CUSTOMER **Metro Plastics Technologies**

SPECIFICATION FOR APPROVAL

AC/DC ADAPTOR

CUSTOMER SPEC:INPUT: 100-240V AC 50/60Hz **OUTPUT:**12VDC 1A

CUSTOMER DWG./PART NO.

PART NO. PEA-120100VA(PAHS+REACH+ROHS)

SAMPLE NO: M1601900 **REV.:** 1.1 **ISSUE DATE:** 2016-7-19

PRDUCT NO: SH01900

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
EDDY 袁	高水瑛	周磊涛	阳 灿

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Record of Revision变更履历

Item	REV.	Reason	Detail	Date
1	1.0		First Edition	2016-7-19
2	1.1	Update	Change the DC Cable & Plug	2016-8-3

2 Electrical Specification

2.1. Input requirement

Item	Minimum	Nominal	Maximum	Unit	Remark
Rated Input Voltage		100 / 240		Vac	
Input Voltage Range	90	/	264	Vac	
Rated Frequency		50 / 60		Hz	
Frequency Range	47	/	63	Hz	
Input Current		/	0.3	A	at100Vac/ 60Hz- at240Vac/ 50Hz
Input Inrush Current		/	80	A	Cool Start 230Vac
Power Consumption		/	0.1	W	No Load

2.2. Output requirement

2.2.1 Output voltage and current

Rated output voltage (V)	Voltage range (V)	No load (A)	Min.load (A)	Rated load(A)	Max. load (A)	Rated output power(W)	Note
12	11.40 ~ 12.60	0	0	1	*	12	

The power supply output voltage must stay within the limits specified in table 2 when operating at steady state.

2.2.2 Ripple and Noise

Ripple and Noise are tested by dc loading side parallel with a 47uF/E-CAP and 0.1uF/ C-CAP and with 20MHz Band-Width,the result must be less than 180mV

2.2.3 Average Efficiency

The average efficiency is lager than 82.96% which is at 115Vac/60Hz and 230Vac/50Hz with 100%,75%,50%,25% rated load.and the efficiency is lager than ,which is at 10% rated load .This result comply with the DOE VI

2.2.4 Line regulation

The line regulation of rated output voltage is less than ±5% while measuring at rated load and +/-10% of input voltage changing.

2.2.5 Load regulation

The load regulation of rated output voltage is less than ±5% at measured output load from 10% to 100% rated load .

2.2.6 Turn on delay time

At nominal input AC voltage and full load, it must less than 3S

2.2.7 Rise time

The Supply shall have a start-up rise time of less than 30mS within regulation limits for all DC outputs.

2.2.8 Hold up time

At nominal input AC voltage and full load, it must larger than 10mS

2.2.9 Overshoot and undershoot

The output voltage over/undershoot upon the application or removal of the input voltage, under the input conditions specified in Section 2.1, shall be less than ±10% ,above the nominalvoltage. No voltage of opposite polarity shall be present on output during turn-on or turn-off.

2.2.10 Dynamic respose

The output voltage must between ±5% 20% to 80% load and back to20%
with a 0.15A/msec slew rate.

2.3 Protection Characteristics

2.3.1 Over current protection

The output shall be protected against the over current conditions. A power cycle shall be required to restore normal operation. The output current is less than 2A at 230Vac.

2.3.2 Over voltage protection

The output voltage shall be clamped by / V;at full load and no load with rated input voltag

2.3.3 Short circuit protection

The power supply shall have self-limiting protection. This protection can withstand a continuous output short without damaged, and auto-recovery operation after the short is removed.

2.4. Environmental Condition

2.4.1 Temperature

Operating Temperature: -0+40℃

Storage Temperature: -40+80℃

2.4.2 Humdity

Operating Humdity 20%+ 98%

Storage Humdity 20%+98%

2.4.3 Altitude

Operating Altitude: 5,000ft（Max）

Storage Altitude: 20,000ft（Max）

2.4.4 Vibration

The power supply shall be subjected to a vibration test consisting of a 10 to 300Hz sweep at a constant acceleration of 2G for a duration of one 1hour for each of the perpendicular axes X,Y and Z. The power supply shall not incur physical damage or degradation of any characteristics below the performance specifications

2.5 Safety Standards

The power supply shall be certified by following international regulatory standards.

Item	Country	Status	Safety standard
CE	Europe	---	EN60950-1
GS	Germany	---	EN60950-1
UL/cUL	America / Canada	Meet	UL 60950-1 / CSA C22.2
DOFT	Australia/New Zealand	---	AS/NZS60950-1
CCC	China	---	GB4943
TUV Mark	United Kingdom	---	BS EN60950-1
PSE	Japan	---	J60950
KCC	Korea	---	K60950
CB	Global	---	IEC60950-1

2.6 Electromagnetic Compatibility

2.6.1 Electrostatic discharge immunity (ESD)

IEC61000-4-2:2008

Air Discharge: ±8KV

Contact Discharge: ±4KV

Discharge Impedance : 330ohm / 150pF

Polarity: Positive and Negative

Performance: Criteria A

2.6.2 Radiation electromagnetic Field immunity (RF)

IEC61000-4-3: 2006+A1:2007+A2:2010

Range : 80MHz-1000MHz

Field Strength : 3V/m/80%AM(1 KHz)

Distance Antenna-EUT : 3m

Polarity of Antenna : Horizontal and Vertical

Performance: Criteria A

2.6.3 Electromagnetic Fast transient immunity (EFT)

IEC61000-4-4:2004
Techniques - Electrical fast transient/burst immunity test
Pulse Amplitude-AC Power Port: 1KV
Burst Frequency: 5.0kHz
Polarity of Antenna : Positive and Negative
Performance: Criteria A

2.6.4 Surge immunity

IEC61000-4-5:2005
1.2/50 usec Open Circuit voltage
8/20 usec Short Circuit current
Power line: 1KV
Performance: Criteria A

2.6.5 Conducted disturbances immunity

IEC61000-4-6:2008
Range: 0.15MHz-80MHz
Voltage Level: 3V
Step: ≤0.015 decades / sec
Performance: Criteria A

2.6.6 Voltage Dips, Interruption & Variations

IEC61000-4-11:2004
100Vac and 240Vac
500mS at 30% of Vnom
10mS >95% of Vnom
Duration of Interruption(>0.95*Vnom): 5S
Performance: Criteria B

2.6.7 FCC

FCC Part 15, Class B

2.6.8 C-Tick

CISPR 22

2.7 Reliability

2.7.1 Burn-in

4hours at 40℃（±5℃）, Nominal input voltage, 80% of rated load

2.7.2 Mean Time Between Failure (MTBF)

The power supply shall be designed and produced to have a mean time between failures（MTBF）of 50,000 hours, at 25℃ 120Vac & 230Vac according to BELLCORE SR-332 issue3

2.8 Additional Requirement

2.8.1 Leakage Current

The power supply leakage current shall be less than 0.25mA

2.8.2 Dielectric Withstand Voltage (Hi-Pot)

Primary to Secondary: 3000V/60S

Cut off current: 10mA

2.8.3 Insulation Resistance

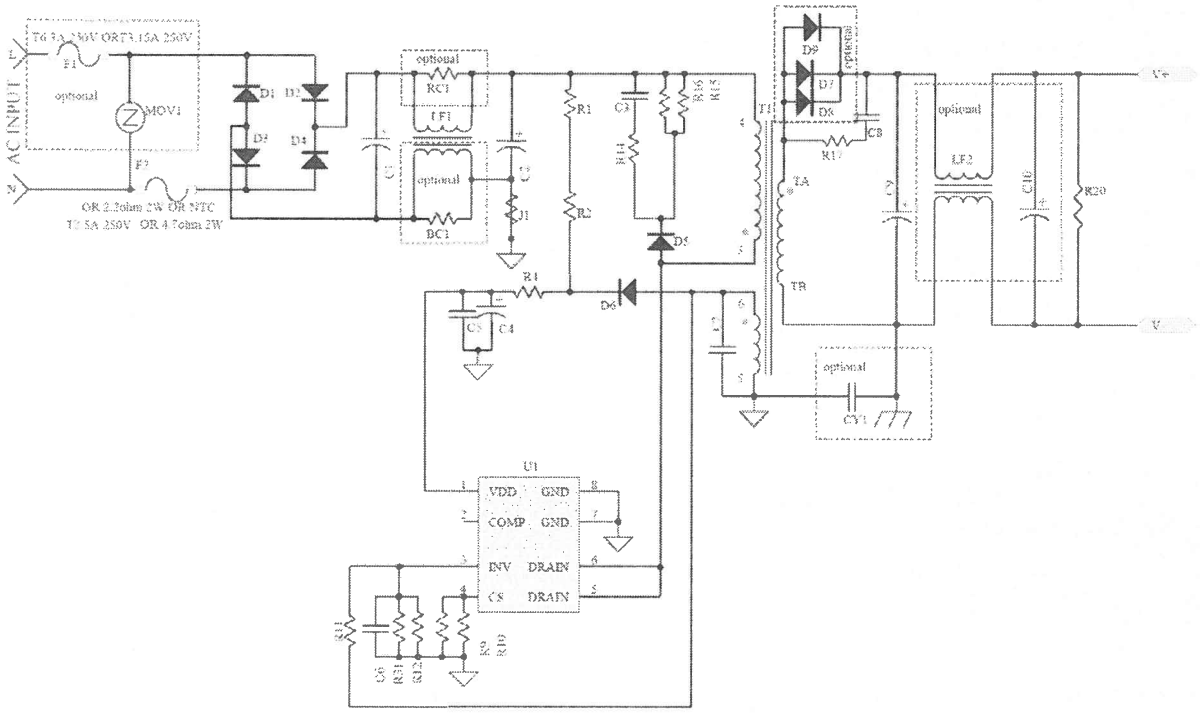
Insulation resistance shall be more than 10M ohm at 500Vdc between primary Live, Neutral line and secondary

2.8.4 Drop

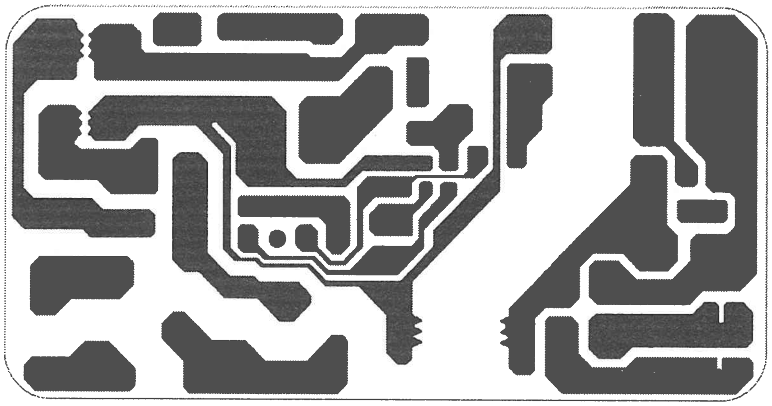
Minimum of one sample shall be dropped from a height of 0.75m onto a 30mm hardwood surface 6 times 1 cycle.

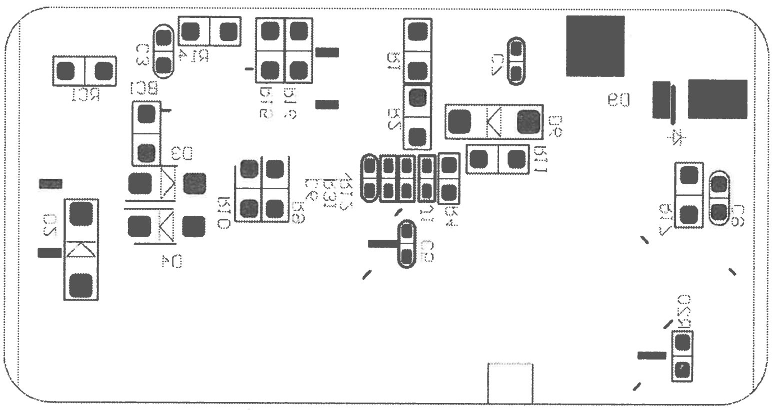
After test, the enclosure cannot be damaged and there are no sharp corner

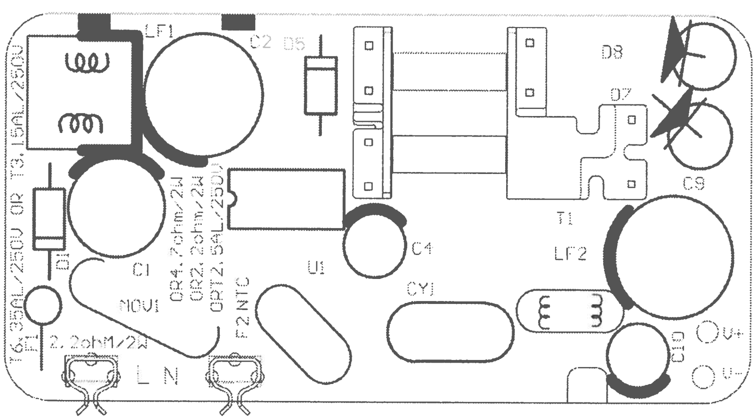
3 Circuit Schematic



4 PCB Layout

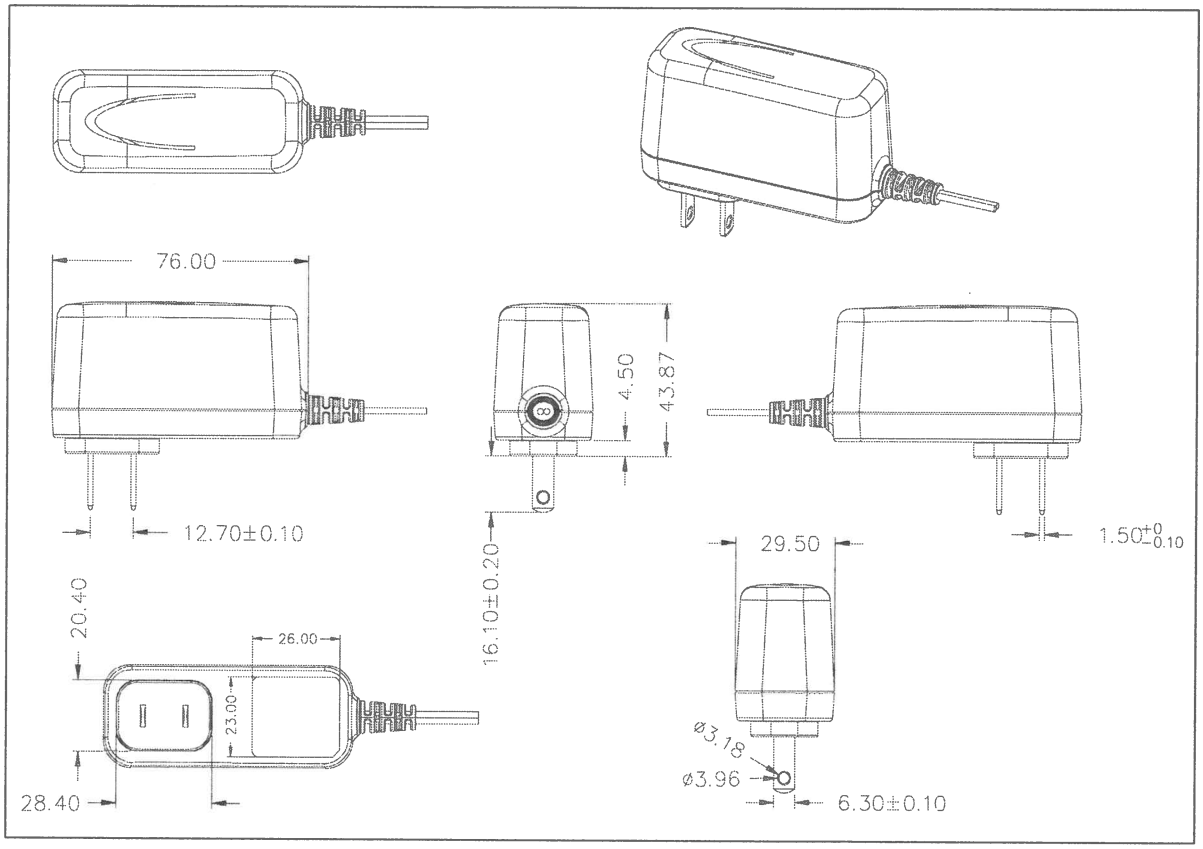





T6.35AL/250V OR T3.15AL/250V
LF1
C2
D5
D8
D7
C9
T1
LF2
C4
U1
CY1
C1
D1
MOV1
0R4.7ohm/2W
0R2.2ohm/2W
0RT2.5AL/250V
F2 NTC
F1
2.2ohm/2W
L N
C10
V+
V-

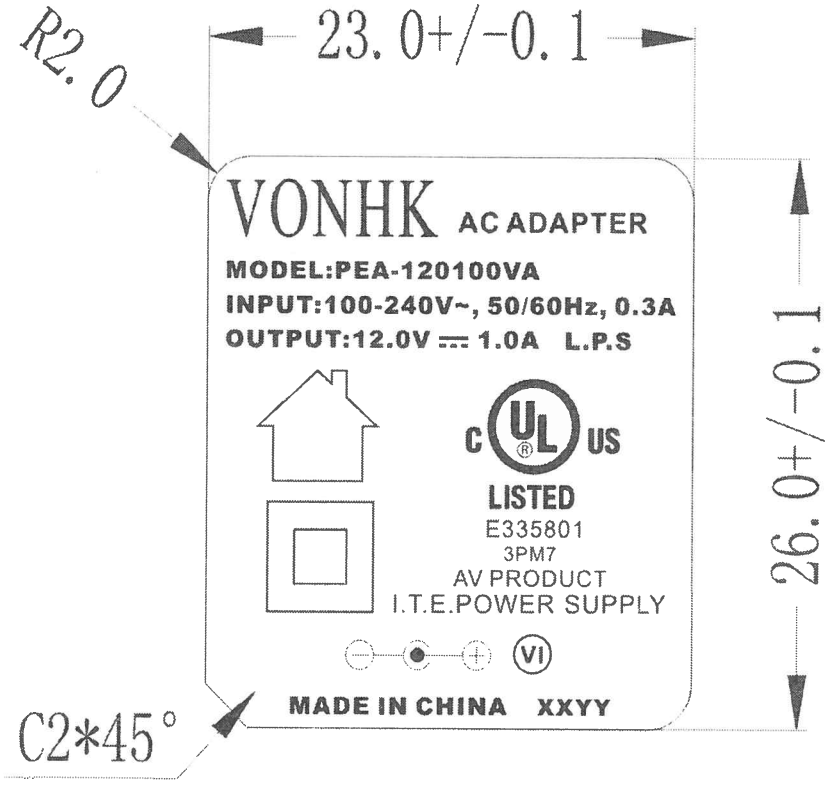
5 Mechanical

5.1 Enclosure drawing



1, Physical size: 76.00±0.5mm(L)* 29.50±0.5mm(W)* 43.87±0.5mm(H)
2, Material: PC, UL94V-0
3, Color: WHITE (PAHS+REACH+ROHS)
4, AC Input Plug: UL
5, Weight: Approx. 78.00 g (Max.)

5.2 Label Drawing



Note: 1.Laser(镭射)
2.Unit: mm

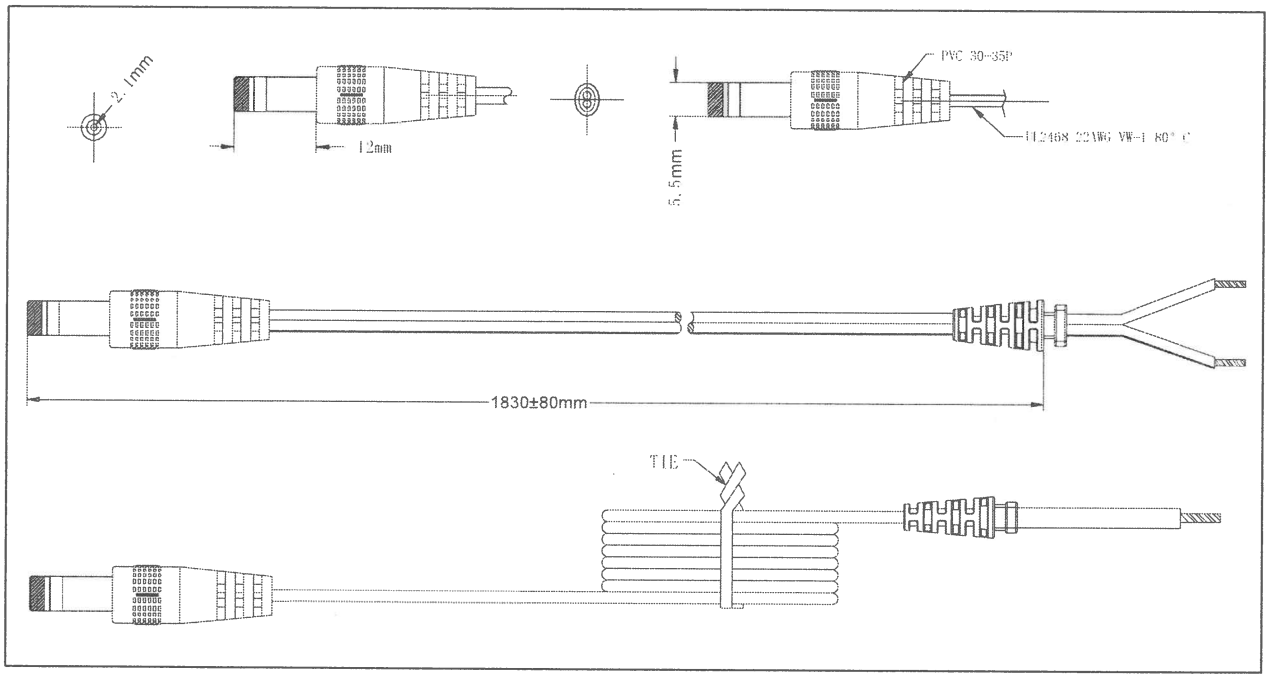
Remark:

The date code will be showed on the nameplate , the number is XXYY

XX = Year

YY = Month

5.3 DC Cable & Plug



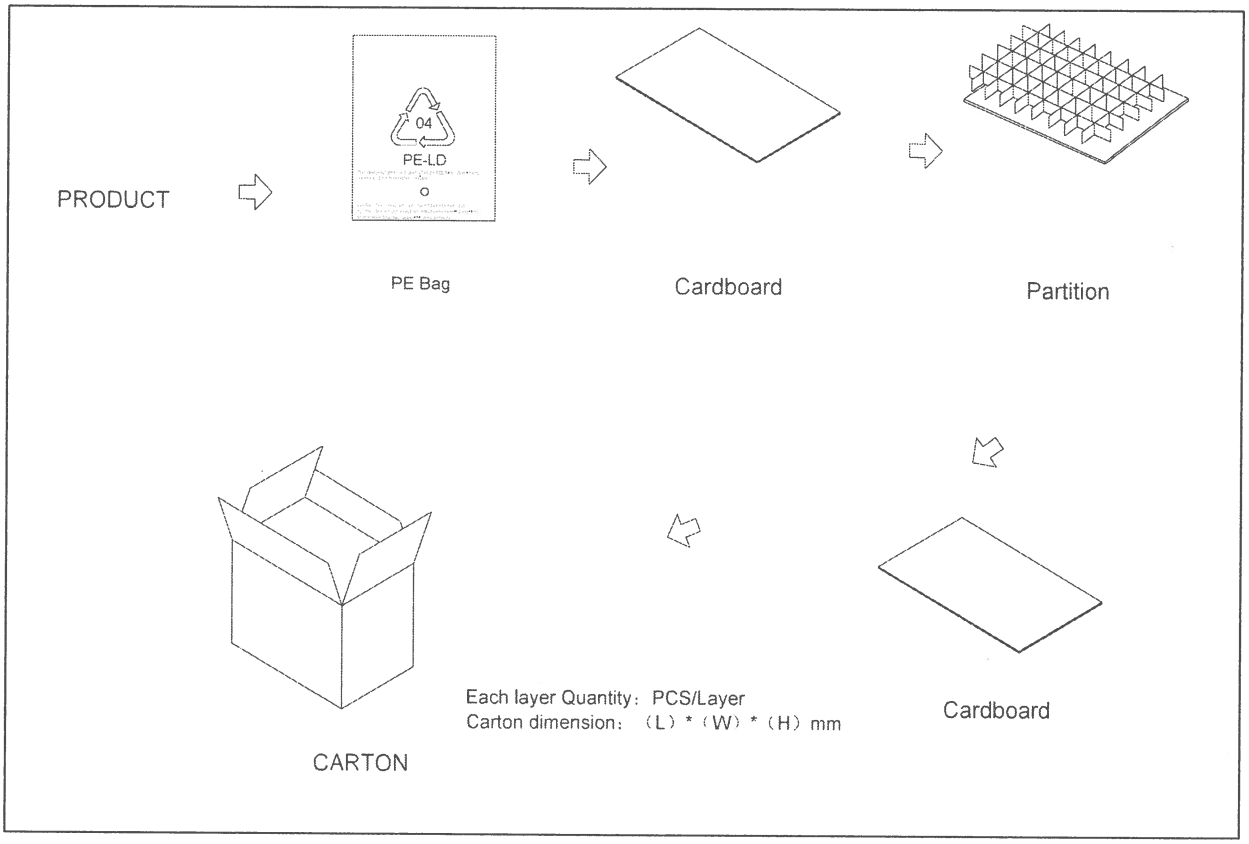
1 DC Plug: 5.5±0.05mm * 2.1±0.05mm * 12±0.5mm * ⊖—◉—⊕

2 Wire: UL2468 80℃ 300V 22 AWG 1.83m

3 Polarity: WHITE and BLACK----Positive, WHITE----Negative

4 DC Jack: PVC

6 Packing Information



FCC Part 15 Verification

1-2 Floor, South Block, Building A2,
No 3 Keyan Lu, Science City,
Guangzhou, China

Te l: 86-20-32209330
Fax: 86-20-62824387
www.i-testlab.com

No. ITL-15112014-1

Applicant	:	**Mass Power Electronic Limited**
Address	:	10/F,Tower A, Billion Centre 1 Wang Kwong Road, Kowloon Bay, Kowloon, Hong Kong
Product	:	**AC Adapter**
Model No.	:	**PEA-xxxyyyVA(xxx=040-075, 080-120; yyy=005-210)**
Technical data	:	100-120 Vac. or 100-240Vac., 50/60Hz, 0.3A

The above product, has been type- tested for compliance with
Conducted Emissions with limits described at FCC Part 15B Class B per section 15.107
Radiated Emissions with limits described at FCC Part 15B Class B per section 15.109
in a Listed test laboratory according to FCC rules section 2.948 for measuring devices under Parts 15.
Enclosed please find the verification test report.

For home or office use

Approved By:
I-Test Laboratory

Signature:
Date: December 11, 2015