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
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参考规格书

SPECIFICATION FOR REFERENCE

CUSTOMER/客户： _____

CUSTOMER P.N./客户物料号： _____

MODEL NO./产品型号： MS-TB100J240-500C0

PRODUCT NO./产品编号： SA375-F1

SAMPLE DATE/送样日期： 2021-12-24

CUSTOMER AUTHORIZED SIGNATURE/客户承认签核		

Please return to us one copy of "SPECIFICATION FOR APPROVAL" with you approved signature./客户确认签字，盖章后请回传一份承认书给我司.

ADD: MOSO Industrial Park, Nanshan District, Shenzhen, Guangdong 518108, P. R. China
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拟　制：	安规工程师：	项目工程师：	批　准：

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E. C. LIST/变更履历表

Rev. 版本	Description of Change/变更内容描述		Changed Date/日期	ECN No.
	Before/变更前	After/变更后		
A.1	Original Release（初次发行）	---	2021-12-24	---

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1. Functional description/功能描述

MS-TB100J240-500C0 is a 500W single-channel output closed-type power supply with a 40mm thin design and a wide input voltage range of 90 ~ 264Vac.The output voltage is single channel 24V, and the peak efficiency is as high as 93%.The built-in long-life DC fan enables the power supply to operate over a wide range of temperatures, and it is designed with an aluminum casing for good heat dissipation.The power supply has a variety of protection functions, such as input under-voltage protection, output over-current protection, output over-voltage protection and temperature protection.It conforms to the harmonics requirement of en 61000-3-2.It provides a high performance and cost-effective solution for various engineering applications.

MS-TB100J240-500C0 是一款 **500W** 单路输出封闭型电源供应器，具有 **40mm** 薄外型设计，宽输入电压范围 **90～264Vac**。输出电压为单路 **24V,**峰值效率高达 **93%**；内置长寿命 **DC** 风扇使该电源能在很宽的温度范围内工作，并采用铝外壳设计且具有很好的散热效果。该电源具有多种保护功能，如输入欠压保护、输出过流保护、输出过压保护、温度保护功能；符合 **EN61000-3-2** 谐波要求;为各种工程应用提供了一个高性能和高性价比的解决方案。

2. SCOPE/简述

The document detail the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 500W continuous output power.

资料详细描述了一款 **500 W (**连续输出功率**)**开关电源的电气性,结构性及环境等要求。

The power supply shall meet the **RoHS** requirement.

此款电源符合 **RoHS** 要求.

2.1. Description/产品类型

- ☐ SMPS Adaptor(Wall mount)/插墙式适配器
- ☐ SMPS Adaptor(Desk-top)/桌面型适配器
- ☐ Open Frame/开放式结构
- ■ SMPS Unit (With Case)/带铁壳型
- ☐ Others/其他

3. Input Characteristics/输入特性

3.1. Input Voltage & Frequency/输入电压与频率

The range of input voltage is from 90Vac to 264Vac single phase, switching the input voltage through a switch.

输入电压范围：从 **90Vac** 到 **264Vac,** 单相输入,通过开关切换输入电压。

Items	Min/最小	Nom/额定值	Max/最大
Input Voltage/输入电压	90 Vac	100~240 Vac	264 Vac
Input Frequency/输入频率	47 Hz	50~60 Hz	63 Hz

3.2. Input AC Current/AC 输入电流

Input Voltage/输入电压	100~240 Vac	Full load
Input AC Current/AC 输入电流	6A Max	Full load

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3.3. Inrush Current (cold start)/浪涌电流(冷启动)

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

冷启动时，浪涌能量不能超过整流桥和保险丝的 **I^2T**，且不能有损坏。

3.4. Type Efficiency/典型效率

88% min.(average efficiency). @115Vac/60Hz input .

89% min.(average efficiency).@230Vac/50Hz input.

输入电压 **115V/60Hz** 时，平均效率不低于 **88%**。

输入电压 **230V/50Hz** 时，平均效率不低于 **89%**。

3.5. Energy Consumption /空载功耗

No load Consumption ≤10W(230Vac/50Hz).

在额定输入 **230Vac/50Hz** 时,空载功耗≤**10W**。

4. Output Characteristics/输出特性

4.1. Static Output Characteristics <Vo & R+N>/静态输出特性

Output	Rated Load/额定负载		Output Range	R+N	Remark
Rate	Min. Load	Rate.Load	输出电压范围	纹波与噪声	备 注
+24 V	0.0A	21A	22.8V ~ 25.2V	200mVp-p	115/230V

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).

纹波与噪声: 量测时示波器选用 **20MHz** 带宽限制,输出端要并联一颗 **0.1uF** 的陶瓷电容和一颗 **10uF** 的电解电容. **(**在额定输入及输出的条件下检测**)** 。

4.2. Line/ Load Regulation/线性/负载调整率

Output	Load Condition/负载条件		Line Regulation	Load Regulation	Remark
Rate	Min. Load	Rate.Load	线性调整率	负载调整率	备 注
+ 24V	0.0A	21A	±**5 %**	±**5%**	

4.3. Turn - on Delay Time/开机延迟时间

3S max. @115Vac to 230Vac input & Full load.

输入电压 **115Vac to 230Vac** 满载时，开机延迟时间不超过 **3S**。

4.4. Hold-up Time/关机维持时间

10mS min. @ Full load &115Vac/60Hz input turn off at worst case.

输入电压 **115Vac/60Hz** 满载时，关机时间最差情况不小于 **10** 毫秒。

10mS min. @ Full load &230Vac/50Hz input turn off at worst case.

输入电压 **230Vac/50Hz** 满载时，关机时间最差情况不小于 **10** 毫秒。

4.5. Rise Time/上升时间

80 mS max. @ Full load &115Vac/60Hz and 230Vac/50Hz input.

在 **115Vac/60Hz** 和 **230Vac/50Hz** 输入满载时，上升时间不超过 **80** 毫秒。

4.6. Fall Time/下降时间

30 mS max. @ Full load.

满载时，下降时间不超过 **30** 毫秒。

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4.7. Output Overshoot / Undershoot/输出过冲/欠冲

10 % max. When the power on or off, when it is the full input voltage and full load.

开关机时，输出过冲/欠冲均不大于 **10%**。

4.8. Output Load Transient Response/输出负载瞬态响应

Output voltage within 21.6～26.4 V for load step from 25% to 50% to 25%,50% to 75% to 50% R/S: 0.25A/uS, Transient Response Recovery Time :200uS，Dynamic response overshoot 10%.

输出电压在 **21.6～26.4 V** 之间,负载变化：从 **25% to 50% to 25%, 50% to 75% to 50%**斜率**: 0.25A/uS,** 动态响应恢复时间：**20mS,** 动态响应过冲±**10%**。

5. Protection Requirements/保护要求

5.1. Over Current Protection/过流保护

Over Power Point Limited: 120%~150% Full load (@115/230Vac)

过流保护点限制**:120%~150%** 满载（**115～230Vac**）

The output shall hiccup when the over current applied to the output rail, and shall be self-recovery when the fault condition is removed.

当过流作用于输出时，输出将打嗝，当故障情况消除时，输出将自动恢复。

5.2. Short Circuit Protection/短路保护

The input power shall decrease when the output short.the power supply shall no damage, and shall be auto-recovery when the fault condition is removed.

当输出短路时，输入功率应减小。电源不应损坏，故障排除后应自动恢复。

5.3. Over Voltage Protection/过压保护

In the case of 90 ~ 264Vac input space time load and full load,25V < OVP < 32V, and can not be damaged.

在 **90～264Vac** 输入时空载和满载情况下，输出过压保护大于 **25V,**小于 **32V**，且不能损坏。

6. Environment Requirements/环境要求

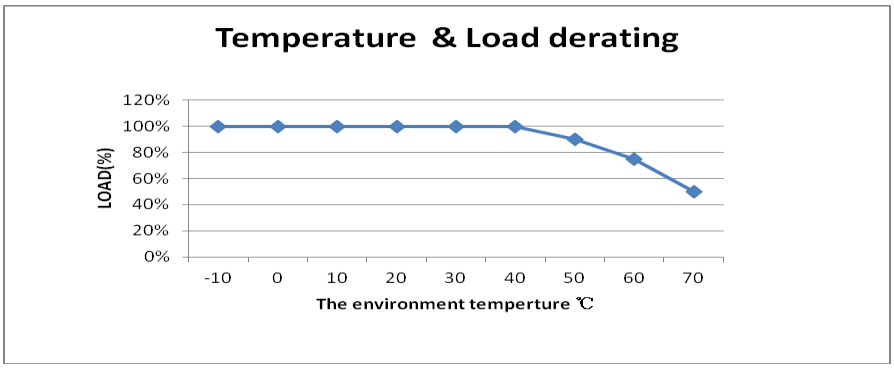
6.1. Operating Temperature and Relative Humidity/操作温/湿度要求

Operating temperature:-30℃ to +70℃

工作温度：**-30**℃ **to +70**℃

Operating Relative humidity:10%RH to 90%RH

工作湿度：**10%RH to 90%RH**



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6.2. Storage Temperature and Relative Humidity/存储温/湿度要求

Storage Temperature:-40℃ to +80℃

储存温度：-40℃ to +85℃

Storage relative humidity:10%RH to 95%RH non-condensing

存储湿度：10%RH to 95%RH

6.3. Sea level shall be low 2.000 meters/低于 2000 米.

6.4. Vibration/振动

10 to 500Hz sweep at a constant acceleration of 2.0G(Displacement amplitude: 3.5mm),10 minutes per cycle, 60 minutes on the X, Y and Z axis.

以 2.0G 恒定加速度(位移幅值:3.5mm)扫频 10 - 500Hz，每循环 10 分钟，X、Y、Z 轴 60 分钟。

7. Reliability Requirements/可靠性要求

7.1. Burn-in/老化

The power supply shall be burn-in for 2 Hours under rated input and 80% Full load at 40℃±5℃.

电源在 40℃±5℃额定输入、80%满负荷情况下老化 2 小时。

7.2. Audible noise/噪音

Less than 50dBA at 1M in any direction around the adapter.

距离 1M,电源噪音小于 50dBA.

7.3. E-caps lifetime/电容寿命

The E-caps used in this power supply must be with lifetime of 3 years @ 25℃of full load. @ 200Vac / 60Hz and / or 240Vac /50Hz.

本电源使用的电解电容寿命必须在 25℃满负荷时使用寿命为 3 年。@ 200Vac / 60Hz 和/或 240Vac /50Hz。

7.4. MTBF :

≥200 K Hrs MIL-HDBK-217F (25℃).

平均无故障时间 20 万小时以上，标准 MIL-HDBK-217F (25℃)。

8. EMI/EMS Standards/EMI/EMS 标准

8.1. EMI Standards/EMI 标准

EMI	Standards	Margin Measurements
Radiated Emission	EN55032 EN55035 FCC Part15 KN32 KN35	≥4dB
Conduction Emission	EN55032 EN55035 FCC Part15 KN32 KN35	≥4dB

8.2. EMS Standards/EMS 标准

8.2.1.EN 61000-4-2,electrostatic discharge(ESD) requirement/静电抗扰度要求

Discharge characteristic/静电规格	Test level/测试条件	Test criteria/测试标准
Air discharge/空气放电	+/- 8KV	A

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Contact discharge/接触放电	+/- 4KV	A

8.2.2.EN 61000-4-3,radiated electromagnetic field susceptibility(rs)/辐射骚扰场强

Test level/测试条件	Test criteria/测试标准
10V/m (r.m.s)	A
30-1000MHz,80% AM(1KHz) sine-wave	

8.2.3.EN 61000-4-4,electric fast transients(burst) immunity requirement/电快速瞬变脉冲群

Coupling/测试端口	Test level/测试条件	Test criteria/测试标准
AC-input/交流输入	0.5KV	A
AC-input/交流输入	1KV	A

8.2.4.EN 61000-4-5,surge capability requirement/浪涌抗扰度要求

Surge voltage/雷击电压	Test criteria/测试标准
Common mode/共模 +/- 4KV	A
Differential mode/差模 +/-2KV	

8.2.5.EN 61000-4-6, Induced radio frequency fields conducted disturbances immunity requirement/电源端子传导骚扰实验

Test level/测试条件	Test criteria/测试标准
3V	A
0.15-30 MHz,80%AM(1KHz)	

8.2.6. Assessment criteria /评估标准

Acceptance criteria 可接受标准	Performance 性能
A	Agreed operational behavior within the specified limits 性能不允许变化；如果性能会发生变化，则变化的范围在产品规格书规定的范围内.
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. 设备在测试过程中,性能降低允许在产品规格书要求范围内,干扰消除后,设备能恢复正常,不允许出现复位和任何方式的人工干预.
C	Malfunction is permitted .The function can be reactivated either by reconnection to the mains or by operator intervention. 在测试过程中，设备允许出现业务中断，测试完毕后允许自行恢复或者人工干预恢复（包括硬件上干预）；测试中只允许初级防护器件损坏，并且更换损坏的初级防护器件后，设备能恢复正常

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9. Safety Standards/安规标准

9.1. Dielectric Strength(Hi-pot)/介电耐压强度(高压)

I/P- O/P: 3KVac / 5mA max. / 60 second .

输入对输出: 3KVac / 5mA max. / 60 秒.

I/P-FG: 2KVac / 5 mA max. / 60 second .

输入对地:　2KVac / 5 mA max. / 60 秒

O/P-FG: 0.5K Vac / 5 mA max. / second.

输出对地:　0.5KVac / 5 mA max. / 60 秒.

9.2. Leakage Current/漏电流

3.5mA max. at 250Vac / 50Hz.

输入 250V AC,漏电流小于 3.5mA。

9.3. Insulation Resistance/绝缘阻抗

I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH

输入对输出、输入对地、输出对地，在 25℃ 70％的湿度分别施加 500Vdc 进行测试，阻抗大于 100 兆欧姆.

9.4. Regulatory Standards/安规标准

Type/安规	Country/国家	Standard/标准	State/状况	Note/备注
UL	USA	UL62368-1	MEET	
CE	Europe	EN62368-1	MEET	
KC	Korea	K62368-1	MEET	

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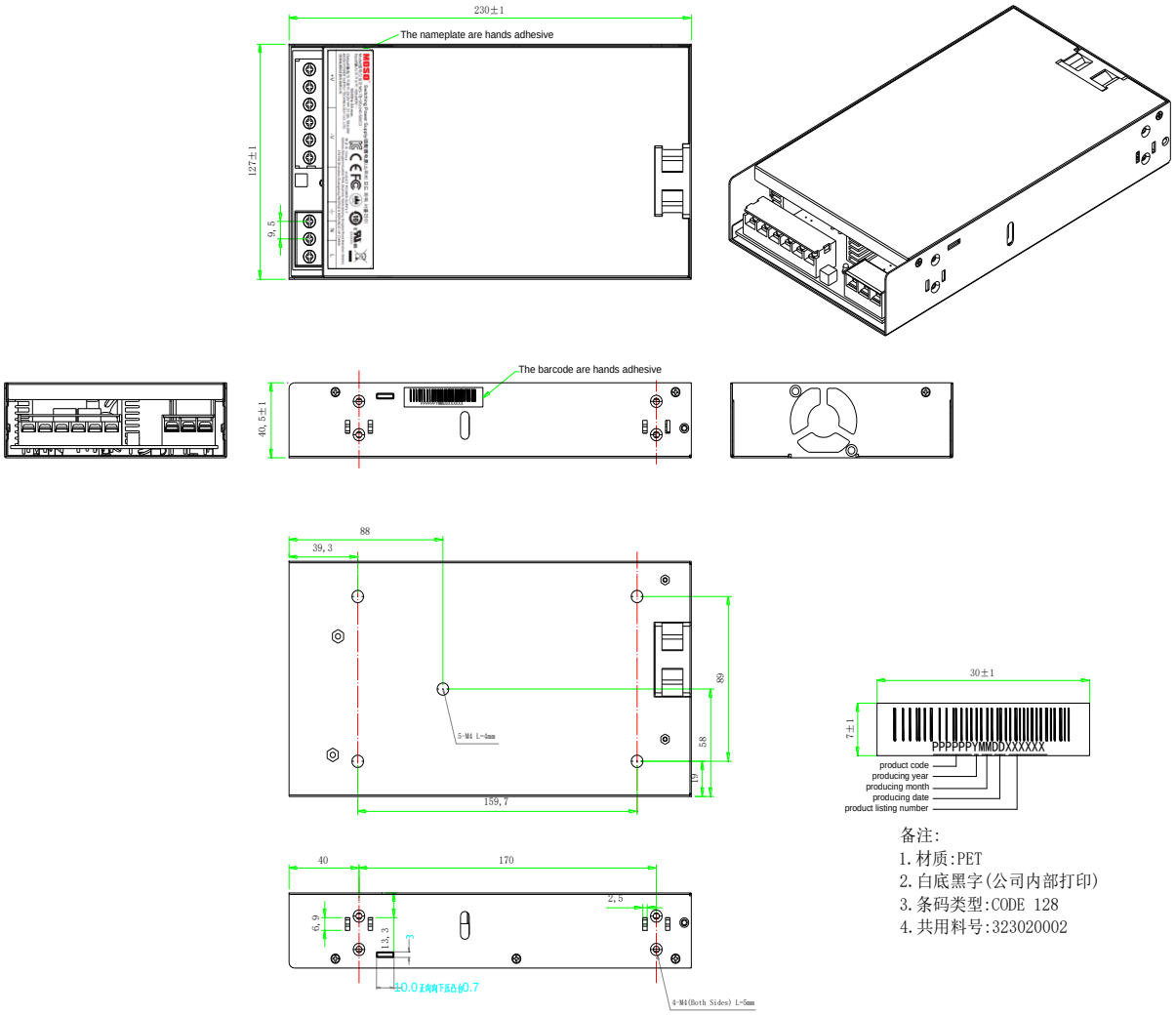
10. Mechanical Outline Drawing/外观示意图

230*127*40.5mm(L*W*H)



备注:
1. 材质:PET
2. 白底黑字(公司内部打印)
3. 条码类型:CODE 128
4. 共用料号:323020002

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11. Mechanical Outline Drawing

备注:
1.50#消银龙+雾膜，银底黑字;
2.CE高度不小于5mm.
3.垃圾桶标识尺寸高度不小于7mm

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12. Remark/备注说明

12.1.若未特别说明，所有参数均在 **230V ac,**额定负载，**25**℃环境温度下进行测量。
If not specified otherwise, all parameters in the 230 v ac, rated load, 25 ℃ ambient temperature
measurements.

12.2.精度包含设定误差，线性调整率和负载调整率**.**
Accuracy includes setting error, linear adjustment rate and load adjustment rate.

12.3.线性调整率测量方法：在额定负载下，从低电压到高电压进行测试验。
Linear regulation measurement method: from low voltage to high voltage at rated load.

12.4.起动时间是在冷启动状态下测得，快速频繁开关机可能会使启动时间增长。
The starting time is measured under the cold starting state, and the quick and frequent switching may
increase the starting time.

12.5.当操作海拔高度于 **2000** 米（**6500ft**）时，操作环境温度需调降 **5**℃**/1000** 米。
When operating at high altitude 2000 m (6500 ft), the operating environment temperature need to cut 5℃/ 1000 meters.

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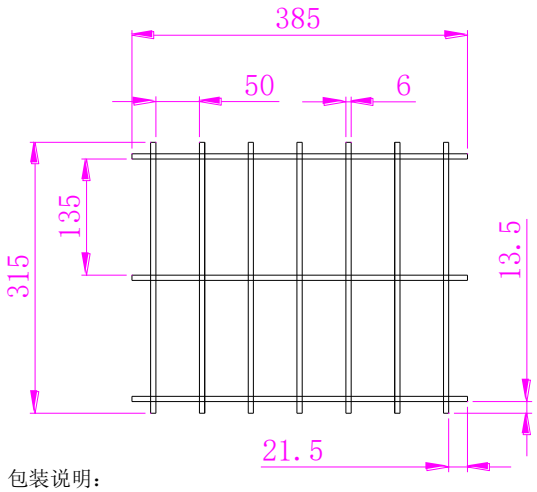
13. Package Drawing/包装示意图



包装说明：

一、将每个产品直接装入气泡袋中，再装入刀卡中，每层装12PCS，共装1层，每箱装12PCS

即：6pcs/层*1层=12PCS/箱

1PCS≈1.15kg

二、包装材料使用说明为：

1、气泡袋300*250*:12PCS

2、刀卡385*315*240：1PCS

3、平板385*315MM:2PCS

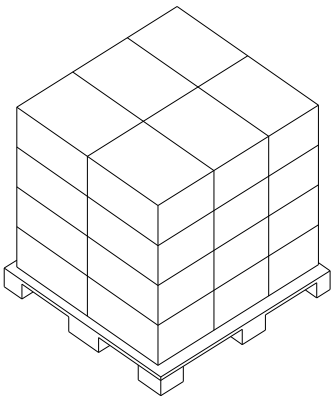
4、纸箱L400*W330*H275MM：1 PCS

三、栈板堆放说明为：

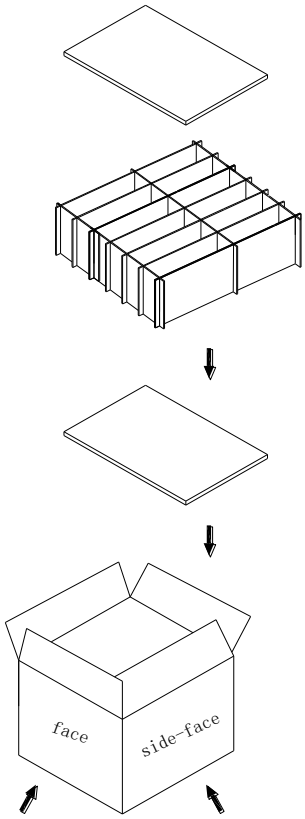
1、栈板尺寸为：L1000*W800*H100mm

2、每层放2行*3列=6箱

3、坚直堆放4层*6箱共24箱



栈板堆放示意图



封箱示意图

袋子包装要求：☐袋子不用胶带封口；

☐袋子用胶带封口；

☐其它要求；

备注:若客户未进行选择袋子包装要求或备注时，

我司默认采用袋子不用胶带封口包装方式。