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
P.C:518108
FAX: 86-755-27657908
http://www.mosopower.com

SPECIFICATION FOR REFERENCE

CUSTOMER:	
CUSTOMER P.N.:	
MODEL NO.:	**P40-V1500R200-030CC0-US**
PRODUCT NO.:	**SCXXX-U0/XXXXXX**
SAMPLE DATE:	**2024-03-19**

CUSTOMER AUTHORIZED SIGNATURE		

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

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

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MANUFACTURER AUTOGRAPH			
Reviser	**Confirm**	**Checked**	**Approval**

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		2024-03-19	---

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a Fast Charger, the Fast Charger provide 30 W continuous output power.

The Fast Charger shall meet the HSF requirement.

1.1. Description

☐SMPS Adaptor(Wall mount)　☐SMPS Adaptor(Desk-top)

☐Open Frame　☐SMPS Unit (With Case)

☒PD ADAPTER (Wall mount)　☐Others

1.2. Green Requirements

☒RoHS:2011/65/EU & (EU) 2015/863;

☒REACH:1907/2006/EC;

☐Halogen-free:IEC 61249-2-21;

☐CA Prop 65;

☒POPs:(EU)2023/1608;

☒PAHs: 2005/69/EC;

☒Packaging Directive:94/62/EC;

☒US EPA Toxic Substances Control Act (TSCA);

☒MOSO Environmental standards: WI-QM006-G;

☐Others

1.3. Energy Efficiency Requirements

No.	Country	Energy efficiency abbreviation	Whether it meets the requirements/(YES/☒, NO/☐)
1	USA	DoE VI	☒
2		CEC	☐
3	Canada	NRCan	☐
4	Australia/New Zealand	GEMS	☐
5	Europe	Erp VI	☐
6		CoC Tire 2	☐
7	South Korea	KMEPS	☐
8	Mexico	MEPS	☐
9	Byelorussia	MEPS	☐

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

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2.2. Input AC Current

0.8Amax. @ 90-264Vac input & Full load

2.3. Inrush Current (cold start)

Peak inrush current shall be limited to 30A for a cold start at 100Vac 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

5V3A: 81.39% min. @115Vac, 230Vac input (@25%, 50%, 75% and 100% of max load)
9V3A:86.62% min. @115Vac, 230Vac input (@25%, 50%, 75% and 100% of max load)
12V2.5A:86.95% min. @115Vac, 230Vac input (@25%, 50%, 75% and 100% of max load)
15V2.0A:86.95% min. @115V/230Vac input (@25%, 50%, 75% and 100% of max load)
20V1.5A:86.95% min. @115V/230Vac input (@25%, 50%, 75% and 100% of max load)

2.5. Energy Consumption

Input Voltage115Vac 60Hz/230Vac 50Hz , Energy Consumption≤0.1W.

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	200mVp-p	
9.00V	0.0A	3.0A	8.55-9.45V	200mVp-p	
12.00V	0.0A	2.5	11.40V ~ 12.60V	200mVp-p	
15.00V	0.0A	2.0A	14.25-15.75V	200mVp-p	
20.00V	0.0A	1.5A	19-21V	200mVp-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	＋5%/-10%	±5%	
9.00V	0.0A	3.0A	±5%	±5%	
12.00V	0.0A	2.5	±5%	±5%	
15.00V	0.0A	2.0A	±5%	±5%	
20.00V	0.0A	1.5A	±5%	±5%	

3.3. Turn - on Delay Time

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

3.4. Hold-up Time

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

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3.5. Rise Time

30mS max. @ Rated load

3.6. Fall Time

50mS max. @ Full load

3.7. Dynamic load change response

With 50% step load change (10% to 50% / 50%~90%) and 0.15A/us slew rate AC input with 90Vac/264Vac 50Hz/60Hz load change frequency is 100Hz in 25 ℃

5V: 4.0V~6Vdc
9V: 8.1~9.9Vdc
12V: 10.8V~13.2Vdc
15V: 13.5V~16.5Vdc
20V: 18.5V~ 21.5Vdc

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	3.2-4.2A	100-240VAC	
9.00V	0.0A	3.0A	3.2-4.2A	100-240VAC	
12.00V	0.0A	2.5	2.6-3.75A	100-240VAC	
15.00V	0.0A	2.0A	2.1-3.0A	100-240VAC	
20.00V	0.0A	1.5A	1.6-2.25A	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

Output Rate	Rated Load		Over Voltage	Input Voltage	Remark
	Min. Load	Max. Load			
5.00V	0.0A	3.0A	7.5V	100-240VAC	
9.00V	0.0A	3.0A	13.5V	100-240VAC	
12.00V	0.0A	2.5	18V	100-240VAC	
15.00V	0.0A	2.0A	22.5V	100-240VAC	
20.00V	0.0A	1.5A	30V	100-240VAC	

5. Environment Requirements

5.1. Operating Temperature and Relative Humidity

0℃ to +40℃

5%RH to 95%RH

Note: PSU can operation at 40℃ @ 80% load (Input voltage: 90Vac to 115Vac)

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Note: PSU can operation at 40℃ @ 100% load (Input voltage: 115Vac to 264Vac)

5.2. Storage Temperature and Relative Humidity

-20℃ to +70℃

10%RH to 90%RH

5.3. Altitude:Sea level to 5,000 meters.

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 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℃±5℃

6.2. MTBF Qualification

The MTBF shall be at least 100K hours minimum @ 25℃, full load & 115Vac/230Vac input with SR-332

6.3. E-cap Lifetime

The life estimation of capacitor must be over 1 years at 40℃, 80% loading and 115/230Vac input.

7. EMI/EMS Standards

7.1. EMI Standards

FCC Part 15

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	

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

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

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

EN 61000-4-5 Surge voltage	Test criteria
Common mode +/-2KV	A
Differential mode +/-2KV	

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 / 10mAMax / 60 second

Primary to Secondary: 3300Vac / 5mAMax /3S

8.2. Leakage Current

0.25mAmax. 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
UL	USA	UL62368-1	MEET	

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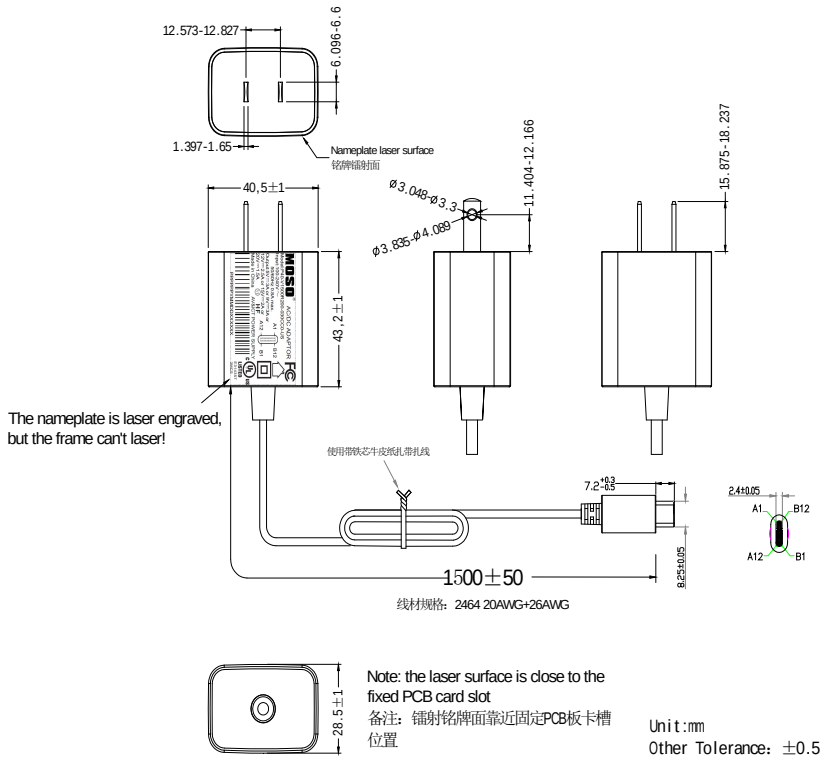
9. Mechanical Outline Drawing



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 the casing and DC cable is White.

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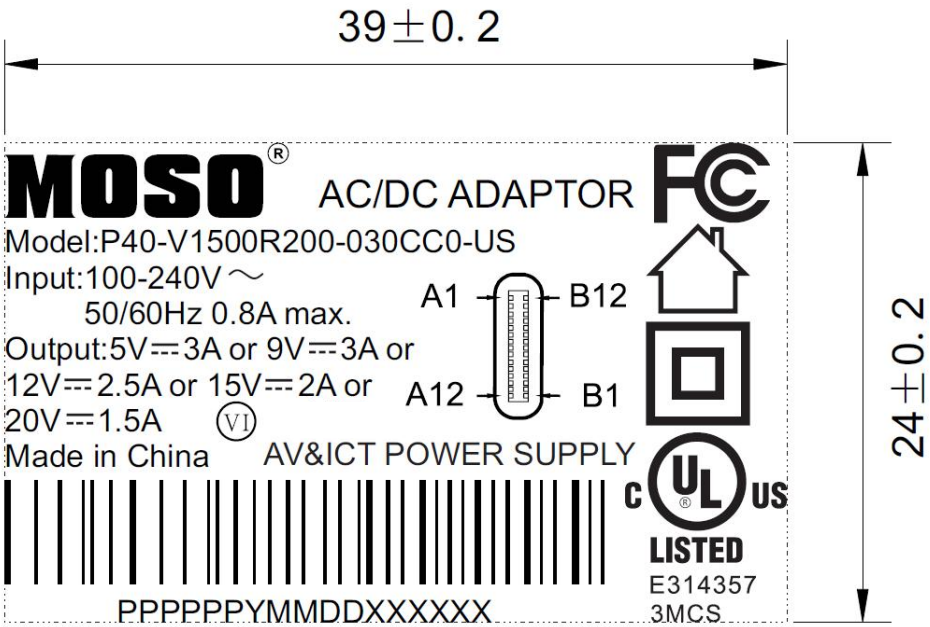
10. I/O Marking Drawing



Remark:

1. Above label is laser engraved.
2. The size of double-insulation is no less than 5mm;