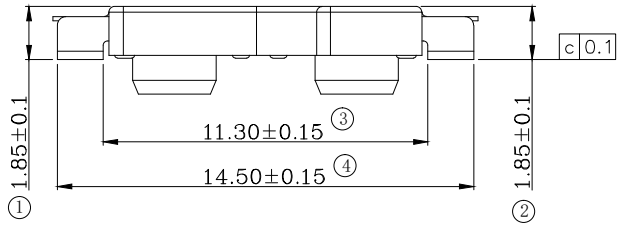
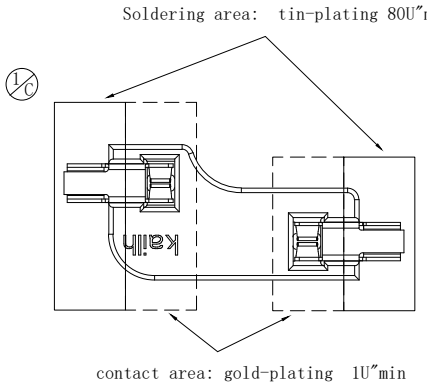
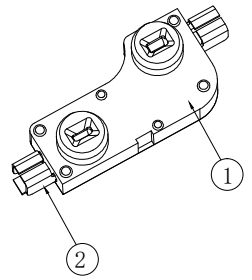
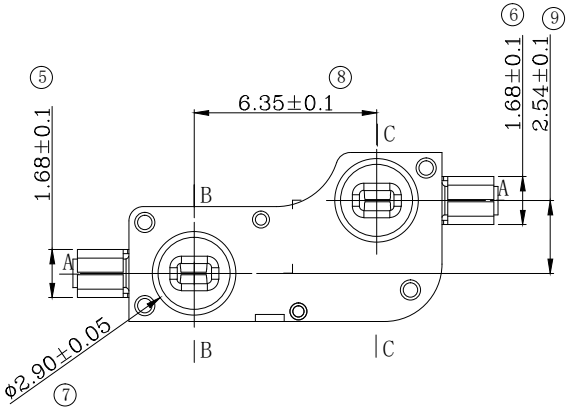
ABIDE BY ROHS

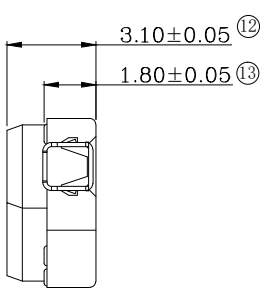
■ Specification :
- ●1. Rating:
  Voltage :12V AC/DC max.,2V DC min.
  Current: 10mA AC/DC max.,10μA DC min.
- ●2. Contact Resistance : 100mΩ Max
- ●3. Insulation Resistance :100MΩ at 500V
- ●4. Withstand Voltage :AC100V(50-60Hz) for 1 minute
- ●5. Mating Force :3.0kgf max
- ●6. Operating Life :5000 Cycles

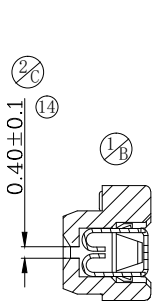












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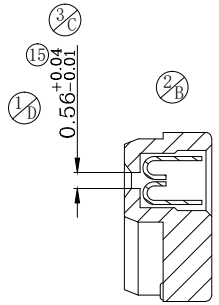

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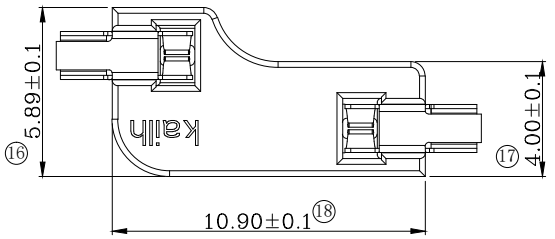

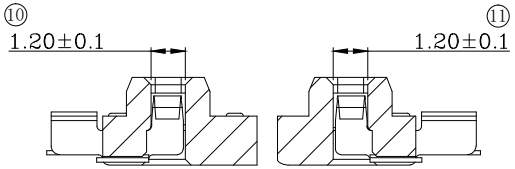

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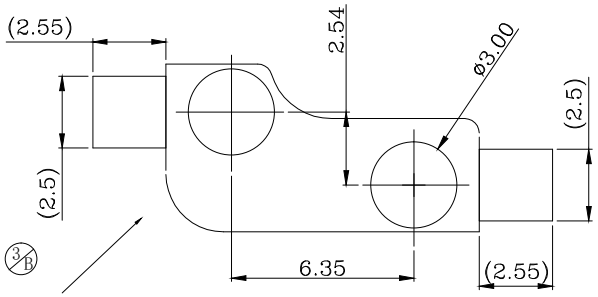


Assembled on the bottom of PCB board

RECOMMENDED PCB LAYOUT

TOLERANCE: ±0.05mm

ITEM	PART NAME	TER'NO.	QTY.	MATERIAL	FINISHING	REMARK
②	terminal	———	2	Copper Alloy	tin-plating gold-plating	———
①	Base	———	1	Nylon	Black	———

APPROVALS		DATE	DONGGUAN CITY KAIHUA ELECTRONICS CO.,LTD
DRAWN	Li yuexin	2022.06.01	Kailh
CHECKED			TITLE: PG1511 KeySwitches Contact III
APPROVALS			PART NO. CPG151101S11-16

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-PG1511-388EN		SHEET 1 OF 1
	L≦5	±0.10				

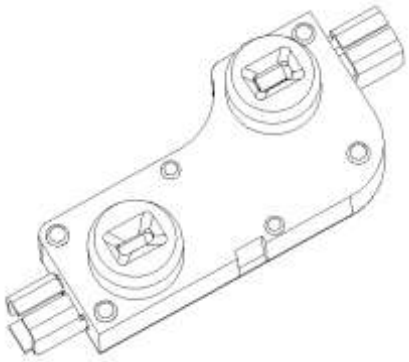
ECN NO.	REV.	DATE.	DESCRIPTION.	CHANGE.	CHECK.	APPRO.
ECN-2308-042	D	2023.08.17	Correct surface dimensions and tolerances	Wang Zhixuan		
ECN-2308-029	C	2023.08.09	Increase the thickness of terminal piating on the drawing, Update drawing dimensions; Add the serial number of dimension inspection ① ——— ⑱	Wang Zhixuan		
ECN-2308-022	B	2023.08.09	Correct the position of the diagram ang clearly indicate the direction of the PCB diagram	Wang Zhixuan		

凯华电子 Kailh KAIHUA ELECTRONICS

Document Number:

KH-PS2206-43

Product Specification



P/N: CPG151101S11-16

Title : **1511 Connector**

Rev.	ECN	Release and Revision Description:	PreparedBy/Date:	Checked By/Date:	Approved By/Date:
A	————	New releasing	WANGZHIXUANG 2022-06-27	HUYUANGFENG 2022-06-27	ZHENGJIANGJUN 2022-06-27
B	ECN-2308-030	Update 7.4 life testing conditions and specifications，correct 9.1 specification content，8.5 lead-free welding temperature，11.1 reflow soldering conditions content，and revise the attention points in 12.2.6	WANGZHIXUANG 2023-08-12	GUYUEXIN 2023-08-12	WANGXIOALONG 2023-08-12
C	ECN-2308-034	Unified lead-free welding temperature，Redefine the content of 11.1 reflow soldering zone conditions，Add 11.1.2 definition of manual welding and 8.8 temperature/humidity cycle testing	WANGZHIXUANG 2023-08-16	GUYUEXIN 2023-08-16	WANGXIOALONG 2023-08-16

Content

目录

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1. Scope:

This Product Specification covers the requirement of Mechanical keyboard Connector switch on product performance, test methods and quality assurance provisions.

2. Product Application：

Mainly applied on computer keyboards,cash registers equipment and Man-Machine interface.

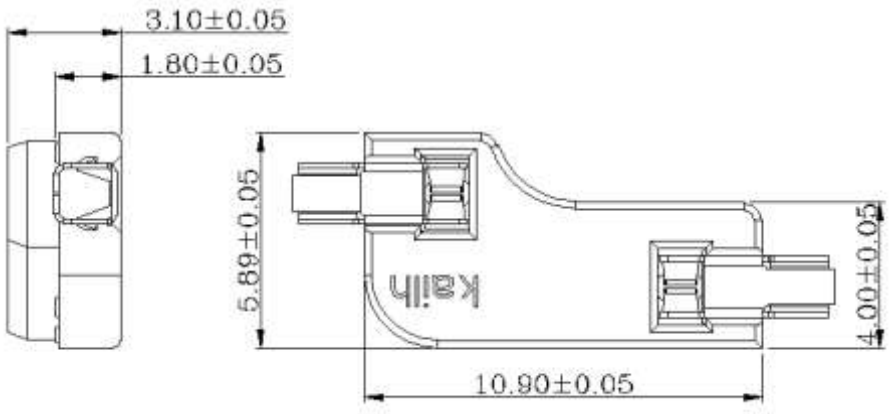
3. Technology Parameters

Ambient Humidity：	45~95% R.H.；
Operating Temperature Range：	-10℃～+60℃；
Storage Temperature Range ：	-20℃～+70℃；
Normal Condition:	
Ambient temperature ：	20±2℃
Relative humidity ：	85%±5% R.H.；
Air pressure ：	86~101KPa;
Contact Resistance ：	100 mΩ Max；
Solder Ability	Tim-lead soldering 245℃ 5±0.5s；
	Lead-free welding 255℃ 5±0.5s； ；
Withstand Soldering Temperature:	Wave soldering：260±5℃ 5±0.5s；

4. Ratings:

Rating Voltage：	12V AC/DC max；2V DC min
Rating Current	10mA AC/DC max；10uA DC min
Insulation Resistance：	≥100MΩ/DC 500V;
Withstand Voltage：	AC 100V 1 Minute;
Mechanical Life：	5000Cycles .

5. Profile Dimensions :



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6. Electrical Performance

Item	Description	Test Condition	Requirement
6.1	Contact Resistance	Static load: (Operation force)x2, which is applied on the center of Switch stem. Measurement tool: Contact resistance Meter. (1KHz, 20mV,5~50mA)	100mΩ Max
6.2	Insulation Resistance	Apply a Voltage of DC 500 V for 1 minute, according to the below method. (1) Between terminals. (2) Between terminal and Body.	100MΩ Min
6.3	Dielectric withstanding voltage	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.	No evidence of Breakdown

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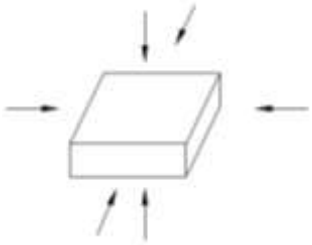
7.Mechanical Performance

Item	Description	Test Condition	Requirement
7.1	Mating force	At 16mm/minute. actuation speed	Mating force 3KG max
7.2	Unmating force	At 16mm/minute. actuation speed	Unmating force 200gf min
7.3	Shock	Measured by according to the below condition: (1) Acceleration: 80g accelerated speed (2) Cycles of test:3 cycles each in 6 directions, for a total of 18 cycles. . 	Appearance: No abnormality.
7.4	Life Test	(1) without load (2) Mating force：Maximum value of operation force. (3) Cycles：5000 Min	Contact resistance: 1000 mΩ Max Insertion and extraction force after testing： Insertion force 3kg max Pullout force 200gf min

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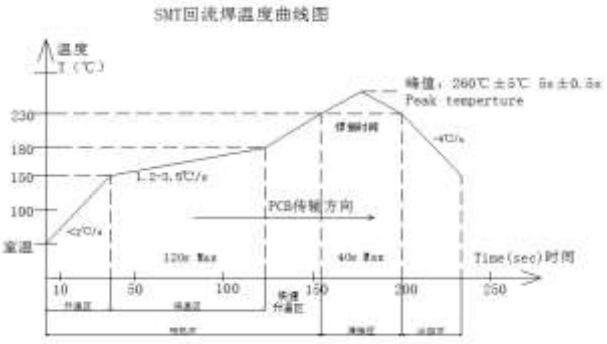
8.Environmental Performance

Item	Description	Test Condition	Requirement
8.1	Cold test	(1) Temperature : - 20±2℃ (2) Duration of test: 48h (3) Take off a drop water (4) Standard conditions after test : 1h	Contact resistance: 200mΩ Max
8.2	Heat test	(1) Temperature : 70±2℃ (2) Duration of test: 48h (3) Take off a drop water (4) Standard conditions after test : 1h	Contact resistance: 200mΩ Max Shall meet : No. 6.2
8.3	Temperature cycle	(1) Test cycles: 5 cycles (2) Standard condition after test:1h 1 cycle: 20±5℃ 1h; -20±5℃ 1h; 20±5℃ 1h; 70±5℃ 1h	Contact resistance: 200mΩ Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2
8.4	Soldering heat test	Automatic Reflow soldering： For the product of SMT, according to below condition: oldering temperature: 260±5℃ Soldering time: 5±0.5s 	Appearance: No abnormality.

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8.5	Solder Ability	Lead-tin soldering： Soldering temperature: 245±5℃ Soldering time: 5±0.5s Lead free soldering： Soldering temperature: 255±5℃ Soldering time: 5±0.5s	At least 90% of surface area of immersed portion shall be covered by solder.
8.6	Humidity test	(1) Temperature : 60±2℃ (2) relative humidity: 90~95% R.H. (3) Duration of test: 48h (4) Take off a drop water (5) Standard conditions after test: 1h	Contact resistance: 200mΩ Max Shall meet : No. 6.2
8.7	Salt Spray	Apply the following environment to test:： (1) Temperature : 35±5℃ (2) Salt water density: 5±1% (3) Duration: 12 hours (4) After test, the salt deposit shall be removed by running water.	Appearance: No corrosion spot, no crack, no base plate naked. Contact Resistance: 200 mΩ Max
	temperature /humidity Cyc	(1) Temperature : -5℃~55℃ (2) humidity: 20~95% R.H. (3) Duration of test: 74h (4) Take off a drop water (5) Standard conditions after test: 1h	Contact resistance: 200mΩ Max Shall meet : No. 6.2 No. 7.1 to 7.2

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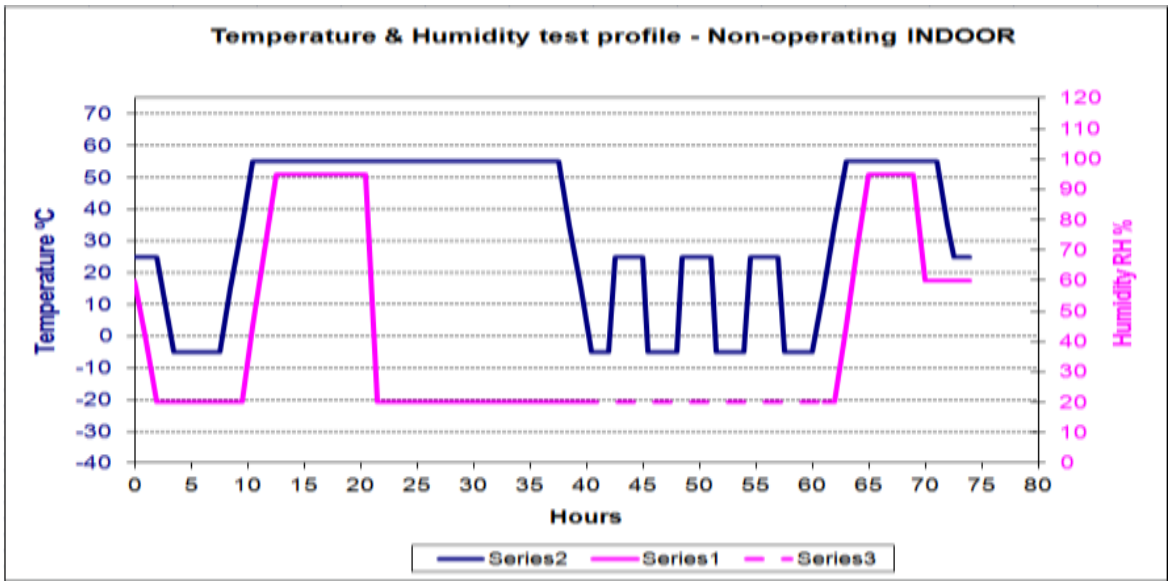
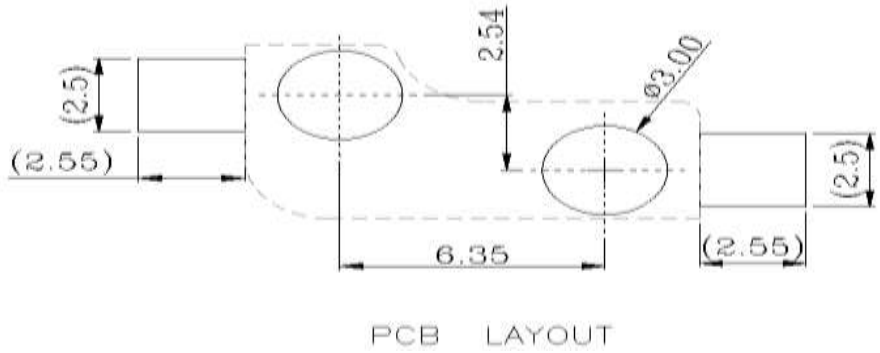


9. Recommended PCB Layout

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



PCB LAYOUT

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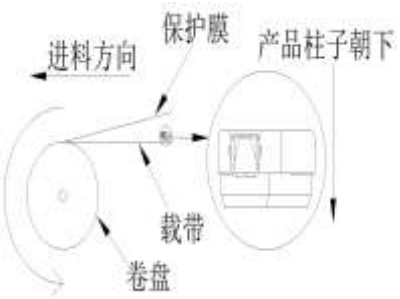
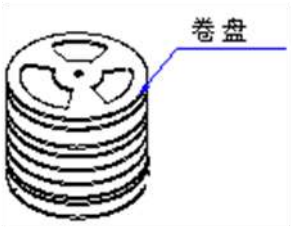
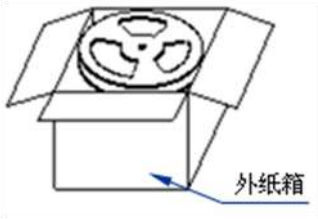
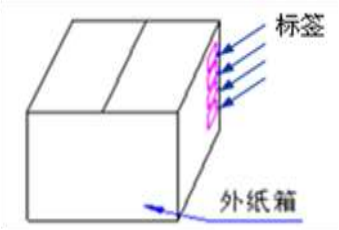
10. Packaging

Packaging type: 10Tray, 20000Pcs/Carton.Carton size:L39xW39xH30.5cm









11.Precaution

11.1 Soldering condition

ITEM		CONDITION
Preheating zone	Heating zone	Speed＜2℃/S, Preheating time15 S Max,temperture150℃
	Heatpreservation area	Speed1.2～3.5℃/S, Preheating time120 S Max,temperture180℃
	Fast heating zone	Speed3.5～4.5℃/S, Preheating time140 S Max,temperture230℃
Weld area		Welding time 40 S Max ,welding temperature peak value, 5 sec Max.
Area of flux		1/2 Max of PWB Thickness
Temperature of solder		260±5℃
Number of soldering		2time Max (But should down heat of the first soldering)
Printed wiring board		Single side copper-clad laminates

(1) After reflow, be careful not to clean switches with solvent

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

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11.2 Notes

(1) Please be cautious not to give excessive static load connector.

(2) Connectorbe careful not to stack up P. W. B. after switches were soldered.

(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.

(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.

(5) 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.

(6) It will be considered that customer already confirmed and accepted this specification if customer issue purchase order to us directly.

(7) If there is no order or no request for new specification after 1 year upon this specification is issued, the specification will be regarded as invalid.

(8) Products meet the ROHS & REACH environmental management substances control standards

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