MOSO®
茂硕电源科技股份有限公司
MOSO POWER SUPPLY TECHNOLOGY CO.,LTD
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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： MSA-TA460DR240-350A0

PRODUCT NO./产品编号： SB033-UT0

SAMPLE DATE/送样日期： 2023-08-03

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.

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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）	---	2023-08-03	---

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1. Functional description/功能描述

MSA-TA460DR240-350A0 supply a single channel output with sealed design, just 30mm super-thin shape, with 115Vac or 230V ac input (selected by switch). Output voltage is 24V 14.6A, with max efficiency of 88%; Long-life DC-fan make power supply work in a wide temperature range. Low consumption under No-load condition(less than 0.75w) and it make the power compliance with the international energy requirements; Comply with UL62368-1 regulations. The power supply provides a high performance and cost-effective solution for various engineering applications.

MSA-TA460DR240-350A0 是一款单路输出封闭型电源供应器，具有 **30mm** 超薄外型设计，采用 **115Vac** 或 **230V ac** 输入（通过切换开关选择）。输出电压为单路 **24V,**最高效率 **88%;**内置长寿命 **DC** 风扇使电源能在很宽的温度范围内工作.该电源具有极低的空载功耗（小于 **0.75W);**能使终端系统很容易通过国际能源要求.该电源具有完整的保护功能和抗 **5G** 振动能力;符合 **UL62368-1** 法规要求;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 350W continuous output power.

资料详细描述了一款 **350 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	Minimum/最小	Nominal/额定值	Maximum/最大	Minimum/最小	Nominal/额定值	Maximum/最大
Input Voltage/输入电压	90Vac	115 Vac	132 Vac	180 Vac	230Vac	264Vac
Input Frequency/输入频率	50~63 Hz			47~50HZ		

3.2. Input AC Current/AC 输入电流

Input Voltage/输入电压	115Vac	230Vac	Full load
Input AC Current/AC 输入电流	6.8A Max	3.6A 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. @230Vac/50Hz input (@80% load).

输入电压 **230V/50Hz** 时，**80%**载时效率不低于 **88%**。

3.5. Energy Consumption /空载功耗

No load Consumption ≤2W(230Vac/50Hz).

在额定输入 **230Vac/50Hz** 时,空载功耗**≤2W**。

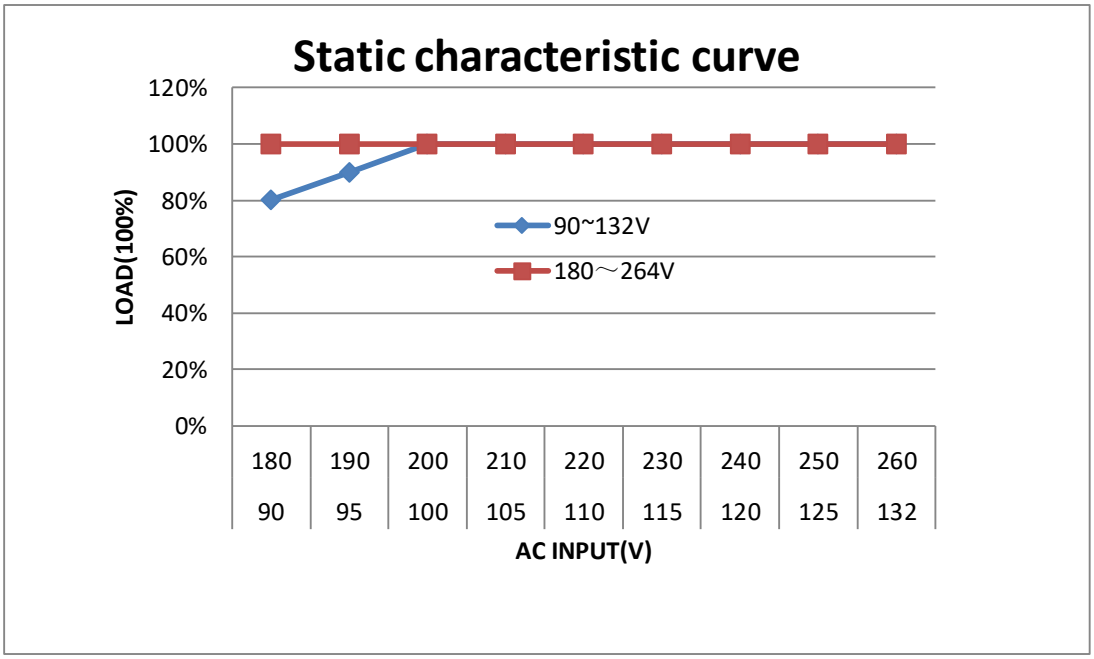
4. Output Characteristics/输出特性

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	14.6A	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	14.6A	±**3 %**	±**3%**	

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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。

16mS 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 **16** 毫秒。

4.5. Rise Time/上升时间

50 mS max. @ Rated **load**.

额定负载时，上升时间不超过 **50** 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。

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：**200uS,** 动态响应过冲**±10%**。

5. Protection Requirements/保护要求

5.1. Over Power Protection/过载保护

Over Power Point Limited/过载点限制**:** 120%~150%Full load (@115/230Vac)

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

当过电流时,输出将进入打嗝模式,当过流情况解除后,产品将会自动恢复正常。

5.2. Short Circuit Protection/短路保护

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

当输出短路时,产品输入功率降低且不会损伤,当短路情况解除后,产品将会自动恢复正常。

5.3. Over Voltage Protection/过压保护

The power supply has to be protected against over voltage conditions. No damage allowed. The power supply must come back to nominal working the AC voltage will be restarted after removal of the over voltage condition.

当过压保护时,产品输出功率不会损伤,当过压情况解除后,重启 **AC** 电压，产品恢复正常。

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5.4. Over temperature protection/过温保护

When the power supply is over temperature protected, the power supply will enter the setting working mode, and the output will be automatically restored after the abnormal removal.

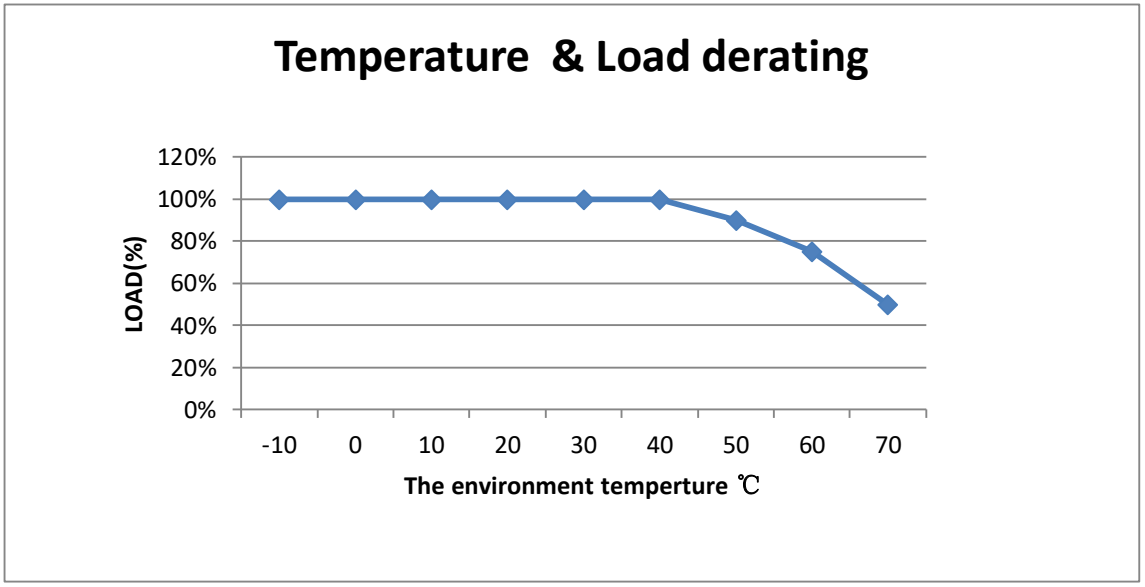
当过温度保护时,产品进入打隔模式,当过温情况解除后,产品自动恢复正常输出。

6. Environment Requirements/环境要求

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

-10℃ to +60℃

10%RH to 90%RH



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

-20℃ to +80℃

5%RH to 95%RH non-condensing

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

6.4. Vibration/振动

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.

扫描频率:**10to 300Hz,** 加速度:**1.0G(**位移**: 3.5mm), X, Y, Z** 三垂直坐标轴向各振动 **1** 小时.

7. Reliability Requirements/可靠性要求

7.1. Burn-in/煲机

The power supply shall be burn-in for 2 Hours under normal input and 80 % rated load at 50℃±5℃.

产品至少要在 **50℃±5℃**的环境及 **80%**额定负载条件下煲机 **2** 小时.

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7.2. MTBF :200 K Hrs MIL-HDBK-217F (25℃)

7.3. Working noise/工作噪音

Maximum working noise of single power supply ≤45dB (full load, 1-meter distance test in standard silent room)

电源单体最大工作噪声≤45 dB.（满载，标准静音房 1 米距离测试）

8. EMI/EMS Standards/EMI/EMS 标准

8.1. EMI Standards/EMI 标准

EN55032 Class A/EN55035(测试值不得超过最大限值)
FCC Part 15 Subpart B Class A

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	+/- 8 KV	A
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

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	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,干拢消除后,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

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 / 5 mA 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

0.5mAmax. at 264Vac / 50Hz./输入 **264V AC,**漏电流小于 **0.5mA**

9.3. Insulation Resistance/绝缘阻抗

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

在初级与次级间加 **500Vdc** 进行测试.

9.4. Regulatory Standards/安规标准

Type/安规	Country/国家	Standard/标准	State/状况	Note/备注
CQC	China	GB4943.1	Meet	
CE	Europe	EN62368-1	APPROVED	
UL	USA	UL62368-1	APPROVED	

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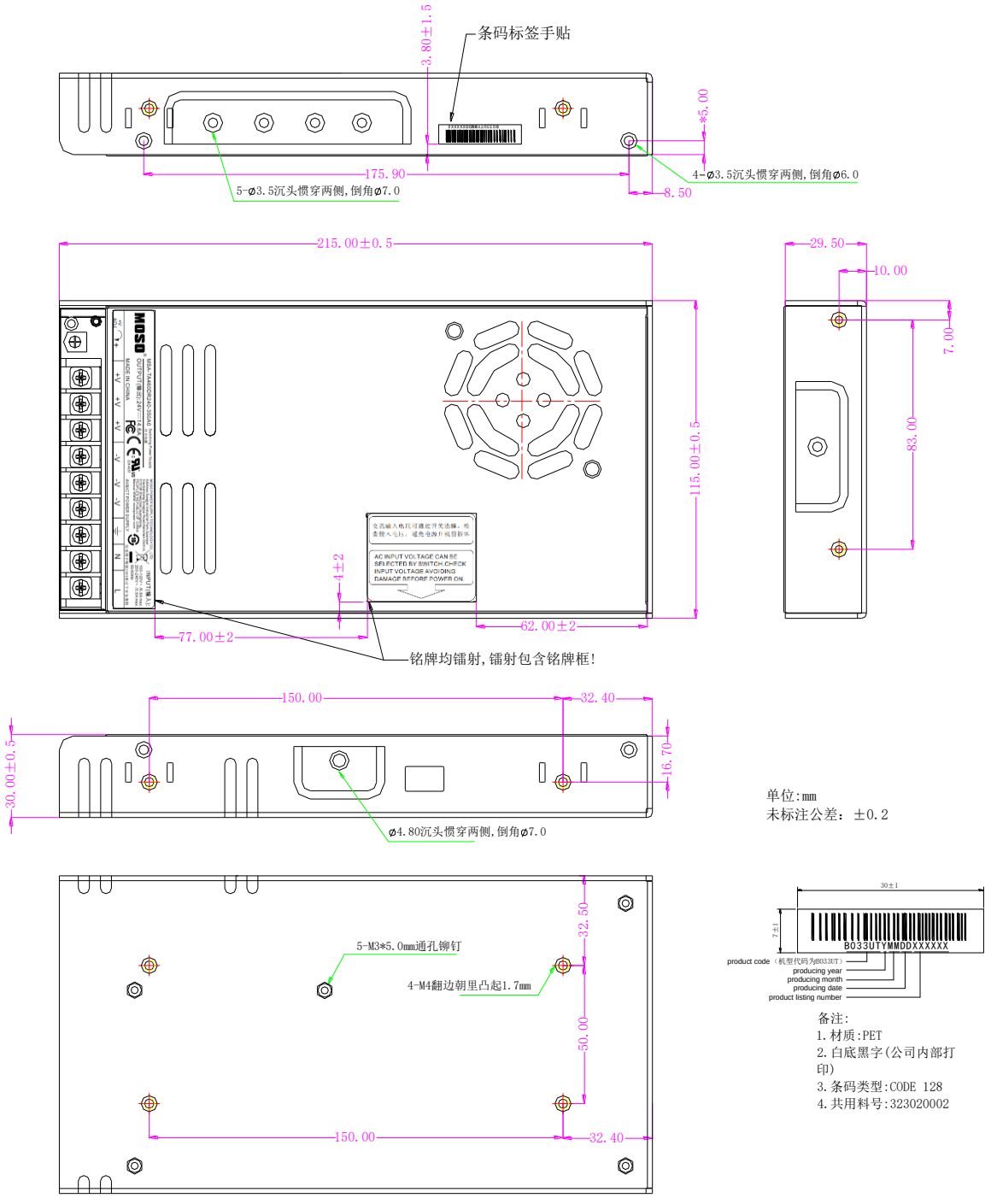
10. Mechanical Outline Drawing/外观示意图



单位:mm
未标注公差：±0.2

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. I/O Marking Drawing/铭牌示意图

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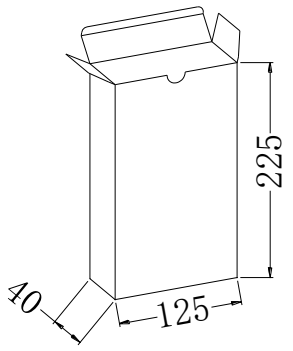
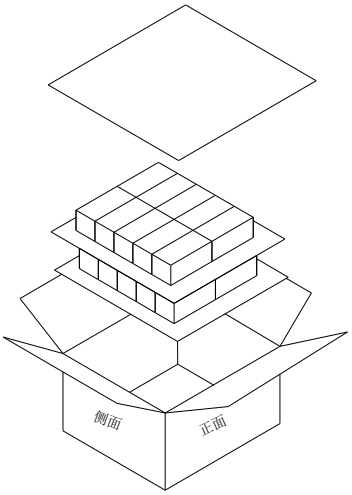
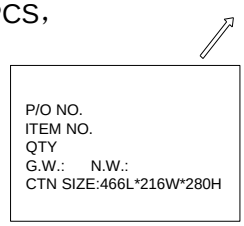
12. Packing instructions/包装说明





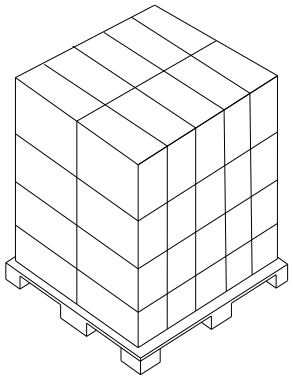


包装说明：

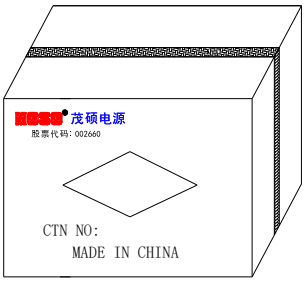
一、将产品每PCS装入260*160（mm)汽泡袋中，然后
将包好的产品装入225*125*40mm的黄盒中，
再将黄盒放在平卡上装入纸箱中，每层装10PCS，
共装2层，每箱装20PCS
即： 10pcs/层*2层=20PCS/箱

二、包装材料使用说明为：
1、汽泡袋260*160mm用量：20PCS
2、黄盒225*125*40mm用量: 20PCS
3、平卡450*200mm用量: 3PCS
6、纸箱466*216*280mm用量：1PCS

三、栈板堆放说明为：
1、栈板尺寸为：L1200*W950*H135mm
2、每层放2行*5列=10箱
3、竖直堆放4层*10箱共40箱



栈板堆放示意图



产品装入包装箱用胶袋封箱，位置参考图中所示.

汽泡袋包装要求：☐汽泡袋不用胶带封口；
☐汽泡袋用胶带封口；
☐其它要求；

备注:若客户未进行选择汽泡袋包装要求或备注时，
我司默认采用汽泡袋不用胶带封口包装方式.

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13. Remark/备注说明

13.1.若未特别说明，所有参数均在 220V ac,额定负载，25℃环境温度下进行测量。

If not specified otherwise, all parameters in the 220 v ac, rated load, 25 ℃ ambient temperature measurements.

13.2.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.

13.3.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.

13.4.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.

13.5.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.

13.6.此电源不符合 EN61000-3-2 规定的谐波要求。

This power supply does not meet the harmonic requirements specified in en 61000-3-2.