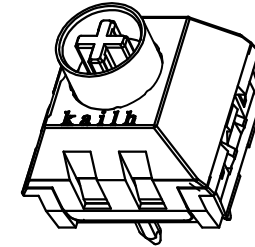
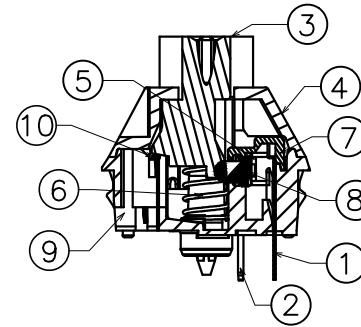
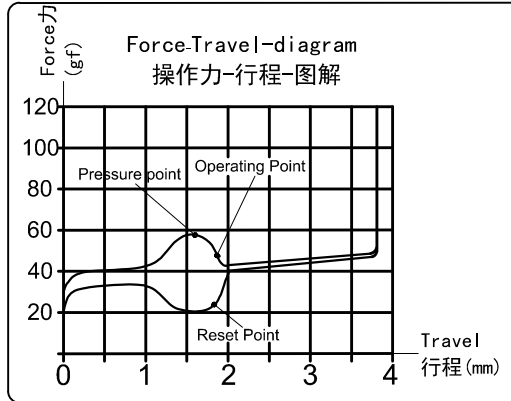
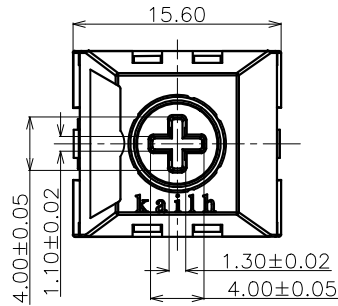
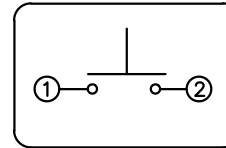


ABIDE BY WEEE & ROHS

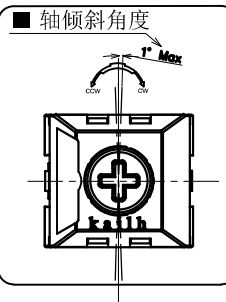
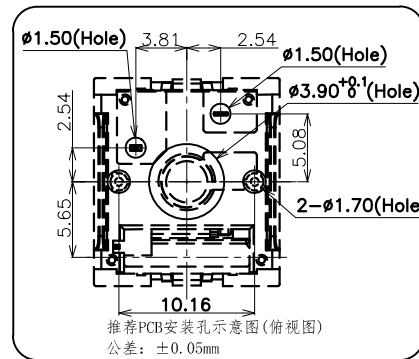
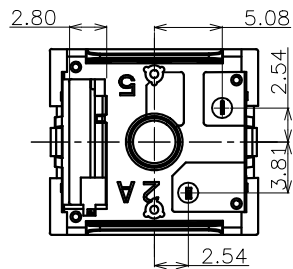
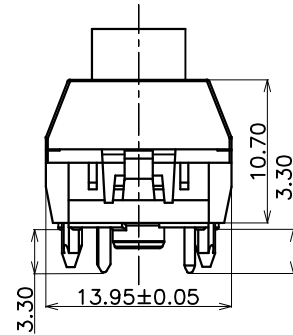
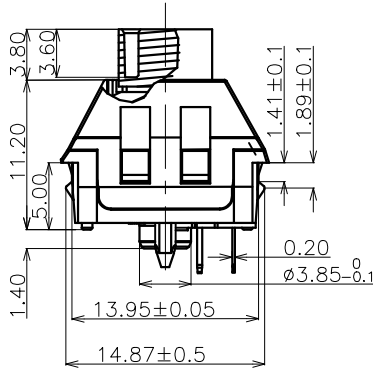


■ 电路图



■ Specification :

- 1. Rating: 12V AC/DC max. 2V DC min.
10mA AC/DC max. 10μA DC min.
- 2. Contact Resistance: 200mΩ Max
- 3. Insulation Resistance: 100MΩ Min. (DC100V)
- 4. Withstand Voltage: AC100V(50-60Hz) for 1 minute
- 5. Tactile Force: 57±10gf
- 6. Operation Force: 47±15gf
- 7. Return Force: ≥15gf
- 8. Conduction travel: 1.80±0.4mm
- 9. Total travel: 3.60±0.3mm
- 10. Electrical Life: 100,000,000 Cycles(min).
- 11. Degree of protection: IP54(Only for the electrical functional Box sealed part) <Feel is allowed to have difference before and after life test>

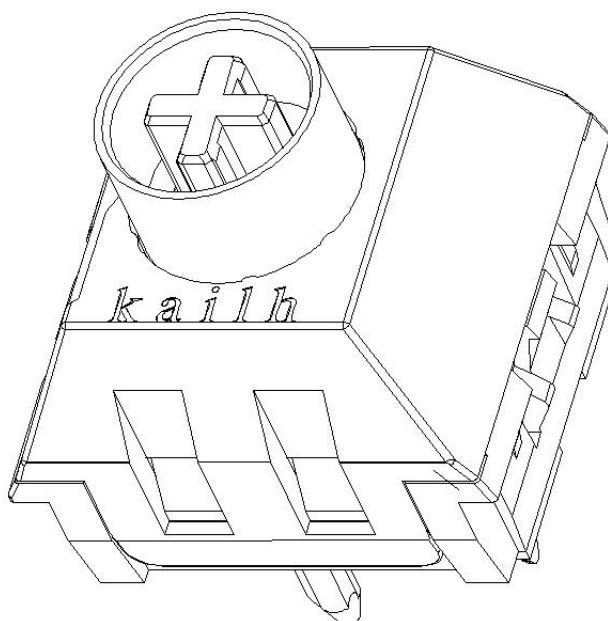


⑩	Torsional Spring	——	1	Stainless Steel	Nature	——
⑨	Base	——	1	PC	Nature	——
⑧	Slider	——	1	POM	Green	——
⑦	Protecting Cover	——	1	PC	Nature	——
⑥	Spring	——	1	Stainless Steel	Nature	——
⑤	Contact	——	2	Composite gold	——	——
④	Cover	——	1	PC	Nature	——
③	Keystroke	——	1	Nylon	Nature	——
②	Static Plate	——	1	Copper Alloy	Nature	——
①	Movable Plate	——	1	Copper Alloy	Nature	——
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	HHX	2021.09.12			
CHECKED				TITLE:	PG1511F Keystroke switch
APPROVALS				PART NO:	CPG1511F01S80-1
TOLERANCES ARE		30<L	±0.30	ANGLE	UNIT: mm
		10<L≤30	±0.20		
		5<L≤10	±0.15		
		L≤5	±0.10		
		±2°		DRAWING NO.	KHA-1511F-114EN
				SHEET: 10F1	

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

Product Specification



P/N: CPG1511F01S80-1			Title : PG1511F Keyboard Switch		
Rev.	ECN	Release and Revision Description:	Prepared By /Date:	Checked By/Date:	Approved By/Date:
A	— —	New releasing	Huhaixin/2021.10.12	huqianchen/2021.10.12	zhengjianjun/2021.10.12

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1. Scope:

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

2. Product Application:

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

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:

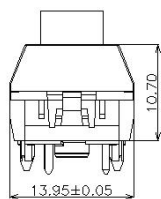
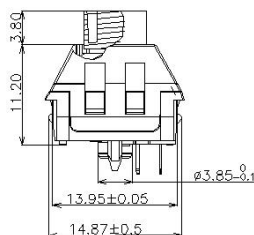
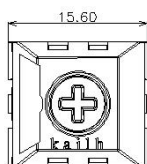
Ambient temperature: 20±2℃
 Relative humidity: 65%±5% R.H.;
 Air pressure : 86~101KPa;
 Solder Ability : Tim-lead soldering : 245℃±5℃ 5s±0.5s;
 Lead-free welding : 255℃±5℃ 5s±0.5s;
 Wave soldering: 260±5℃ 5±0.5s;

Withstand Soldering Temperature:

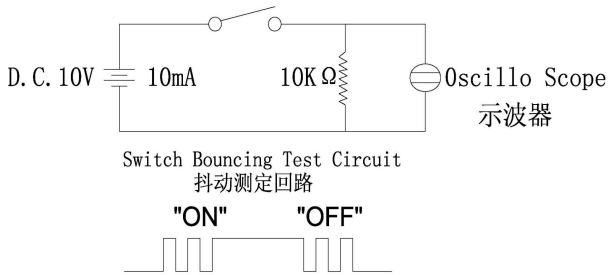
4. Ratings:

Rating: 12V AC/DC max. 2V DC min.
 10mA AC/DC max. 10 μ A DC min;
 Insulation Resistance: ≥100MΩ/DC 100V;
 Withstand Voltage: 100V AC 1 Minute;
 Mechanical Life: 100,000,000 Cycles.

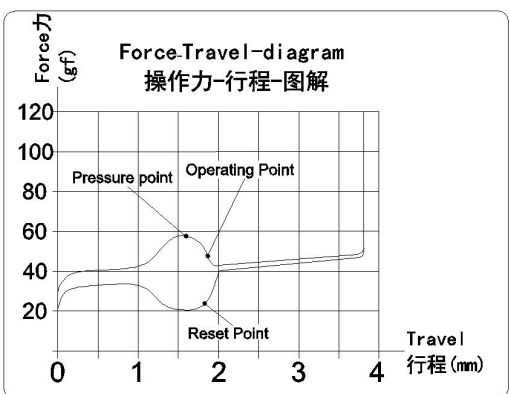
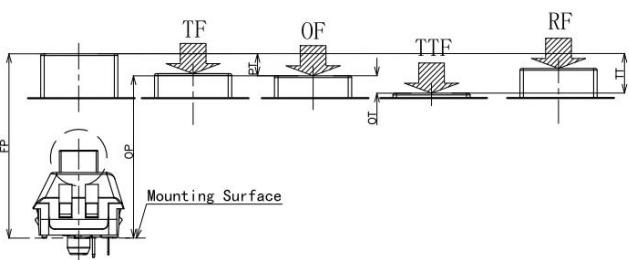
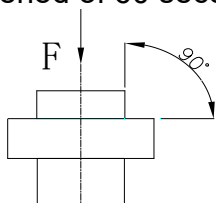
5. Profile Dimensions :

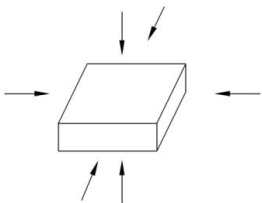


6. Electrical Performance:

Item	Description	Test Condition	Requirement
6.1	Contact Resistance	Static load: (Operation force)x2, which is applied on the center of Switch stem. 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 100 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 AC100 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 Oscillo scope Switch Bouncing Test Circuit.  Switch Bouncing Test Circuit 抖动测定回路 "ON" "OFF"	Before Life cycle: On: 5ms MAX Off: 5ms MAX After Life cycle: On: 10ms MAX Off: 10ms MAX

7. Mechanical Performance:

Item	Description	Test Condition	Requirement
7.1	Load Curve	Place the vertical direction of switch operation and gradually increase the load applied to the center of the stem until it stop. 	See page 11
7.2	Loading parameter	Place the vertical direction of switch operation and gradually increase the load applied to the center of the stem until it stop. 	See page 11
7.3	Static Strength	A static load of 3kgf 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.	5kgf 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) D.C.12V 10mA resistance load 2) Operation speed : 10 times / s 3) Push force : 250±50gf 4) Operation number: 100,000,000cycles	Contact resistance: 1 Ω Max Bouncing: 10ms Max Operation force and tactile 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: 48h (3) Take off a drop water (4) Standard conditions after test : 1h	Contact resistance: 200m Ω Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2

8.2	Heat test	(1) Temperature : $70\pm2^{\circ}\text{C}$ (2) Duration of test: 48h (3) Take off a drop water (4) Standard conditions after test : 1h	Contact resistance: 200m Ω Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2												
8.3	Temperature cycle	(1) Test cycles: 5 cycles (2) Standard condition after test:1h <table><tr><td></td><td>Temperature</td><td>Dration of test</td></tr><tr><td rowspan="4">1 cycle</td><td>$20\pm5^{\circ}\text{C}$</td><td>1h</td></tr><tr><td>$-20\pm5^{\circ}\text{C}$</td><td>1h</td></tr><tr><td>$20\pm5^{\circ}\text{C}$</td><td>1h</td></tr><tr><td>$70\pm5^{\circ}\text{C}$</td><td>1h</td></tr></table>		Temperature	Dration of test	1 cycle	$20\pm5^{\circ}\text{C}$	1h	$-20\pm5^{\circ}\text{C}$	1h	$20\pm5^{\circ}\text{C}$	1h	$70\pm5^{\circ}\text{C}$	1h	Contact resistance: 200m Ω Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2
	Temperature	Dration of test													
1 cycle	$20\pm5^{\circ}\text{C}$	1h													
	$-20\pm5^{\circ}\text{C}$	1h													
	$20\pm5^{\circ}\text{C}$	1h													
	$70\pm5^{\circ}\text{C}$	1h													
8.4	Humidity test	(1) Temperature : $60\pm2^{\circ}\text{C}$ (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: 200m Ω Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2 No. 6.2 to 6.4 No. 7.1 to 7.2												
8.5	Salt Spray	Apply the following environment to test(Only for contact test) : (1) Temperature : $35\pm5^{\circ}\text{C}$ (2) Salt water density: $5\pm1\%$ (3) Duration: 12hours (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 m Ω Max												
8.6	Protection Against ingress of dust(IP5X)	The switches are placed in a position of normal use inside the test chamber. The test is carried out according to the second enclosure of IEC60529/GB4208. The test shall be continued for a period of 8h.	After test: Operating is normal Between terminals, terminal and surface of the crust, Dielectric withstand in voltage $\geq 100\text{V}$												

8.7

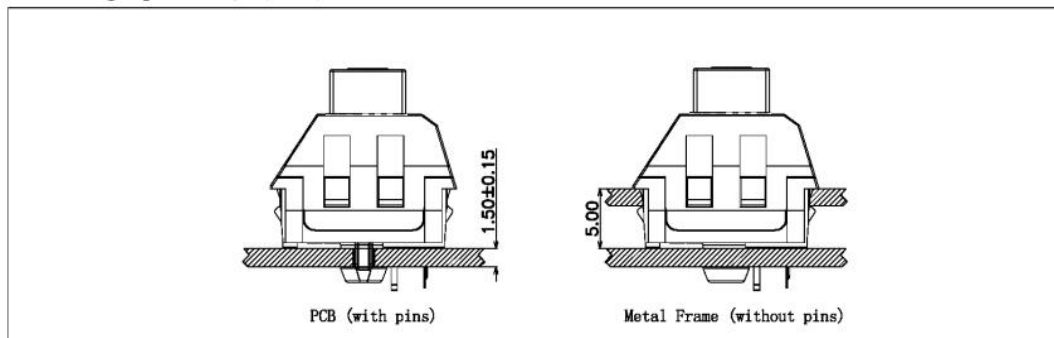
Protection
against ingress
of water(IPX4)

The switches are placed in a position of normal use inside the test table.
The test is carried out according to the second enclosure of IEC60529/GB4208.

After test:
Operating is normal.
Water don't enter electric parts of the switch inside.
Between terminals, terminal and surface of the crust,
Dielectric withstand in voltage $\geq 100V$

9. Recommended PCB Layout

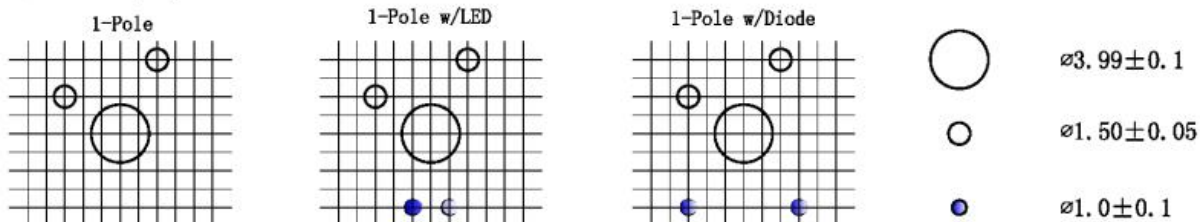
Mounting Options 安装选项



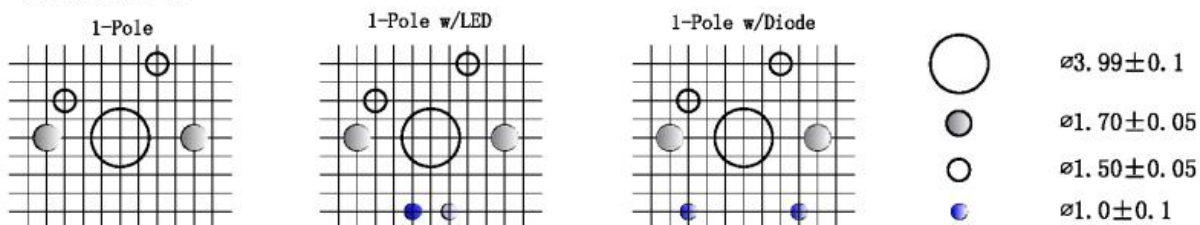
Circuit Board Layouts 电路板布局

Grid line spacing = 1.27mm 网格线间距= 1.27毫米

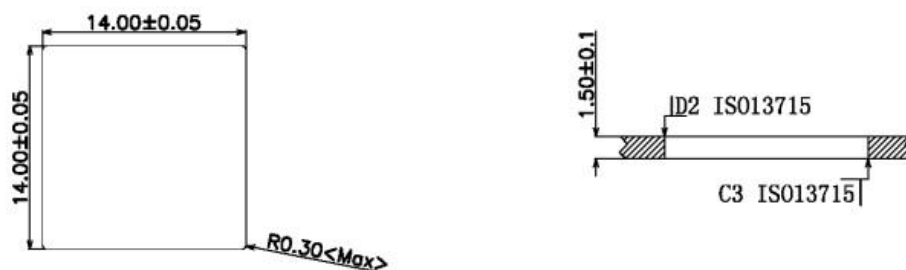
Keyswitch without fixation pins
按键开关不带定位柱



Keyswitch with fixation pins
按键开关带定位柱



Metal Frame Cutout Dimensions

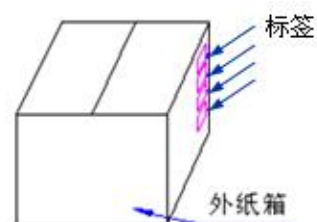
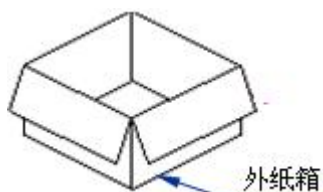


10. Loading Parameter (TT/PT/OT /OF/TF/RF) Specification :

Parameter	Unit	Specification	Remark
TT	mm	3.60 ± 0.3	
PT	mm	1.80 ± 0.4	
OT	mm	1.1	Min.
TF	gf	57 ± 10	
OF	gf	47 ± 15	
RF	gf	15	Min.

11. Packaging

Packaging type: Tray, 1000Pcs/Tray, 4000Pcs/Carton.



12.Precaution

- (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