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SPECIFICATION FOR REFERENCE

CUSTOMER： _____

CUSTOMER P.N.： _____

MODEL NO. MS-V1500R150-024Q0-DE

PRODUCT NO.： SCXXX-V0/XXXXXX

SAMPLE DATE： 2023-11-14

CUSTOMER AUTHORIZED SIGNATURE		

Please return to us one copy of "SPECIFICATION FOR APPROVAL" with you approved signature.

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Prepared By :	Checked By :	Safetied By:	Approved By :

MOSO® 茂硕电源
股票代码：002660

茂硕电源科技股份有限公司
MOSO POWER SUPPLY TECHNOLOGY CO., LTD

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E. C. LIST

Rev.	Description of Change		Changed Date	ECN No.
	Before	After		
A1	Original Release	---	2023-11-14	---

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 22.5W continuous output power.

The power supply shall meet the **HSF** 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

0.7Amax. @ 100-240Vac input & Full load.

2.3.Inrush Current (cold start)

No damage shall be presented at the cold start

2.4.Averaged Efficiency

85.96% min. @115/230Vac input (@25%, 50%, 75% and 100% of max load).

2.5.Energy Consumption

No load consumption≤0.1W(115Vac/50Hz, 230Vac/60Hz)

3. Output Characteristics

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

Output	Rated Load		Output Range	R+N	Remark
Rate	Min. Load	Max. Load			
+15.0V	0.0A	1.5A	14.4V ~15.6V	150mVp-p	100-240V

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			
+15.0V	0.0A	1.5A	±3%	±5%	

3.3.Turn - on Delay Time

3S max. @100Vac to 240Vac input & Full load.

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3.4.Hold-up Time

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

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

3.5.Rise Time

50mS max. @ Rated load.

3.6.Fall Time

50ms max. @ Full load.

3.7.Output Overshoot / Undershoot

The overshoot at turn on and turn off shall not exceed 10% of nominal output voltage.

3.8.Output Load Transient Response

Output voltage within 14.4-15.6V for load step from 20% to 80%, R/S: 0.5A/uS, frequency: 100Hz duration and 8mS at 80%.

4. Protection Requirements

4.1.Over Current Protection

Over Current Point Limited: 4.5A＞I＞1.65A (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.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

4.3.Over Voltage Protection

The power supply has to be protected against over voltage conditions. No damage allowed. The power supply must come back to nominal working without on/off powering after removal of the over voltage condition.

5. Environment Requirements

5.1.Operating Temperature and Relative Humidity

0℃ to +40℃

20%RH to 85%RH

5.2.Storage Temperature and Relative Humidity

-20℃ to +70℃

5%RH to 95%RH

5.3.Sea level to 5,000 m.

5.4.Vibration

10 to 300Hz sweep at a constant acceleration of 1.0G(Breadth: 3.5mm) for 1Hour for each of the perpendicular axes X, Y, Z.

5.5.Drop Test

Height: 1m; the product should be fell off on the hardwood with the thickness of 20mm. Apply one time on all surfaces, totally 6 surfaces. The electric performance and Hi-Pot test must be OK after the drop tests.

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6. Reliability Requirements

6.1.Burn-in

The power supply shall be burn-in for 2 Hours under normal input and 80% rated load at 40℃±5℃. the electric performance and Hi-Pot test must be OK.

6.2.MTBF

The MTBF of power supply shall be over than 500,000 Hours @ 25℃ 100%Load. @115Vac /60Hz and 230Vac /50Hz.

6.3.E-caps lifetime

The E-caps used in this PSU must be with lifetime of 3years at 25℃of 100% Load@115Vac/60Hz、230Vac/50Hz Input.

7. EMI/EMS Standards

7.1.EMI Standards

EN55032/EN55035

7.2.EMS Standards

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	1KV	A
AC-input	2KV	B

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

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

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)	

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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: 3000Vac / 10mA max. / 60 second.

Primary to Secondary: 3300Vac / 5mA max. /3S. (when production)

8.2.Leakage Current

0.25mAmax. at 264Vac / 60Hz.

8.3.Insulation Resistance

50MΩ min. at primary to secondary add 500Vdc test voltage.

8.4.Regulatory Standards

Type	Country	Standard	State	
CE	Europe	EN62368-1	APPROVAL	

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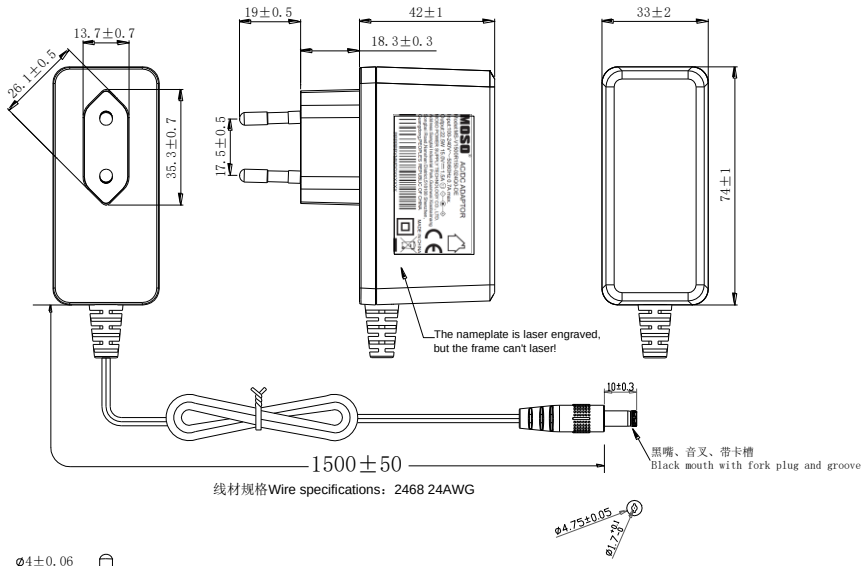
9. Mechanical Outline Drawing



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 color of the casing and DC cable is black(1101M).

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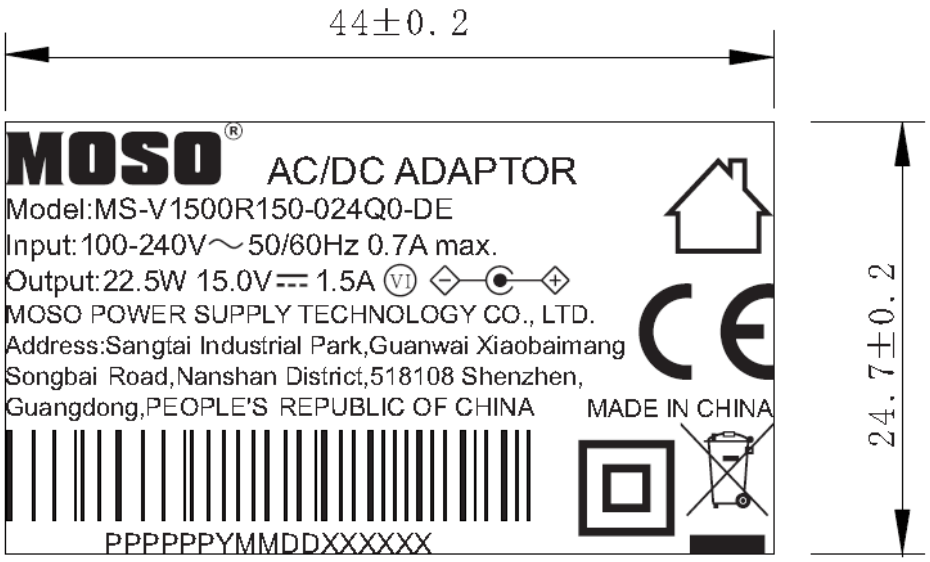
10. I/O Marking Drawing



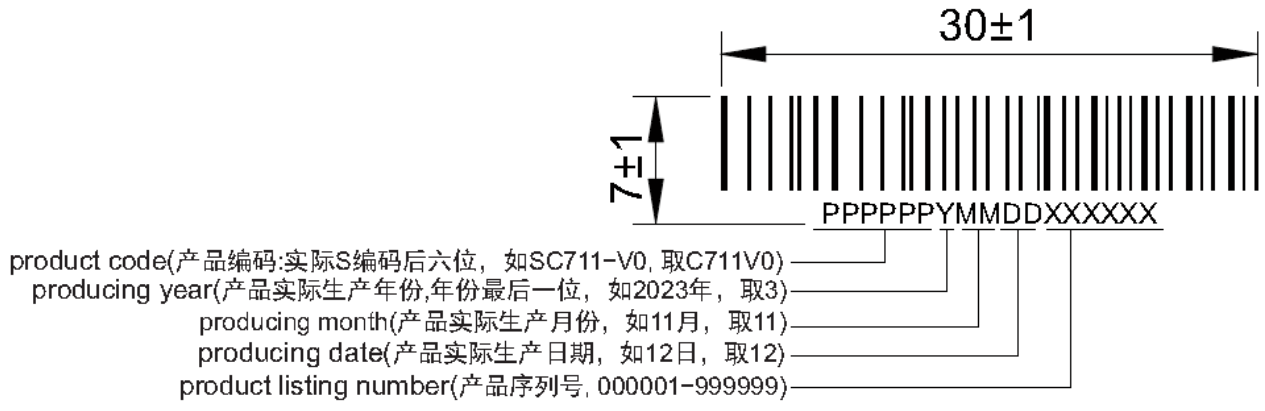
Remark:

1.Above label is laser engraved.

2.The dimension of double insulation mark can NOT less than 5mm.

3.The dimension of garbage bin mark can NOT less than 7mm.

4.The dimension of CE mark can NOT less than 5mm.



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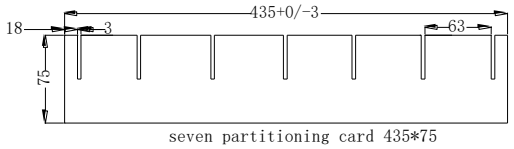
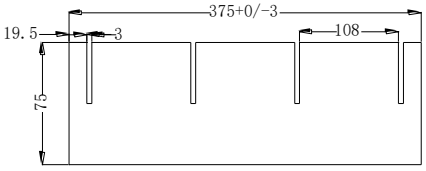
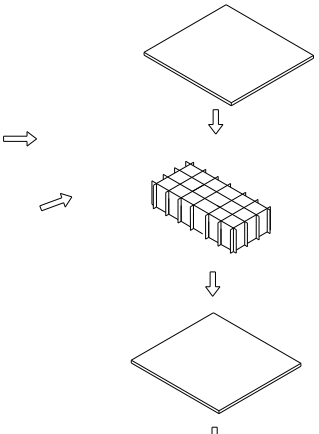
11. Package Drawing



seven partitioning card 435*75



four partitioning card375*75

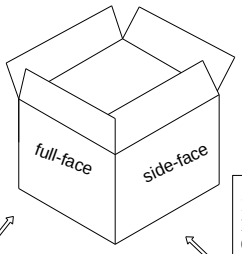


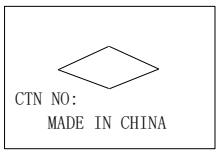
Packing Instruction：

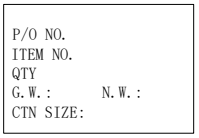
1、the product put in the bag ，
then the packing product put in the
pattitioning card groove，18PCS/floor，
four floors in all，72PCS/box
such as： 18pcs/floor*4floor=72PCS/box

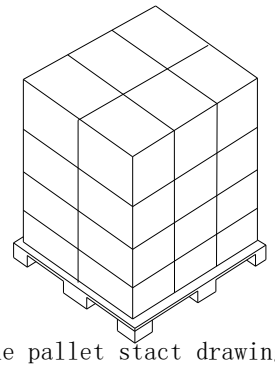
2、the usage of the packing materials：
1)the usage of the seven partitioning card 435*75：16PCS
2)the usage of the four partitioning card 375*75：28PCS
3)the usage of the PE bag 150*120：72PCS
4)the usage of the flat 435*375:5PCS
5)carton box 450*390*335：1PCS

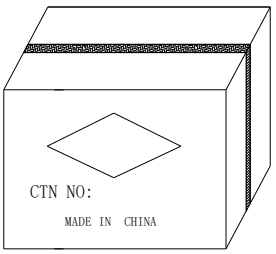
3、Pallet stacke instruction:
1)Pallet size is:L1200*W950*H135mm
2)per floor set 6pcs
3)stack per 4floor*6pcs carton
total 24 pcs carton








The pallet stact drawing



The product will be packed in the carton box and the box will be seled by the sticker

The requirement of PE bag packing: ☐PE bag without sealing by adhesive tape
☐PE bag with sealing by adhesive tape
☐Other requirement

Remark: If the customer has not chose the PE bag packing way,
We will use the PE bag without sealing by adhesive tape.