Sample Test Report.

9.1. Burn - In Test

Test Purpose: To check reliability of the products.						
Test Condition: Ambient Temperature: 40 +/- 5°C 1. Vin = 115V/60Hz Full load 4hours 2. Vin = 230V/50Hz Full load 4hours						
Criteria: There should not be any abnormal found after the testing.						
Test result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail						
Test Data	No.	1	2	3	4	5
	1	---	---	---	---	---
	2	---	---	---	---	---

7.2. COMBINE REGULATION TEST

Test Purpose: To check if the Total regulation and ripple noise meets the specification.												
Test Condition: Ambient Temperature: 25°C 1. Vin = 90V/47Hz Full load 2. Vin = 110V/50Hz Half load 3. Vin = 132V/53Hz No load 4. Vin = 180V/57Hz Full load 5. Vin = 230V/60Hz Half load 6. Vin = 264V/63Hz No load												
Criteria: Output Voltage Range: 4.50V ~ 5.50V Ripple & Noise Range: 100mVMax												
Test result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail												
Test Data	Output Voltage (V)						Ripple & Noise (mV)					
	No.	1	2	3	4	5	No.	1	2	3	4	5
	1	---	---	---	---	---	1	---	---	---	---	---
	2	---	---	---	---	---	2	---	---	---	---	---
	3	---	---	---	---	---	3	---	---	---	---	---
	4	---	---	---	---	---	4	---	---	---	---	---
	5	---	---	---	---	---	5	---	---	---	---	---
	6	---	---	---	---	---	6	---	---	---	---	---

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9.3. Efficiency Test

Test Purpose: To check if the power supply efficiency meets the specification.						
Test Condition: Ambient Temperature: 25°C 1. Vin =115V/60Hz Full load 2. Vin = 230V/50Hz Full load 3. Vin =115V/60Hz NO load Input Power 4. Vin =230V/50Hz NO load Input Power						
Criteria: Efficiency Range: 76% Min Input Power:0.75W Max						
Test result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail						
Test Data	No.	1	2	3	4	5
	1(%)	---	---	---	---	---
	2(%)	---	---	---	---	---
	3(W)	---	---	---	---	---
	4(W)	---	---	---	---	---

9.4. OCP Test

Test Purpose: To check max. over current meets the specification.						
Test Condition: Ambient Temperature: 25°C 1. Vin =115V/60Hz 2. Vin = 230V/50Hz						
Criteria: Over Current Range: Max 8.8A Power supply shall shutdown for over current test, and it shall recover automatically when the protection removes.						
Test result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail						
Test Data	No.	1	2	3	4	5
	1	---	---	---	---	---
	2	---	---	---	---	---

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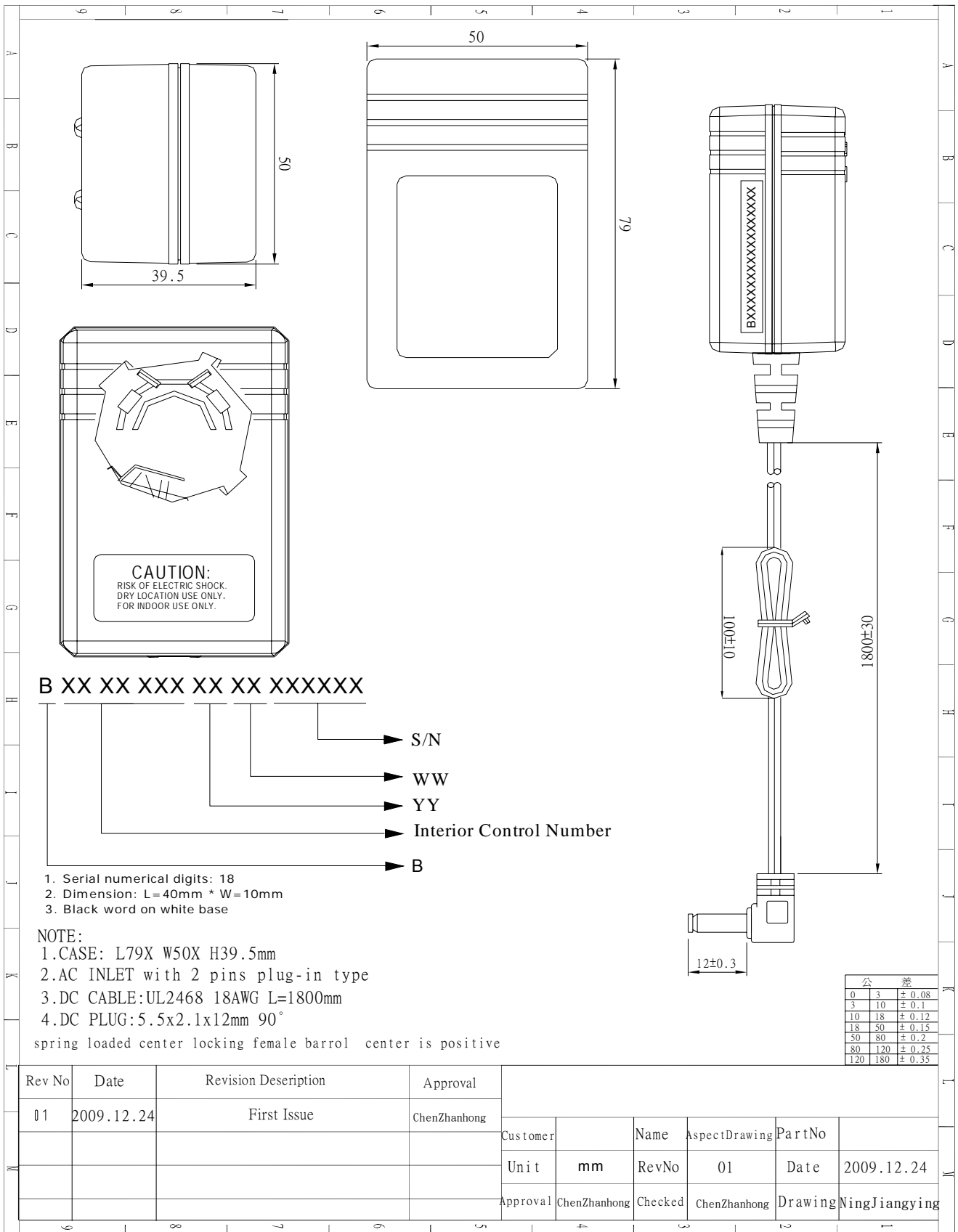
9.5. Short Circuit Test

Test Purpose: To verify that no damage, fire or safety problem will result from a short circuit.						
Criteria: Power supply shall recover automatically. The maximum output energy will lower than 5VA is when it is in output short-circuit .						
Test Condition: Ambient Temperature: 25°C 1. Vin =115V/60Hz 2. Vin = 230V/50Hz						
Test result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail						
Test Data	No.	1	2	3	4	5
	1	---	---	---	---	---
	2	---	---	---	---	---

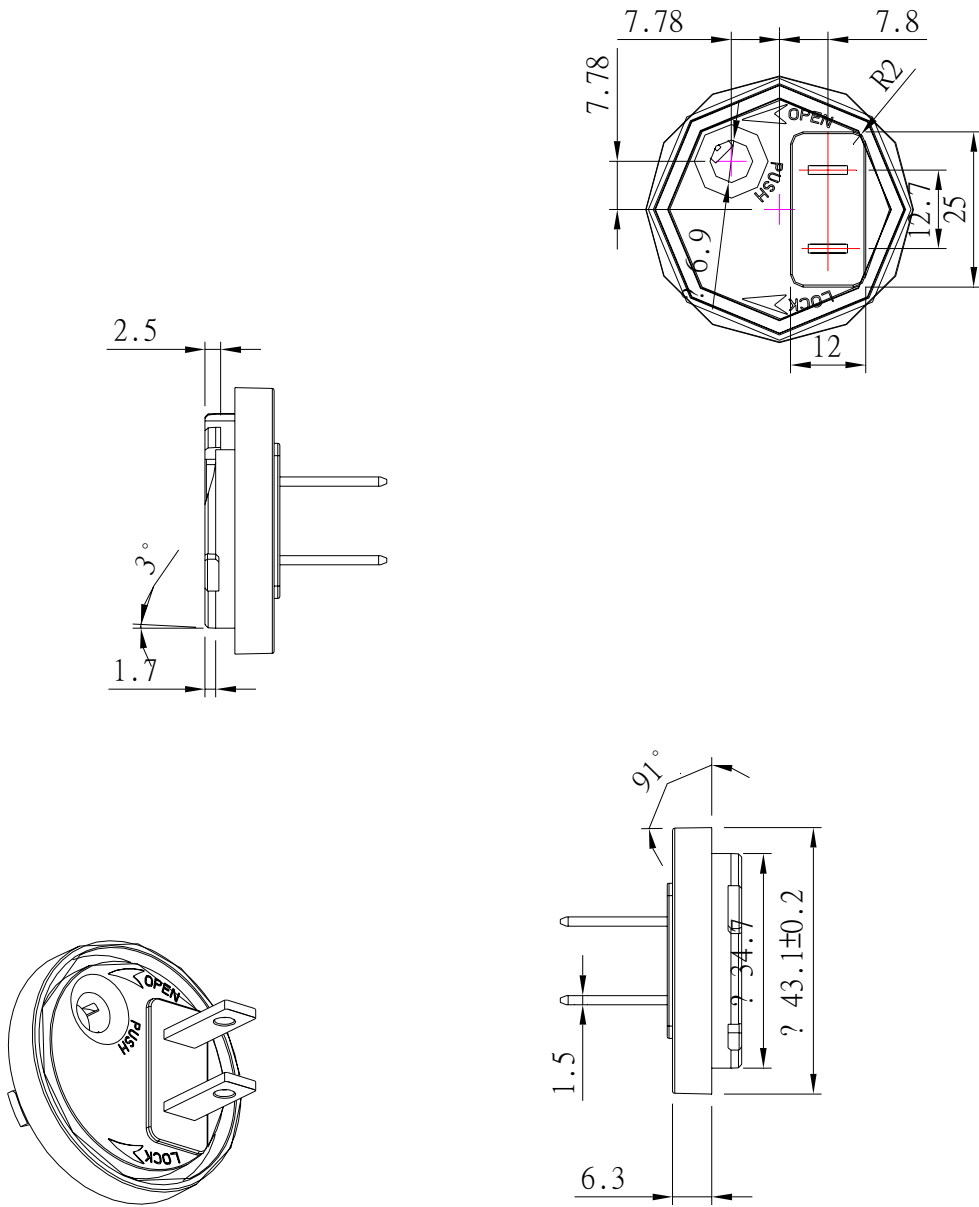
9.6. Hi-Pot Test

Test Purpose: To check if Hi-Pot characteristic meet specification requirement.						
Test Condition: Ambient Temperature: 25°C 1. H/P TEST: 3000VAC 10.0mA(Max) 3Seconds 2. I-R TEST: 500VDC 50MΩ(Min) 3Seconds 3. R-Ω TEST: 100mΩ(max) 25A						
Criteria: Power supply should experience no damage.						
Test result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail						
Test Data	No.	1	2	3	4	5
	1	---	---	---	---	---
	2	---	---	---	---	---
	3	---	---	---	---	---

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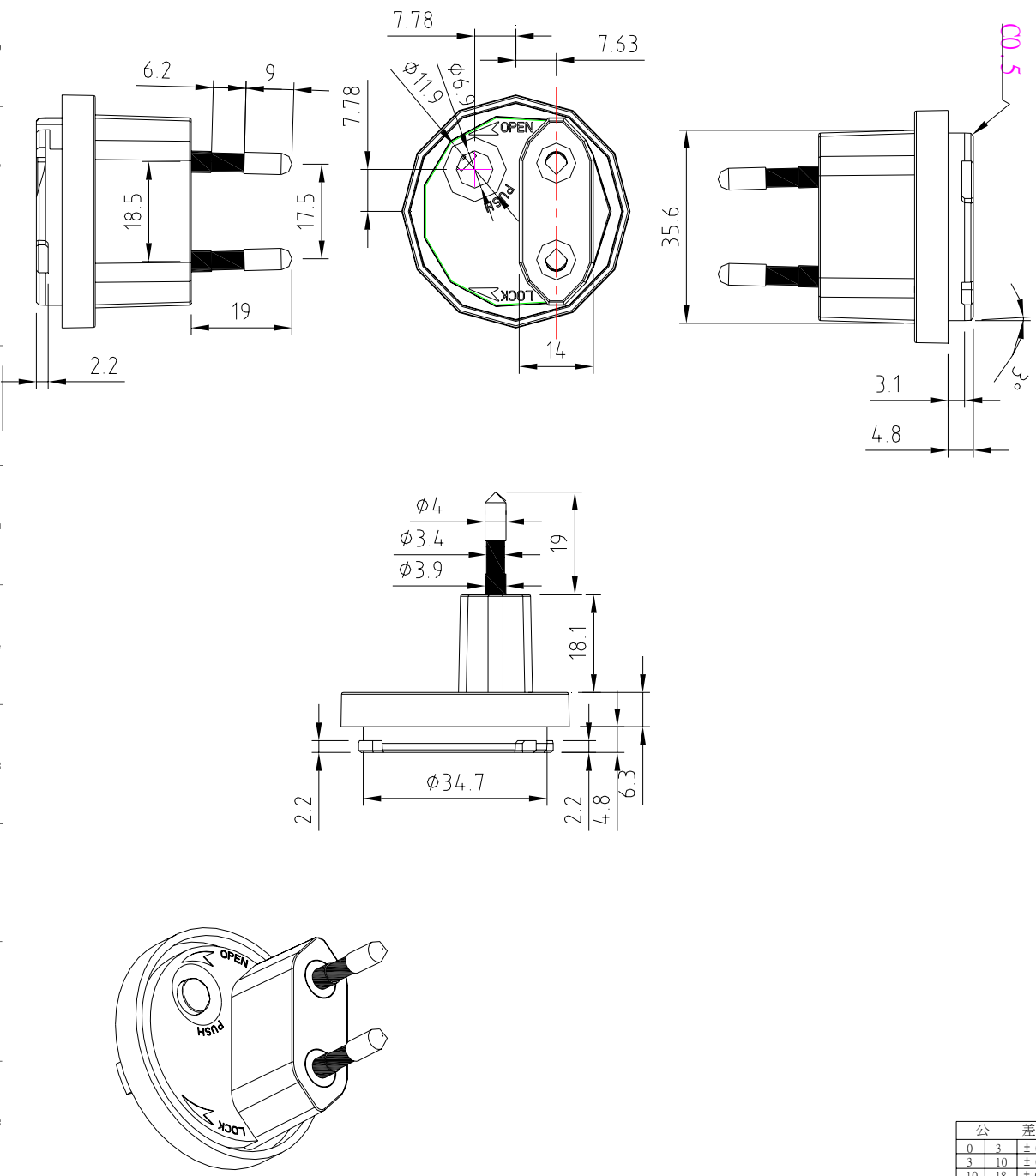
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公差		
0	3	± 0.1
3	10	± 0.12
10	18	± 0.15
18	50	± 0.2
50	80	± 0.25
80	120	± 0.35
120	180	± 0.45

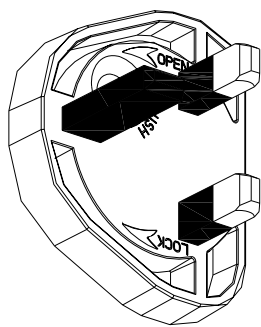
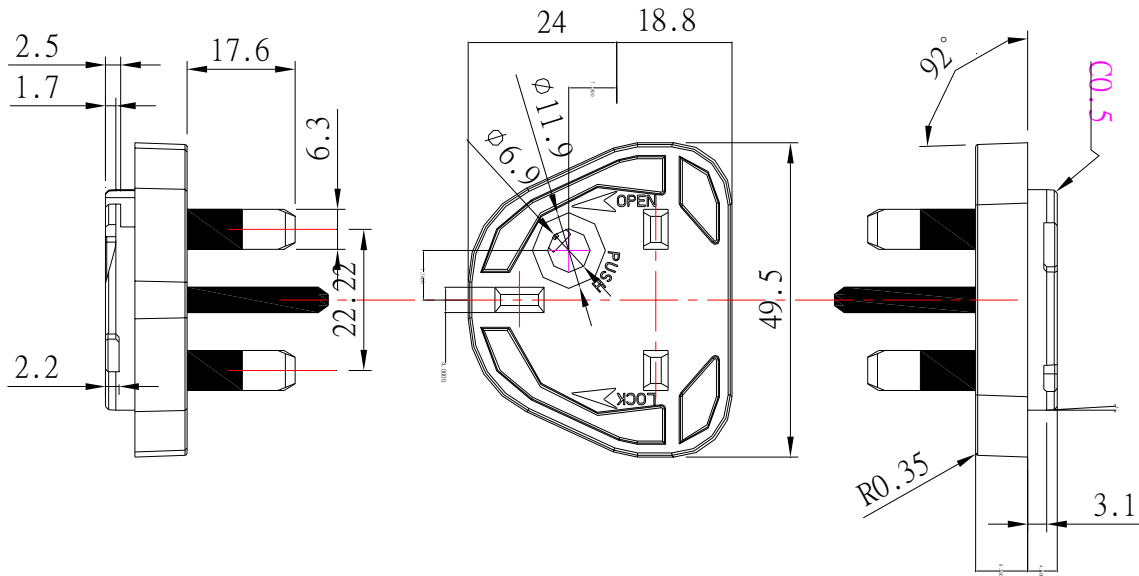
Rev No	Date	Revision Description	Approval			
01	2009.08.12	First Issue	chenzhanhong	Customer	Name	Part No
				Unit	mm	Rev No 01
				Approval	chenzhanhong	Checked chenzhanhong
					Drawing	yangxuejiao
					Date	2009.08.12

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Rev No	Date	Revision Description	Approval				
01	2009.05.22	First Issue	chenzhanhong	Customer	Name	Part No	
				Unit	mm	Rev No	01
				Approval	chenzhanhong	Checked	chenzhanhong
					Drawing	Date	2009.05.22
							Yuzhengyan

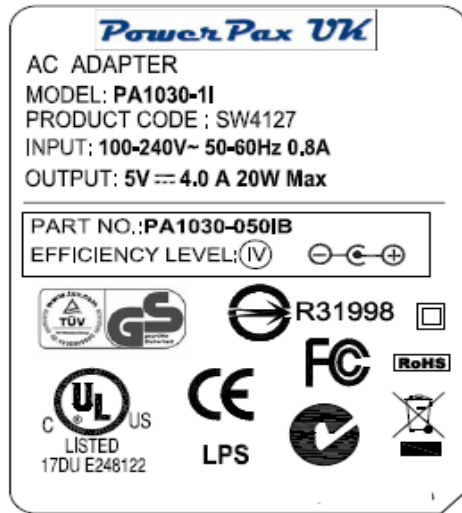
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公差		
0	3	± 0.1
3	10	± 0.12
10	18	± 0.15
18	50	± 0.2
50	80	± 0.25
80	120	± 0.35
120	180	± 0.45

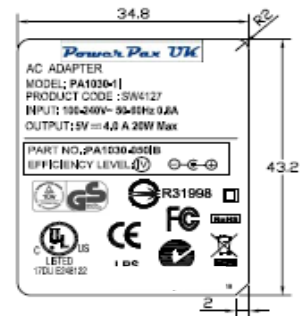
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				Approval	chenzhanhong	Checked	chenzhanhong	Drawing	Yuzhengyan

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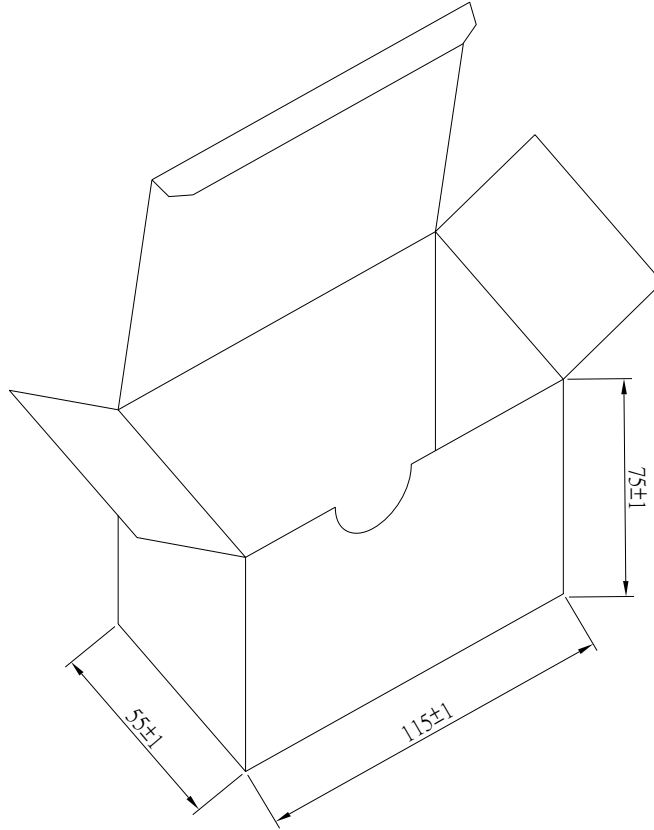
NOTE:

1. Silver background with black characters.
2. UL RECOGNIZED
3. MATERIAL PET T=0.1mm



Rev No	Date	Revision Description	Approval	Customer	Unit	Name	Whitibox Drawing	Part No	Date
01	2009.12.23	First Issue			mm	Rev No	01		2009.12.23
				Approval	Chenzhanhong	Checked	Chenzhanhong	Drawing	WenLiLi

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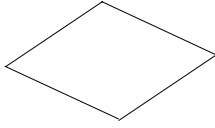
NOTE:

1. Material: Hard card paper (color: outside is white, inner is gray), T=350G.
2. These measurements are outside measure.

Rev No	Date	Revision Description	Approval						
01	2005.11.18	First Issue	Alonso	Customer		Name	Whitebox Drawing	Part No	
				Unit	mm	Rev No	01	Date	2006.11.24
				Approval	Richy 2006.11.24	Checked	Li Hongfu 2006.11.24	Drawing	Smile 2006.11.24

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Front Mark



C/NO. :

MADE IN CHINA

Side Mark

Q' TY: PCS

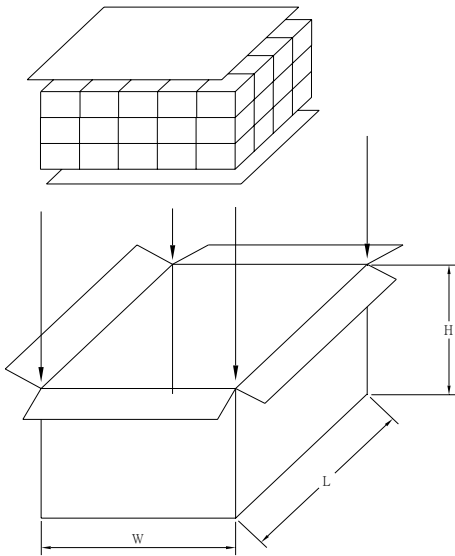
N. W. : KGS

G. W. : KGS

L=480mm

W=295mm

H=265mm



NOTE:

1. Material: Five-layer corrugated A=A paper material and is conformed to the CNG standard. The strength of laceration is +15kg.

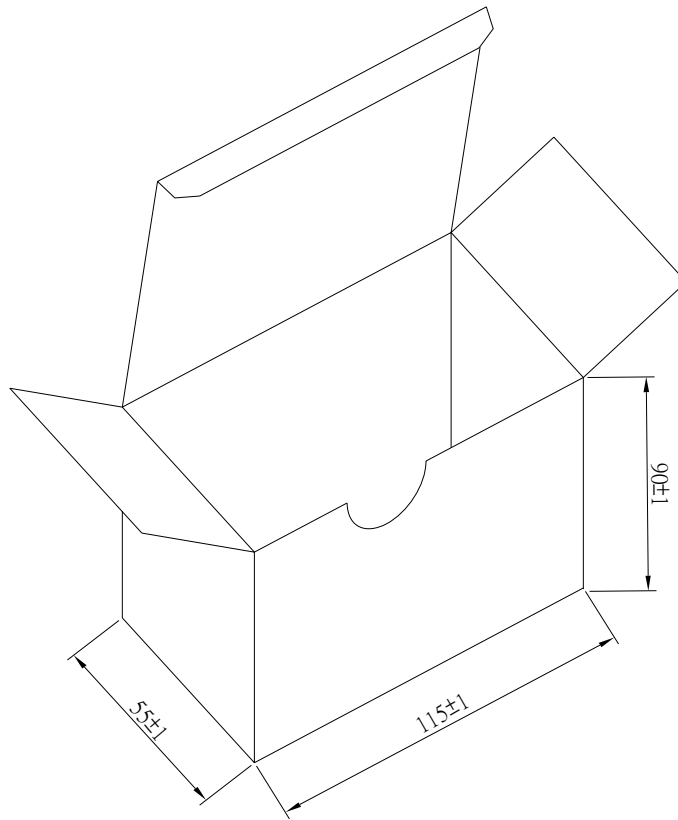
2. These measurements are the parameter of cartons.

3. The partitions are the corrugated paper, original colors.

4. Three layers in each outer carton. Each layer contents 20pcs and on top with one partiton. 60pcs per carton.

Rev	Date	Revision Description	Approval						
01	2009.08.12	First Issue	Chenzhanhong	Customer		Name	Carton drawing	Part No.	
				Unit	mm	Rev No	01	Date	2009.08.12
				Approval	Chenzhanhong	Checked	Chenzhanhong	Drawing	yangxuejiao

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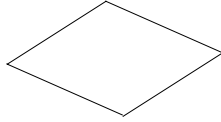
NOTE:

1. Material: Hard card paper (color: outside is white, inner is gray), T=350G.
2. These measurements are outside measure.

Rev No	Date	Revision Description	Approval						
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				Unit	mm	Rev No	01	Date	2009.04.18
				Approval	Chenzhanhong	Checked	Chenzhanhong	Drawing	Xiyongping

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Front Mark



C/NO. :

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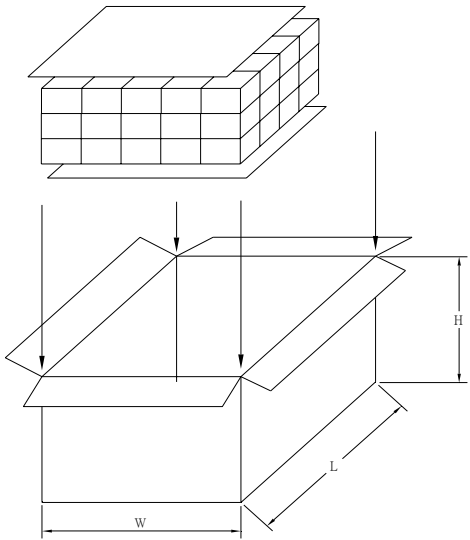
Side Mark

Q' TY: PCS
 N. W. : KGS
 G. W. : KGS

L=480mm

W=295mm

H=320mm



NOTE:

1. Material: Five-layer corrugated A=A paper material and is conformed to the CNG standard. The strength of laceration is +15kg.
2. These measurements are the parameter of cartons.
3. The partitions are the corrugated paper, original colors.
4. Three layers in each outer carton. Each layer contents 20pcs and on top with one partiton. 60pcs per carton.

12	Rev	Date	Revision Description	Approval							12
	01	2009.08.12	First Issue	Chenzhanhong	Customer		Name	Carton drawing	Part No.		
13					Unit	mm	Rev No	01	Date	2009.08.12	
					Approval	Chenzhanhong	Checked	Chenzhanhong	Drawing	yangxue jiao	
	A	B	C	D	E	F	G	H	I		