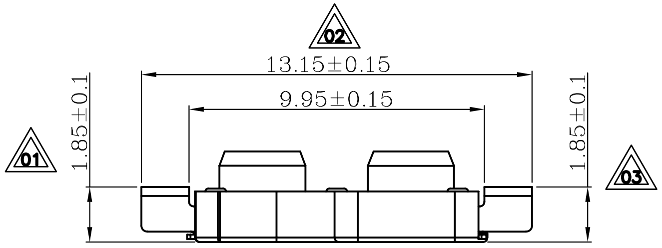
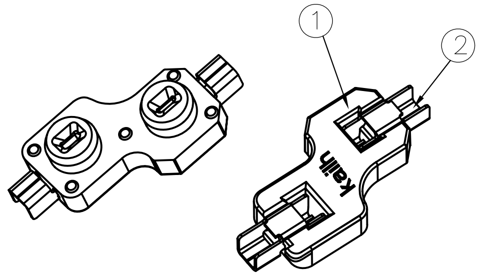
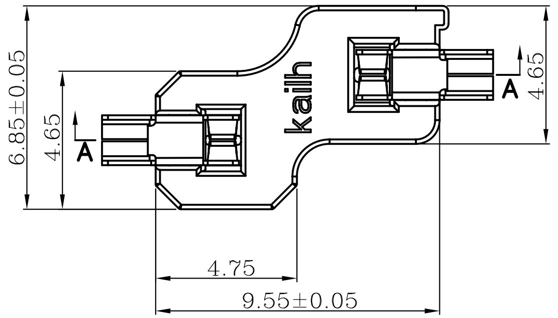
ABIDE BY ROHS

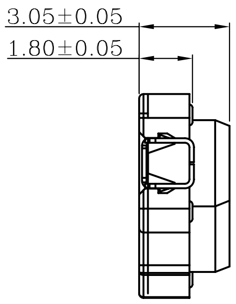
■ Specification :

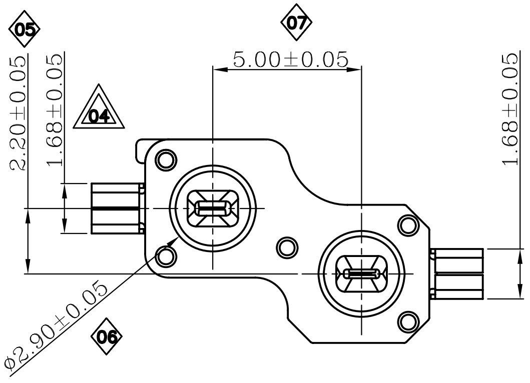
- ●1.Rating:
  Voltage :12V AC/DC max.,2V DC min.
  Current: 10mA AC/DC max.,10μA DC min.
- ●2.Contact Resistance : 100mΩ Max
- ●3.Insulation Resistance :100MΩ min (500V)
- ●4.Withstand Voltage :AC100V(50–60Hz) for 1 minute
- ●5.Contact: All the Surface plating Ni,then gold plating for contact Area, Tin plating for welding area
- ●6.Mating Force :3.0kgf max
- ●7.Mechanical Life :100 Cycles

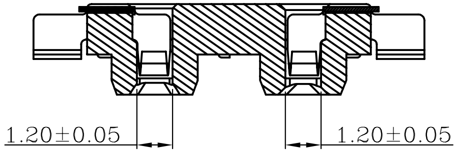




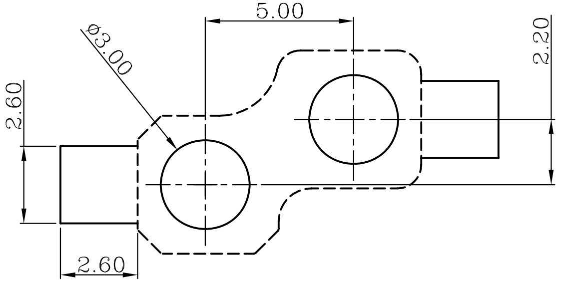








SECTION A–A



PCB LAYOUT

ITEM	PART NAME	TER'NO.	QTY.	MATERIAL	FINISHING	REMARK
②	contact	——	2	Copper Alloy	——	——
①	Base	——	1	Nylon	Black	——

APPROVALS		DATE	
DRAWN	huyuanfeng	2017-01-26	
CHECKED			
APPROVALS			

Kailh® DONGGUAN CITY KAIHUA ELECTRONICS CO.,LTD

TITLE:	PG1350 KeySwitches Contact		
PART NO.	CPG135001S30		
UNIT: mm	SCALE: 1:1	PROJ.: ⊕◁	
DRAWING NO.	KHA-PG1350-005EN	SHEET 1 OF 1	

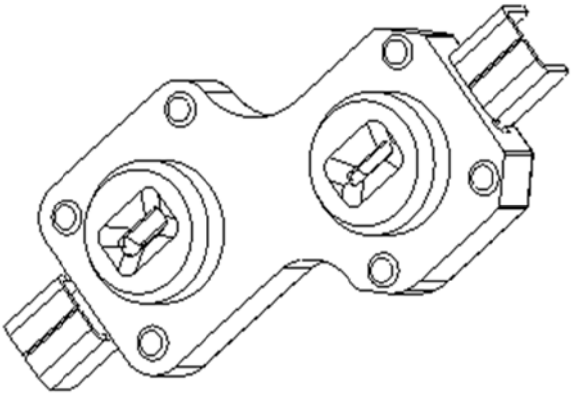
TOLERANCES ARE			ANGLE
	30<L	±0.30	±2°
	10<L≦30	±0.20	
	5<L≦10	±0.15	
	L≦5	±0.10	

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

凱華電子 KAIHUA EELETRONICS	Document Number: KH-PS-1702-35

产品规格书

Product Specification



P/N: CPG135001S30	Title : **1350 Connector**

Rev.	ECN	Release and Revision Description:	Prepared By /Date:	Checked By/Date:	Approved By/Date:
A	————	New releasing 初版发行			

Content

目录

1. Scope/范围:

This Product Specification covers the requirement of Mechanical keyboard Connector switch on product performance, test methods and quality assurance provisions.
本规格书内容涵盖机械键盘连接器产品的要求，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：

Mainly applied on computer keyboards,cash registers equipment and Man-Machine interface.
主要适用于电脑，收银机，工业设备和人机界面

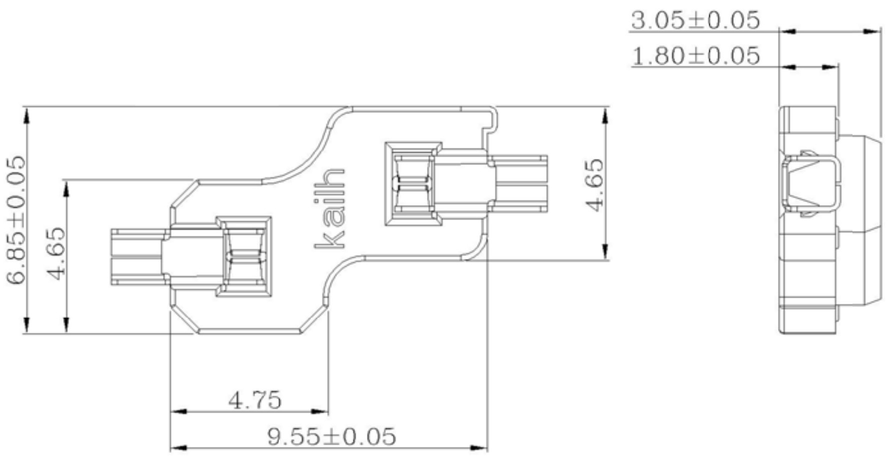
3. Technology Parameters/技术参数

Ambient Humidity 工作湿度：	45~95% R.H.；
Operating Temperature Range 使用温度范围：	-10℃～+60℃；
Storage Temperature Range 保存温度范围：	-20℃～+70℃；
Normal Condition:	
Ambient temperature 环境温度：	20±2℃
Relative humidity 相对湿度：	85%±5% R.H.；
Air pressure 气压：	86~101KPa;
Contact Resistance 接触阻抗：	100 mΩ Max；
Solder Ability 可焊性:	260±5℃,3±0.5s；
Withstand Soldering Temperature 耐焊接热:	260±5℃,5±1s；

4. Ratings/额定性能要求

Rating Voltare 额定电压：	12V AC/DC max；2V DC min
Rating Current 额定电流	10mA AC/DC max；10uA DC min
InsulationResistance 绝缘电阻：	≥100MΩ/DC 500V;
Withstand Voltage 耐电压：	AC 100V 1 Minute;
Mechanical Life 机械寿命：	100Cycles .

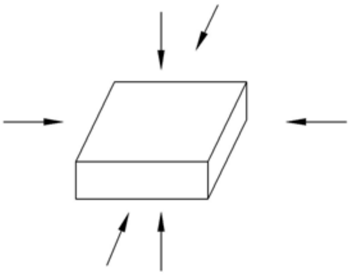
Profile Dimensions /外形尺寸



5. Electrical Performance/电气性能

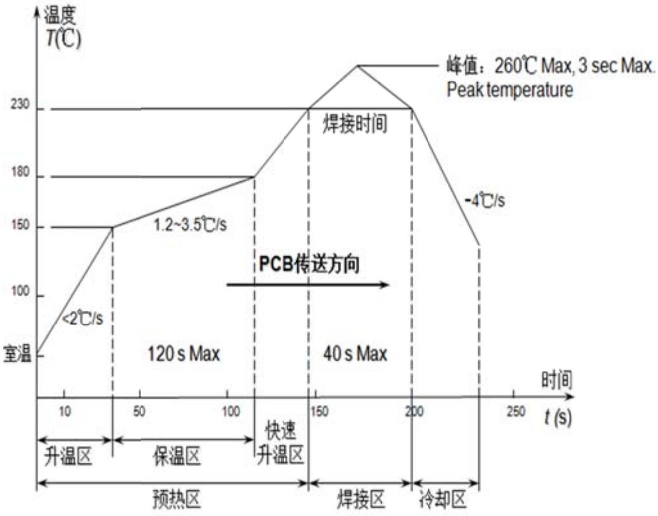
Item 项目	Description 项目描述	Test Condition 测试条件	Requirement 规格要求
6.1	Contact Resistance 接触电阻	Static load: (Operation force)x2, which is applied on the center of Switch stem. 静态负载：动作力的 2 倍，施加在手柄中心. Measurement tool: Contact resistance Meter. 测量工具：微电流接触电阻计(1KHz, 20mV,5~50mA)	100mΩ Max 100mΩ以下
6.2	Insulation Resistance 绝缘电阻	Apply a Voltage of DC 500 V for 1 minute, according to the below method. (1) Between terminals. (2) Between terminal and Body. 输入 500V DC 电压 1 分钟，按如下接触方法测试： (1) 端子与端子之间. (2) 端子与外壳之间.	100MΩ Min 100 兆欧以上
6.3	Dielectric withstanding voltage 耐电压	Apply a Voltage of AC 100 V (50~60Hz) for 1 minute, according to the below method. (1) Between terminals. (2) Between terminal and Body. 输入 100V AC 电压 1 分钟，按如下接触方法测试： (1) 端子与端子之间. (2) 端子与外壳之间.	No evidence of breakdown 无瞬断、击穿等破坏.

6. 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	Mating force 插入力	At 16in/minute.actuation speed	Mating force 插入力 3KG max
7.2	Unmating force 拔出力	At 16in/minute.actuation speed	Unmating force 拔出力 200gf min
7.3	Shock 机械冲击	Measured by according to the below condition: (1) Acceleration: 80g　加速度 (2) Cycles of test:3 cycles each in 6 directions, for a total of 18 cycles. 试验次数：每个方向 3 次，6 个方向共 18 次. 	Appearance: No abnormality. 外观无异常
7.4	Life Test 寿命测试	(1) without load 无负载 (2) Mating force：Maximum value of operation force. 插入力：操作力规格值的上限. (3) Cycles：100 Min 操作次数：100 次以上	Contact resistance: 1000 mΩ Max 接触电阻：1000 毫欧以下 Bouncing：10ms Max

7. Environmental Performance/环境性能

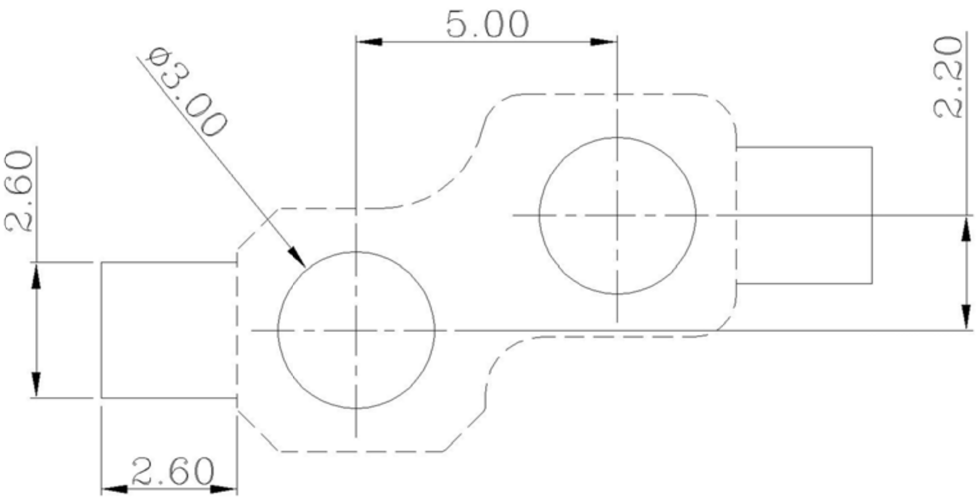
<table>
<tr><th>Item
项目</th><th>Description
项目描述</th><th>Test Condition 测试条件</th><th>Requirement 规格要求</th></tr>
<tr><td>8.1</td><td>Cold test
耐寒性</td><td>(1) Temperature : - 20±2℃
温度：- 20±2℃
(2) Duration of test: 48h
持续时间：48 小时
(3) Take off a drop water 去掉水珠
(4) Standard conditions after test : 1h
试验后的放置条件：1 小时</td><td>Contact resistance:
200mΩ Max
接触电阻 200mΩ以下</td></tr>
<tr><td>8.2</td><td>Heat test
耐热性</td><td>(1) Temperature : 70±2℃
温度：70±2℃
(2) Duration of test: 48h
持续时间：48 小时
(3) Take off a drop water 去掉水珠
(4) Standard conditions after test : 1h
试验后的放置条件：1 小时</td><td>Contact resistance:
200mΩ Max
Shall meet :
No. 6.2
接触电阻 200mΩ以下
满足:
No. 6.2</td></tr>
<tr><td>8.3</td><td>Temperature cycle
温度循环</td><td>(1) Test cycles:20 cycles
试验周期：5 个周期
(2) Standard condition after test:1h
试验后的放置条件：1 小时
<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>70±5℃</td><td>1h</td></tr>
</table>
</td><td>Contact resistance:
200mΩ Max
Shall meet :
No. 6.2
接触电阻 200mΩ以下
满足:
No. 6.2</td></tr>
<tr><td>8.4</td><td>Soldering heat test
耐焊接热</td><td>Soldering area: T/2 of PWB thickness.
(PWB: T=1.6mm)
焊接面积：印刷基板的 1/2 厚度处
Soldering temperature: 260±5℃
Soldering time: 5±0.5s
焊接温度：260±5℃
焊接时间：5±0.5 秒</td><td>Appearance:
No abnormality.
外观无异常</td></tr>
</table>

8.5	Solderability 可焊性	1. Hand soldering 手工焊接： Please practice according to below condition: (1) Soldering Temperature : 350±5℃ 焊接温度：350±5℃ (2) Continual soldering time: 3±0.5s 连续焊接时间：3±0.5 秒 (3) Capacity of soldering iron: ≤20w 电烙铁功率：20 瓦以下 2. Automatic Reflow soldering 自动回流焊接： For the product of SMT, according to below condition: SMT 回流焊温度曲线图  	At least 95% of surface area of immersed portion shall be covered by solder. 侵焊面积大于 95%以上.
8.6	Humidity test 耐湿性	(1) Temperature : 60±2℃ 温度：60±2℃ (2) relative humidity: 90~95% R.H. 相对湿度:90~95% R.H. (3) Duration of test: 48h 持续时间：48 小时 (4) Take off a drop water 去掉水珠 (5) Standard conditions after test: 1h 试验后的放置条件：1 小	Contact resistance: 200mΩ Max Shall meet : No. 6.2 接触电阻 200mΩ以下 满足: No. 6.2

8.7	Salt Spray 盐雾测试	Apply the following environment to test: 根据下列条件进行测试： (1) Temperature : 35±5℃ 温度: 35±5℃； (2) Salt water density: 5±1% 盐水浓度: 5±1%； (3) Duration: 12 hours 持续时间: 12 小时； (4) After test, the salt deposit shall be removed by running water. 实验后将盐沉积物用水冲掉	Appearance: No corrosion spot, no crack, no base plate naked. 外观：无腐蚀点，无裂纹，无裸露基材. Contact Resistance: 200 mΩ Max 接触电阻：200 毫欧以下
8.8	Withstand K_2S 硫化测试	Apply the following environment to test: 根据下列条件进行测试 (1) Temperature: 35±5℃温度：35±5℃ (2) K_2S Density: 2%； 硫化钾浓度：2% (3) Duration: 2 minute. 持续时间：2 分钟	Appearance: No corrosion spot, no crack, no base plate naked. 外观：无腐蚀点，无裂纹，无裸露基材. Contact Resistance: 1000 mΩ Max 接触电阻：1000 毫欧以下

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

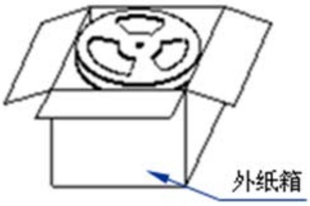
(Top View)
(Single face board T=1.6mm)

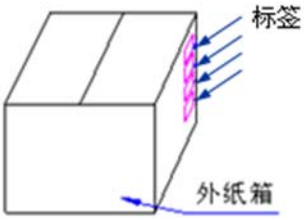


10. Packaging 包装

Packaging type: 13Tray, 26000Pcs/Carton.

包装方式:13 /盘, 26000Pcs/箱.





11.Precaution 注意事项

11.1 Soldering condition 回流焊条件

ITEM 项目		CONDITION 条件
Preheating zone 预热区	Heating zone 升温区	Speed＜2℃/S， Preheating time15 S Max,temperture150℃ 速度＜2℃/S， 预热时间 15 S 最多,温度 150℃
	Heatpreservation area 保温区	Speed1.2～3.5℃/S， Preheating time120 S Max,temperture180℃ 速度 1.2～3.5℃/S， 预热时间 120 S 最多,温度 180℃
	Fast heating zone 快速升温区	Speed3.5～4.5℃/S，Preheating time140 S Max,temperture230℃ 速度 3.5～4.5℃/S， 预热时间 140 S 最多,温度 230℃
Weld area 焊接区		Welding time 40 S Max ，welding temperature peak value，3 sec Max. 焊接时间 40 S 最多，焊接温度峰值 260℃ 最大,3 S 最多
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℃
Number of soldering 焊接次数		2time 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 reflow, be careful not to clean switches with solvent

回流焊后,注意不要用溶剂清洗.

(2) Under the condition of using soldering iron, soldering temperature shall be 350℃ max within 3 sec.

在使用铬铁的情况下，焊锡温度应在350℃以下，焊接时间3秒以内.

11.2 Notes 注意点

(1) Please be cautious not to give excessive static load connector.
注意不要施加超负荷的压力或晃动连接器.

(2) Connector be careful not to stack up P. W. B. after switches were soldered.
连接器焊接以后,印刷基板注意不要叠放.

(3) 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.

(4) 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