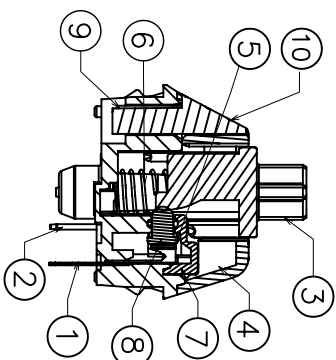
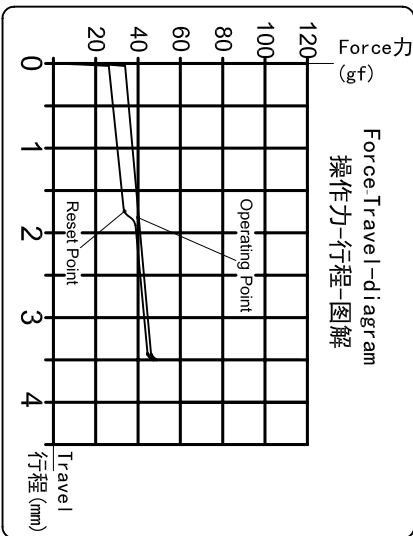
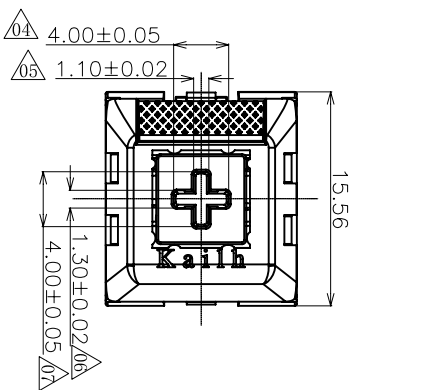
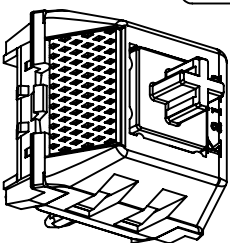
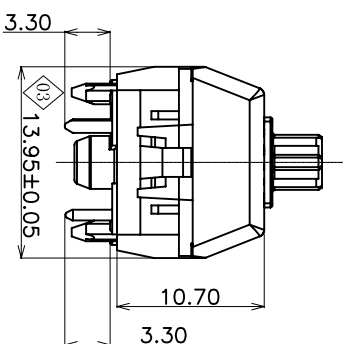
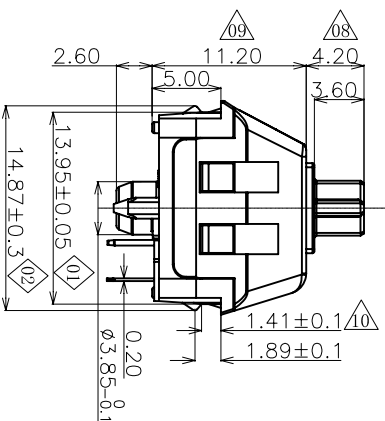


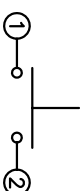


- 产品规格:
- 1. 额定值: 12V AC/DC max. 2V DC min. 10mA AC/DC max. 10 μ A DC min.
 - 2. 接触阻抗: 200毫欧 最大
 - 3. 绝缘阻抗: 100兆欧 最小 (DC100V)
 - 4. 耐高压: 交流100伏 (50-60赫兹) 持续 1 分钟
 - 5. 操作力: 40 $\pm$ 10gf
 - 6. 导行程: 1.80 $\pm$ 0.4mm
 - 7. 总行程: 3.50 $\pm$ 0.3mm
 - 8. 机械寿命: 8000万次以上
 - 9. 防护等级: IP54
 - 10. 该产品需符合凯华环境有害物质管制标准

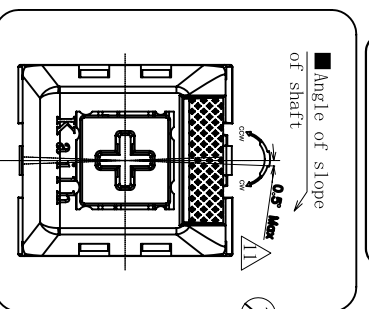
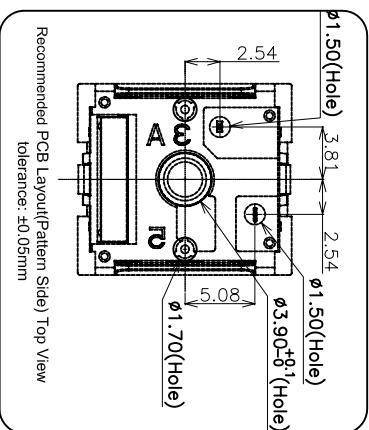
☆ 盖子打油



SWITCH FUNCTION



Angle of slope of shaft



◇: 表示重点管控尺寸, 首检时需量测。
△: 表示次重点管控尺寸, 一般为装配尺寸, 首检时需量测。
1) 重点及次重点管控尺寸中的序号不可重复, 需依次往后增加。若其中有某个尺寸在变更或其它状况下, 尺寸消失或不要求管控时, 原序号不可再用。有其它尺寸需要增加管控时, 序号往后增加。
2) 版次定义: 新开发而未转量产之产品版次为A1、A2、A3...
已转量产之产品图面版次为A、B、C... Z 以后用AA、AB、AC...

⑩	钻石级导光柱	BSPG1511F-06011	1	PC	半透明	—
⑨	导光柱基座	BSPG1511F-02105	1	POM	米黄色	—
⑧	3#活动块	BSPG1511F-05034	1	POM	绿色	—
⑦	防水盖	BSPG1511F-07001	1	尼龙	白色	—
⑥	R-12款弹簧	BMPG1511F-03045	1	不锈钢	亮面	—
⑤	焊点金线	BMPG1511-09010	2	复合线	—	—
④	加2号斜柱状固定片	BSPG1511F-04118	1	POM	米黄色	—
③	十字线板B级导电	BSPG1511F-05229	1	POK	米黄色	—
②	3#静片	BZPG1511F-01013	1	黄铜	镍底镀锡	—
①	6#动片	BZPG1511F-03012	1	磷铜	—	—
序号	零件	物料料号	用量	材料	镀层/颜色	备注

承认	日期	名称	料号	比例	视角
设计	2024. 09. 21	胡海鑫	PG1511F按键开关(十字芯轴)	1:1	⊙
审核	2025. 01. 08	胡海鑫	PG1511F01S273	1:1	⊙
核准	2025. 01. 08	刘华	PG1511F01S273	1:1	⊙

ECN:2501-019	B	2024.12.31	操作力变更为10gf、更换R-12款弹簧	张宇杰	—	—	—
—	A	—	NEW	—	—	—	—
工程变更单号	版次	日期	说明	修改	审核	核准	—

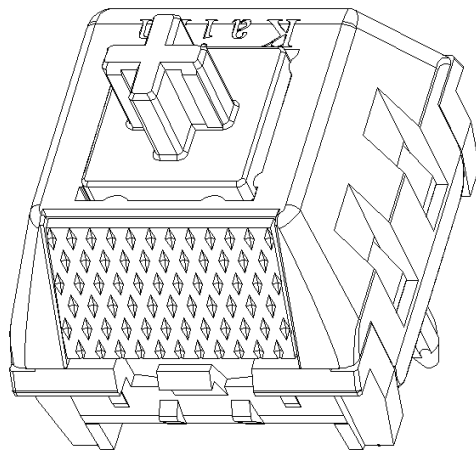


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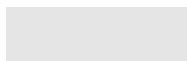
Document Number:

KH-PS2409- 42

Product Specification



P/N: CPG1511F01S273			Title : PG1511F Key Switch		
Rev.	ECN	Release and Revision	Prepared By /Date:	Checked By/Date:	Approved By/Date:
A	— —	New Description:	/2024.09.29	/2024.09.29	/2024.09.29



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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 6

Normal Condition :

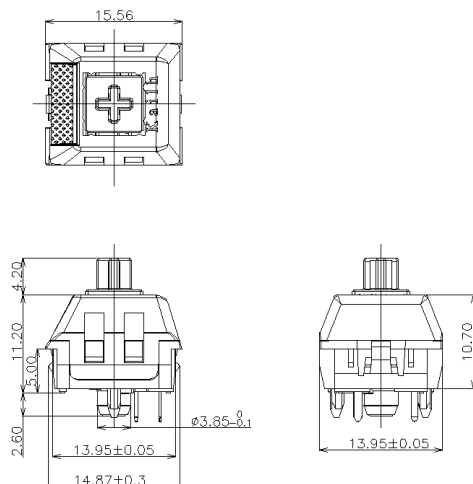
Ambient temperature	20± 2
Relative humidity	65%± 5% R.H.
Air pressure	86~106KPa;

Connection : Not weldable Only hot swappable

4. Ratings/

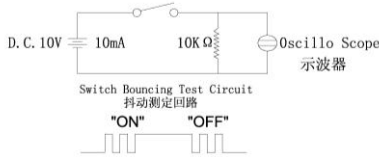
Rating	12V AC/DC max. 2V DC min. 10mA AC/DC max. 10 A DC min
Insulation Resistance	100M /DC 100V;
Withstand Voltage	100V AC 1 Minute;
Mechanical Life	80,000,000 Cycles.

5. Profile Dimensions /



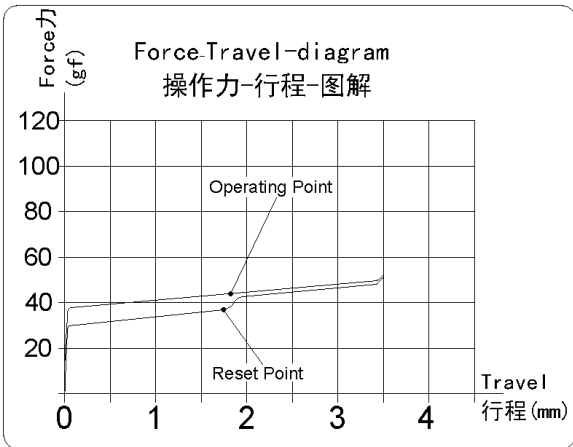
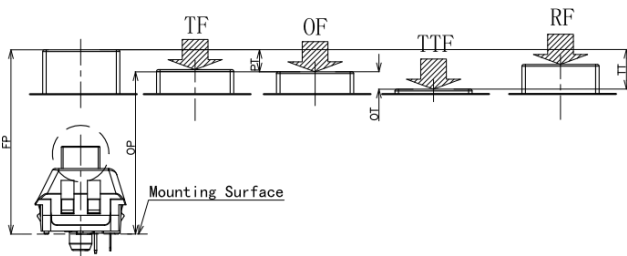


6. Electrical Performance/

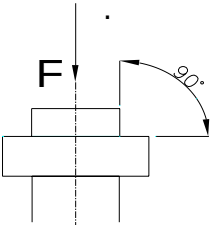
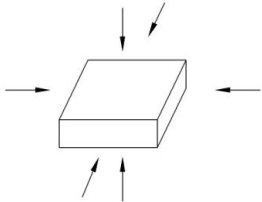
Item	Description	Test Condition	Requirement
6.1	Contact Resistance	Static load: (Operation force)x2, which is applied on the center of Switch stem. Be measured when the switch contact stabilization. 2 Measurement tool: Contact resistance Meter. (1KHz, 20mV,5~50mA) 100mA Measured at low current (100mA or less).	200m Max 200m
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. 100V DC 1 (1) (2)	100M Min 100
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. 100V AC 1 (1) (2)	No evidence of breakdown
6.4	Bouncing	Operation speed 3~4 times/s 3~4 Oscillo scope Switch Bouncing Test Circuit 	Before Life cycle: On:5ms MAX,5 Off: 5ms MAX,5 After Life cycle: On:10ms MAX,10 Off: 10ms MAX,10



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 11
7.2	Loading parameter		See page 11 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. 3kgf 60 	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 (2) Cycles of test: 3 cycles each in 6 directions, for a total of 18 cycles. 3 6 18 	Shall meet No.6 7.1 7.2. 6 7.1 7.2
7.6	Life Test	1) D.C.12V 10mA resistance load D.C 12V 10mA 2) Operation speed : 10 times / s 10 / 3) Push force : 250±50gf : 250±50gf 4) Operation number: 80,000,000cycles : 80 000 000	Contact resistance: 1 Max 1 Bouncing 10ms Max 10 Operation force and tactile force Variation rate within ± 30% ± 30%



8. Environmental Performance

Item	Description	Test Condition	Requirement															
8.1	Cold test	(1) Temperature : - 20± 2 - 20± 2 (2) Duration of test: 48h 48 (3) Take off a drop water (4) Standard conditions after test : 1h 1	Contact resistance: 200m Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2 200m : No. 6.2 to 6.4 No. 7.1 to 7.2															
8.2	Heat test	(1) Temperature : 70± 2 70± 2 (2) Duration of test: 48h 48 (3) Take off a drop water (4) Standard conditions after test : 1h 1	Contact resistance: 200m Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2 200m : No. 6.2 to 6.4 No. 7.1 to 7.2															
8.3	Temperature cycle	(1) Test cycles: 5 cycles 5 (2) Standard condition after test:1h 1 <table><tr><td></td><td>Temperature</td><td>Duration of test</td></tr><tr><td>1 cycle</td><td>20± 5</td><td>1h</td></tr><tr><td></td><td>-20± 5</td><td>1h</td></tr><tr><td></td><td>20± 5</td><td>1h</td></tr><tr><td></td><td>70± 5</td><td>1h</td></tr></table>		Temperature	Duration of test	1 cycle	20± 5	1h		-20± 5	1h		20± 5	1h		70± 5	1h	Contact resistance: 200m Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2 200m : No. 6.2 to 6.4 No. 7.1 to 7.2
	Temperature	Duration of test																
1 cycle	20± 5	1h																
	-20± 5	1h																
	20± 5	1h																
	70± 5	1h																



8.4	Humidity test	(1) Temperature : 60 ± 2 60 ± 2 (2) relative humidity: 90~95% R.H. :90~95% R.H. (3) Duration of test: 48h 48 (4) Take off a drop water (5) Standard conditions after test: 1h 1	Contact resistance: 200m Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2 200m : No. 6.2 to 6.4 No. 7.1 to 7.2
8.5	Salt Spray	Apply the following environment to test : (1) Temperature : 35 ± 5 : 35 ± 5 (2) Salt water density: 5 ± 1 % : 5 ± 1 % (3) Duration: 12hours : 12 (4) After test, the salt deposit shall be removed by running water.	Appearance: Contact no corrosion spot, no crack, no base plate naked. Contact Resistance: 200 m Max 200
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. IEC60529 GB4208 8	After test: Operating is normal Between terminals, terminal and surface of the crust, Dielectric withstand in voltage 100V 100V



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8.7

Protection
against ingress
of water(IPX4)

IEC60529 GB4208

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 100V

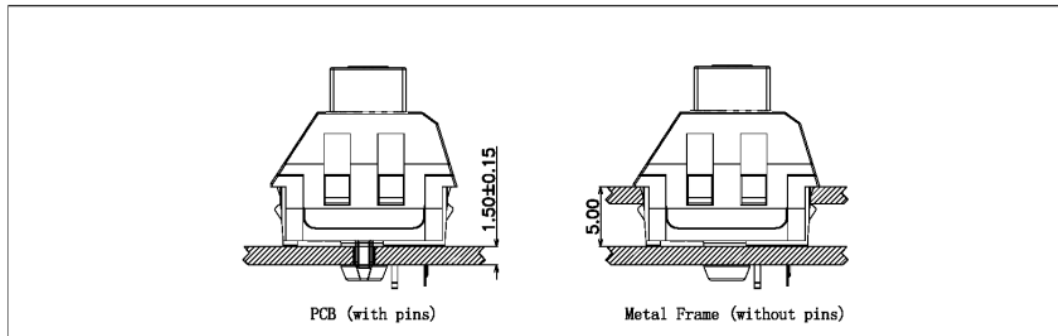
100V



9. Recommended PCB Layout

PCB

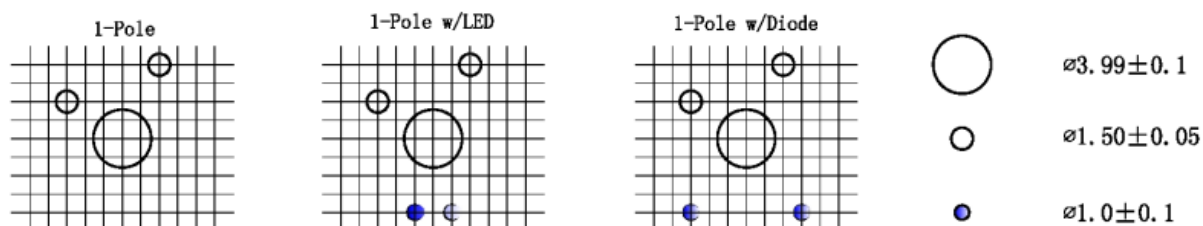
Mounting Options 安裝選項



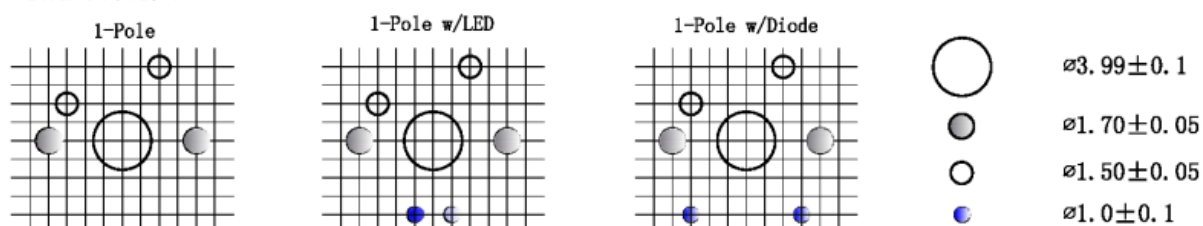
Circuit Board Layouts 电路板布局

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

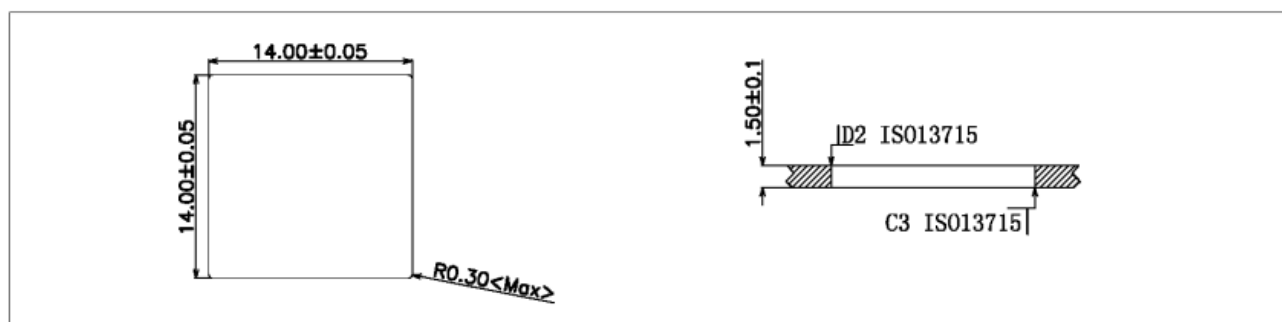
Keyswitch without fixation pins
按键开关不带定位柱



Keyswitch with fixation pins
按键开关带定位柱



Metal Frame Cutout Dimensions





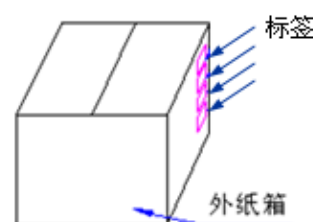
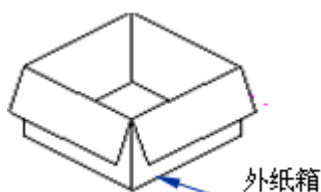
10. Loading Parameter (TT/PT/ OF) Spe cification

Parameter	Unit	Specification	Remark
TT()	mm	3.50± 0.3	
PT()	mm	1.80± 0.4	
OF()	gf	45± 10	

11. Packaging

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

: Tray ,1000Pcs/ , 4000Pcs/ .



12.Precaution

- (1) Please be cautious not to give excessive static load or shock to switches.
- (2) 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.
- (3) 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.



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(4) 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.

(5) 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.

1

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

[ROHS & REACH](#)