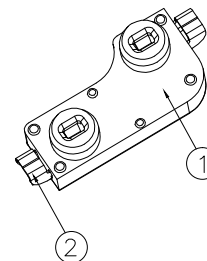
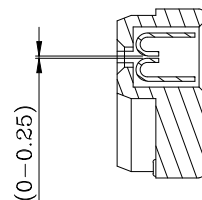
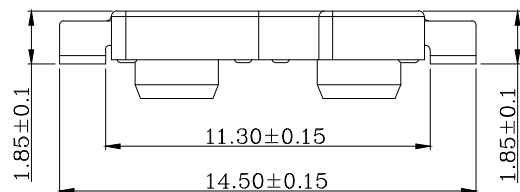


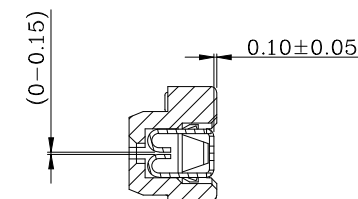
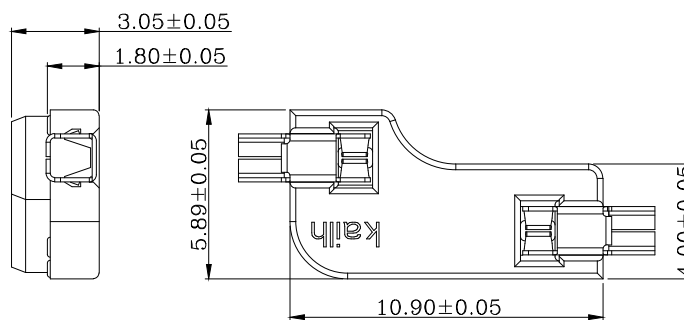
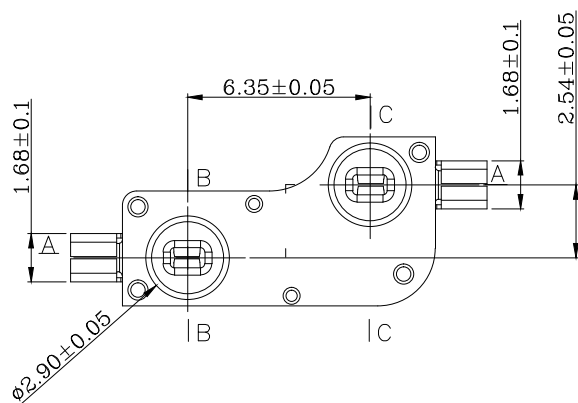
ABIDE BY WEEE & ROHS



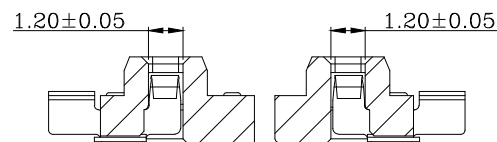
SECTION C-C

■ Specification :

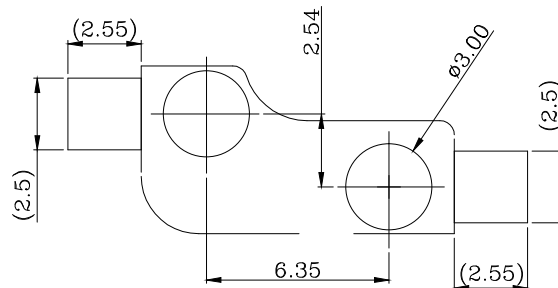
- 1.Rating:
Voltage :12V AC/DC max.,2V DC min.
Current: 10mA AC/DC max.,10μA DC min.
- 2.Contact Resistance : 100mΩ Max
- 3.Insulation Resistance :100MΩ at 500V
- 4.Withstand Voltage : AC100V(50-60Hz)
for 1 minute
- 5.Mating Force :3.0kgf max
- 6.Operating Life :15000 Cycles



SECTION B-B



SECTION A-A



RECOMMENDED PCB LAYOUT
TOLERANCE:±0.05mm

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

APPROVALS			DATE		 东莞市凯华电子有限公司 KAIHUA ELECTRONICS CO.,LTD	
DRAWN		HuHaixin	2021. 10. 06			
CHECKED				TITLE:	PG1511 KeySwitches Socket	
APPROVALS				PART NO:	CPG151101S11-2	
TOLERANCES ARE		30<L	±0.30	ANGLE	UNIT: mm	SCALE: 1:1
		10<L≤30	±0.20			
		5<L≤10	±0.15			
		L≤5	±0.10			
		±2°		DRAWING NO.	KHA-PG1511-320EN	
					SHEET: 1 OF 1	

NEW



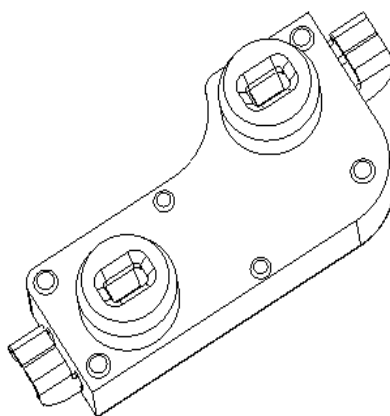
凱華電子
KAIHUA EEELETRONICS

Document Number:

KH-PS2110-08

产品规格书

Product Specification



P/N: _____

CPG151101S11-2

Title :

1511 Connector

Rev.	ECN	Release and Revision Description:	Prepared By /Date:	Checked By/Date:	Approved By/Date:
A	_____	New releasing 初版发行	胡海鑫/2021.10.13	胡前程/2021.10.13	郑建军/2021.10.13



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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

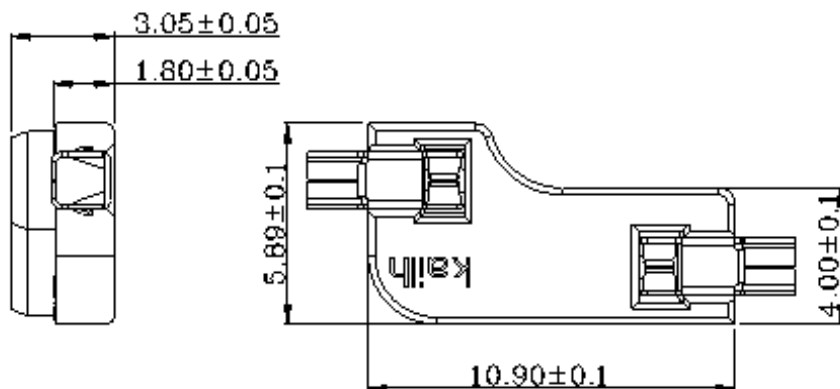
3. Technology Parameters/技术参数

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±0.5s;

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:	15000Cycles.

5. Profile Dimensions /外形尺寸





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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.

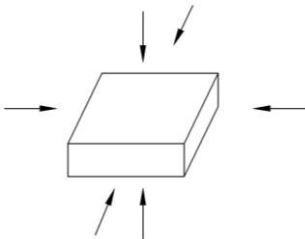
7. Mechanical Performance/机械性能

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

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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> 	<p>Appearance: No abnormality. 外观无异常</p>
7.4	Life Test 寿命测试	<p>(1) No 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: 15000 Min 操作次数: 15000 次以上</p>	<p>Contact resistance: 1000 mΩ Max 接触电阻: 1000 毫欧以下 Bouncing: 10ms Max</p>

8. Environmental Performance/环境性能

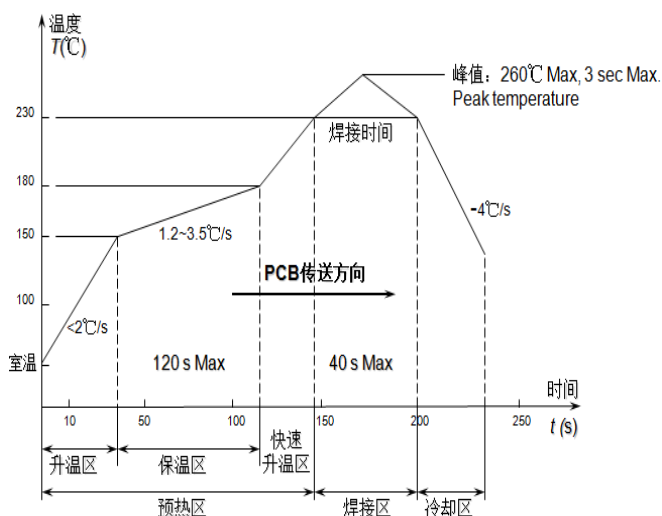
Item 项目	Description 项目描述	Test Condition 测试条件	Requirement 规格要求
8.1	Cold test 耐寒性	<p>(1) Temperature : - 20±2℃ 温度: - 20±2℃ (2) Duration of test: 48h 持续时间: 48 小时 (3) Take off a drop water 去掉水珠 (4) Standard conditions after test : 1h 试验后的放置条件: 1 小时</p>	<p>Contact resistance: 200mΩ Max 接触电阻 200mΩ 以下</p>



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: 5 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±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:	At least 90% of surface area of immersed portion shall be covered by solder. 侵焊面积大于 95%以上.												



SMT 回流焊温度曲线图



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

8.7

Salt Spray
盐雾测试

Apply the following environment to test:
根据下列条件进行测试:

- (1) Temperature : $35 \pm 5^{\circ}\text{C}$
温度: $35 \pm 5^{\circ}\text{C}$;
- (2) Salt water density: $5 \pm 1\%$
盐水浓度: $5 \pm 1\%$;
- (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 m Ω Max
接触电阻: 200 毫欧以下



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8.8

Withstand
K₂S
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) K₂S 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



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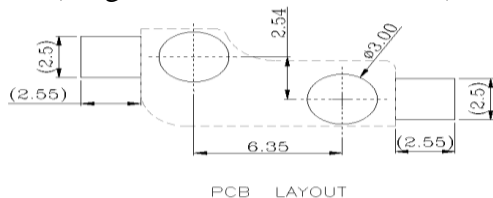
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9. Recommended PCB Layout 推荐的 PCB 安装焊盘规格

(Top View)

(Single face board T=1.6mm)

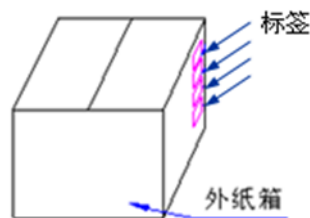
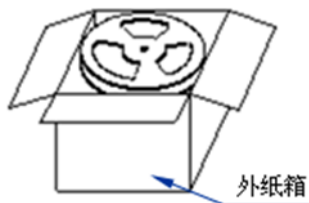
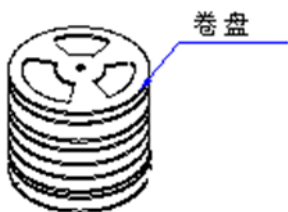


PCB LAYOUT

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°C / S, Preheating time 15 S Max, temperture 150°C 速度 < 2°C / S, 预热时间 15 S 最多, 温度 150°C
	Heatpreservati on area 保温区	Speed 1. 2~3. 5°C / S, Preheating time 120 S Max, temperture 180°C 速度 1. 2~3. 5°C / S, 预热时间 120 S 最多, 温度 180°C
	Fast heating zone 快速升温区	Speed 3. 5~4. 5°C / S, Preheating time 140 S Max, temperture 230°C 速度 3. 5~4. 5°C / S, 预热时间 140 S 最多, 温度 230°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°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 ± 5°C 260 ± 5°C
Number of soldering 焊接次数		2 time 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°C max within 3 sec.

在使用烙铁的情况下, 焊锡温度应在 350°C 以下, 焊接时间 3 秒以内.

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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) 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.
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.
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