



东莞市铭标电子科技有限公司

MINGBIAO ELECTRONICS CO., LTD

承 认 书

APPROVE SHEET

客户名称 Customer: _____

品 名 Part name: Tact swi tch

型 号 Part Number: TMHU13-060J-R

Design/ Date	Check/Date	Review/Date	Approval/Date

贵公司承认印 Approval signatures

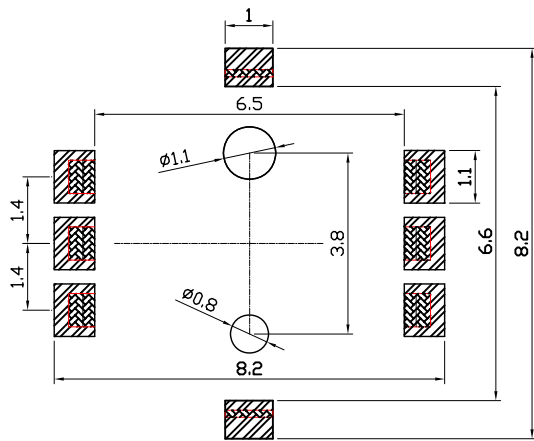
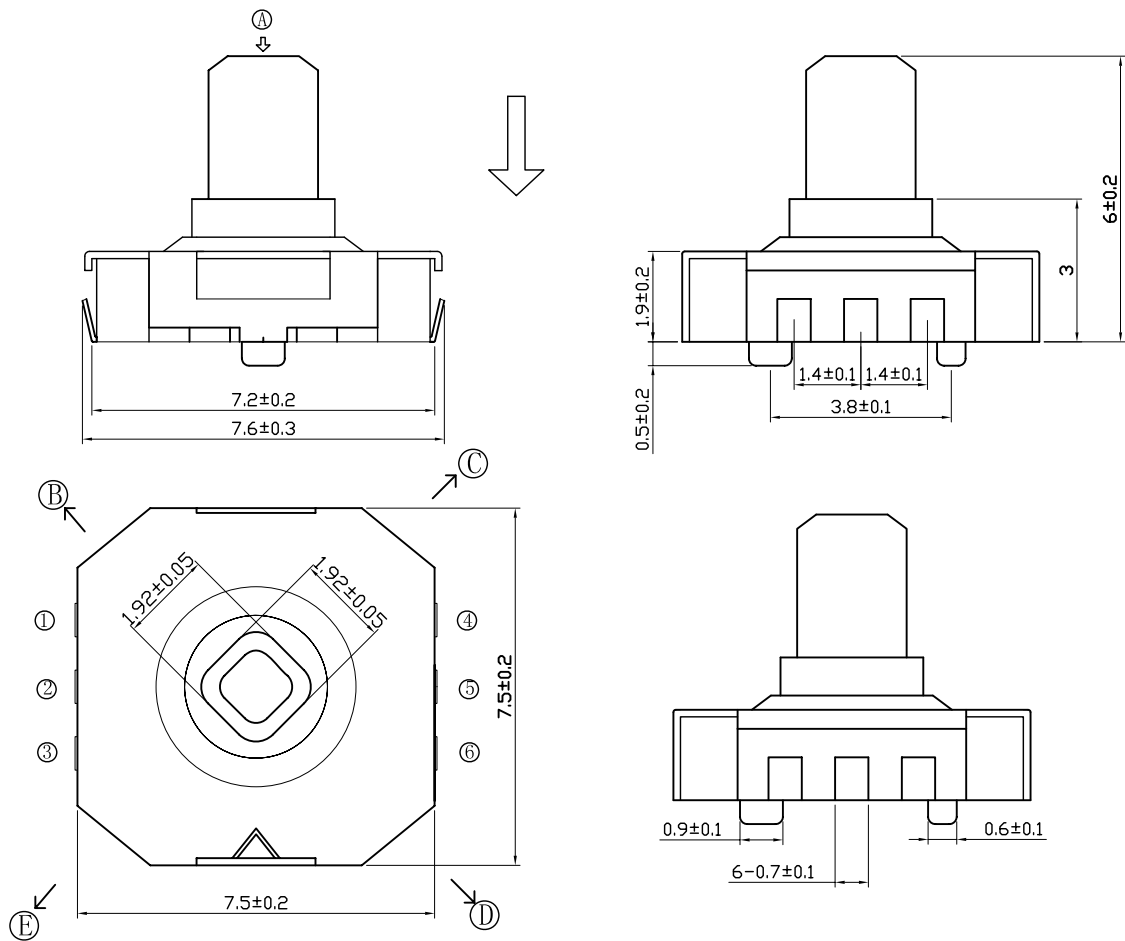
Approval/Date	Remark

Send us a copy of reference , thank you! 日期 Date:

地址: 广东省东莞市长安镇沙头社区猫山东路 101 号

Add: Dongguan City, Guangdong Province, Chang'an Town, Sand head community The cat shandong road, No. 101

Ntel: 0769-81581583



安装图 (PCB LAYOUT PLAN)

CIRCUIT DIAGRAM

ⓑ	①	②			
Ⓔ		②	③		
ⓒ		②		④	
Ⓐ		②			⑤
Ⓓ		②			⑥

电路图 (CIRCUIT DIAGRAM)

产品名称: 五向开关 高度 底座颜色 按柄颜色

规格型号: TMHU13-060J-R 6.0 黑 黑



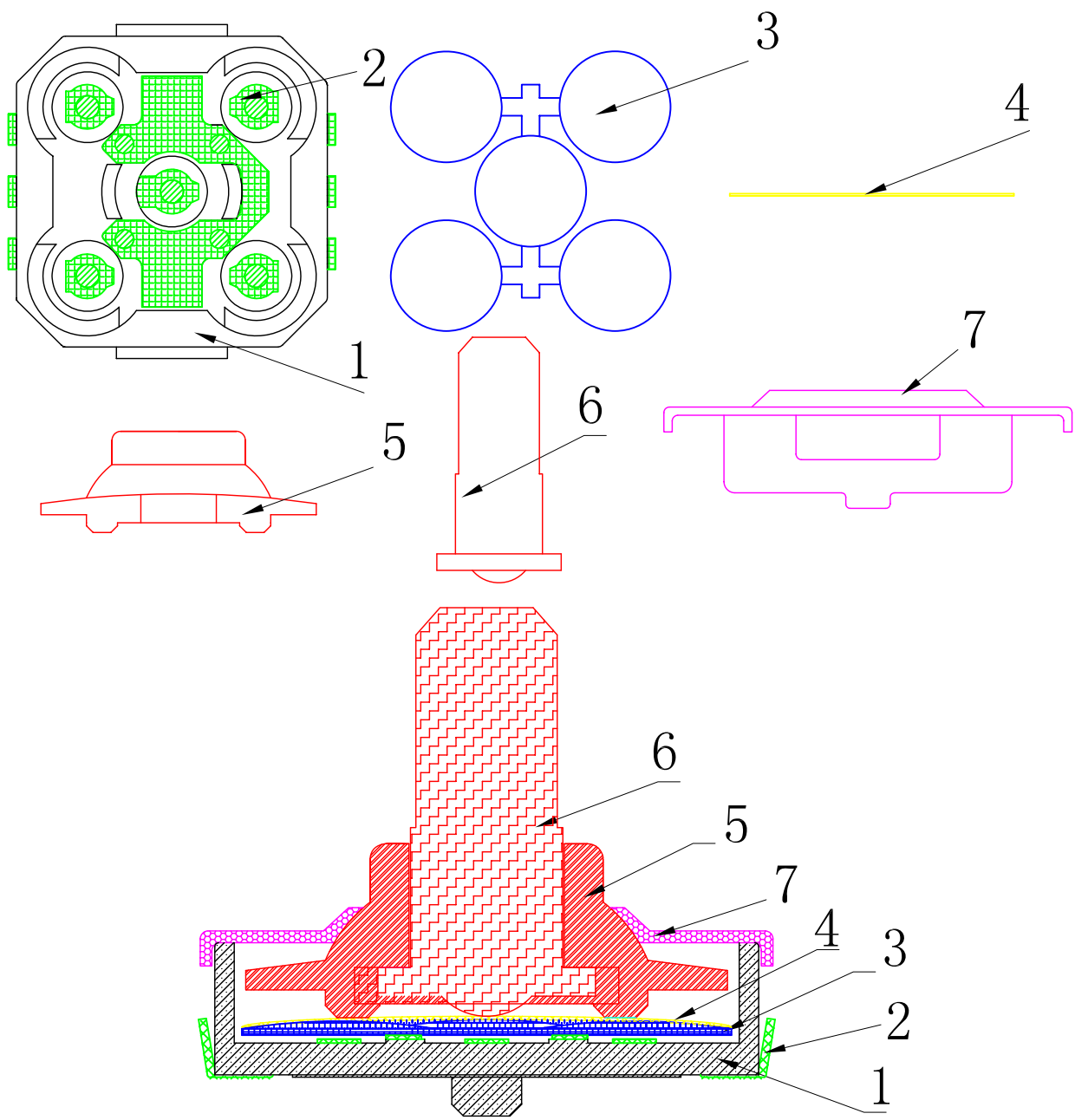
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Ming Mark Electronic Technology Co., Ltd.

备注

比例 1:1

制定 核对 审批 日期 尺寸单位

邱尚林 邱尚林 朱明华 2020. 11. 25 mm



项目	零件	材料	电镀	颜色	数量
1	基座	LCP	/	黑色	1
2	五金引脚	磷铜	银	银白色	6
3	接触簧片	不锈钢	银	银白色	2
4	防尘膜	铁氟龙	/	灰色	1
5	梅花推柄	PA6T	/	黑色	1
6	塑胶按柄	PA6T	/	黑色	1
7	五金盖板	不锈钢	银	银白色	1



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制定	核对	审批	日期	备注
邱尚林	邱尚林	朱明华	2020. 11. 25	

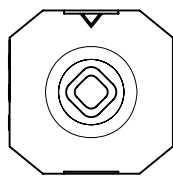


图1 成品

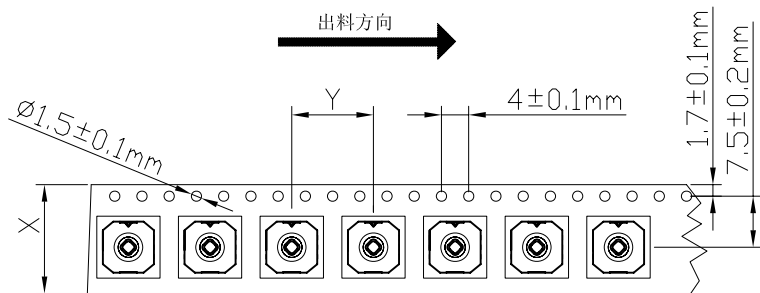


图2

成品卷带

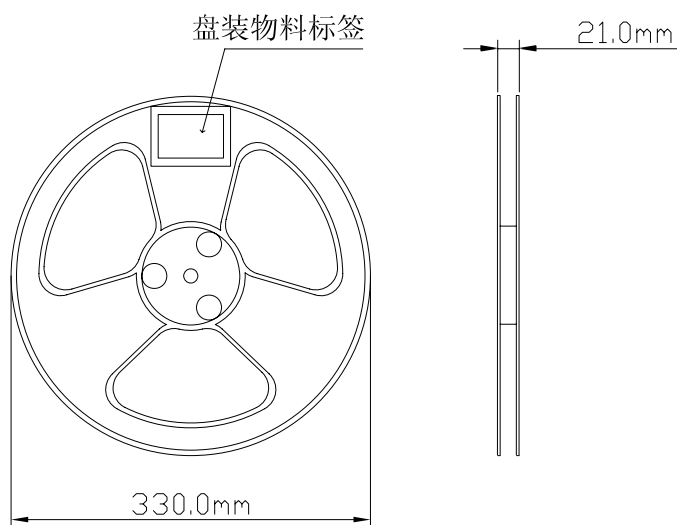




图3 卷装料盘

名称	型号	X	Y	每卷800pcs
包装示意图2	TMHU13-060J-R	16.0	12.0	
 东莞市铭标电子科技有限公司 Ming Mark Electronic Technology Co., Ltd.				备注
制定	核对	审批	日期	尺寸单位
邱尚林	邱尚林	朱明华	2020.11.25	mm
此数据仅供参考，实际以样品为准				

 东莞市铭标电子科技有限公司 Ming Mark Electronic Technology Co., Ltd.		文件编号	MIB/20201210-001
		发布日期	2020年12月10日
规格书 SPECIFICATION		页数	P1/5
产品名称： 五向轻触开关		产品型号： TMHU13-060J-R	
Product Name: Slide Switch		Part Number:	
1:总则 General			
1.1 适用范围 Scope of application 此规格书适用于 <u>轻触开关</u> 的相关要求 This specification is applicable to the requirements of light <u>Slide Switch</u> . 1.2 工作温度范围 Operating Temperature Range -15℃~60℃ (在标准大气压、标准湿度条件下) -15℃~60℃ (Normal humidity, normal air pressure) 1.3 贮藏温度范围 Storage Temperature Range -25℃~70℃ (在标准大气压、标准湿度条件下) -25℃~70℃ (Normal humidity, normal air pressure) 1.4 测试条件 Test Conditions 在没有其它特定的条件下, 在以下的条件下进行测试和测量: 常温: 5℃~35℃; 标准湿度:相对湿度 25%~85%; 标准大气压:86KPa~106Kpa Unless otherwise specified, tests and measurement shall be made in the following standard conditions: Normal temperature: 5℃~35℃ Normal humidity: relative humidity 25%~85% Normal air pressure: 86Kpa~106Kpa 1.5 如对判断有疑问, 测试和测量按以下条件进行: If there is any doubt about the judgement, the test and measurement shall be carried out under the following conditions 温度: 20℃±2℃ ; 相对湿度: 65%±5% ; 环境气压: 86KPa~106Kpa Temperature: 20℃±2℃; Relative humidity: 65%±5%; Air pressure: 86KPa~106Kpa			
2:基本事项 Basic matters			
2.1 开关工作额定值: DC 12V, 50mA Ratings: DC 12V, 50mA 2.2 操作方式: 点动式 Operation mode:Sliding, moving direction 2.3 安装尺寸 Mounting dimensions 符合产品设计要求(参照成品图) Meet product design requirements (refer to finished product drawings) 2.4 回路方式 Circuit Mode 如成品图所示 (as assembly drawing)			
3: 外观 (Appearance)			
测试项目Test item		测试条件(Test conditions)	测试要求(Test requirements)
3.1	外观 Appearance	目测、CCD Visual inspection 、 CCD	开关表面无明显锈斑、开裂、变形和电镀不良 Switches shall be free from obvious corrosion, cracking, deformation and coating failure

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	发布日期	2020年12月10日
规格书 SPECIFICATION	页数	P2/5

4: 电气性能 (Electrical specification)

测试项目 Test item		测试条件 (Test conditions)	测试要求 (Test requirements)
4.1	接触电阻 Contact resistance	无负载操作几次后, 在1KHz微小电流 (100mA 以下) 或者使用电阻分选仪测试。 After several unloaded operations, the current is measured at 1KHz (below 100mA) or with a resistance sorter.	100毫欧以下. (初始值) 100mΩ MAX. (Initial value)
4.2	绝缘电阻 Insulation Resistance	对组装好的独立端子或接地物之间施以250±5% VDC的电压测试 1. 接触端子之间; 2. 端子与壳体之间; Mated connectors with 250±5% VDC between adjacent contacts or ground 1. Contact between the terminal; 2. Between the terminal and shell;	50兆欧以上. 50MΩ Min.
4.3	耐电压 Voltage proof	对组装好的独立端子或接地物之间施以250±5% VDC的电压测试, 1分钟感度电流为0.5mA, 1. 接触端子之间; 2. 端子与壳体之间; Mated connectors with 250±5% VAC for 1 minute 0.5 mA between adjacent contacts or ground; 1. Contact between the terminal; 2. Between the terminal and shell;	无击穿, 无绝缘破坏等异常 No breakdown, no insulation damage and other abnormalities

5: 机械性能 Mechanical specification

测试项目 Test item		测试条件 (Test conditions)	测试要求 (Test requirements)
5.1	操作力 Operating force	Vertical press in the direction of the handle. Side pressing along the 45 degree angle of the center of the handle 中向沿手柄方向垂直接压, 斜向沿手柄中心45度角侧向按压	中档: 250±70gf 边档: 200±60gf
5.2	行程 Travels	沿开关操作方向施加一个1.5倍的按力在开关操作部件顶端中心, 测量顶端移动的距离。 A 1.5 times force is applied along the switching direction at the center of the top of the switching operation component to measure the distance of the top movement.	中档: 0.15±0.08mm
5.3	操作部 (柄) 强度 Handle strength	在操作柄的顶端沿运动方向施加(10N)力度测试, 时间3秒。 At the top of the handle, a force test (10N) was applied along the direction of motion for 3 seconds.	外观无异常, 满足于机械, 电气性能 No abnormal appearance, satisfied with mechanical and electrical performance

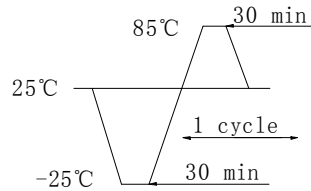
 东莞市铭标电子科技有限公司 Ming Mark Electronic Technology Co., Ltd.		文件编号	MIB/20201210-001
		发布日期	2020年12月10日
规格书 SPECIFICATION		页数	P3/5
5.4	振动 Vibration	根据以下给定条件进行测试： (1) 振动频率范围：10~55~10Hz (2) 振幅（峰-峰）：1.5mm (3) 振动方向：包括手柄行程方向在内的三个相互垂直的方向 (4) 测试时间：每次 2hours . Measurement shall be made following the test set forth below: (1)Vibration frequency range: 10 to 55 to 10Hz (2)Amplitude: 1.5mm (3)Direction of vibration:Three mutually perpendicular direction including the direction of stem travel (4)Duration: Each 2hours.	外观无异常，满足于机械，电气性能 No abnormal appearance, satisfied with mechanical and electrical performance
6: 耐久性能Durability			
测试项目Test item		测试条件(Test conditions)	测试要求(Test requirements)
6.1	寿命实验 Life experiment	测试机以每分钟20-30次的频率，做 3,0000次无负荷测试。 The tester performs 3,0000 load-free tests at a frequency of 20-30 times per minute.	外观无异常，满足于机械，电气性能，电阻<1000毫欧 No abnormal appearance, meets the mechanical and electrical performance, resistance <1000mΩ
6.2	耐热实验 Heat resistance experiment	放置在温度70±2℃中96小时后，再放置常温下1小时后来测定。 After 96 hours at 70 +2℃, then at room temperature for 1 hour, it is determined later.	外观无异常，满足于机械，电气性能 No abnormal appearance, satisfied with mechanical and electrical performance
6.3	耐冷实验 Cold tolerance experiment	放置在温度-25±3℃中96小时后，再放置到常温下1小时后来测定。 After 96 hours at - 25 +3℃, it is placed at room temperature for 1 hour and then determined.	外观无异常，满足于机械，电气性能 No abnormal appearance, satisfied with mechanical and electrical performance
6.4	恒定湿热 Damp heat, steady state	放置在温度40±2℃，湿度90% - 95%中测试96h后，再放置常温下1至2小时后来测定。 After 96 hours of testing at 40, 2 C and 90% - 95% humidity, then 1 to 2 hours at room temperature for later determination.	外观无异常，满足于机械，电气性能 No abnormal appearance, satisfied with mechanical and electrical performance



6.5 温度循环
Temperature cycle

将开关按下列条件试验5个循环，再放置常温下1小时后来测定。

Test the switch for 5 cycles under the following conditions, then place it in room temperature and humidity for 1 hour and then measure it.



外观无异常，满足于机械，电气性能
No abnormal appearance, satisfied with mechanical and electrical performance

6.6 盐雾24小时试验
Salt fog 24 hours test

1) 盐溶液质量百分比浓度 (5±0.1) %; PH值6.5~7.2; 盐水桶温度35±2℃; 喷雾压力0.12MPa连续喷雾24小时;
2) 试验后的盐沉积物用水冲洗后吹干，再常温下放置30分钟后来检测.

1) salt solution mass percentage (5 + 0.1)%; pH value 6.5~7.2; salt water tank temperature 35 + 2℃; spray pressure 0.12MPa continuous spray 24 hours;
2) The salt sediments were washed with water and dried, then placed at room temperature for 30 minutes before testing.

在金属件上没有影响开关性能的斑点
There is no spot on the metal part that affects the performance of the switch.

7: 焊接性能Weldability

测试项目Test item

测试条件(Test conditions)

测试要求(Test requirements)

7.1 焊锡试验
Solder test

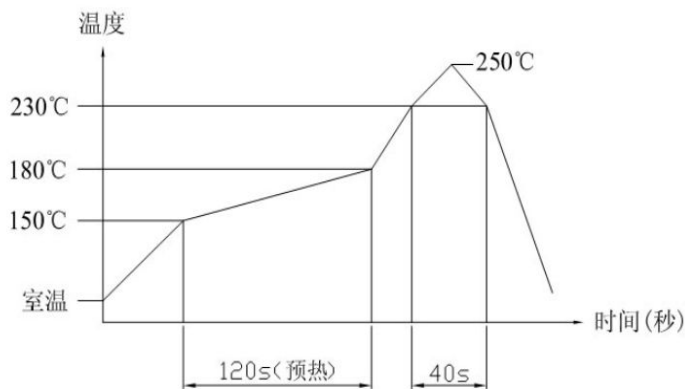
将端子顶部浸入锡炉中1mm深, 温度240℃±5℃, 时间为3±0.5秒
The Top Of The Terminals Shall Be DIPPED 1mm In The Solder Bath Of 240℃±5℃ , Time is 3±0.5 seconds

90%以上的焊接面被焊料覆盖
More than 90% of the welding surface is covered by solder



7.2 焊接条件
Welding conditions

- 1) 手工焊接: 手焊接时温度需控制在 $270^{\circ}\text{C} \pm 5^{\circ}\text{C}$, 时间为 3 ± 0.5 秒, 但不能在排脚上施加异常压力.
- 2) 过回流焊一次, $\leq 250^{\circ}\text{C}$ (如图示).
- 1) Soldering Iron Method:
Bit Temperature $270^{\circ}\text{C} \pm 5^{\circ}\text{C}$, Application Time Of Soldering Iron 3 ± 0.5 SEC However Excessive Pressure Shall Not Be Applied To The Terminal.
- 2) Reflow soldering once, temperature below 250°C (as shown).



外观无异常, 满足于机械, 电气性能
No abnormal appearance, satisfied with mechanical and electrical performance

8: 其他注意事项 Other precautions

- 8.1 注意不要施加超负荷的压力或晃动开关.
Please be cautions not to give excessive static load or shock to swiches.
- 8.2 进行焊接过程中, 不可以用溶剂或类似品清洗开关.
Following the soldering process, do not try to clean the switch with a solvent or the like.
- 8.3 应防止助焊剂从开关的顶端渗入.
Flux should be prevented from penetrating from the top of the switch.
- 8.4 保管时应注意避开高湿高温和有腐蚀性气体的环境. 如需要长时间保存, 请密封保存.
During storage, care should be taken to avoid high humidity, high temperature and corrosive gases. If you need to keep it for a long time, please keep it sealed.
- 8.5 保存产品仓库: 温度 $25 \pm 5^{\circ}\text{C}$, 相对湿度小于85%范围.
Keep products warehouse: temperature of $25 + / - 5^{\circ}\text{C}$, relative humidity is less than 85%.