

ABIDE BY ROHS

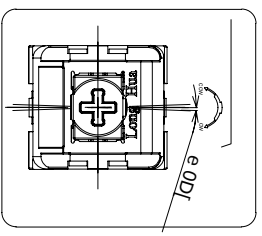
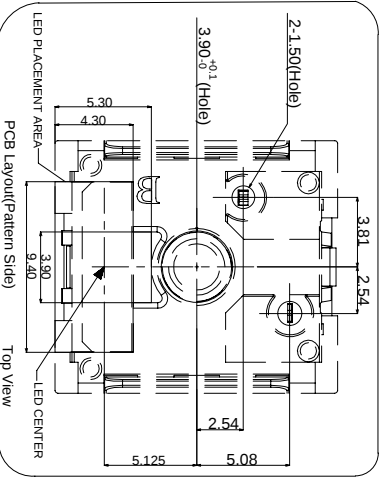
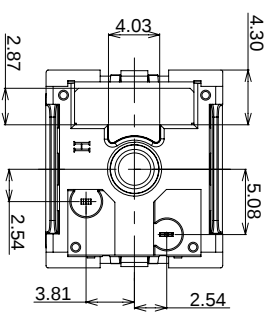
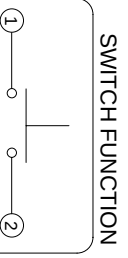
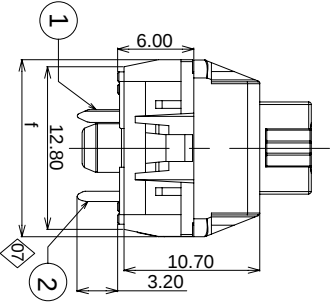
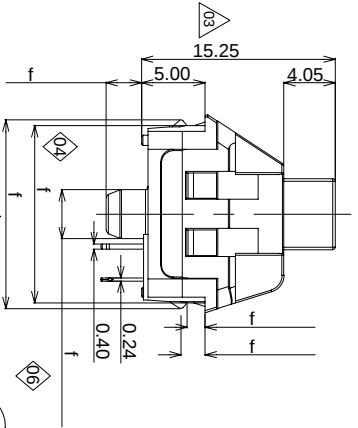
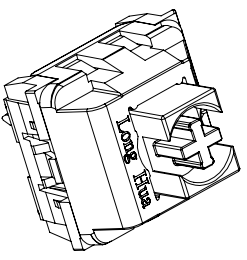
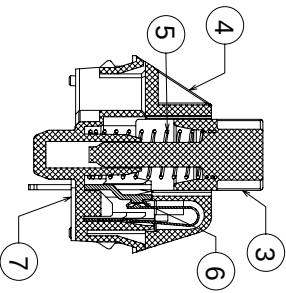
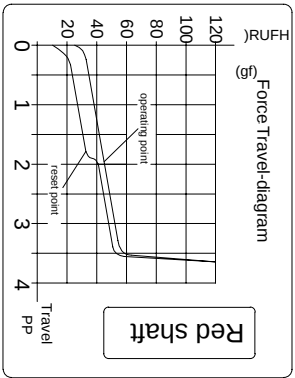
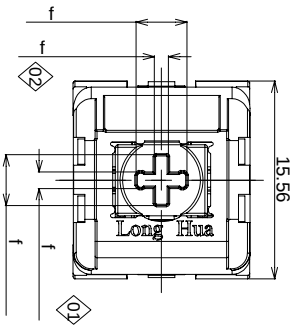
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2

1



Specification :

1. Rating : 12V AC/DC max. 2V DC min.
P\$ \$& & PDI ±\$ & PLQ
& RQWDFW 5HVLWDDQH P\$ 0DI
, QVXODWLRQ 5HVLWDDQH 0\$ 0LQ
(DC500V)
4. Withstand Voltage : AC100V(50-60Hz)
for 1 minute
%RXQFH 7LPH PVHF DW LQ VHF
actuation speed)
2SHUDWLRQ RUFH f JI
3UHWUDYHO f PP
7RWDO WUDYHO f PP
9. Operating Life : 50,000,000 Cycles(min)
el is allowed to have difference before and after life test

ITEM	PART NAME	TERNQ QTY	MATERIAL	FINISHING	REMARK
⑦	Base	1	PAG6	Purple	
⑥	contact	2	Composite gold		
⑤	Spring	1	Stainless Steel		
④	Cover	1	PC	Translucency	
③	Keystroke	1	POM	White	
②	static plate	1	Brass	Sn over Ni-Palating	
①	movable plate	1	Phosphorous copper		

A		B		C		D	
ECN NO.	REV.	DATE.	4	DESCRIPTION.	3	CHANGE.	CHECK.
NEW		APPRO.		DRAWN		DATE	
A		Wang Zhikuan		2024.02.22		Kaifu	
A		PG1518 Keystroke Switch		TITLE:		PG151801S130	
A		CPG151801S130		PART NO.		SCALE: 1:1	
A		PROJ		UNIT: mm		KHA-PG1518-170EN	
A		SHEET 1 OF 1		DRAWING NO.		SHEET 1 OF 1	
A		1		2		1	

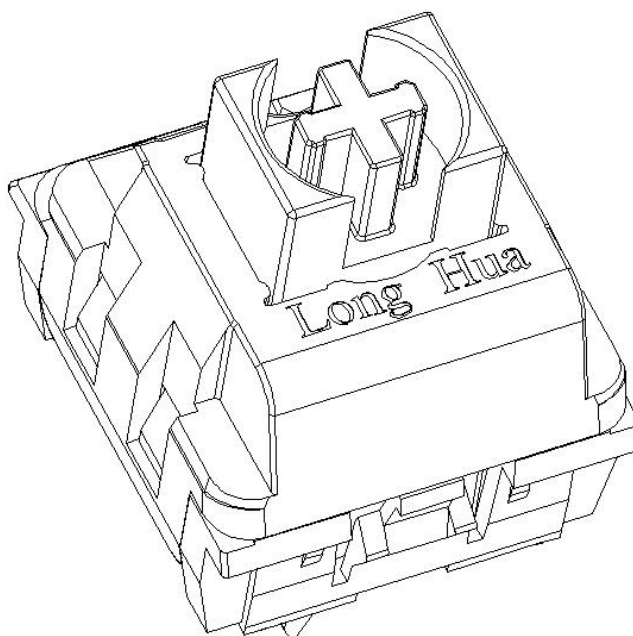


凱華電子
KAIHUA EEELETRONICS

Document Number:

KH-PS2404-24

Product Specification



P/N: _____

CPG151801S130

Title: _____

PG1518 Keyboard Switch

Rev.	ECN	Release and Revision Description:	Prepared By /Date:	Checked By/Date:	Approved By/Date:
A	— —	New releasing	2024/04/12	2024/04/12	2024/04/12



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KAIHUA EEELECTRONICS

Product Specification

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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 6months 6
Require the tin part on the switch terminals should keep good after storage guarantee date

Normal Condition:

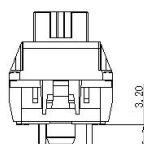
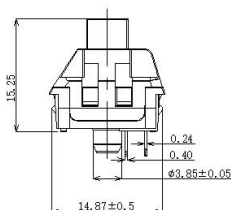
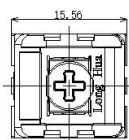
Ambient temperature 20 ± 2
Relative humidity $65\% \pm 5\%$ R.H.
Air pressure 86~101KPa;
Solder Ability : 245 Max 5s Max

Withstand Soldering Temperature : 255 Max 5s Max
260 ± 5 5 ± 0.5 s

4. Ratings/

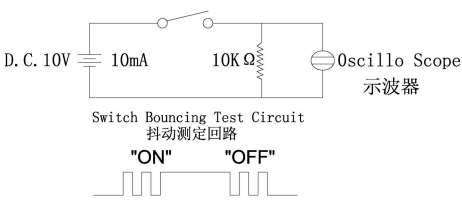
Rating 12V AC/DC max.2V DC min.
10mA AC/DC max.10 A DC min
Insulation Resistance 100M /DC 500V;
Withstand Voltage 100V AC 1Minute;
Mechanical Life 50,000,000 Cycles.

5. Profile Dimensions /



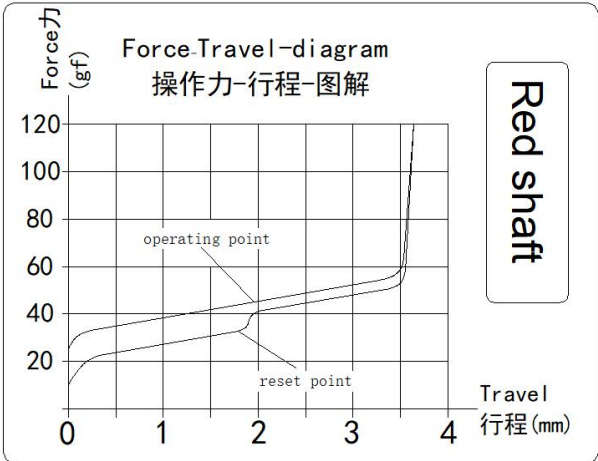
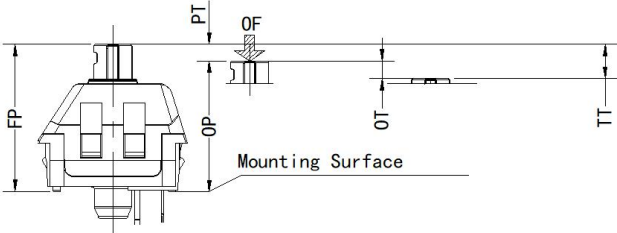


6. Electrical Performance/

Item	Description	Test Condition	Requirement
6.1	Contact Resistance	Static load: (Operation force)x2, which is applied on the center of Switch stem. 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 aVoltage of DC 500 Vfor 1minute, according to the below method. (1) Between terminals. (2) Between terminal and Body. 500V DC 1 (1) (2)	100M Min 100
6.3	Dielectric withstanding voltage	Apply aVoltage 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  Switch Bouncing Test Circuit 抖动测定回路 "ON" "OFF"	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/

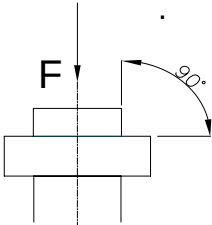
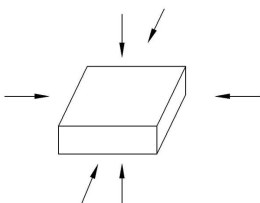
Item	Description	Test Condition	Requirement
7.1	Load Curve	Place the vertical direction of switch operation and gradually increase the load applied to the center of the stem until it stop. 	See page 11 11
7.2	Loading parameter	Place the vertical direction of switch operation and gradually increase the load applied to the center of the stem until it stop. 	See page 11 11



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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 	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) Applying Force: 250 ± 50gf (by spring) : 250 ± 50gf (4) Operation number: 50,000,000 cycles : 50,000,000	Contact resistance: 1000 m Max 1000 10ms Max Bouncing 10 Operation 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 adrop 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 adrop 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: 5cycles 5 (2) Standard condition after test:1h 1 <table><tr><td></td><td>Temperature</td><td>Duration of test</td></tr><tr><td rowspan="4">1 cycle</td><td>20± 5</td><td>1h</td></tr><tr><td>-20± 2</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	Duration of test	1 cycle	20± 5	1h	-20± 2	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± 2	1h													
	20± 5	1h													
	70± 5	1h													



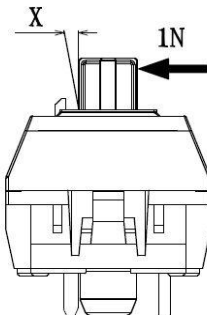
8.4	Soldering heat test	Soldering area: T/2 of PWB thickness. (PWB: T=1.6mm) 1/2 Soldering temperature: 260 ± 5 Soldering time: 5 ± 0.5s 260 ± 5 5 ± 0.5 波峰焊温度曲线图 (单波峰)	
8.5	Solder ability	Lead-tin soldering Soldering temperature: 245 ± 5 Soldering time: 5 ± 0.5s 245 ± 5 5 ± 0.5 Lead free soldering Soldering temperature: 255 ± 5 Soldering time: 5 ± 0.5s 255 ± 5 5 ± 0.5	At least 90% of surface area of immersed portion shall be covered by solder. 90%
8.6	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 adrop 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



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8.7	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: No corrosion spot, no crack, no base plate naked. Contact Resistance: 200 m Max 200
8.8	Withstand K ₂ S	Apply the following environment to test: (1) Temperature: 35 ± 5 : 35 ± 5 (2) K₂S Density: 2% 2% (3) Duration: 2minute. 2	Appearance: No corrosion spot, no crack, no base plate naked. Contact Resistance: 1000 m Max 1000
8.9	Wobbling of Button	Apply 1N force as shown below 1N 	Displacement 0.35mm Max 0.35mm



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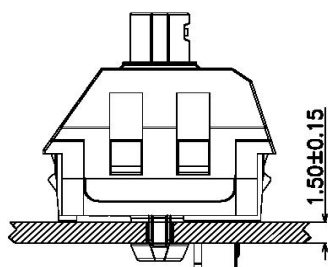
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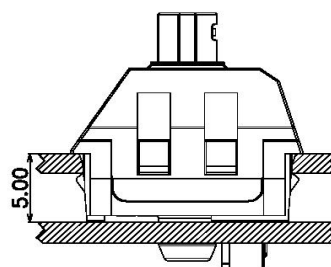
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9. Recommended PCB Layout PCB

Mounting Options 安装选项



PCB (with pins)

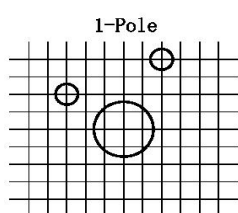


Metal Frame (without pins)

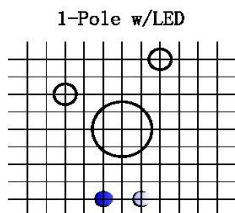
Circuit Board Layouts 电路板布局

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

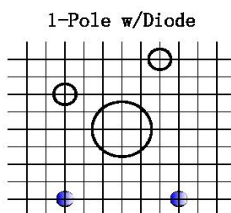
Keyswitch without fixation pins
按键开关不带定位柱



1-Pole



1-Pole w/LED



1-Pole w/Diode



ø3.99±0.1

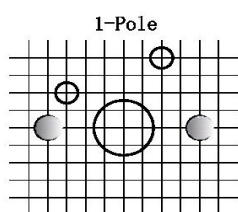


ø1.50±0.05

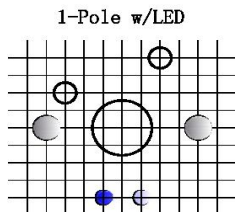


ø1.0±0.1

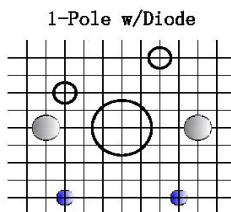
Keyswitch with fixation pins
按键开关带定位柱



1-Pole



1-Pole w/LED



1-Pole w/Diode



ø3.99±0.1



ø1.70±0.05

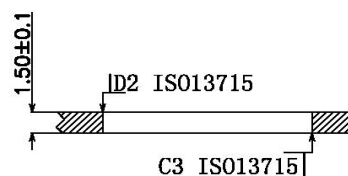
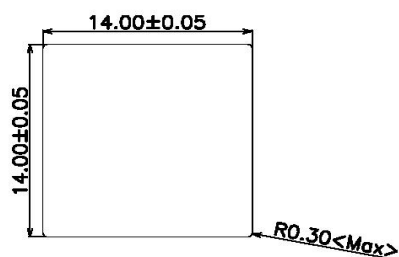


ø1.50±0.05



ø1.0±0.1

Metal Frame Cutout Dimensions





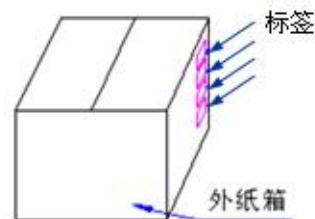
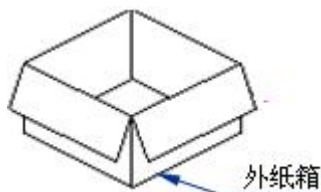
10. Loading Parameter (FP/OP/PT/OF /OT/TT) Specification

Parameter	Unit	Specification	Remark
FP()	mm	15.25± 0.2	
OP()	mm	13.35± 0.7	
PT()	mm	1.9± 0.5	
OF()	gf	45± 10	
OT()	mm	0.7	Min
TT()	mm	3.5± 0.4	

11. Packaging

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

: Tray ,1000Pcs/ , 4000Pcs/ .



12. Precaution

12.1 Immersion Soldering condition

ITEM	CONDITION
Preheat temperature	110 Max (Ambient temperature of soldering surface of P.W.B) 110 ()
	60s, Max 60
	1/2 Max of PWB Thickness 1/2
Temperature of solder	260± 5 260± 5
Time of immersion	5± 0.5s 5± 0.5
Number of soldering	2time Max (But should down heat of the first soldering) 2
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 max within 3sec.

350 , 3 .



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12.2 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 along period, do not open the carton.
- (4) The standard storage period is 3months, 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.
3 6
- (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) If customer issue purchase orders without confirmation by signature of this specification after receipt, such confirmation will be considered as granted upon receipt of the first purchase order The customer shall be informed in writing of any changes during the design and mass production phases.
- (7) If there is no order or no request for new specification after 1year 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