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SPECIFICATION FOR REFERENCE

CUSTOMER： _____

CUSTOMER P.N.： _____

MODEL NO.： MS-Z1500R290-058D0-P

PRODUCT NO.： SCXXX-P0/XXXXXXX

SAMPLE DATE： 2022-05-10

CUSTOMER AUTHORIZED SIGNATURE		

Please return to us one copy of "SPECIFICATION FOR APPROVAL" with your 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	---	2022-05-10	---

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1. SCOPE

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 1.5A continuous and 4.0A duty cycle mode with 2 mins on/18 mins off.

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	60Hz/50Hz	63Hz

2.2. Input AC Current

1.5A MAX @90-264Vac input & Full load (Full load means at condition 1.5A 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, 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	Rated Load	Output Range	R&N	Remark
+29.0V	0.0A	28.5V ~ 29.9V	600mVp-p	
	4A@115Vac /230 Vac mains supply	Minimum 27.7V		

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)

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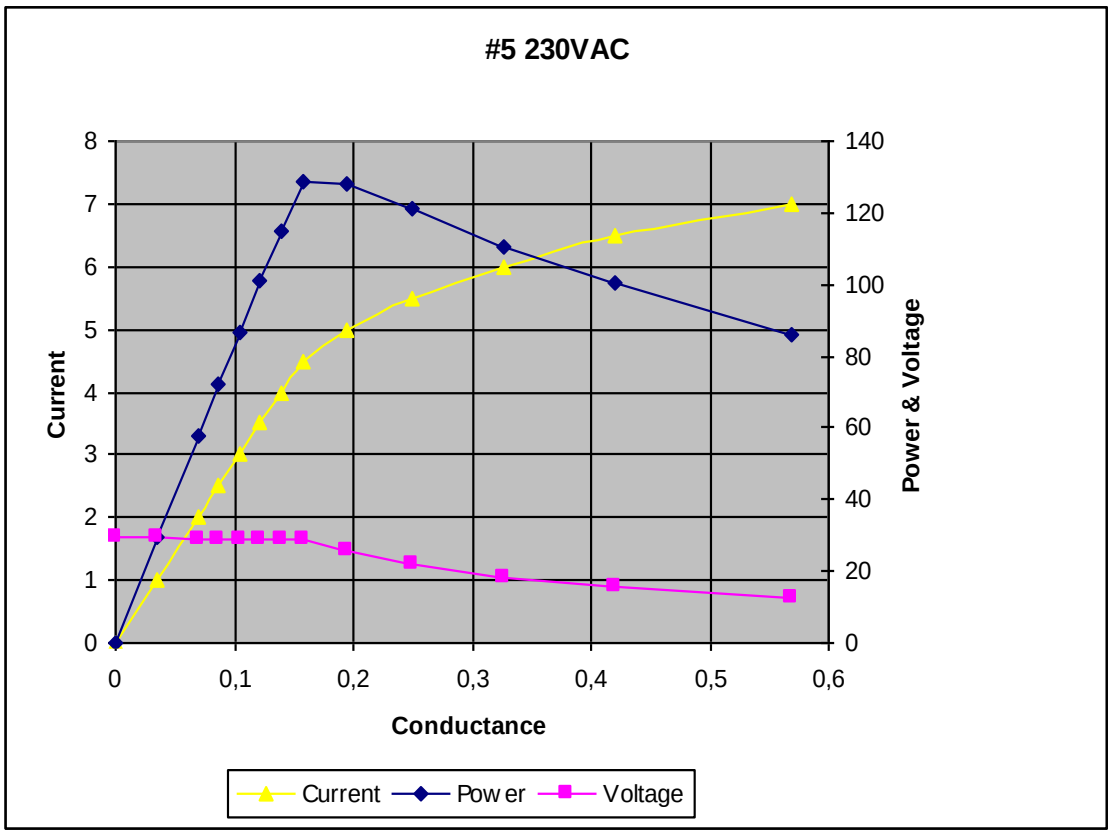
3.2. Line/ Load Regulation

Output	Load Condition		Line Regulation	Load Regulation	Remark
Rate	Min. Load	Max. Load			
+29.0V	0.0A	1.5A	±5%	See Performance curve	

230V V/I CURVE



3.3. Turn - on Delay Time

3.5S max. @ 100Vac to 240Vac input & Full load.

3.4. Hold-up Time

10mS 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

20mS max. @ Full load.

3.7. Output Overshoot

10% max. When the power on or off.

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4. Protection Requirements

4.1. Over Current Protection

Over Current Point Limited: 5.5A-9A @ 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.

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 4 Hours under normal input and 80% rated load at 40℃±5℃.

6.2. MTBF Qualification

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

7. EMI/EMS Standards

7.1. EMI Standards

EN61000-3-2
EN61000-3-3
EN55014-1
EN55014-2
EN62233
EN55032
EN55035
CISPR32, Class B
AS/NZS CISPR32, Class B

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7.2. EMS Standards

7-2-1: EN60335-1 Chapter 19.11

+/-15KV air discharge, no unsafe status may appear after test.

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: EN60335-1 Chapter 19.11

10V/m (r.m.s), no unsafe status may appear after test.

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: EN60335-1 Chapter 19.11

AC 4KV, no unsafe status may appear after test

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	

N60335-1 Chapter 19.11

Surge voltage	Test criteria
Common mode +/-4KV	No unsafe status may appear after test
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)	

EN60335-1 Chapter 19.11; test level 10V, no unsafe status may appear after test

EN61000-4-11 Voltage dips

Limits:

Requirements acc: EN60601-1-2: and

Requirements acc: EN60335-1

No unsafe status may appear after test

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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: 4000Vac / 10mAMax / 60second (3second for production).

8.2. .Leakage Current

0.1mAmax. at 264Vac / 50Hz.

8.3. Insulation Resistance

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

8.4. Regulatory Standards

Type	Country	Standard	State	Note

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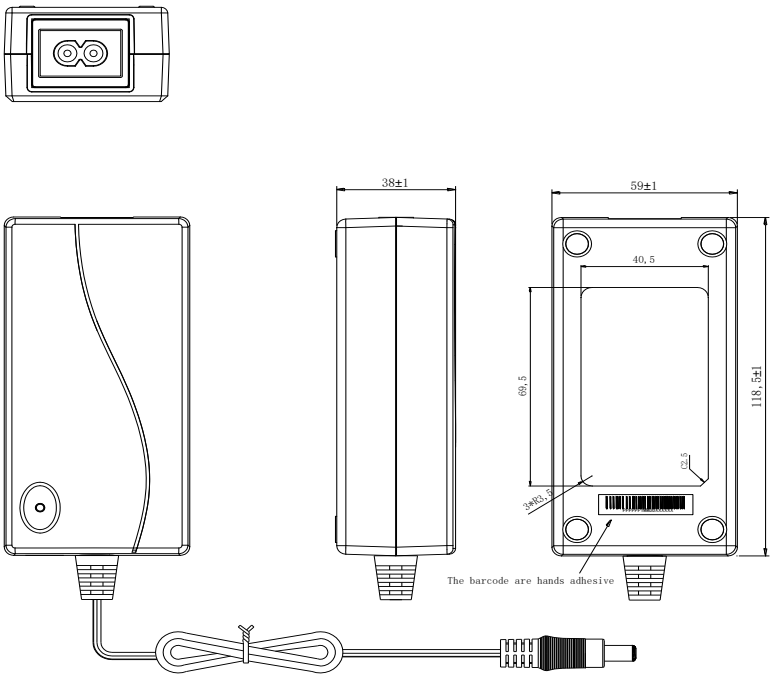
9. Mechanical Outline Drawing



Unit:mm
Other Tolerance：±0.5

Case material: ■PC temperature resistance: 120℃
□PC+ABS temperature resistance: 95℃
Remark:PC material compliances with ball pressure testing requirement.

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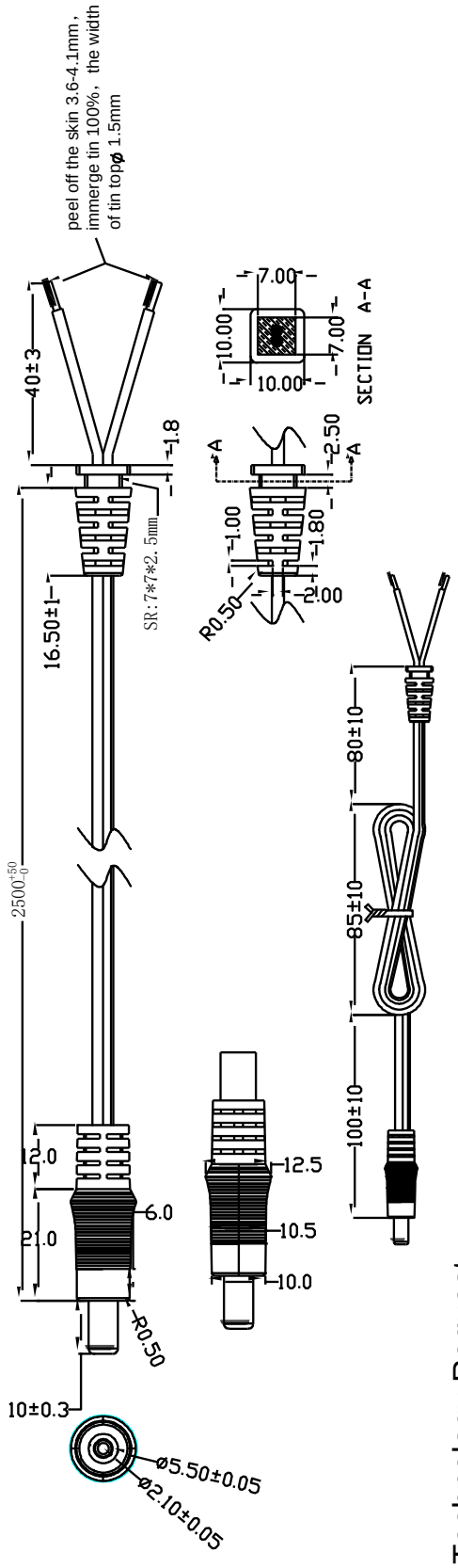
10. DC Cord Drawing



E. Wire Specification：SPT-1 18AWGX2C 105℃ 300V FT2 VW-1 should have word printed, cord should be 34/⌀ 0.18,proqortion should be 0.824m 2
F. Words printed request： SPT-1 18AWGX2C 105℃ 300V FT2 VW-1 with UL certificate NO.and company name;
G. DC plug：⌀ 5.5± 0.05X⌀ 2.1± 0.05X10.0± 0.3mm;black mouth with no fork plug and dent.
H. Material Request:about DC plug should be 45p-pvc;60° pvc on SR and 65± 5 PVC on wire surface;
K. Connect method:white line connect with the copper nail innerside;words printed line on nail outside
J. Salt and fog test:on 35° ±2° ,humidity ≥85%,PH pqrameter between 6.5-7.2 should be ok after 48h
L. Color Request； black(1101M)
M. Renviroment Protection Request:Rohs.
N. Part No.:322300762.

Technology Request:

A. Drawing Up Test Request：1、The DC plug and SR pull ≥5kg(1 minute),displacement ≤2mm;
　2、Pull of the whole line ≥10kg(un-break off in 1 min and extend rate ≤10% of whole length)
B. Vibration Test Request: SR port:500g , 120• (both 60• on left and on right),
　45 times/min minum 3000 times;
　DC plug:500g,120• (both 60• on left and on right),45 times/min minum 3000 times.
C. Oppearance Request：1、No more than three times on per meter wine;
　2、Inferior as diserpair 、impress、dirty、pursy on the wire surface are unallowed;
　3、Inferior as shrink、distrotion、glue lack on SR/DC plug are unallowed;
　4、Oxidation or Scrash on hardware DC plug are unallowed;
　5、Should be entirely imaersed the DC plug into tin;
　6、Impress on SR/DC plug rump is unallowed;
D. High Temperature Resistance request
Heat distortion temperature ≧80℃, test time: 3-6 hours, no distortion,cracking

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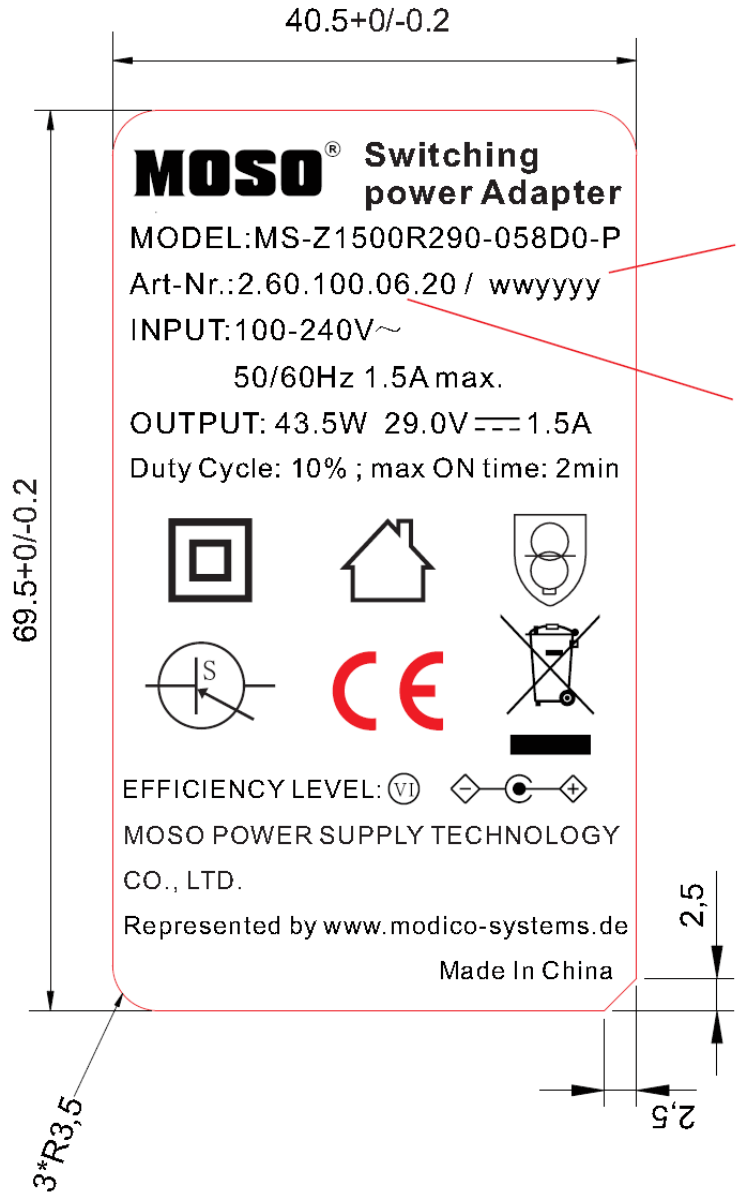
11. I/O Marking Drawing



WW: stand for week(表示周期)
yyyy: stand for year(表示年份)

xxx.xx.xx ：stand for part number (固定不变)

未做认证，铭牌仅供参考

Remark:
1.Above label is laser engraved.
2.The dimension of garbage bin mark can not less than 7mm.
3.The dimension of double insulation mark can not less than 5mm.