茂硕电源科技股份有限公司
MOSO POWER SUPPLY TECHNOLOGY CO., LTD
MOSO Industrial Park, Nanshan District, Shenzhen, Guangdong 518108, P. R. China
TEL: 86-755-27657000 27657555
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http://www.mosopower.com

SPECIFICATION FOR APPROVAL

CUSTOMER: _____

CUSTOMER P.N.: _____

MODEL NO.: MS-V2000U050-010B0-US

PRODUCT NO.: SCXXX-U0

SAMPLE DATE: 2024-04-16

CUSTOMER AUTHORIZED SIGNATURE		

Please return to us one copy of "SPECIFICATION FOR REFERENCE" with your approved signature.

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E. C. LIST

Rev.	Description of Change		Changed Date	ECN No.
	Before	After		
A1	Original Release	---	2024-04-16	---

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 10W continuous output power.

The power supply shall meet the **RoHS** requirement.

1.1. Description

- ■ SMPS Adaptor (Wall mount)
- □ SMPS Adaptor (Desk-top)
- □ Open Frame
- □ SMPS Unit (With Case)
- □ Others

2. Input Characteristics

2.1. Input Voltage & Frequency

The range of input voltage is from 90Vac to 264Vac single phase.

	Minimum	Nominal	Maximum
Input Voltage	90Vac	100Vac~240Vac	264Vac
Input Frequency	47Hz	50Hz/60Hz	63Hz

2.2. Input AC Current

0.5A max. @ 100-240Vac input & Full load.

2.3. Inrush Current (cold start)

32A max. @ 100-240Vac input.

2.4. Average Efficiency

78.7% min.@115/230Vac input (@25%,50%,75% and100% of max load).(meet DOE Level VI)

2.5. Energy Consumption

No load Consumption ≤0.075W(230Vac input).

3. Output Characteristics

3.1. Static Output Characteristics <Vo & R+N>

Output	Rated Load		Output Range	R+N	Remark
Rate	Min. Load	Max. Load			
+5.0V	0.0A	2A	4.7V ~ 5.5V	<200mVp-p	100-240Vac

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1uF ceramic capacitor and a 47uF Electrolytic capacitor. (Test under the condition of rated input and rated output).

3.2. Line/ Load Regulation

Output	Load Condition		Line Regulation	Load Regulation	Remark
Rate	Min. Load	Max. Load			
+5.0V	0.0A	2A	±3%	±5%	

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3.3. Turn - on Delay Time

3S max. @ 230Vac/50Hz input & Full load.

3.4. Hold-up Time

10mS min. @ full load &115Vac/60Hz input turn off at worst case;

20mS min. @ full load &230Vac/50Hz input turn off at worst case.

3.5. Rise Time

50mS max. from 10% to 90% DC output voltage, monotonously.

3.6. Fall Time

30mS max. @ Full load

3.7. Output Overshoot / Undershoot

10% max. When the power on or off, when it is the full input voltage and full load.

3.8. Output Load Transient Response

Condition ： load step from 50% to 100% to 50%, R/S: 0.5A/uS, Transient Response Recovery Time :5mS,Result: <10% (Dynamic Voltage)

4. Protection Requirements

4.1. Over Current Protection

Over Current Point Limited: 2.7A＞I＞2.1A (100-240Vac)

The output shall hiccup when the over currents applied to the output rail, and shall be self-recovery when the fault condition is removed.

4.2. Over Voltage protection

The power supply shall be protected when the output is over voltage, and the power supply shall not be damaged. and shall be self-recovery when the fault condition is removed.

4.3. Short Circuit Protection

The input power shall decrease when the output rail short, the power supply shall no damage, and shall be self-recovery when the fault condition is removed.

5. Environment Requirements

5.1. Operating Temperature and Relative Humidity

5℃ to +40℃

15%RH to 90%RH

5.2. Storage Temperature and Relative Humidity

-20℃ to +50℃

15%RH to 95%RH non-condensing @ Sea level shall be low 5,000 meter.

5.3. Vibration

10 to 55Hz sweep at a constant acceleration of 10G's rms (Breadth: 1.0mm) for 15 minutes for each of the perpendicular axes X, Y, Z.

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5.4. Drop Test

Height: 1m; the product should be fell off on the hardwood with the thickness of 20mm, and the hardwood should be put on the base of the cement or on the ground without flexibility. Apply one times on all surfaces, total 6 times. The electric performance and Hi-Pot test must be OK after the drop tests.

6. Reliability Requirements

6.1. Burn-in

The power supply shall be burn-in for 4 Hours under normal input and 80% rated load at 40℃±5℃@90Vac/264Vac.

6.2. MTBF

The MTBF shall be at least 50,000hours at 25℃, under 100% load and 100V/240VAC input condition.

6.3. E-caps lifetime

The E-caps used in this PSU must be with lifetime of 8760 Hours at 25℃ of full load.
>3 years @ 2.0A load 5hrs/day

7. EMC Standards/ EMC

7.1. EMI Standards/EMI

FCC Part15 J55032 CNC13438

7.2. EMS Standards/EMS

7-2-1 EN 61000-4-2, electrostatic discharge (ESD) requirement

Discharge characteristic	Test level	Test criteria
Air discharge	+/-8KV	B
Contact discharge	+/-4KV	B

7-2-2 EN 61000-4-3, radiated electromagnetic field susceptibility (rs)

Test level	Test criteria
3V/m (r.m.s)	A
80-1000MHz,80%AM(1KHz) sine-wave	

7-2-3 EN 61000-4-4, electric fast transients (burst) immunity requirement

Coupling	Test level	Test criteria
AC-input	0.5KV	B
AC-input	1KV	B

7-2-4 EN 61000-4-5, surge capability requirement

Surge voltage	Test criteria
Common mode +/-2KV	B
Differential mode +/-1KV	

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7-2-5 EN 61000-4-6, Induced radio frequency fields conducted disturbances immunity requirement

Test level	Test criteria
3V	A
0.15-80 MHz,80%AM(1KHz)	

7-2-6 Assessment criteria

Acceptance criteria	Performance
A	Agreed operational behavior within the specified limits
B	Time limited functional diminishment or malfunction during the tests is permitted. The function is self-reactivated by the unit following completion of the tests.
C	Malfunction is permitted .The function can be reactivated either by reconnection to the mains or by operator intervention.

8. Safety Standards

8.1. Dielectric Strength (Hi-pot)

Primary to Secondary: 4000Vac / 10mA max. / 60 second;

8.2. Leakage Current

0.25mA max at 264Vac / 60Hz.

8.3. Insulation Resistance

10MΩ min. at primary to secondary add 500Vdc test voltage.

8.4. Regulatory Standards

Type	Country	Standard	State	Note
UL	USA	UL62368-1	APPROVAL	

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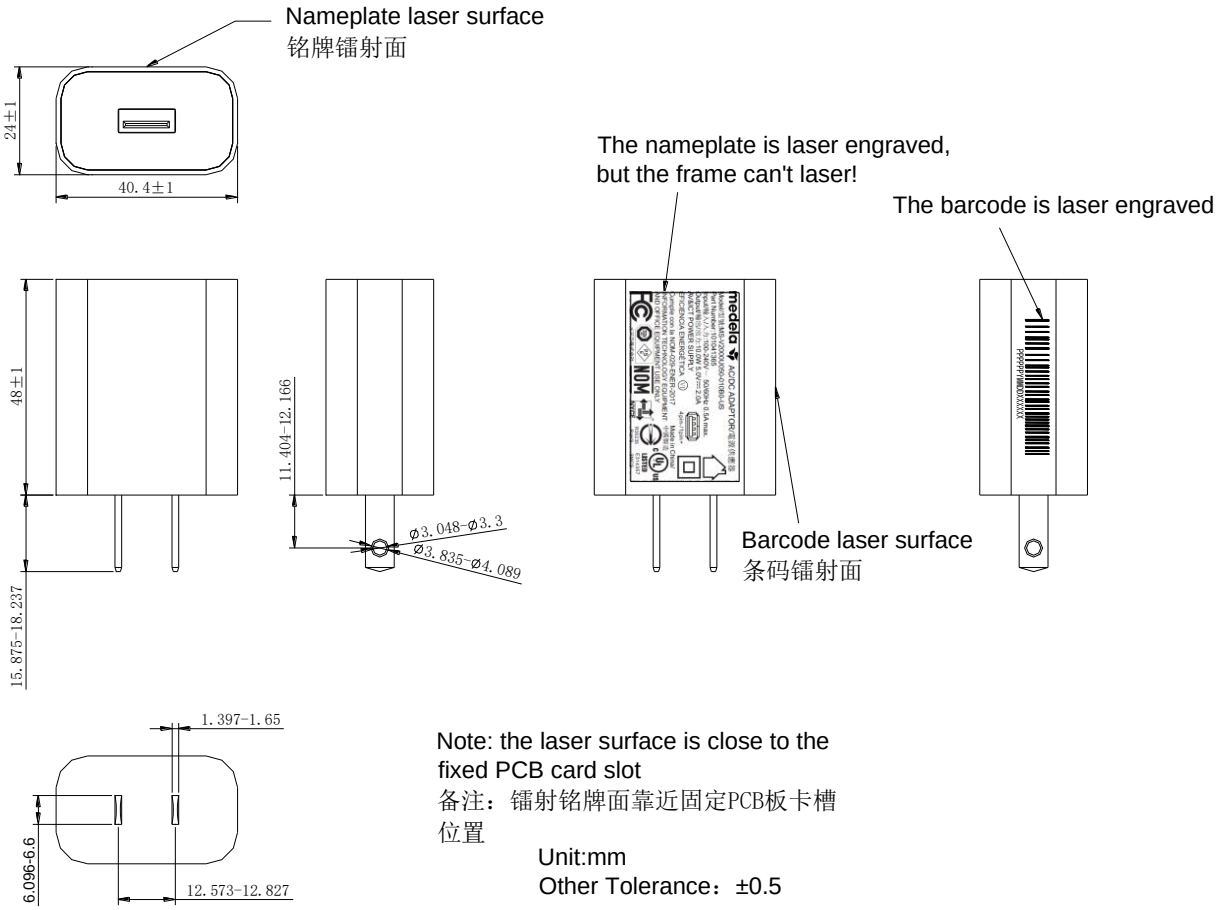
9. Mechanical Outline Drawing



Note: the laser surface is close to the fixed PCB card slot
备注：镭射铭牌面靠近固定PCB板卡槽位置

Unit:mm
Other Tolerance：±0.5

Case material: ■PC temperature resistance: 125℃
□PC+ABS temperature resistance: 95℃

Remark: 1、PC material compliances with ball pressure testing requirement;
2、The adapter complies with WEEE;
3、The adapter complies with REACH.
4、The product shell is Black.

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10. I/O Marking Drawing

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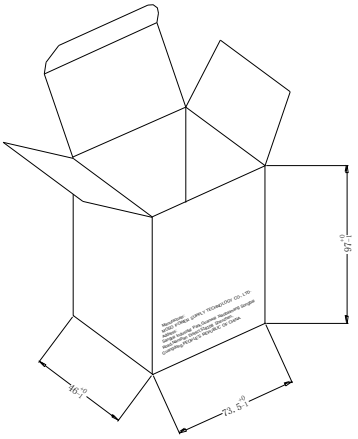
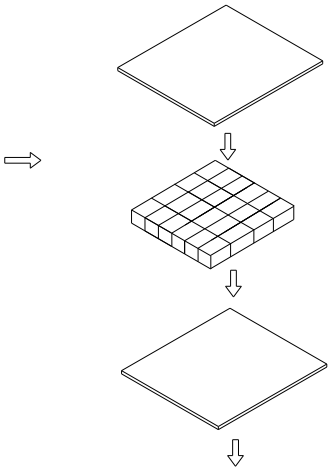
11. Package Drawing



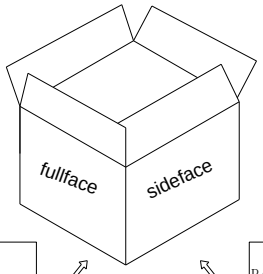


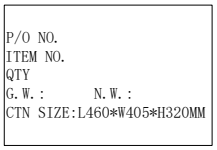
Packing Instruction：

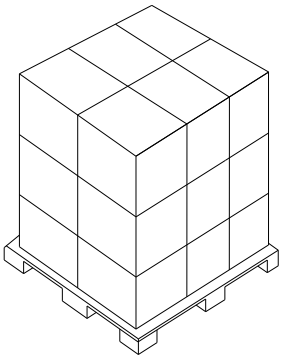
1、Put adapter and USB cable into white box;
24PCS/layer， 6 layers in total，144PCS/box
such as： 24pcs/layer*6 layers=144PCS/box

2、The usage of the packing materials：
1)the usage of the white box：144PCS
2) the usage of the flat 440*390:7PCS
3) carton box 460*405*320：1PCS

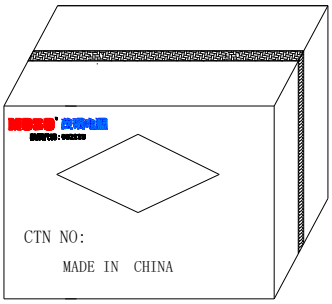
3、Pallet stacking instruction:
1) Pallet size is:L1200*W950*H135mm
2) per layer set 6pcs
3) stacking per 3layers*6pcs carton boxes
total 18 pcs carton boxes







Pallet stacking order



The product will be packed in the carton box and the box will be sealed by adhesive tape