



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.: MSA-C1500IC5.0-7.5A-DE

PRODUCT NO.: SCXXX-V0

SAMPLE DATE: 2019-11-30

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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P.C.: 518108

FAX: 86-755-27657908

E-mail: moso@mosopower.com

<http://www.mosopower.com>

Prepared By :	Safeited By:	Checked By :	Approved By :

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 7.5W 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

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

2.3. Inrush Current (cold start)

50Amax. @ 230Vac input

2.4. Averaged Efficiency

76.65% min. @115V/230Vac input (@25%, 50%, 75% and 100% of max load).

2.5. Energy Consumption

No load Consumption $\leq 0.1W$ (115Vac/60Hz,230Vac/50Hz).

3. Output Characteristics

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

Output Rate	Rated Load		Output Range	R+N	Remark
	Min. Load	Max. Load			
+5.0V	0.0A	1.5A	4.75V~ 5.25V	120mVp-p	100-240Vac

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 rated input and rated output).

3.2. Line/ Load Regulation

Output Rate	Load Condition		Line Regulation	Load Regulation	Remark
	Min. Load	Max. Load			
+5.0V	0.0A	1.5A	$\pm 3\%$	$\pm 5\%$	

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

40mS max. @ Rated load

3.6. Fall Time

40mS 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

Output voltage within 4.5-5.5V 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: $3.0A > I > 1.6A(100-240Vac)$

The output shall hiccup when the over current 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.

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 5,000 meter.

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

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.

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°C ± 5°C.

6.2. MTBF Qualification

The MTBF shall be at least 100,000hours at 25°C, Full load and nominal input Condition @115Vac/230Vac.

7. EMI/EMS Standards

7.1. EMI Standards

EN55024/EN55032/EN55020

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	0.5KV	A
AC-input	1KV	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)	

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 / 60second

Primary to Secondary: 3300Vac / 5mA Max / 3S for production

8.2. Leakage Current

0.25mA max. at 264Vac / 60Hz

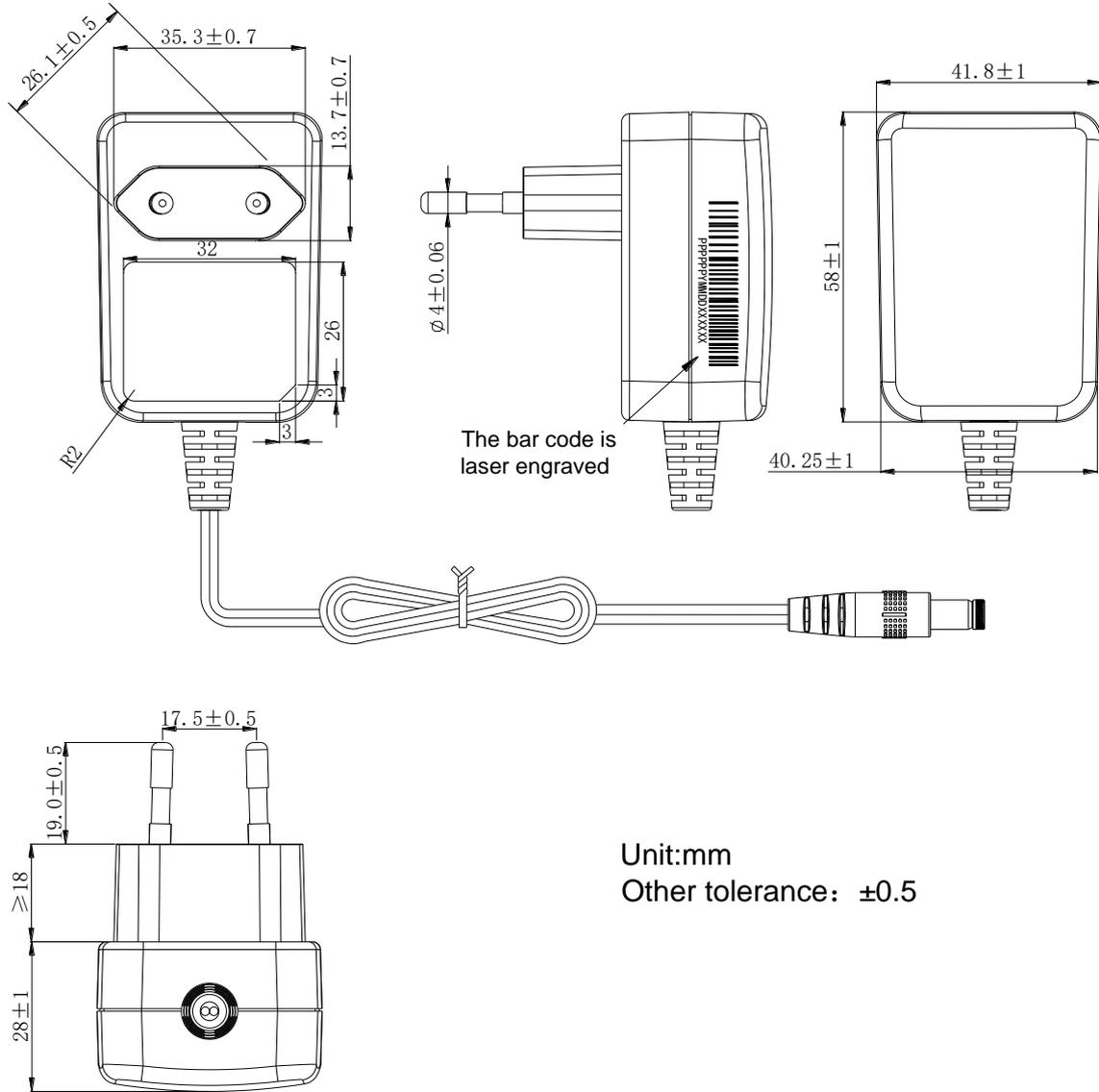
8.3. Insulation Resistance

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

8.4. Regulatory Standards

Type	Country	Standard	Statue	Mark
CE	Europe	EN60950-1/EN60065	Approval	

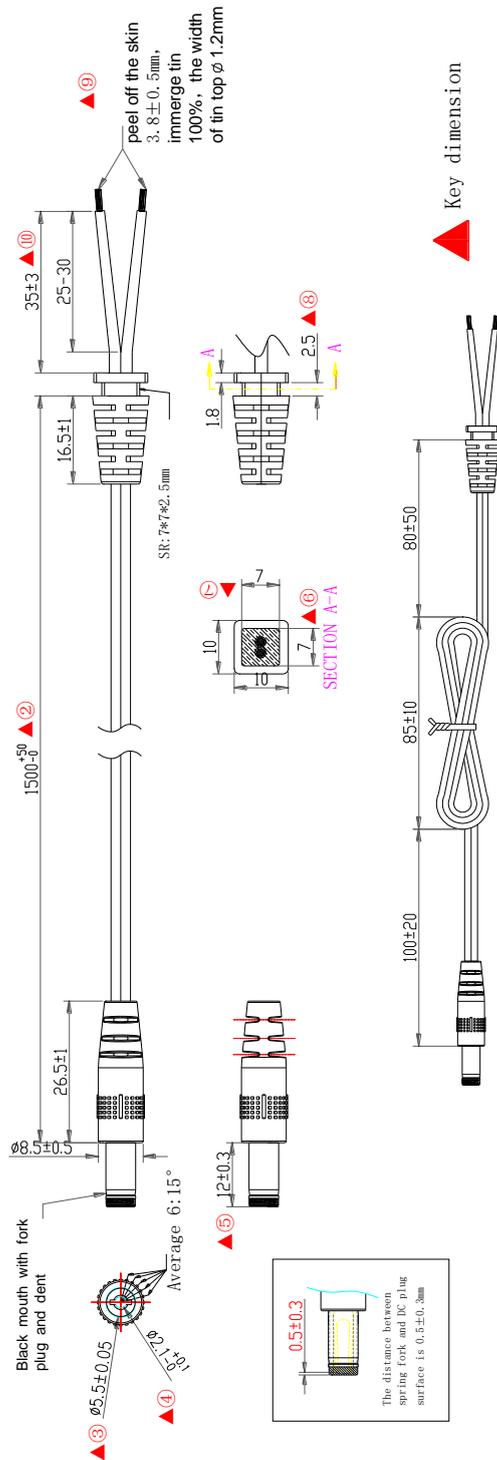
9. Mechanical Outline Drawing



Case material: PC temperature resistance: 120°C
 PC+ABS temperature resistance: 95°C

Remark: PC material compliances with ball pressure testing requirement.

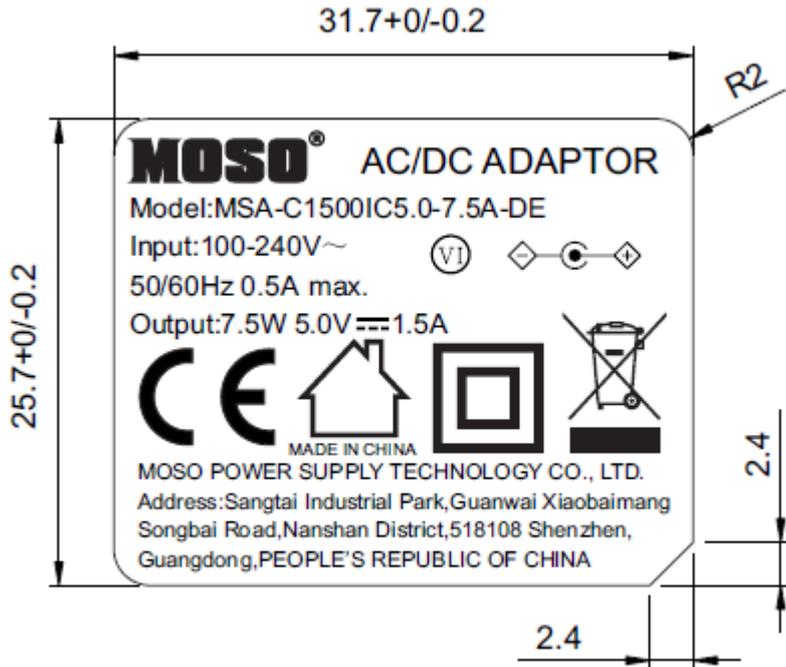
10. DC Cord Drawing



Technology Request:

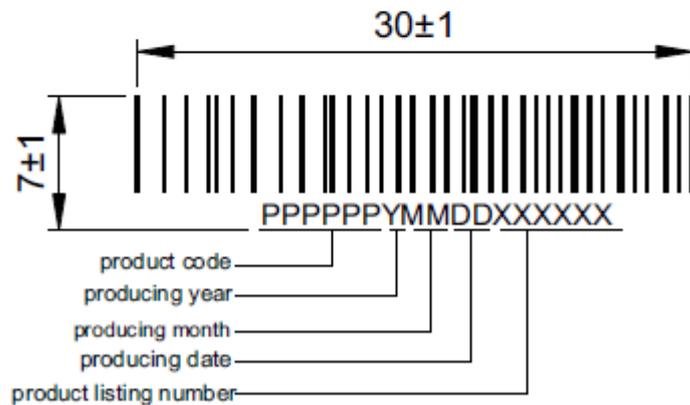
- 1、 Drawing Up Test Request:
 - 1) The DC plug and SR pull $\geq 5\text{kg}$ (1 minute), displacement $\leq 2\text{mm}$;
 - 2) Pull of the whole line $\geq 10\text{kg}$ (un-break off in 1 min and extend rate $\leq 10\%$ of whole length)
 - 3) DC plug pull: 0.3-3kg/f, 5000 times;
 - 4) Oxidation or Scratch on hardware DC plug are unallowed;
 - 5) Should be entirely immersed the DC plug into tin;
 - 6) Impress on SR/DC plug rump is unallowed;
- 2、 Vibration Test Request:
 - SR :250g,120°(both 60° on left and on right),45 times/min minimum 1000 times
 - DC plug:250g,120°(both 60° on left and on right),45 times/min minimum 1000 times.
- 3、 Appearance Request:
 - 1) No more than three times on per meter wine;
 - 2) Inferior as disrepair、impress、dirty、pursy on the wire surface are unallowed;
 - 3) Inferior as shrink、distortion、glue lack on SR、DC plug are unallowed;
 - 4) Oxidation or Scratch on hardware DC plug are unallowed;
 - 5) Should be entirely immersed the DC plug into tin;
 - 6) Impress on SR/DC plug rump is unallowed;
- 4、 High Temperature Resistance request:
 - 1) Heat distortion temperature $\geq 80^\circ\text{C}$, test time: 3-6 hours, no distortion, cracking
- 5、 Wire Specification: 2468 22AWG 80°C 300V FT1 VW-1 ,There are printed words on the line ,Wire core requirements 17/ø0.16, proportion should be 0.34mm² ;
- 6、 Words printed request: 2468 22AWG 80°C 300V FT1 VW-1, wire should be with UL certificate NO.and company name;Uncontrollably the ordinal for words printed;
- 7、 DC plug: $\phi 5.5 \pm 0.05 \times \phi 2.1 \pm 0.1 \times 12 \pm 0.3$ mm, black mouth with fork plug and dent.
- 8、 Material Request:about DC plug should be 45p-pvc;60p pvc on SR and 65±5P- PVC on wire surface;
- 9、 Connect method:striped line connect with the copper nail innerside;words printed line on nail outside;
- 10、 Salt and fog test:on 40°±2° humidity $\geq 95\%$,5%±0.1% NaCl ,PH parameter between 6.5-7.2, should be ok after 48h;
- 11、 Color Request: black(1101M);
- 12、 Environmental Protection Request:RoHS+REACH+CA65; without red phosphorus
- 13、 Mould number :DC plug:MSW-PL03; SR:MSW-SR3.
- 14、 Part No.:XXXXXXXXXX

11. I/O Marking Drawing

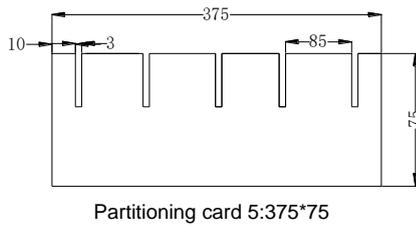
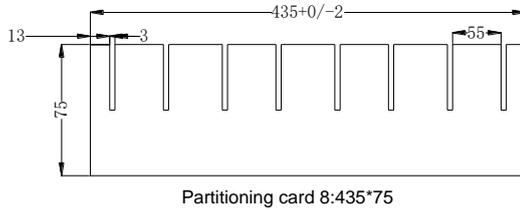


Remark:

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.

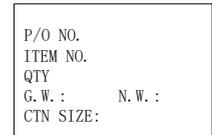
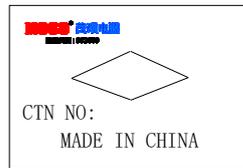
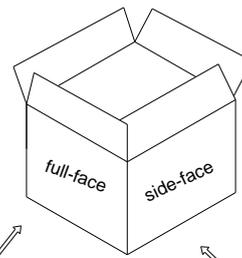
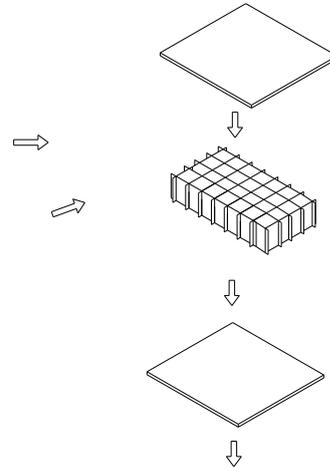


12. Package Drawing



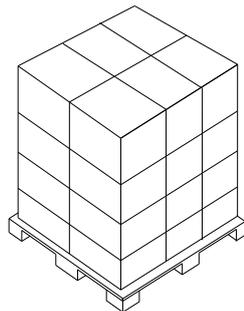
Packing Instruction:

- 1、 the product put in the PE bag ,
then the packing product put in the
pattitioning card groove. 28PCS/floor,
4 floors in all, 112PCS/box
such as: 28pcs/floor*4floor=112PCS/box
- 2、 the usage of the packing materials:
 - 1) the usage of the five partitioning card 375*75: 32PCS
 - 2) the usage of the eight partitioning card 435*75: 20PCS
 - 3) the usage of the PE bag250*120: 112PCS
 - 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) stacke per 4floor*6pcs carton
total 24 pcs carton

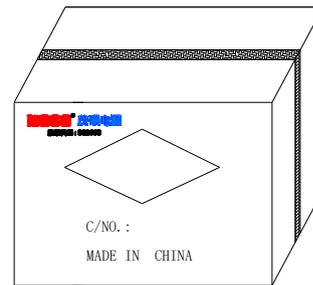


450*390*335MM

The box of outside size: 450L*390W*335H



The pallet stacke 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 tap.
 PE bag with sealing by adhesive tap
 Other requirement

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