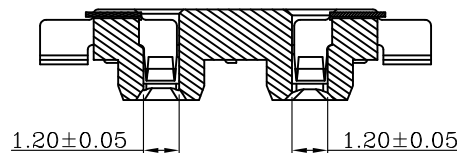
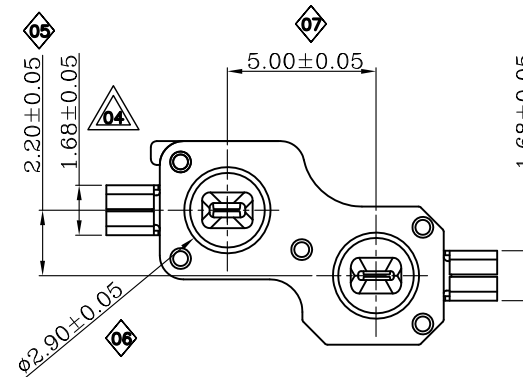
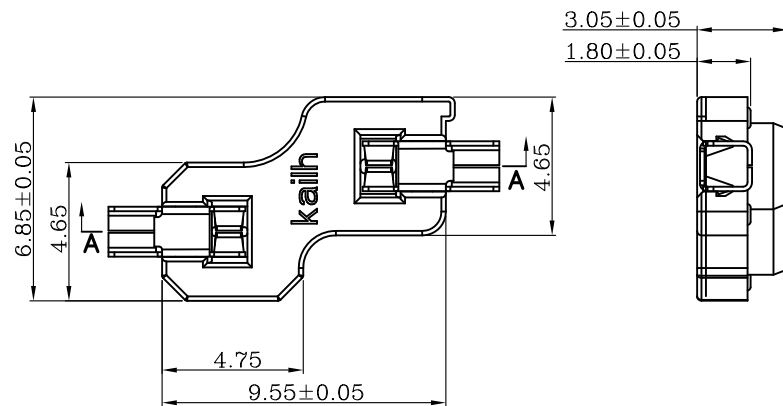
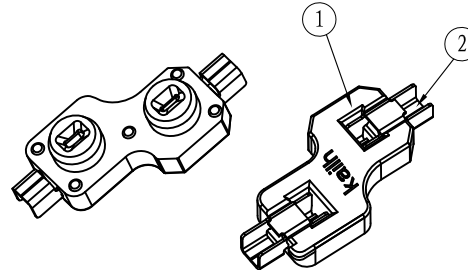
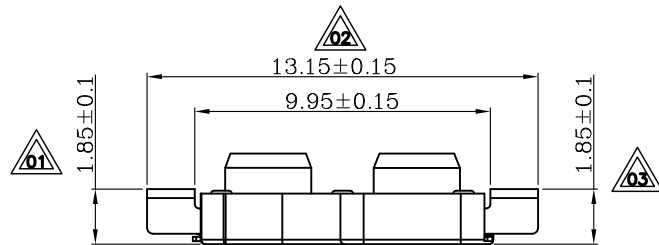


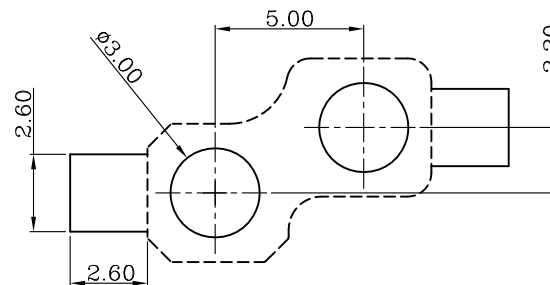
ABIDE BY ROHS

■ Specification :

- 1. Rating:  
Voltage : 12V AC/DC max., 2V DC min.  
Current: 10mA AC/DC max., 10 $\mu$ A DC min.
- 2. Contact Resistance : 100m $\Omega$  Max
- 3. Insulation Resistance : 100M $\Omega$  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

② contact	—	2	Copper Alloy	—	—
① Base	—	1	Nylon	Black	—
ITEM	PART NAME	TER'NO	QTY.	MATERIAL	FINISHING
APPROVALS			DATE	DONGGUAN CITY KAIHUA ELECTRONICS CO.,LTD	
DRAWN			huyuanfeng	2017-01-26	Kaih
CHECKED			TITLE: PG1350 KeySwitches Contact		
APPROVALS			PART NO. CPG135001S30		
TOLERANCES ARE			30<L	±0.30	ANGLE
			10<L≤30	±0.20	
			5<L≤10	±0.15	
			L≤5	±0.10	±2'
			UNIT: mm	SCALE: 1:1	PROJ:
			DRAWING NO. KHA-PG1350-005EN	SHEET 1 OF 1	

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



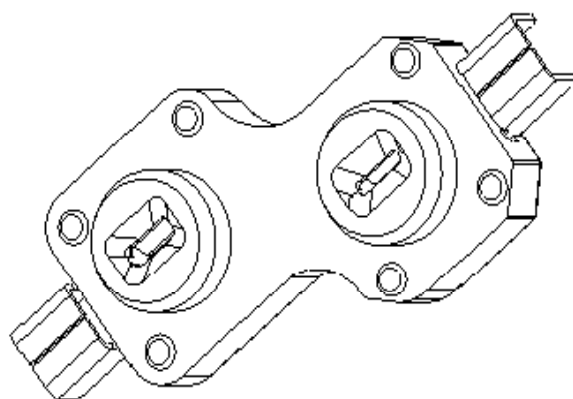
凱華電子  
KAIHUA EEELETRONICS

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	汤佳 2017-8-2	胡远锋 2017-8-2	David 2017-8-2



凱華電子  
KAIHUA EEELECTRONICS

## Product Specification

P/N:	DOC. No.:	Rev.:	Page:
CPG135001S30	KH-PS-1702-35	A	2/10

## Content

### 目录

1. Scope/范围:	3
2. Product Application/产品应用:	3
3. Technology Parameters/技术参数	3
4. Ratings/额定性能要求	3
5. Profile Dimensions /外形尺寸	4
6. Electrical Performance/电气性能	5
7. Mechanical Performance/机械性能	6
8. Environmental Performance/环境性能	7
9. Recommended PCB Layout/推荐的 PCB 安装焊盘规格	8
10. Packaging/包装	8
11. Precaution/注意事项	9



## 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

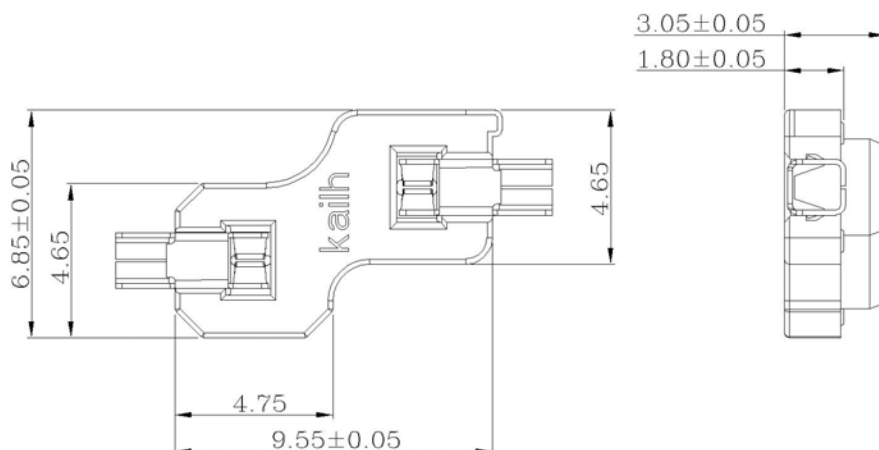
## 3. Technology Parameters/技术参数

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 .

## 5. Profile Dimensions /外形尺寸



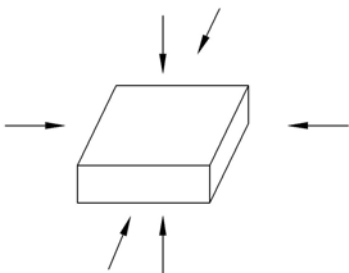


6. Electrical Performance/电气性能

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	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.



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	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	<p>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.</p> 	Appearance: No abnormality. 外观无异常
7.4	Life Test 寿命测试	<p>(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</p>	Contact resistance: 1000 mΩ Max 接触电阻: 1000 毫欧以下 Bouncing: 10ms Max



8. Environmental Performance/环境性能

Item 项目	Description 项目描述	Test Condition 测试条件	Requirement 规格要求												
8.1	Cold test 耐寒性	(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	Contact resistance: 200m Ω Max 接触电阻 200m Ω 以下												
8.2	Heat test 耐热性	(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	Contact resistance: 200m Ω Max Shall meet : No. 6.2 接触电阻 200m Ω 以下 满足： No. 6.2												
8.3	Temperature cycle 温度循环	(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><td></td><td>Temperature 温度</td><td>Duration of test 持续时间</td></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>		Temperature 温度	Duration of test 持续时间	1 cycle 一次循环	20±5℃	1h	-20±5℃	1h	20±5℃	1h	70±5℃	1h	Contact resistance: 200m Ω Max Shall meet : No. 6.2 接触电阻 200m Ω 以下 满足： No. 6.2
	Temperature 温度	Duration of test 持续时间													
1 cycle 一次循环	20±5℃	1h													
	-20±5℃	1h													
	20±5℃	1h													
	70±5℃	1h													
8.4	Soldering heat test 耐焊接热	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	Appearance: No abnormality. 外观无异常												

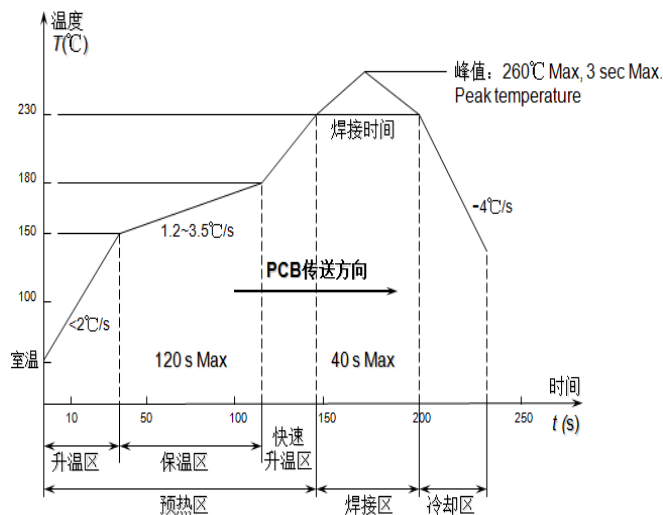


8.5

Solderability  
可焊性

1. Hand soldering 手工焊接:  
Please practice according to below condition:  
(1) Soldering Temperature :  $350 \pm 5^{\circ}\text{C}$   
焊接温度:  $350 \pm 5^{\circ}\text{C}$   
(2) Continual soldering time:  $3 \pm 0.5\text{s}$   
连续焊接时间:  $3 \pm 0.5$  秒  
(3) Capacity of soldering iron:  $\leq 20\text{w}$   
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 :  $60 \pm 2^{\circ}\text{C}$   
温度:  $60 \pm 2^{\circ}\text{C}$
- (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:  
 $200\text{m}\Omega$  Max  
Shall meet :  
No. 6.2  
接触电阻  $200\text{m}\Omega$  以下  
满足:  
No. 6.2



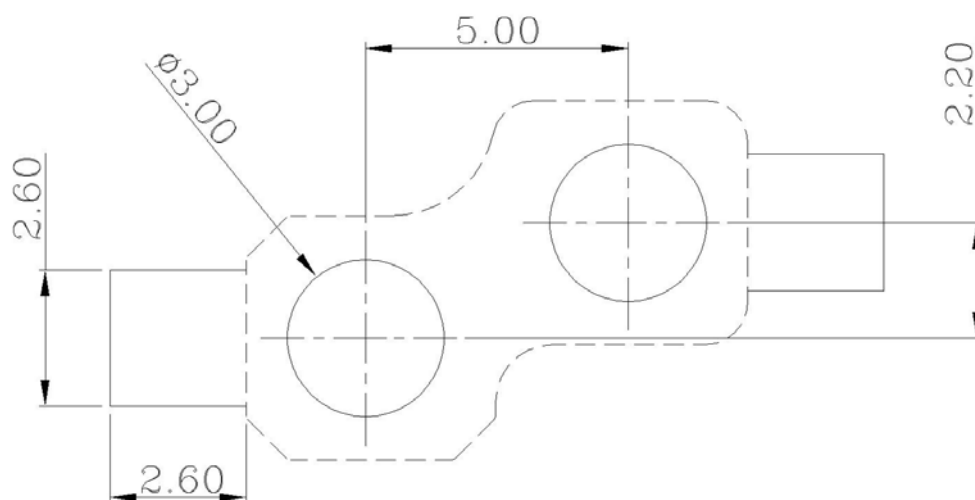


8.7	Salt Spray 盐雾测试	<p>Apply the following environment to test: 根据下列条件进行测试:</p> <p>(1) Temperature : <math>35 \pm 5^{\circ}\text{C}</math> 温度: <math>35 \pm 5^{\circ}\text{C}</math>;</p> <p>(2) Salt water density: <math>5 \pm 1\%</math> 盐水浓度: <math>5 \pm 1\%</math>;</p> <p>(3) Duration: 12 hours 持续时间: 12 小时;</p> <p>(4) After test, the salt deposit shall be removed by running water. 实验后将盐沉积物用水冲掉</p>	<p>Appearance: No corrosion spot, no crack, no base plate naked. 外观: 无腐蚀点, 无裂纹, 无裸露基材.</p> <p>Contact Resistance: <math>200\text{ m}\Omega</math> Max 接触电阻: 200 毫欧以下</p>
8.8	Withstand $\text{K}_2\text{S}$ 硫化测试	<p>Apply the following environment to test: 根据下列条件进行测试</p> <p>(1) Temperature: <math>35 \pm 5^{\circ}\text{C}</math> 温度: <math>35 \pm 5^{\circ}\text{C}</math></p> <p>(2) <math>\text{K}_2\text{S}</math> Density: 2%; 硫化钾浓度: 2%</p> <p>(3) Duration: 2 minute. 持续时间: 2 分钟</p>	<p>Appearance: No corrosion spot, no crack, no base plate naked. 外观: 无腐蚀点, 无裂纹, 无裸露基材.</p> <p>Contact Resistance: <math>1000\text{ m}\Omega</math> Max 接触电阻: 1000 毫欧以下</p>

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

(Top View)

(Single face board T=1.6mm)

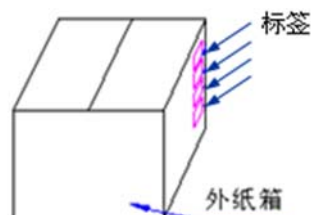
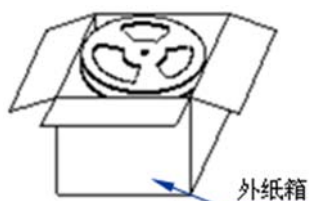
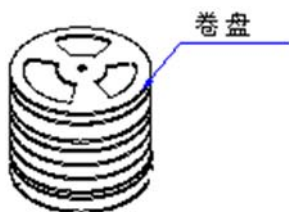




## 10. Packaging 包装

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 $<2^{\circ}\text{C}/\text{S}$ , Preheating time15 S Max,temperature $150^{\circ}\text{C}$ 速度 $<2^{\circ}\text{C}/\text{S}$ , 预热时间 15 S 最多,温度 $150^{\circ}\text{C}$
	Heatpreservation area 保温区	Speed $1.2\sim3.5^{\circ}\text{C}/\text{S}$ , Preheating time120 S Max,temperature $180^{\circ}\text{C}$ 速度 $1.2\sim3.5^{\circ}\text{C}/\text{S}$ , 预热时间 120 S 最多,温度 $180^{\circ}\text{C}$
	Fast heating zone 快速升温区	Speed $3.5\sim4.5^{\circ}\text{C}/\text{S}$ , Preheating time140 S Max,temperature $230^{\circ}\text{C}$ 速度 $3.5\sim4.5^{\circ}\text{C}/\text{S}$ , 预热时间 140 S 最多,温度 $230^{\circ}\text{C}$
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 $260^{\circ}\text{C}$ 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		$260\pm5^{\circ}\text{C}$ $260\pm5^{\circ}\text{C}$
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  $350^{\circ}\text{C}$  max within 3 sec.

在使用烙铁的情况下, 焊锡温度应在 $350^{\circ}\text{C}$ 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