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

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SPECIFICATION FOR REFERENCE

CUSTOMER：_____

CUSTOMER P.N.：_____

MODEL NO.：MS-H2000R290-058G0-US

PRODUCT NO.：SCXXX-U0/XXXXXX

SAMPLE DATE：2023-03-16

CUSTOMER AUTHORIZED SIGNATURE		

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

ADD: MOSO Industrial Park, Nanshan District, Shenzhen, Guangdong 518108, P. R. China

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

MOSO® 茂硕电源
股票代码：002660

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E. C. LIST

Rev.	Description of Change		Changed Date	ECN No.
	Before	After		
A1	Original Release	---	2023-03-16	---

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 2.0A continuous and 4.0A duty cycle mode with 2 mins on/18 mins off.

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	60Hz/50Hz	63Hz

2.2. Input AC Current

1.5A MAX @90-264Vac input & Full load (Full load means at condition 2A Load)

3.0A MAX @90-264Vac input & MAX load (MAX load means at condition 4.0A Load)

2.3. Inrush Current (cold start)

The energy of inrush current should not be over the I^2T of fuse &bridge diodes

2.4. Average Efficiency

88% min. @ 115Vac Input & 25%, 50%, 75% and 100% of Full load

88% min. @ 230Vac Input & 25%, 50%, 75% and 100% of Full load

2.5. Energy Consumption

No load power <150mW &115Vac/60Hz input

3. Output Characteristics

3.1. Static Output Characteristics (Ripple & Noise)

Output	Load	Output Range	R&N	Remark
+29.0V	0A ~ 2A	28V ~ 30V	380mVp-p	100-240V

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor. (Test under the condition of 115Vac/230Vac input and 2A continuous load output)

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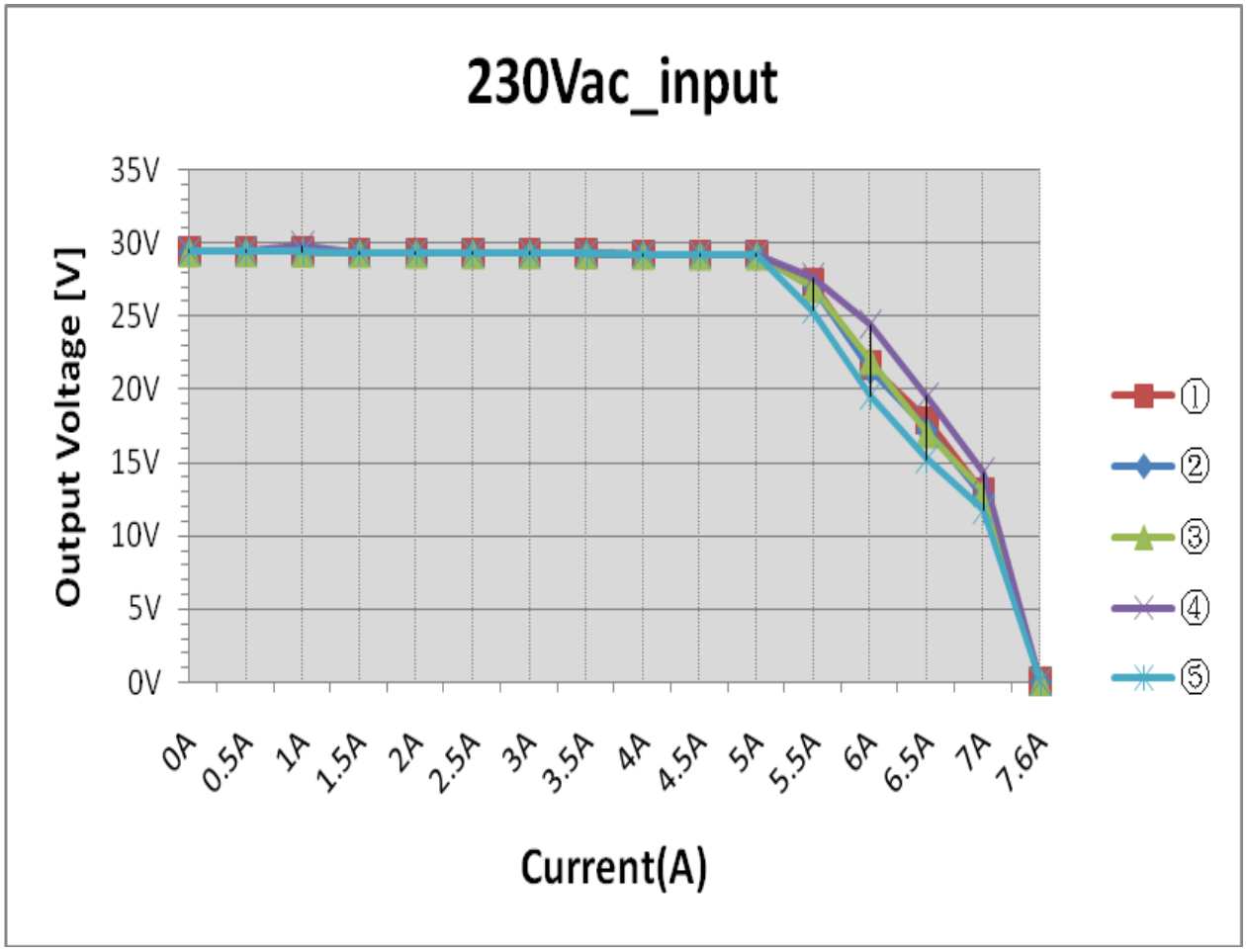
3.2. Line/ Load Regulation

Load regulation @ 29Vdc			
input	output	load condition	ΔUout in V
115V-230V	29V	0.1A->2.0A	1.0
115V-230V	29V	2.0A->0.1A	1.0
115V-230V	28V	0.1A->4.0A	3.5
115V-230V	28V	4.0A->0.1A	3.5

Line Regulation @ 115Vac and 230Vac			
input	output	load condition	ΔUout in V
115V - 230V	29V	2.0A	1.0
115V -230V	28V	4.0A	3.5

230Vac/50Hz V/I CURVE



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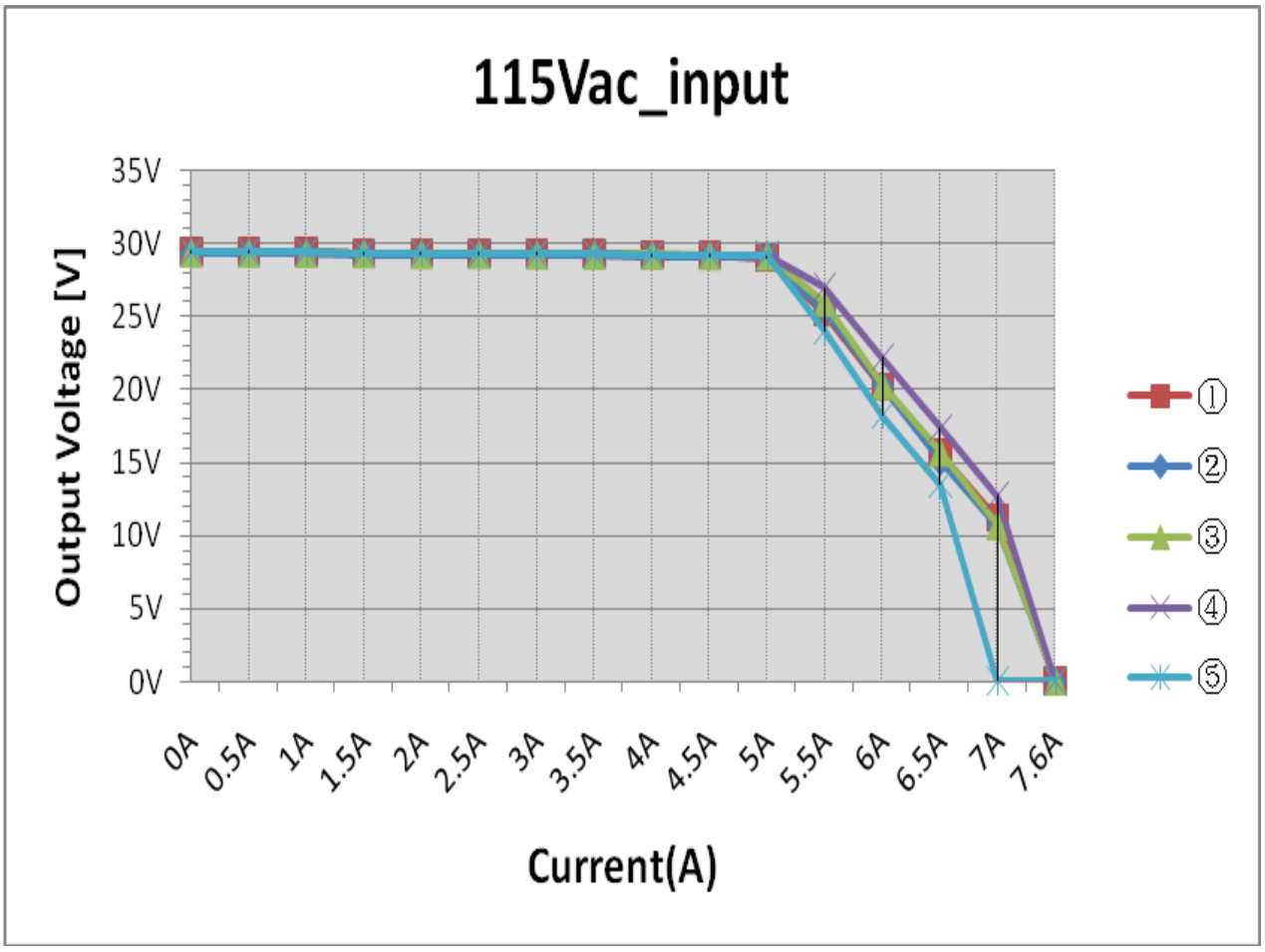
115Vac/60Hz V/I CURVE



3.3. Turn - on Delay Time

5S max. @ 115Vac/230Vac input & Full load.

3.4. Hold-up Time

5mS min. @ 115Vac/60Hz input turn off & Full load；

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

3.5. Rise Time

50mS max. @ 115Vac/230Vac input & Full load.

3.6. Fall Time

50mS max. @ 115Vac/230Vac input & Full load.

3.7. Output Overshoot

10% max. @ 115Vac/230Vac input & Full load.

3.8. Dynamic- deviations

a.) Dynamic load cycle from 0A to 4.0A (Loading):

Control response time is ≤ 25ms @ 115Vac/230Vac input

Voltage decreasing Δ Uout ≤ 3.5V in relation to the static output voltage

b.) Dynamic load cycle from4.0A to 0A (Load overflow):

Control response time is ≤ 25ms @ 115Vac/230Vac input

Voltage overflow Δ Uout ≤ 3.5V in relation to the static output voltage.

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4. Protection Requirements

4.1. Over Current Protection

Over Current Point Limited: 5.7A-9.8A @ 100Vac-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 charger will auto recovered when open loop faults removed.

4.4. Over Temperature Protection

A temperature sensor and associated protection circuitry are installed inside the SMPS power to detect the case internal temperature and provide protection against damage to the SMPS power.

5. Environment Requirements

5.1. Operating Temperature and Relative Humidity

0°C to +40°C

10%RH to 90%RH

5.2. Storage Temperature and Relative Humidity

-20°C to +80°C

5%RH to 95%RH non-condensing @ Sea level shall be low 10,000 feet.

5.3. 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.

5.4. Drop Test

100cm height, 20mm thick hardwood, 3 times. The electric performance and safety test after the drop test must be OK.

6. Reliability Requirements

6.1. Burn-in

The power supply shall be burn-in for 2 Hours under 115Vac/230Vac input and 2.0A continuous load output at 35℃±5℃.

6.2. MTBF Qualification

The MTBF shall be at least 50,000hours at 25°C, 2.0A continuous load and 115Vac/230Vac input condition.

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7. EMI/EMS Standards

7.1. EMI Standards

GB/T9254
GB17625.1
EN55032
EN55035

7.2. EMS Standards/EMS

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

Discharge characteristic	Test level	judgment criteria
Contact discharge	+/-15KV	A

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

Test level	judgment 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 requiremen

Coupling	Test level	judgment criteria
AC-input	1KV	A
AC-input	2KV	B

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

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

8. Safety Standards

8.1. Dielectric Strength (Hi-pot)

Primary to Secondary: 3000Vac / 10mAMax / 60second (3 second for production)

If the working voltage(U),Vpeak or VDC is 212<U≤354 the AC test voltage in Vrms has to be 4000Vrms(TWO MOPP).

If the working voltage(U),Vpeak or VDC is 354<U≤848 the AC test voltage in Vrms has to be 2x(1.41xU+1500)Vrms(TWO MOPP)

8.2. Leakage Current

0.25mAmax. at 264Vac/50Hz (UL1310)

Test method using leakage current test equipment to collect input and output and set up the input voltage to 264Vac.

8.3. Insulation Resistance

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

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8.4. Regulatory Standards

Type	Country	Standard	State	Note
CE	Europe	EN62368-1	MEET	
UL	USA	UL1310	APPROVAL	AC100-120

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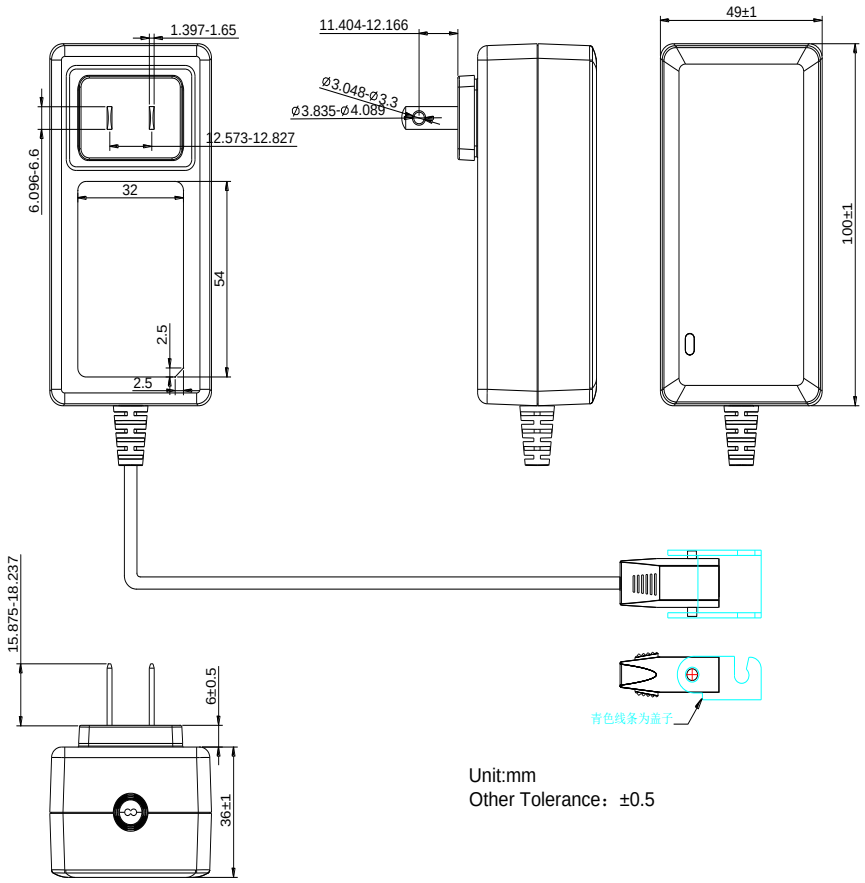
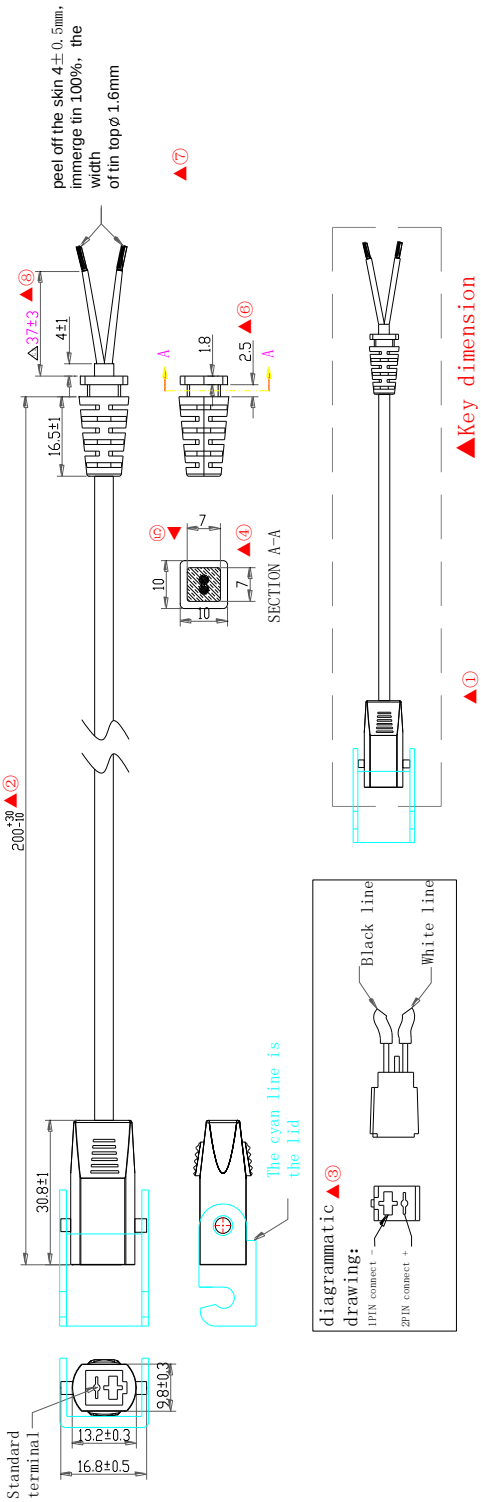
9. Mechanical Outline Drawing



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 enclosure and DC cable are Black;
3)Green LED visible on the top of the case.

10. DC Cord Drawing



Technology requirement:
1. Tensile test requirements:
1) SR and DC plug and wire body tension ≥ 8KG (1 minute), displacement ≤ 2MM;
2) The tension of the whole line is ≥10KG (no broken core in 1 minute and elongation ≤10% of the total length);
2. Swing test requirements:
SR : 250g, 120° (60° on left and right), 40 times/min, at least 2000 times, conduction OK;
DC: 250g, 120° (60° on left and right), 40 times/min, at least 2000 times, conduction OK;
3. Appearance requirements:
1) The outer skin of the wire shall not exceed 3 small bumps per meter;
2) The surface of the wire must not have any bad appearance such as damage, crushing, or dirt;
3) The surface of the SR/DC plug should not have defects such as deformation, shrinkage, flaring, air lines, lack of glue, etc.;
4) The hardware DC plug must not be oxidized or scratched;
5) The wire end must be completely immersed in tin;
6) There should be no pressure line phenomenon at the head and tail of SR/DC;
4. Temperature resistance requirements: heat distortion temperature ≥80℃, after 3H test, no defects such as deformation or cracking;
5. Wire specifications: 2464 18AWG, wire core requirement 41/0.16BC)*2C, single core cross-sectional area 0.824mm2
6. Printing requirements: The main printing is 2464 18AWG 80℃ 300V FT1 VW-1 with a valid UL certification number and company name, regardless of the printing order,
The printed content must be clear, and the characters must be uniform in thickness, and there must be no printing defects such as blurred, skewed, double-image, and missing printing;
7.DC head exposed size requirements
8. Material requirements: DC plug requires 45P-PVC material, SR requires 60P- PVC material, and the wire body requires 50±5P PVC material;
9. Wiring mode: The white core is connected to the + pole, the black core is connected to the - pole;
10. Salt spray test: in a closed environment of 40℃±2℃, humidity ≥95%, PH value in the range of 6.5-7.2,
After 48 hours of continuous salt spraying with 5% ± 0.1% NaCl solution, check that the product surface is free of rust, peeling off and other defects, and the function is normal;
11. Color requirements: black (1101M);
12. Environmental protection requirements: Red phosphorus and yellow phosphorus are banned, have passed RoHS2.0, EU REACH, California 65, PAHS, o-benzene 6P, NP standards and meet Moso environmental protection requirements;
13. Mold number: DC plug: LY2P-048-I LY2P-191; SR : SR3;
14.Part No: 3223000710.

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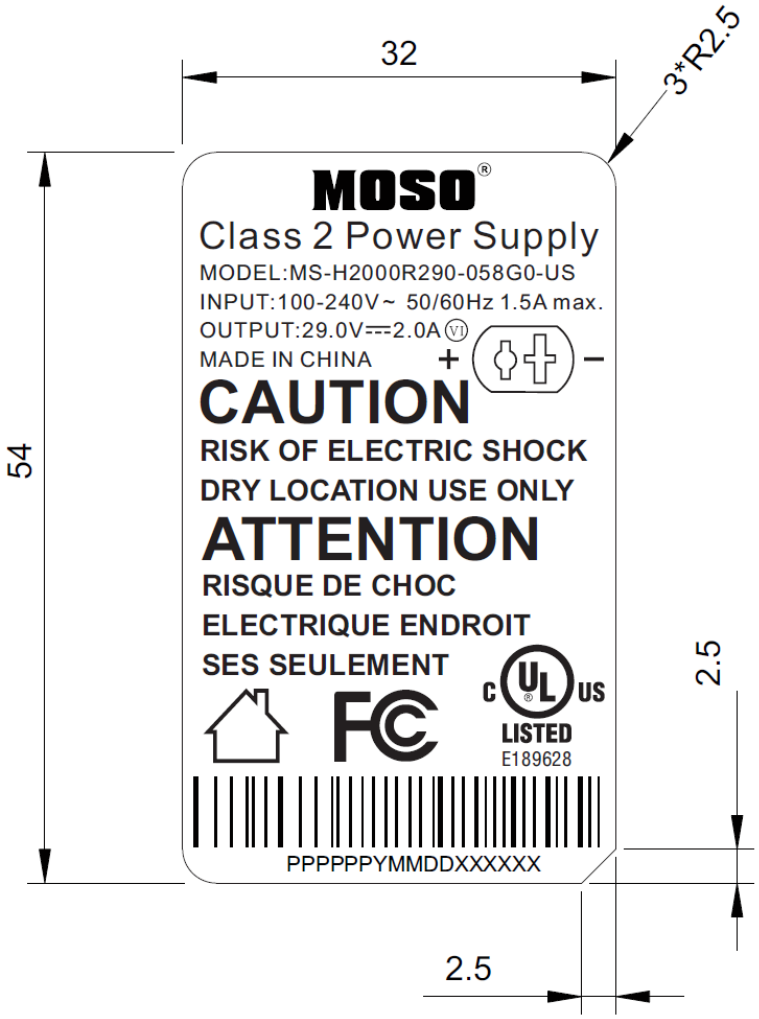
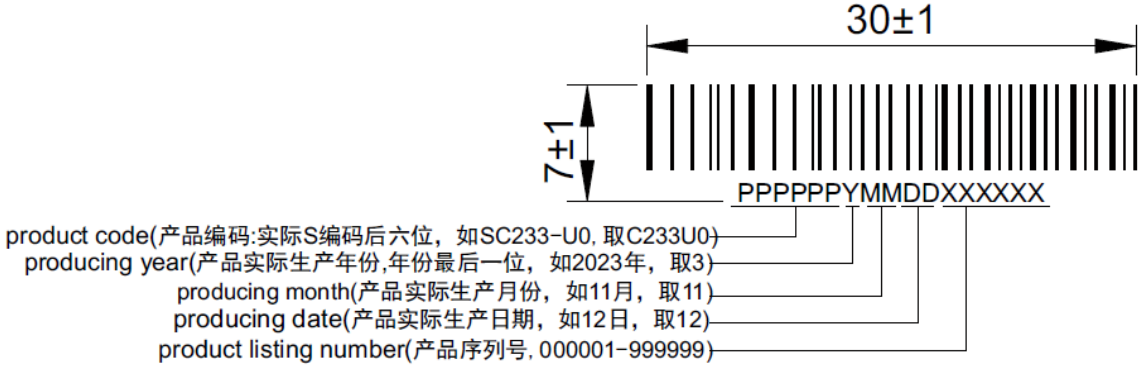
11. I/O Marking Drawing



Remark:
1.Above label is laser engraved.



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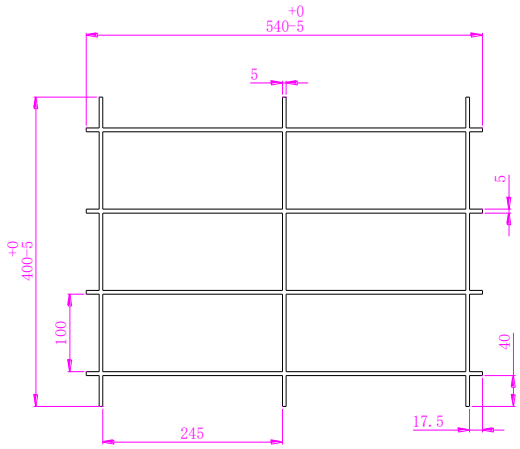
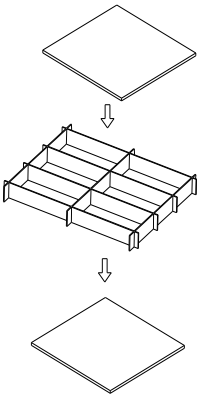
12. Package Drawing





Packing Instruction:

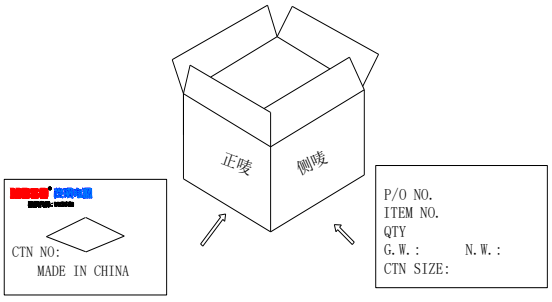
I. the product put in the bag ,then the packing product put in the pattitioning card groove,6PCS/floor,5 floors in all,30PCS/box such as:6pcs/floor*5floor=30PCS/box

II. the usage of the packing materials:

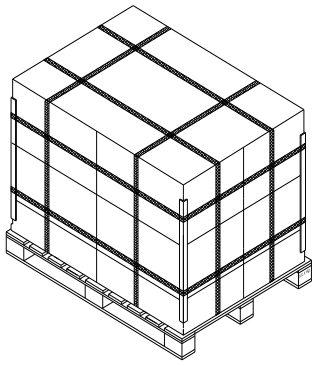
2. the usage of the partitioning card 540*400*60:5PCS
3. the usage of the bag 280*254:30PCS
4. the usage of the flat 540*400:6PCS
5. carton box 555*415*335: 1PCS

III. Pallet stacke instruction:

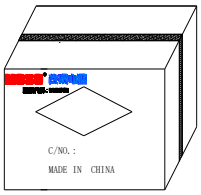
1. Pallet size is:L1200*W950*H135mm
2. per floor set 4pcs
3. stacke per 3floor*4pcs carton total 12pcs carton



555*415*335MM



Pallet stacking diagram



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