

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 V30-Z1390R540-080D0-Q

PRODUCT NO./产品编号: SDXXX-Q0

SAMPLE DATE/送样日期: 2025-02-28

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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1. SCOPE/简述

The document details the electrical, mechanical and environmental specifications of a SMPS, the power supply provide 75.06W continuous output power.

资料详细描述了一款 **75.06W** 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 HSF requirement.

此款电源符合 **HSF** 要求。

1.1. Description

- 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 (metal Case)/带铁壳型
 Others/其他

2. Input Characteristics/输入特性

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

The range of input voltage is from 90Vac to 264Vac single phase.

输入电压范围: 从 **90Vac** 到 **264Vac**, 单相输入。

	Minimum/最小	Nominal/额定值	Maximum/最大
Input Voltage/输入电压	90Vac	100Vac~240Vac	264Vac
Input Frequency/输入频率	47Hz	50Hz /60Hz	63Hz

2.2. Input AC Current/AC 输入电流

1.5A max. @ 100-240Vac input & Full load.

输入电压 **100-240Vac** 满载时, 输入电流不超过 **1.5A**。

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

The energy of inrush current should not be over the I²T of fuse & bridge diodes at 264V input voltage + cold start + rated load +25°C+ maximum capacitive load,

在 **264V** 输入电压+冷启动+额定负载+**25°C**+最大容性负载条件下,冷启动时, 浪涌能量不能超过整流桥和保险丝的 I²T, 且不能有损坏。

2.4. Averaged Efficiency/平均效率

88% min. @ 115Vacinput (@25%, 50%, 75% and 100% of max load) (Meet DOE level VI)

89% min. @ 230Vac input (@25%, 50%, 75% and 100% of max load) (Meet COC V5 Tier2)

输入电压 **115V 60HZ** 时, **25%、50%、75%和 100%**载时的平均效率不低于 **88%**。

输入电压 **230V 50HZ** 时, **25%、50%、75%和 100%**载时的平均效率不低于 **89%**。

2.5. Energy Consumption /空载功耗

No load Consumption ≤0.15W(115Vac/60Hz,230Vac/50Hz).

输入电压 **115Vac/60Hz,230Vac/50Hz** 时,空载功耗均小于 **0.15W**。

2.6. Power Factor /功率因数

The PF should not be lower than 0.9 at 115Vac/60Hz,230Vac/50Hz & full load.

115Vac/60Hz,230Vac/50Hz &满载时, 功率因数不低于 **0.9**

3. Output Characteristics/输出特性

3.1. 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	Max. Load	输出电压范围	纹波与噪声	备注
+54V	0.0A	1.39A	51.3V ~ 56.7V	250mVp-p	100-240V

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope 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: 测量时, 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)。

3.2. 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	Max. Load	线性调整率	负载调整率	备注
+54V	0.0A	1.39A	± 3%	± 5%	

3.3. Turn - on Delay Time/开机延迟时间

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

输入电压 100-240V 满载时, 开机延迟时间不超过 3S。

3.4. Hold-up Time/关机维持时间

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

3.5. Rise Time/上升时间

60mS max. @ Rated load.

额定负载时, 上升时间不超过 60 毫秒。

3.6. Fall Time/下降时间

60mS max. @ Full load.

满载时, 下降时间不超过 60 毫秒。

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

5% 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 5%。

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

Output voltage within 51.3V ~ 56.7V for load step from 25% to 75% to 25%, R/S: 0.5A/uS, Transient Response Recovery Time :200uS, Dynamic response overshoot 5%.

输出电压 51.3V ~ 56.7V 时, 负载从 25% 到 75% 到 25% 逐步变化, 斜率 0.5A/uS, 动态响应恢复时间 200uS, 动态响应过冲均保持 ± 5%。

4. Protection Requirements/保护要求

4.1. Over Current Protection/过流保护

Over Current Point Limited/过流点限制: $I > 1.8A(100-240Vac)$

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

过流时, 输出将进入打嗝模式, 过流情况解除后, 产品将会自动恢复正常。

4.2. 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 self-recovery when the fault condition is removed.

输出短路时, 输入功率会降低, 且电源不会损坏, 当短路情况解除后, 电源将会自动恢复正常。

4.3. 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 without on/off powering after removal of the over voltage condition. $OVP \leq 63V$.

当过压保护时, 产品输出功率不会损伤, 当过压情况解除后, 产品恢复正常. $OVP \leq 63V$.

5. Environment Requirements/环境要求

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

-5°C to +45°C, 5%RH to 95%RH

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

-40°C to +85°C, 5%RH to 95%RH non-condensing @ Sea level shall be low 5,000m.

海拔 5,000 米以下, 温度 -40°C to +85°C, 湿度 5%RH to 95%RH.

5.3. 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: 10 to 300Hz, 恒定加速度: 1.0G (位移: 3.5mm), X, Y, Z 三垂直坐标轴向各振动 1 小时

5.4. Drop Test/跌落

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.

跌落高度: 1 米, 并跌落到厚度为 20mm 的硬木上, 且硬木应放在水泥基座或等同的无弹性地面上, 6 个面, 每面各 1 次, 在跌落后电气性能及高压测试 OK.

6. Reliability Requirements/可靠性要求

6.1. Burn-in/老化

The power supply shall be burn-in for 4Hours under normal input and 100% rated load at 40°C ± 5°C, the electric performance and Hi-Pot test must be OK.

40°C ± 5°C, 电源在正常输入电压和 100% 额定负载条件下老化 4 小时后, 电气性能及高压测试 OK.

6.2. MTBF Qualification/平均间隔故障时间估算

The MTBF shall be at least 500,000 hours at 25°C, Full load and nominal input condition. Standard :SR-332 Issue4.

平均间隔故障时间: 在 25°C, 额定输入与满载条件下, 至少工作 500,000 小时. 标准: SR-332 第 4

期

6.3. E-cap Lifetime/电容寿命

The E-caps used in this PSU must be with lifetime of 3 years @25°C@100% load@115Vac/60Hz and 230Vac/50Hz input.

25°C下, 在 100%负载和 115V/230VAC 输入条件, 电解电容寿命必须有 3 年.

7. EMI/EMS Standards/EMI/EMS 标准

7.1. EMI Standards/EMI 标准

FCC Part 15 AS/NZS CISPR32 EN55032 EN55035

7.2. EMS Standards/EMS 标准

7-2-1 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	judgment criteria/评定标准
Air discharge/空气放电	+/-8KV	B
Contact discharge/接触放电	+/-6KV	B

7-2-2 EN 61000-4-3,radiated electromagnetic field susceptibility(rs)/辐射骚扰场强

Test level/测试条件	judgment criteria/评定标准
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/电快速瞬变脉冲群

Coupling/测试端口	Test level/测试条件	judgment criteria/评定标准
AC-input/交流输入	±2KV	B

7-2-4 EN 61000-4-5,surge capability requirement/浪涌抗扰度要求

Surge voltage/雷击电压	judgment criteria/评定标准
Common mode/共模 +/-4KV	B
Differential mode/差模 +/-2KV	

7-2-5 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	judgment criteria/评定标准
3V	A
0.15-80 MHz,80%AM(1KHz)	

7-2-6 EN61000-4-11,Voltage Dips And Interruptions/电压跌落和短时中断

IEC/EN61000-4-11/GB/T17626.11

>95%,10mS,Criteria B >95%,20mS,Criteria B

30%,500mS,Criteria B >95%,5S,Criteria C

7-2-7 EN61000-4-8, MS/工频磁场抗扰度 50HZ 10A/m Criteria A

7-2-8 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

8. Safety Standards/安规标准

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

Primary to Secondary: 3000Vac /10mA max. /

Disconnect ground wire (3S when producing).

初级对次级: 3000Vac / 10mA max. / 断开地线 (3S 生产作业)

Primary to Secondary: 1500Vac /10mA max. / (3S when producing)

初级对次级: 1500Vac / 10mA max. / (3S 生产作业)

8.2. Leakage Current/漏电流

0.25mA max. at 264Vac / 50Hz.

8.3. Earthing Resistance/接地阻抗测试

Earthing Resistance : <0.1Ω at 12VDC/25A/1S

8.4. Insulation Resistance/绝缘阻抗

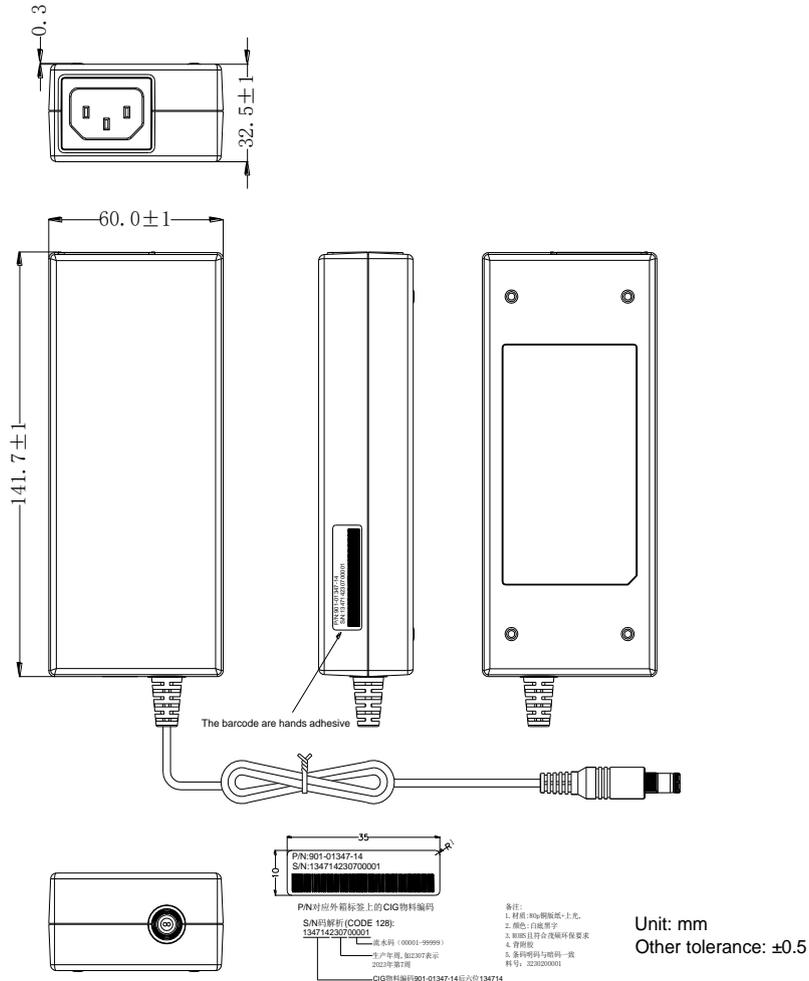
100MΩ min. at primary to secondary add 500Vdc test voltage.

在初级与次级之间加载测试电压 500V 测试, 绝缘阻抗最小 100MΩ.

8.5. Regulatory Standards/安规标准

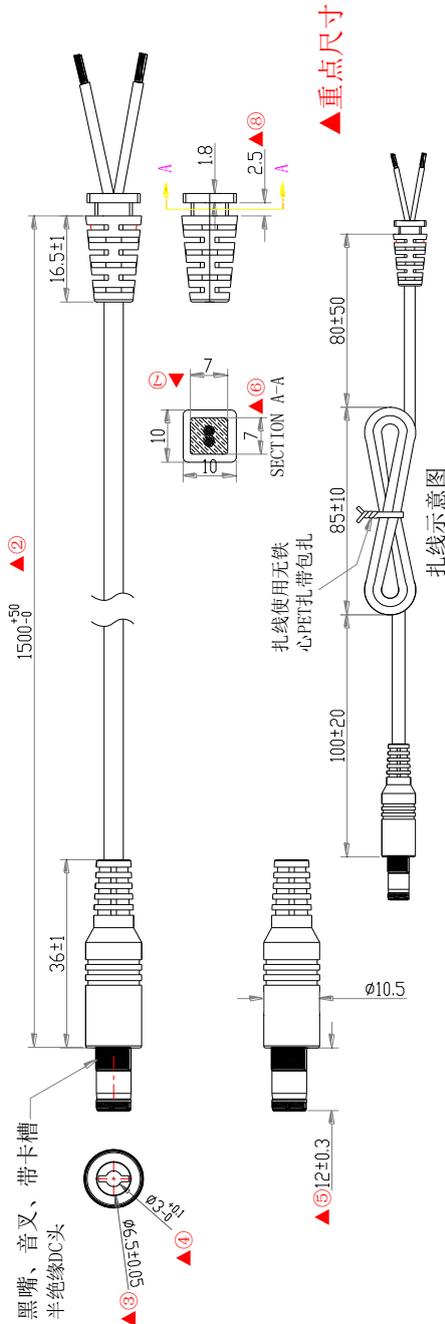
Type/安规	Country/国家	Standard/标准	State/状况	Note/备注
UL	USA	UL62368-1	APPROVAL	
CE	Europe	EN62368-1	APPROVAL	
UKCA	UK	EN62368-1	APPROVAL	
RCM	Australia	AS/NZS62368.1	APPROVAL	
PSB	Singapore	IEC62368-1	APPROVAL	

9. Mechanical Outline Drawing/外观示意图



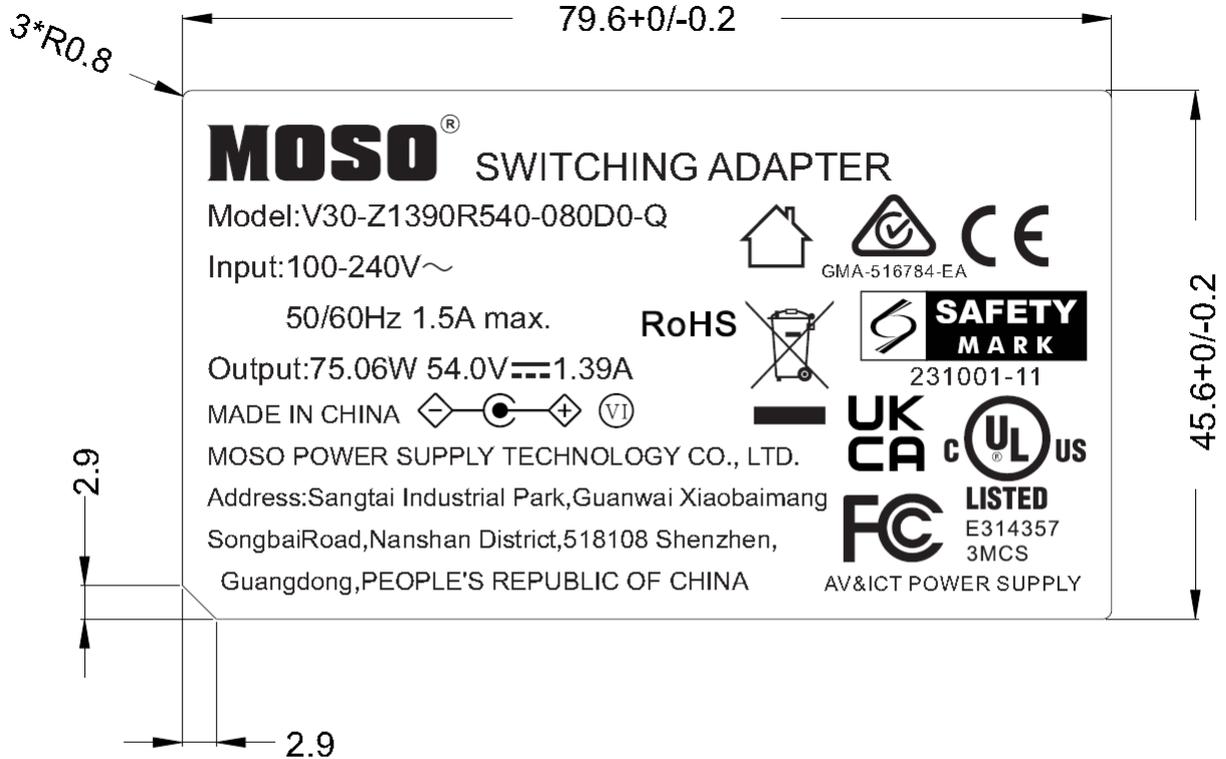
外壳材质: ■PC 耐温: 125°C
 □PC+ABS 耐温: 95°C
 备注: 1)PC 材质符合球压测试要求
 2)外壳与线材为黑色 (1101M)

10. DC Cord Drawing/DC 线示意图



- 技术要求:
- 一、拉力试验要求: 1、SR和DC头与线身的拉力 $\geq 5\text{KG}$ (1分钟), 位移 $\leq 2\text{MM}$;
 - 2、整条线拉力 $\geq 10\text{KG}$ (1分钟无断芯和延伸率 \leq 总长的10%);
 - SR端: 250g, 120° (左右各60°), 45次/分钟, 最少1000次, 导通OK;
 - DC头: 250g, 120° (左右各60°), 45次/分钟, 最少1000次, 导通OK;
- 二、摇摆测试要求:
- 1、线材外皮, 每米不能超过3个小凸点;
 - 2、线材表面不能有破损、压伤、脏污等外观不良;
 - 3、SR和DC头表面不能有变形、缩水、镀锌、气纹、缺胶等不良;
 - 4、DC头外露铆钉不能有氧化、刮伤等不良;
 - 5、线头浸锡需完全;
 - 6、SR和DC头尾部不能有压线现象;
- 四、DC头插拔力: 0.3-3kg/f, 20次/分, 插拔5000次后外观允许有损伤, DC头连接功能正常;
- 五、耐温要求: 热变形温度 $\geq 80^\circ\text{C}$, 3H试验后, 无变形、开裂等不良;
- 六、线材规格: 2464 22AWG;
- 七、印字要求: 2464 22AWG 80°C 300V FTI VW-1, 带有有效UL认证号码和公司名称, 印字顺序及其它不管控; 印字内容需清晰, 字符需粗细均匀, 不能有印字模糊、歪斜、重影、漏印等印字不良;
- 八、DC头外露尺寸要求: $\phi 6.5 \pm 0.05 \times 0.3 \pm 0.1 \times 12 \pm 0.3 \text{mm}$, 黑磷、黄叉、带卡槽、半绝缘DC头;
- 九、材质要求: DC头材质要求48P-PVC料, SR头材质要求60P-PVC料, 线身外皮材质要求50±5PVC料;
- 十、接方式: 红色线接铜钉内部(接V+), 蓝色线接铜钉外部(接V-), 内正外负;
- 十一、盐雾试验: 在40°C±2°C的密闭环境箱中, 湿度 $\geq 95\%$, PH值在6.5-7.2范围内, 用5%±0.1%的NaCl溶液连续喷淋6小时, 检查产品表面无锈蚀, 及镀层剥落等不良, 且功能正常;
- 十二、颜色要求: 黑色 (1101W), 线身为半穿面;
- 十三、环保要求: 禁用红磷、黄磷, 过RoHS2.0、欧盟REACH、加州65、6P、PAHS、NP标准且满足茂硕环保要求;
- 十四、电流过载要求: 3A;
- 十五、模具编号: DC头MSW-PL66; SR为MSW-SR3-2。

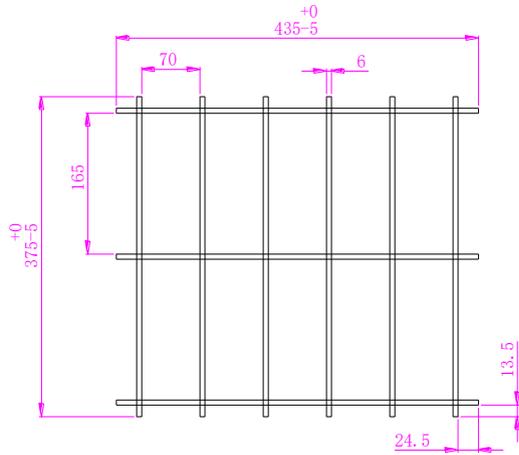
11. I/O Marking Drawing/铭牌示意图



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.

12. Package Drawing/包装示意图

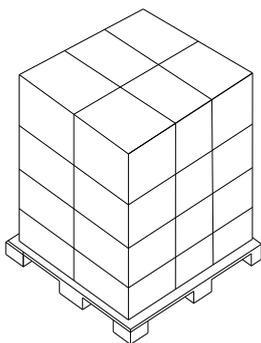


包装说明:

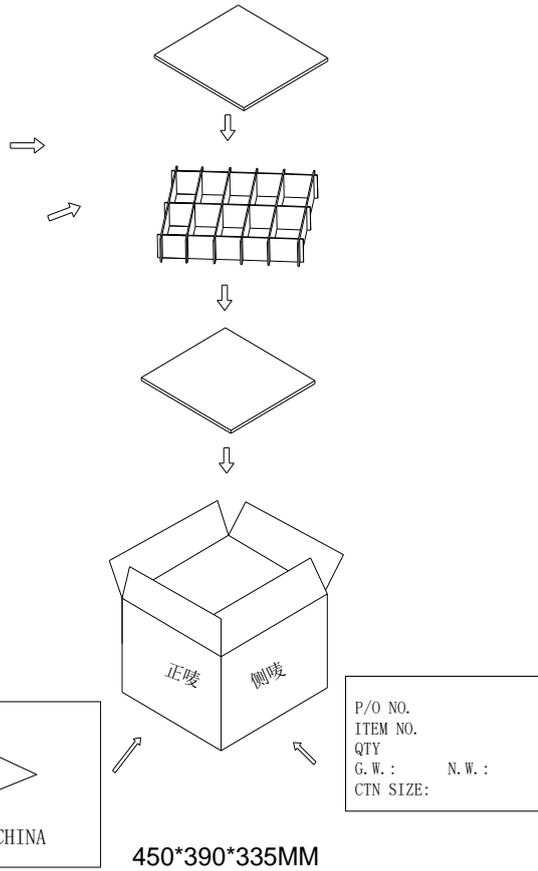
- 一、将产品每PCS装入防静电气泡袋中包好，再将包装的产品放入刀卡槽中，每层装10PCS，共装5层，每箱装50PCS
即：10pcs/层*5层=50PCS/箱
- 二、包装材料使用说明为：
 - 1、组合刀卡435*375用量：5PCS
 - 3、PE袋250*120MM用量：50PCS
 - 4、平卡435*375用量：6PCS
 - 6、纸箱450*390*335：1PCS

三、栈板堆放说明为:

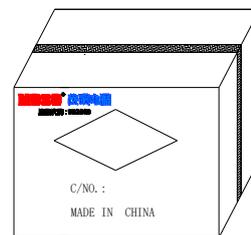
- 1、栈板尺寸为：L1200*W950*H135mm
- 2、每层放2行*3列=6箱
- 3、竖直堆放4层*6箱共24箱



栈板堆放示意图



纸箱的外尺寸：450L*390W*335H

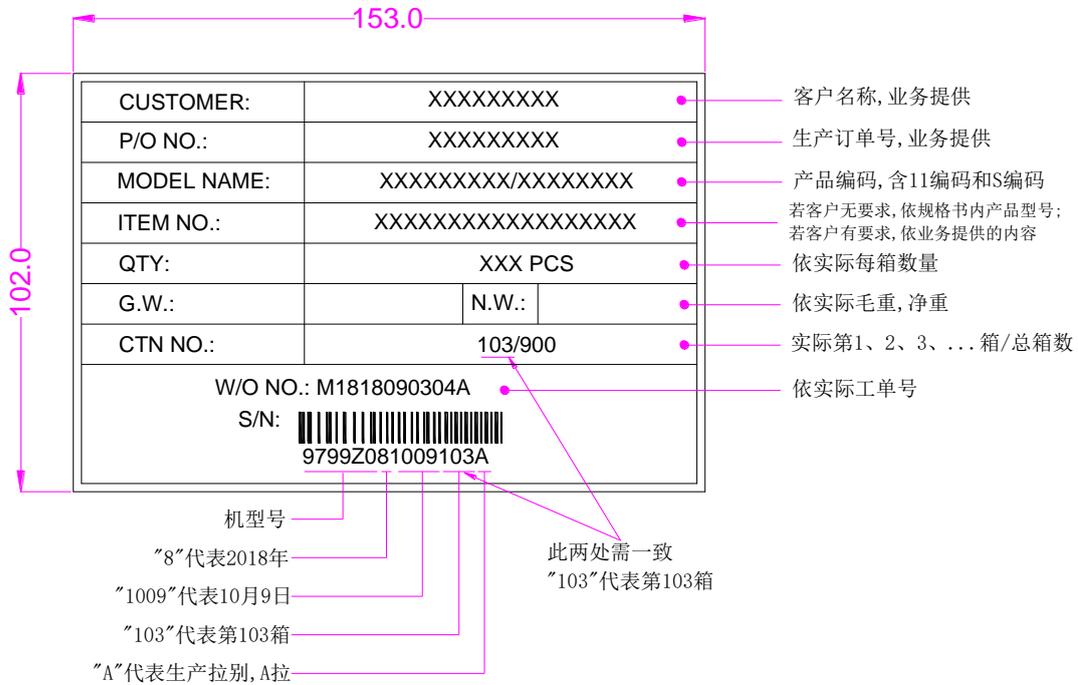


产品装入包装箱用胶袋封箱，位置参考图中所示。

- PE 袋包装要求： PE 袋不用胶带封口；
 PE 袋用胶带封口；
 其它要求；

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

Carton label



备注:

1. 材质: 80P铜版纸 (来料为空白标签)
2. 颜色: 白底黑字, 公司内部打印
3. 背附胶, 粘贴在纸箱上后, 无翘边等不良;
4. 符合ROHS标准及茂硕环保要求
5. 使用空白料号3230200011