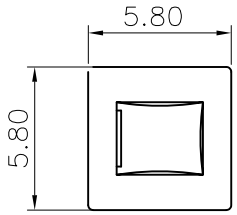
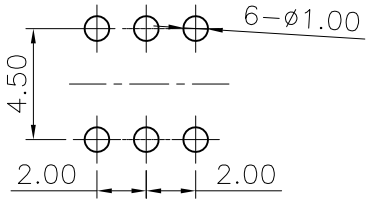
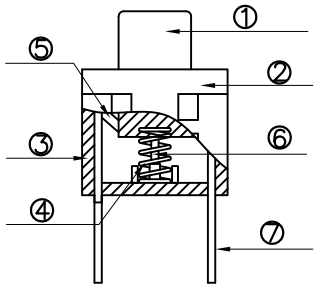
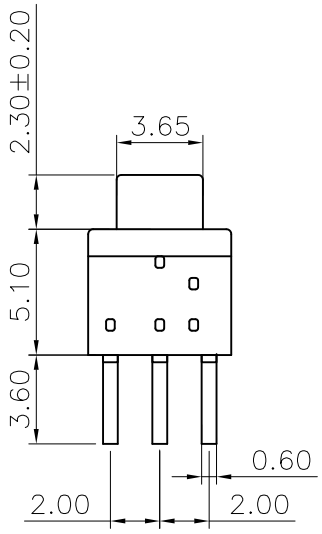
ABIDE BY ROHS

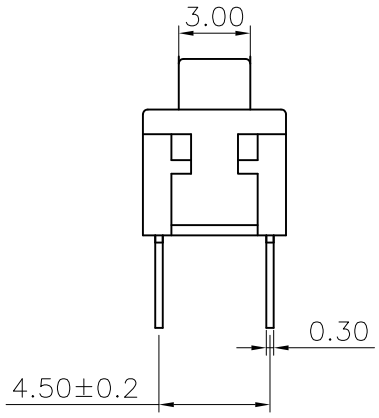


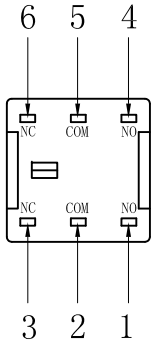


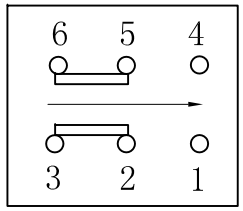
PCB Layout











Circuit Diagram

Specification：

1. Rating ：DC12V 50mA
2. Contact Resistance：200mΩ Max
3. Insulation Resistance：100MΩ Min
4. Withstand Voltage：
   AC250V (50-60Hz)For 1 Minute
5. Operation Force :250±50gf
6. Life Test：10,000 Cycles
7. Total Travel：2.0±0.2 mm
8. Work Style：Self-Lock

ITEM	PART NAME	TER'NO.	QTY.	MATERIAL	FINISHING	REMARK
⑦	Terminal		5	Brass	Plating silver	
⑥	Hookpin		1	Stainless Steel		
⑤	Contact		1	Copper Sliver	Plating silver	
④	Spring		1	SWC		
③	Base		1	PA66	Gray	
②	COVER		1	PA66	Black	
①	keystoke		1	PA66	White	

APPROVALS		DATE	东莞市凯华电子有限公司 KAIHUA ELECTRONICS CO.,LTD
DRAWN	Zhang,Huijun	2018.01.17	
CHECKED			TITLE: 5.8自锁6p短白导
APPROVALS			PART NO. CPG585110D07
TOLERANCES ARE	30以上 ±0.30; 10~30 ±0.20; 5~10 ±0.15; ~5 ±0.10	ANGLE ±2°	UNIT: mm / SCALE: 2:1 / PROJ: / DRAWING NO. / SHEET 1 OF 1

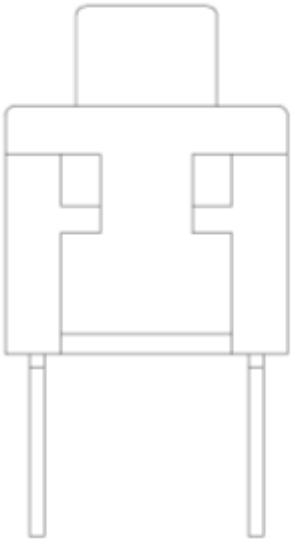
ECN NO.	REV.	DATE.	DESCRIPTION.	CHANGE.	CHECK.	APPRO.
	A		NEW			

凯华电子 Kailh KAIHUA ELECTRONICS

Document Number:

KH-PS1807-03

Product Specification



P/N: **CPG585110D07**

Title : **Push Button Switch**

Rev.	ECN	Release and Revision Description:	Prepared By /Date:	Checked By/Date:	Approved By/Date:
A	— —	New releasing	ZHANGJUNHUI 2018/07/10	LVPANHAO 2018/07/10	MAZHONGJUN 2018/07/10

Content

1. Scope:

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

2. Product Application:

The Switch is applied in all types of Computer. Please let us know before using any of the products in the application not described above.

3. Technology Parameters:

Ambient Humidity: 45~85% R.H.;
Operating Temperature Range: -10℃～+70℃;
Storage Temperature Range: -20℃～+70℃;
Suggested storage period : about 6 months
Require the tin part on the switch terminals should keep good after storage guarantee date

Normal Condition:
Ambient temperature: 20±2℃
Relative humidity: 65%±5% R.H.;
Air pressure : 86~101KPa;
Contact Resistance: 200 mΩ Max;
Operation Force: 250±50gf;
Solder Ability : Tim-lead soldering : 245℃±5℃ 5s±0.5s;
Lead-free welding : 255℃±5℃ 5s±0.5s;
Withstand Soldering Temperature: Wave soldering: 260±5℃ 5±0.5s;

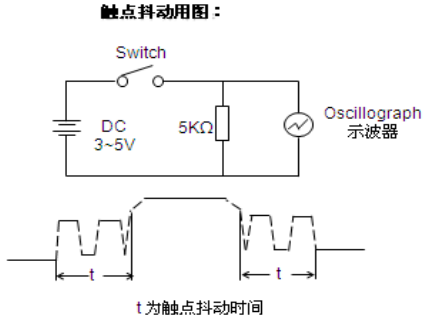
4. Ratings:

Rating: DC12V / 50mA;
Insulation Resistance: ≥100MΩ/DC 100V;
Withstand Voltage: 250V AC 1 Minute;
Mechanical Life: 10，000 Cycles.

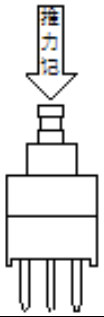
5. Profile Dimensions

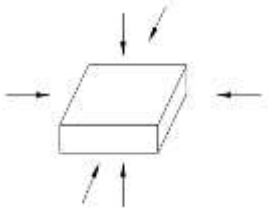
See the product drawing

6. Electrical Performance:

Item	De cription	Test Condition	Requirement
6.1	Contact Resistance	Static load: (Operation force)x2, which is applied on the center of Switch stem. Be measured when the switch contact stabilization. Measurement tool: Contact resistance Meter. (1KHz, 20mV,5~50mA) Measured at low current (100mA or less).	200mΩ 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 AC250 V (50~60Hz) for 1 minute, according to the below method. (1) Between terminals. (2) Between terminal and Body.	No evidence of breakdown.
6.4	Bouncing	Operation speed：3~4 times/s Oscilloscope Switch Bouncing Test Circuit. 	Before Life cycle: On:5ms MAX Off: 5ms MAX After Life cycle: On:10ms MAX Off: 10ms MAX

7. Mechanical Performance:

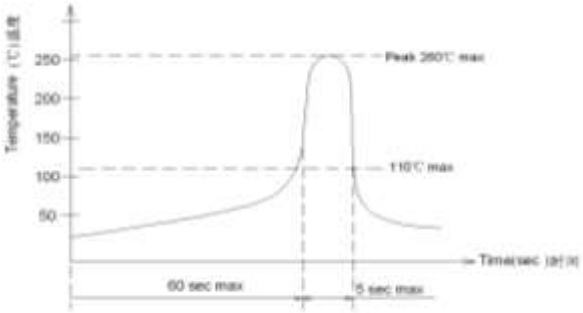
Item	Description	Tes Condition	Requirement
7.1	Operation force	Operate the keystoke of the switch and then increase press strength gradually, Measured maximum operation force while the travel of the switch is work.	250±50gf
7.2	Travel	Operate the keystoke of the switch vertically, the travel distance of keystoke moving from its free position to maximum moving distance shall be measurement.	Total travel: 2.00±0.20mm
7.3	Static Strength	A static load of 1 Kgf shall be applied in the direction of button operation for a period of 60 seconds. 	No damage (Electrical) And mechanical）
7.4	Stem Pull Strength	Break by a pull force applied opposite to the direction of stem operation.	500gf Min

7.5	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. . 	Shall meet No.6，7.1，7.2.
7.6	Life Test	(1) Weight:250gf (2) Operation speed：1cycles/s (3) Push force：Maximum value of operation force.. (4) Cycles：10,000 times Min	Contact resistance: 10000 mΩ Max Bouncing：10ms Max Operation force： Variation rate within ± 30%

8. Environmental Performance:

Item	Description	Test Condition	Requirement
8.1	Cold test	(1) Temperature : - 20±2℃ (2) Duration of test: 96h (3) Take off a drop water (4) Standard conditions after test : 1h	Contact resistance: 200mΩ Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2
8.2	Heat test	(1) Temperature : 70±2℃ (2) Duration of test: 96h (3) Take off a drop water (4) Standard conditions after test : 1h	Contact resistance: 200mΩ Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2

<table>
<tr>
<td>8.3</td>
<td>Temperature cycle</td>
<td>(1) Test cycles: 5 cycles
(2) Standard condition after test:1h

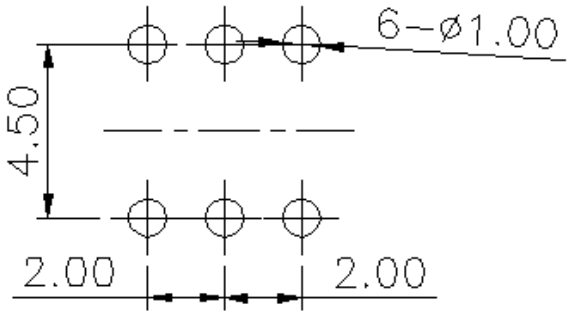
<table>
<tr><td></td><td>Temperature</td><td>Duration test</td></tr>
<tr><td rowspan="4">1 cycle</td><td>20±5℃</td><td>1h</td></tr>
<tr><td>-20±5℃</td><td>1h</td></tr>
<tr><td>20±5℃</td><td>h</td></tr>
<tr><td>70±5℃</td><td>1h</td></tr>
</table>
</td>
<td>Contact resistance:
200mΩ Max
Shall meet :
No. 6.2 to 6.4
No. 7.1 to 7.2</td>
</tr>
<tr>
<td>8.4</td>
<td>Soldering heat test</td>
<td>Soldering area: T/2 of PWB thickness.
(PWB: T=1.6mm)
Soldering temperature: 260±5℃
Soldering time: 5±0.5s</td>
<td>Appearance:
No abnormality.</td>
</tr>
<tr>
<td>8.5</td>
<td>Solderability</td>
<td>1. Hand soldering：
Please practice according to below condition:
(1) Soldering Temperature : 245±5℃
(2) Continual soldering time: 5±0.5s
(3) Capacity of soldering iron: ≤20w
 

2. Automatic PIP soldering：
For the product of T/H, according to below condition:</td>
<td>At least 90% of surface area of immersed portion shall be covered by solder.</td>
</tr>
<tr>
<td>8.6</td>
<td>Humidity test</td>
<td>(1) Temperature : 60±2℃
(2) relative humidity: 90~95% R.H.
(3) Duration of test: 96h
(4) Take off a drop water
(5) Standard conditions after test: 1h</td>
<td>Contact resistance:
200mΩ Max
Shall meet :
No. 6.2 to 6.4
No. 7.1 to 7.2</td>
</tr>
</table>

8.7	Salt Spray	Apply the following environment to test(Only for contact test) : (1) Temperature : 35±5℃ (2) Salt water density: 5±1% (3) Duration: 24hours (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
8.8	Withstand K_2S	Apply the following environment to test: (1) Temperature: Natural (2)K_2S Density: 2%； (3) Duration: 2 minute.	Appearance: No corrosion spot, no crack, no base plate naked. Contact Resistance: 200 mΩ Max

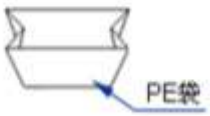
9. Recommended PCB Layout

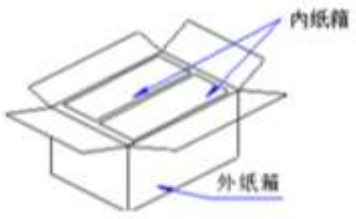
(Top View)
(Single face board T=1.6mm)



10. Packaging :

Packaging type: PE Bag, 1000Pcs/Bag, 5000Pcs/Inner Carton. 20000Pcs/Outer Carton.





11.Precaution

11.1 Immersion Soldering condition

ITEM	CONDITION
Preheat temperature	110℃ Max (Ambient temperature of soldering surface of P.W.B)
Preheat time	60s, Max
Area of flux	1/2 Max of PWB Thickness
Temperature of solder	260±5℃ 260±5℃
Time of immersion	5±0.5s 5±0.5s
Number of soldering	2time Max (But should down heat of the first soldering)
Printed wiring board	Single side copper-clad laminates

(1) After switches were soldered, please be careful not to clean switches with solvent

(2) Under the condition of using soldering iron, soldering temperature shall be 350℃±5℃ with 3±0.5s.

11.2 Notes

(1) Please be cautious not to give excessive static load or shock to switches.

(2) Please be 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