



茂硕电源科技股份有限公司

MOSO POWER SUPPLY
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SPECIFICATION FOR REFERENCE

CUSTOMER: _____

CUSTOMER P.N.: _____

MODEL NO.: P30-H3000R050-015F0-DE

PRODUCT NO.: SCXXX-V0

SAMPLE DATE: 2023-11-18

CUSTOMER AUTHORIZED SIGNATURE		

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

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---Table of Content---

1. SCOPE.....	4
1.1. Description.....	4
2. Input Characteristics	4
2.1. Input Voltage & Frequency	4
2.2. Input AC Current	4
2.3. Inrush Current (cold start)	4
2.4. Averaged Efficiency	4
2.5. Energy Consumption	4
2.6. Protection.....	4
3. Output Characteristics	4
3.1. Static Output Characteristics <Vo & R+N>	4
3.2. Line/ Load Regulation	5
3.3. Turn - on Delay Time	5
3.4. Hold-up Time	5
3.5. Rise Time.....	5
3.6. Fall Time.....	5
3.7. Output Overshoot / Undershoot.....	5
3.8. Dynamic load change response.....	5
3.9. Dynamic Response	5
4. Protection Requirements	5
4.1. Over Current Protection	5
4.2. Short Circuit Protection.....	5
4.3. Over Voltage Protection.....	5
5. Environment Requirements	6
5.1. Operating Temperature and Relative Humidity	6
5.2. Storage Temperature and Relative Humidity.....	6
5.3. Vibration	6
5.4. Drop in.....	6
6. Reliability Requirements	6
6.1. Burn-in.....	6
6.2. MTBF Qualification	6
6.3. E-cap Lifetime.....	6
7. EMI/EMS Standards	6
7.1. EMI Standards.....	6
7.2. EMS Standards.....	7
8. Safety Standards	8
8.1. Dielectric Strength(Hi-pot).....	8



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8.2. Leakage Current	8
8.3. Insulation Resistance	8
8.4. Regulatory Standards	8
9. Mechanical Outline Drawing	9
10. I/O Marking Drawing	9
11. Package Drawing	10

1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a Fast Charger, the Fast Charger provide 15 W continuous output power.

The Fast Charger shall meet the RoHS requirement.

1.1. Description

- | | |
|---|---|
| <input type="checkbox"/> SMPS Adaptor(Wall mount) | <input type="checkbox"/> SMPS Adaptor(Desk-top) |
| <input type="checkbox"/> Open Frame | <input type="checkbox"/> SMPS Unit (With Case) |
| <input checked="" type="checkbox"/> PD ADAPTER (Wall mount) | <input type="checkbox"/> 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

0.5Amax. @ 100-240Vac input & Full load

2.3. Inrush Current (cold start)

Peak inrush current shall be limited to 100A for a cold start at 240Vac at 25°C ambient and full load. There is no immediate damage or long-term impact on the reliability of the supply

2.4. Averaged Efficiency

81.39% min. @115V/230Vac input (@25%, 50%, 75% and 100% of max load ≥81.39%)

2.5. Energy Consumption

Input Voltage 115Vac 60Hz/230Vac 50Hz , Energy Consumption ≤0.1W

2.6. Protection

The supply shall be subjected to the following tests while under maximum rated load. No component damage is permitted.

- Brownout: 100 Vac 50 Hz to 0 Vac @ 50 Hz in 1 volt decrements in 30s.
- Brownout recovery: 0 vac 50 Hz to 100 Vac @ 50 Hz in 1 volt increments in 30s.

After completion of the test, power will be reapplied within the rated line voltage ranges and normal operation is expected.

3. Output Characteristics

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

Output Rate	Rated Load		Output Range	R+N	Remark
	Min. Load	Max. Load			
5.00V	0.0A	3.0A	4.75-5.25V	120mVp-p	

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1uF ceramic capacitor and a 10uF electrolysis capacitor. (test under the condition of rated input and rated output)

3.2. Line/ Load Regulation

Output Rate	Load Condition		Line Regulation	Load Regulation	Remark
	Min. Load	Max. Load			
5.00V	0.0A	3.0A	± 3%	± 5%	

3.3. Turn - on Delay Time

3S max. @ 100Vac to 240Vac 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

30mS max. @ Rated load

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. Dynamic load change response

The output voltage shall stay within +/-5% of the nominal output voltage (4.75V-5.25V) while the output load is stepped from 10% to 100% of the rated load. The nominal voltage must be recover in 10ms after overshoot.

3.9. Dynamic Response

The power supply output voltage shall not undershoot or overshoot beyond the specified limits(4.75-5.25V) after applying load changes from 25% to 75% load and back to 25% load with a 40A/msec ramp rate on the output. The load change will be applied with a 50% duty cycle.

4. Protection Requirements

4.1. Over Current Protection

Output Rate	Rated Load		Over Current	Input Voltage	Remark
	Min. Load	Max. Load			
5.00V	0.0A	3.0A	3.3-3.9A	100-240VAC	C Port

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

Output Rate	Rated Load		Over Voltage	Input Voltage	Remark
	Min. Load	Max. Load			
5.00V	0.0A	3.0A	6.0-7.0V	100-240VAC	

5. Environment Requirements

5.1. Operating Temperature and Relative Humidity

-10°C to +45°C

35%RH to 85%RH

5.2. Storage Temperature and Relative Humidity

-20°C to +80°C

5%RH to 95%RH

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 in

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 100% rated load at 40°C ± 5°C

6.2. MTBF Qualification

The MTBF shall be at least 50,000hours at 25°C, Full load and nominal input condition

6.3. E-cap Lifetime

The life estimation of capacitor must be over 3 years at 25°, 80% load and 100-240Vac input.

*Standard:

$$\text{Life Time} = L_r * 2^{(T_o - T_x) / 10} * 2^{(\Delta T_o - \Delta T) / 5}$$

$$(\Delta T_o - \Delta T) / 5 = 1 - [I_a / (I_s * T_f * F_f)]^2$$

Note-3 CE Capacitor Life time ΔT_o : Self Heat Coefficient (85 °C = 10, 106 °C = 5)

L_r : Capacitor Life Spec I_a : Measured Ripple Current

T_o : Capacitor Temp Spec I_s : Ripple Current spec

T_x : Capacitor case Temp F_f : Frequency Factor

ΔT : Capacitor Self Heat T_f : Temperature Factor

7. EMI/EMS Standards

7.1. EMI Standards

EN55035/EN55032

7.2.EMS Standards

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

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

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	A
AC-input	1KV	A

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)	

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

8.2. Leakage Current

0.25mA max. at 264Vac / 60Hz

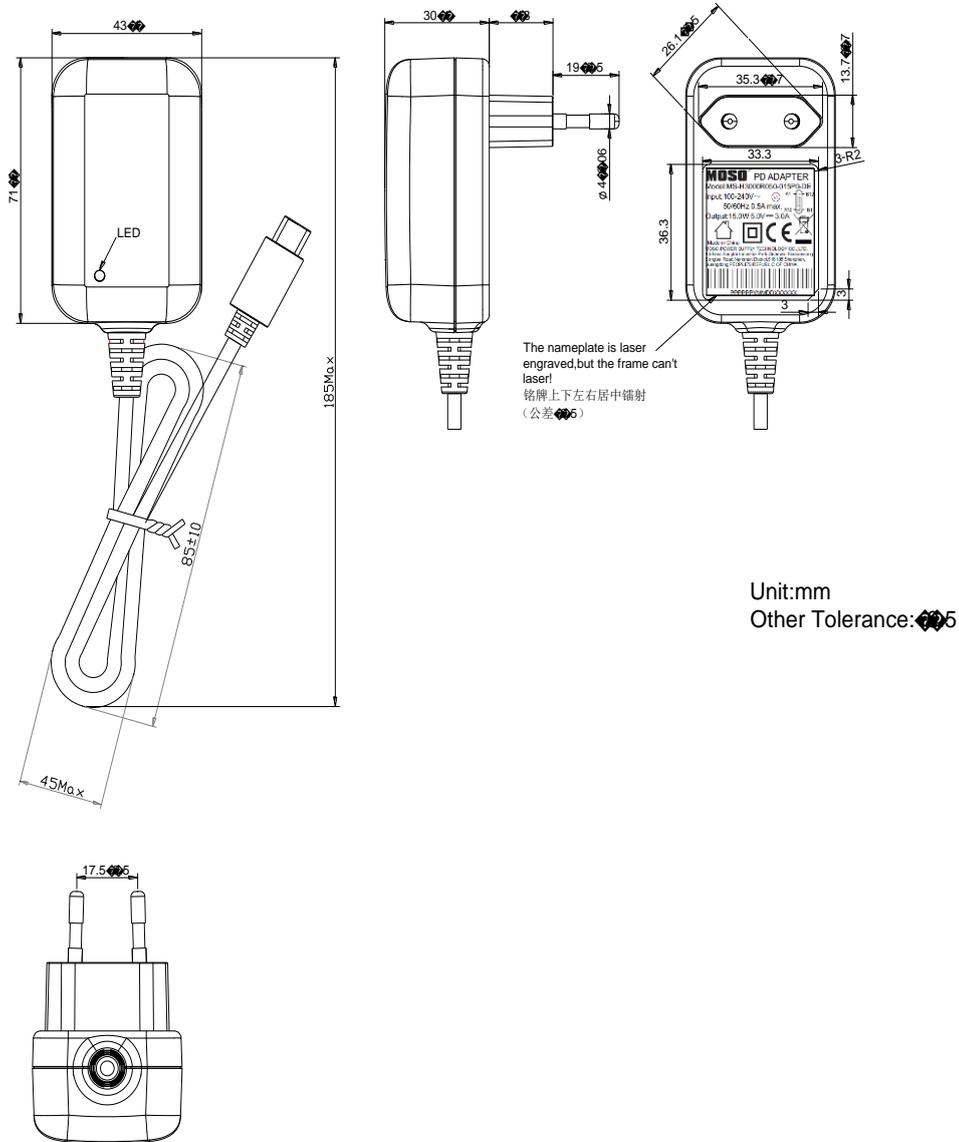
8.3. Insulation Resistance

100MΩ min. at primary to secondary add 500Vdc test voltage

8.4. Regulatory Standards

Type	Country	Standard	Statue	Mark
CE	Europe	EN62368-1	APPROVED	

9. Mechanical Outline Drawing



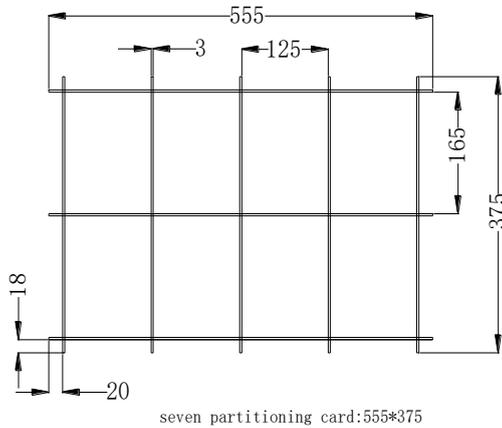
Unit:mm
Other Tolerance: ±0.05

Case material: PC temperature resistance: 125°C
 PC+ABS temperature resistance: 95°C

Remark: 1) PC material compliances with ball pressure testing requirement.
 2) The color of enclosure and DC cable are black.
 3) The White LED visible on the top of the case.

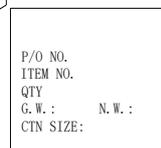
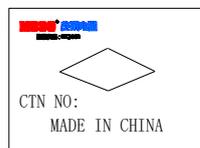
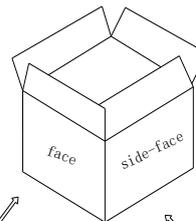
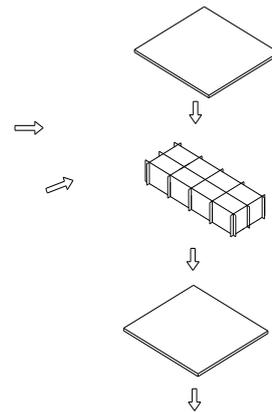
10. I/O Marking Drawing

11. Package Drawing



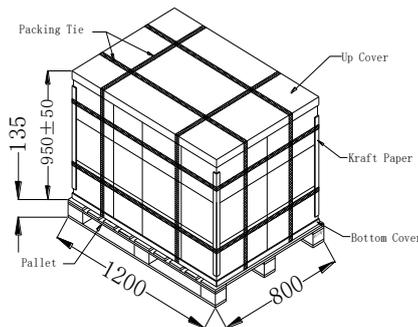
Packing Instruction:

- The packing product put in the partitioning card groove, 16PCS/floor, 5 floors in all, 80PCS/box
such as: 16pcs/floor*5floor=80PCS/box
- the usage of the packing materials:
 - the usage of the four partitioning card 555*375*52: 5PCS
 - the usage of the flat 555*375*6PCS
 - carton box 570*390*300: 1PCS
- Pallet stacke instruction:
 - Pallet size is:L1200*W800*H135mm
 - per floor set 4pcs
 - stacke per 3floor*4pcs carton total 12 pcs carton

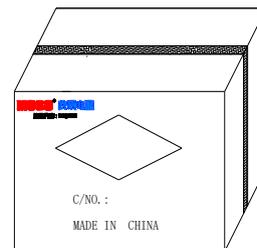


570*390*300MM

the bag of outside size: 570L*390W*300H



Pallet stacking diagram



The product will be packed in the carton box and the box will be sealed 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.