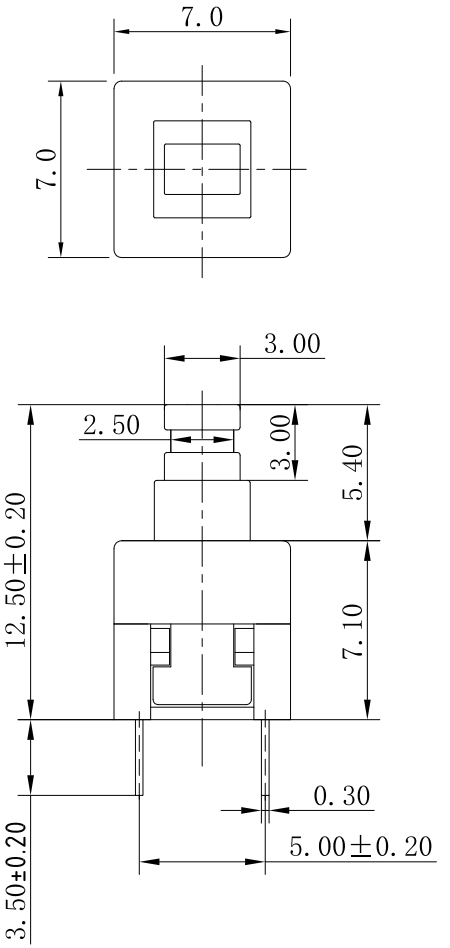
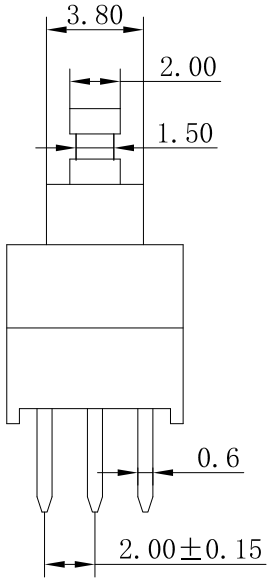
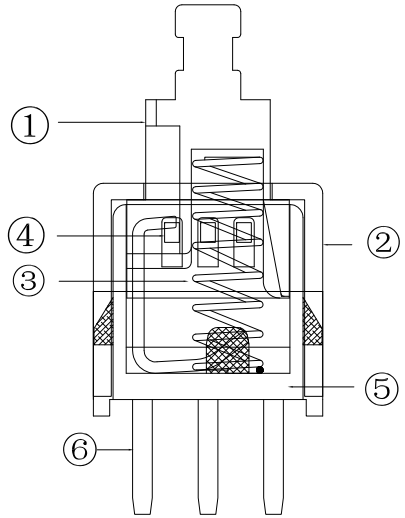
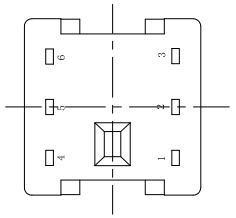
ABIDE BY WEEE & ROHS

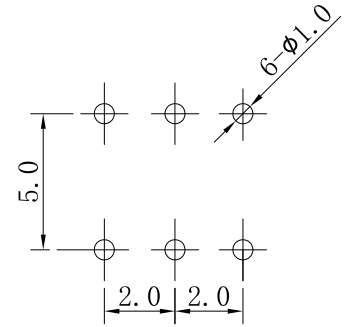




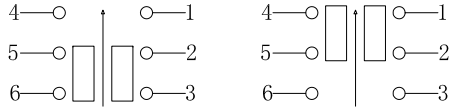




向视图



PCB Layout Recommended



电路简图

常态：2-3导通　5-6导通
按下：1-2导通　4-5导通

■ Specification :
- 1.Rating :DC30V　0.1A;
- 2.Contact Resistance : 200mΩ Max;
- 3.Insulation Resistance :100MΩ Min(DC250V);
- 4.Withstand Voltage :AC250V(50−60Hz)for 1 minute;
- 5.Operation Force(OF)：180±50gf;
- 6.Full−Travel：2.3±0.20mm;
- 7.Life Cycles：10,000 (min);

ITEM	PART NAME	TER'NO.	QTY.	MATERIAL	FINISHING	REMARK
⑦	Hookpin	1	1	SWC	——	——
⑥	Terminal	1	1	Brass	Plating Silver	——
⑤	Base	——	1	Nylon	Black	——
④	Contact	——	2	Copper Sliver	——	——
③	Spring	——	1	SWC	——	——
②	Cover	——	1	Nylon	White	——
①	Keystoke	——	1	Nylon	Blue	——

APPROVALS		DATE
DRAWN	Zhao Caimin	2025.11.07
CHECKED	Xiao Yijiang	2025.11.07
APPROVALS	Wan Wenxue	2025.11.07

Kailh® 东莞市凯华电子有限公司 KAIHUA ELECTRONICS CO.,LTD

TOLERANCES ARE			ANGLE	UNIT: mm	SCALE: 1:1	PROJ:
	30<L	±0.30				
	10<L≦30	±0.20				
	5<L≦10	±0.15	±2°	DRAWING NO.	KHA-PG7071-001EN	SHEET: 1OF1
	L≦5	±0.10				

TITLE: 7.0 Self-locking Switch

PART NO: CPG707110D20

ECN NO.	REV.	DATE.	DESCRIPTION.	CHANGE.	CHECK.	APPRO.
——	A	——	New	——	——	——

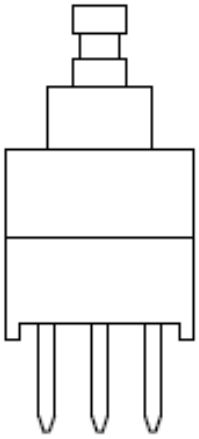
凯华电子 Kailh KAIHUA ELECTRONICS

Document Number:

KH-PS2511-07

产品规格书

Product Specification



P/N:	Title :
CPG707110D20	**Self-locking Switch**

Rev.	ECN	Release and Revision Description:	Prepared By/Date:	Checked By/Date:	Approved By/Date:
A	——	New releasing 初版发行	赵才敏 2025/11/07	肖奕江 2025/11/07	万文学 2025/11/07

Content

目录

1. Scope 范围:

This Product Specification covers the requirement of Self-locking switch on product performance, test methods and quality assurance provisions.

本规格书内容涵盖自锁开关产品的要求，包括性能指标、测试方法及质量保证方面等。

2. Product Application/产品应用：

The Switch is applied in all types of Computer，cameras ,VCR ,stereo and car radio equipment and home appliances. Please let us know before using any of the products in the application not described above.

该开关产品适用于所有类型的电脑、照相机、录像机、音响、汽车无线电设备和家用电器，如果用于本文中未提及的领域请在使用前告知。

3. Environmental Requirements /环境要求：

Operating temperature and humidity 工作温湿度范围： -10℃～+70℃、≤85% R.H.；

Storage temperature and humidity 保存温湿度范围： -20℃～+80℃、≤35% R.H.；

Suggested storage period 贮存期限： 6 months Max 最多 6 个月；

Experimental status 试验状态：

Unless specified otherwise, tests and measurements should be conducted under normal temperature and pressure. In case of case of disputes over the test results, testing should be performed under the following conditions.

试验及测定只要没有特别规定，就在常温常压下进行。若测试有争议就在以下条件下测试。

Ambient temperature 环境温度： 20±5℃；

Relative humidity 相对湿度： 65%±5% R.H.；

Air pressure 气压： 86~106KPa；

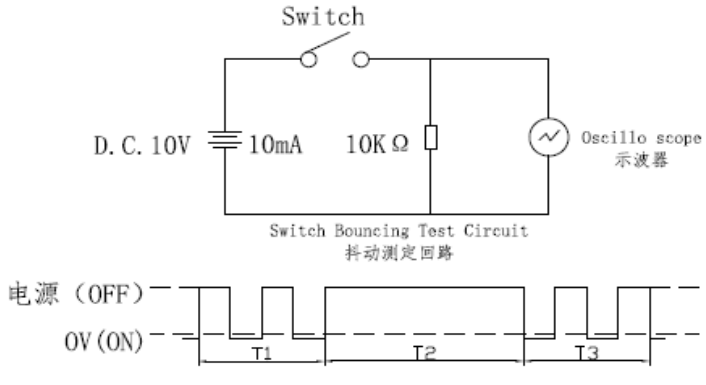
4. Rated Performance Requirements /额定性能要求：

See product 2D drawing / 见产品图纸

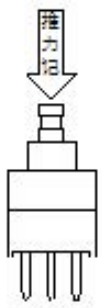
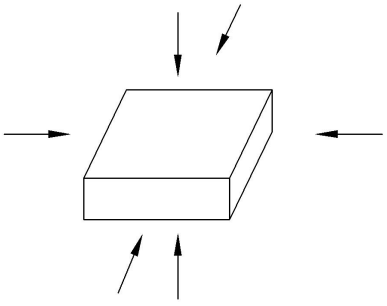
5. Profile Dimensions / 外形尺寸：

See product 2D drawing / 见产品图纸

6. Electrical Performance / 电气性能

Item 项目	Description 项目描述	Test Condition 测试条件	Requirement 规格要求
6.1	Contact Resistance 接触电阻	Measured at low current (≤100mA). 在低电流条件下测试（≤100mA）. Static load: (Operation force) x2, which is applied on the center of Switch stem. Be measured when the switch contact stabilization. 静态负载：动作力的 2 倍，施加在手柄中心.开关接触稳定时量测 Measurement tool Contact resistance Meter 测量工具：微电流接触电阻计(1KHz, 20mV,5~50mA)	See product 2D drawing 见产品图纸
6.2	Insulation Resistance 绝缘电阻	Apply a voltage of 250 VDC for 1 minute, according to the below method. 按如下接触方法输入直流电 250V 一分钟，测试： (1)Between terminals 端子与端子之间. (2)Between terminal and Housing 端子与外壳之间.	See product 2D drawing 见产品图纸
6.3	Withstand Voltage 耐电压	Apply 250V AC (50-60Hz) for 1 minute according to the following contact method. 按如下接触方法施加交流电 250V(50-60Hz) 1 分钟 (1)Between terminals 端子与端子之间. (2)Between terminal and Housing 端子与外壳之间.	No breakdown 无瞬断、击穿等破坏.
6.4	Contact Bouncing 触点抖动	Slightly push the center of stem at the speed of 3~4 times/s, to test the bounce at “ON” and “OFF” 以每秒 3~4 次的速度，轻轻在手柄中心加力，在“导通”与“瞬断”间测试. 	①T1 and T3: 5ms MAX before life 10ms MAX after life T1 和 T3: 寿命测试前 5 毫秒最大，寿命测试后 10 毫秒最大 ②T2： 0ms(Noise wave no accept) T2:0ms（不能有杂波）

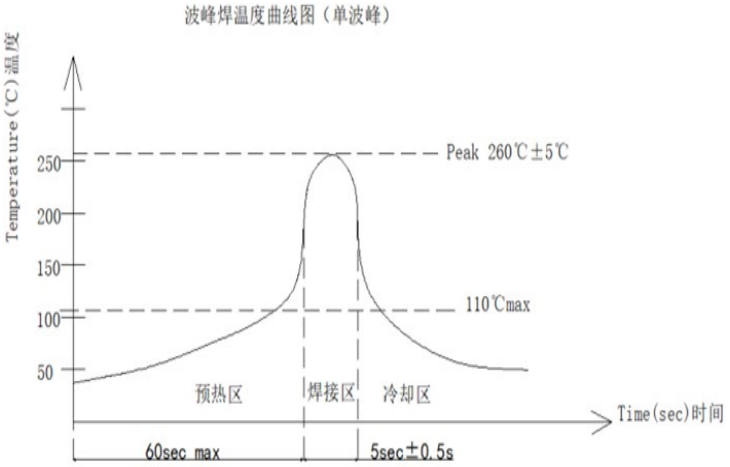
7. Mechanical Performance / 机械性能

Item 项目	Description 项目描述	Test Condition 测试条件	Requirement 规格要求
7.1	Operation Force 操 作 力	Apply force vertically to the switch gradually to measure the operating force when the switch button is triggered. 对开关按键逐渐施加力，测量开关触发时操作力度。	See product drawings for specific control parameters 具体管控参数见产品图纸
7.2	Operation travel 操作行程	Press the switch vertically, measure moving distance from its free position to conductive position. 垂直操作开关按键，测开关顶端移动距离.	
7.3	Static Strength 静止强度	A static load of 0.5Kgf shall be applied in the direction of button operation for 60 seconds. 在按钮动作方向施加 0.5Kgf 的静负荷 60 秒，然后测试参数. 	No damage (Electrical and mechanical） 电气和机械性能正常.
7.4	Stem Pull Strength 手柄拉拔强度	Break by a pull force applied opposite to the direction of stem operation. 在推柄动作方向反向垂直施加拉力，使其破坏的程度.	500gf Min
7.5	Mechanical Shock Test 机械冲击	(1)Acceleration speed 加速度: 80g (2)Cycles test 试验次数: 3 cycles each in 6 directions, total amount 18 cycles. 每个方向 3 次，6 个方向共 18 次. 	No damage (Electrical and mechanical） 电气和机械性能正常.

7.6	Life Test 寿命测试	(1)Applying Force 施加力：250±50gf (2)Operation speed 操作速度：2~3cycles/s（次/秒） (3)Cycles：See product 2D drawing 操作次数：见产品图纸	①Contact resistance 接触电阻: 10Ω Max（10 欧最大） ②Operation force：Variation rate within ±50% 操作力的变化范围在初始值的±50%以内. ③Shall meet 满足：No.6.2 to 6.4，No. 7.1、7.2。

8. Environmental Performance / 环境性能

<table>
<tr><th>Item
项目</th><th>Description
项目描述</th><th>Test Condition 测试条件</th><th>Requirement 规格要求</th></tr>
<tr><td>8.1</td><td>Cold Resistance test
耐寒性</td><td>(1) Temperature 温度： - 20±2℃（摄氏度）
(2) Duration of test 持续时间： 96h（小时）
(3)Take off drop water（去掉水珠）
(4) Test data after 1 hour of experiment
（实验后放置 1 小时后测试数据）</td><td rowspan="2">①Contact resistance 接触电阻：500mΩ Max（最大）
②Shall meet 满足:No. 6.2 to 6.4，No. 7.1、7.2.</td></tr>
<tr><td>8.2</td><td>Heat Resistance test
耐热性</td><td>(1) Temperature 温度： 80±2℃（摄氏度）
(2) Duration of test 持续时间： 96h（小时）
(3)Take off drop water（去掉水珠）
(4) Test data after 1 hour of experiment
（实验后放置 1 小时后测试数据）</td></tr>
<tr><td>8.3</td><td>Temperature cycle test
温度循环</td><td>(1) Test cycles 试验周期: 5 cycles（5 个周期）
(2) Test data after 1 hour of experiment
（实验后放置 1 小时后测试数据）
<table><tr><th></th><th>Temperature / 温度</th><th>Duration of test / 持续时间</th></tr><tr><td rowspan="4">1 cycle
一次循环</td><td>20±5℃</td><td>1h</td></tr><tr><td>-20±5℃</td><td>1h</td></tr><tr><td>20±5℃</td><td>1h</td></tr><tr><td>80±5℃</td><td>1h</td></tr></table></td><td rowspan="2">①Contact resistance 接触电阻：500mΩ Max（最大）
②Shall meet 满足:No. 6.2 to 6.4，No. 7.1、7.2.</td></tr>
<tr><td>8.4</td><td>Temperature and Humidity test
恒温恒湿</td><td>(1) Temperature 温度：60±2℃（摄氏度）
(2) Relative humidity 相对湿度：90~95% R.H.
(3) Duration of test 持续时间：96h（小时）
(4) Take off drop water（去掉水珠）
(5) Test data after 1 hour of experiment
（实验后放置 1 小时后测试数据）</td></tr>
</table>

8.5	Soldering heat Resistance test 耐焊接热	Automatic Wave Soldering 自动波峰焊： (1) Soldering area 焊接面积：(PWB: T=1.6mm) T/2 of PWB thickness 印刷基板的 1/2 厚度处. (2) Temperature 焊接温度: 260±5℃ （摄氏度） (3) Soldering time 焊接时间: 5±0.5s （秒） 	①Appearance: No abnormality. 外观无异常 ②Shall meet 满足: No. 7.1、7.2.
8.6	Solder ability Test 可焊性	Lead free soldering 无铅焊接： (1) Soldering temperature 焊接温度：255±5℃ (2) Soldering time 焊接时间：5±0.5s	At least 90% of surface area of immersed portion shall be covered by solder. 浸焊面积大于 90%以上.
8.7	Salt Spray Test 盐雾测试	(1) Temperature 温度: 35±5℃（摄氏度） (2) Salt water density 盐水浓度: 5±1% (3) Duration 持续时间: 24 hours （小时） (4) Test data after flushing with water after test. （用水冲洗后测试数据）	①Appearance ： No corrosion spot, no crack, no base plate naked. 外观：无腐蚀点，无裂纹，无裸露基材 ②Shall meet 满足：No. 6.4 ③Contact Resistance 接触电阻:500mΩ Max（最大）
8.8	Withstand K_2S Test 硫化测试	(1) Temperature 温度：Natural（常温状态） (2) K_2S Density 硫化钾浓度：2%； (3) Duration 持续时间： 2 minute（分钟） (4) Test data after flushing with water after test. （用水冲洗后测试数据）	

9. Recommended PCB Layout 推荐的 PCB 安装焊盘规格

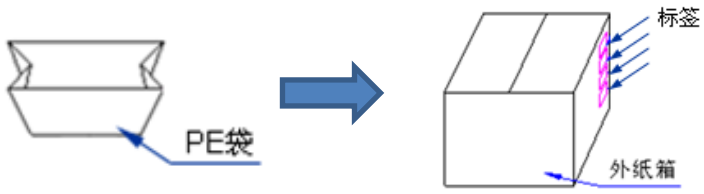
(Top View)

(Single face board T=1.6mm)

Recommended solder pads See product 2D drawing / 推荐焊盘见产品图纸

10.Packaging 包装

Packing Style / 包装类型	Quantity / 数量	Notes / 说明
PE bag / PE 袋	500Pcs.	500Pcs / Bag
Outer Carton / 外纸箱	5000Pcs.	PE Bag : 10 Pcs



11.Precaution 注意事项

11.1 Immersion Soldering condition 浸焊条件

ITEM 项目	CONDITION 条 件
Preheat temperature 预热温度	110℃ Max (Ambient temperature of soldering surface of P.W.B) 110℃ 以下(印刷基板焊锡面周围的温度)
Preheat time 预热时间	60s, Max 60 秒以内
Area of flux 助焊剂面积	1/2 Max of PWB Thickness 印刷基板厚度的 1/2 以内
Temperature of solder 焊锡温度	260±5℃ 260±5℃
Time of immersion 浸焊时间	5±0.5s 5±0.5 秒
Number of soldering 焊接次数	2times Max (But should down heat of the first soldering) 2 次以内
Printed wiring board 印刷基板	Single side copper-clad laminates 单面铜箔

(1) After switches were soldered, please be careful not to clean switches with solvent
开关浸焊后,注意不要用溶剂清洗.

(2) Under the condition of using soldering iron, soldering temperature shall be 350±5℃ with 3±0.5s
在使用铬铁的情况下，焊锡温度应在 350±5℃,焊接时间 3±0.5 秒

11.2 Notes 注意点

(1) Please be cautious not to give excessive static load or shock to switches.
注意不要施加超负荷的压力或晃动开关.

(2) The tester's measuring tolerance is acceptable within the following scope: OF: ± 10 gf.
测试仪的测量偏差在以下范围是可接受的：操作力±10gf.

(3) Please be careful not to stack up P. W. B. after switches were soldered.
开关焊接以后,印刷基板注意不要叠放.

(4) Preservation under high temperature and high humidity or corrosive gas should be avoided Especially. When you need to preserve for a long period, do not open the carton.
保管时尤其应注意避开高湿高温和有腐蚀性气体的环境. 如需长时间保存,请不要打开包装箱.

(5) The standard storage period is 3 months, with maximum up to 6months, preferably to be used as soon as possible. After opening the package, you should put the remaining switches in a plastic bag to prevent from damp and corrosive gas and use them within a maximum of 2 weeks.
保存标准为 3 个月，限度为 6 个月以内，请尽早使用. 打开包装后，有剩余品时，应将剩余部分以胶袋包装好以同外界隔离，请进行合适的防湿，防腐蚀气体等处理后进行保管，保存期限为 2 周。

(6) This Product Specification is considered as the technical agreement on product between the receiving customer and Kailh. Any information on Product Catalogue which is in conflict with or different from the corresponding information of this document is considered as invalid.
该规格书为客户与凯华公司产品在技术方面的共识，其他相关数据上与该规格书不一致的内容都是无效的.

(7) Whether customer no feedback or place order to us directly after received specification, it will be considered that customer already confirmed and accepted this product.
无论顾客收到规格书后有没有信息反馈直接向我公司订货，我们将认为顾客对此产品已验证合格.

(8) If there is no order or no request for new specification after 1 year from this specification issued, the specification will be regarded as invalid.
本产品规格书从生效日起 1 年后，如果没有订货或再次申请最新规格书时请做无效处理.

(9) Products meet the ROHS & REACH environmental management substances control standards
产品满足 ROHS & REACH 环境管理物质管制标准