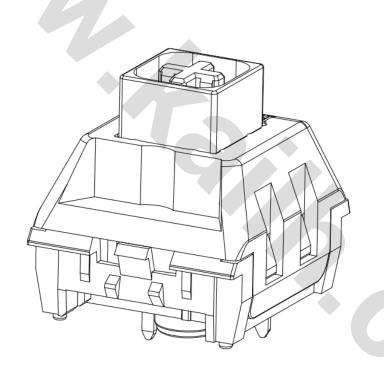




Document Number:

KH-PS1706-36

Product Specification



Burnt Orange shaft

Title:

P/N:

CPG1511F01S07

PG1511F Keyboard Switch



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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% RH

Operating Temperature Range: -10°C ~ +70°C Storage Temperature Range: -20°C ~ +70°C Suggested storage period: about 6 months

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

Normal Condition:

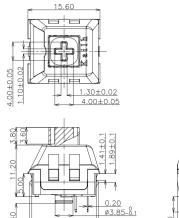
Ambient temperature: 20±2°C Relative humidity: 65%±5%RH Air pressure: 86~101KPa

4. Ratings

Rating: 12V AC/DC max. 2V DC min

10mA AC/DC max. 10μA DC min Insulation Resistance: ≥100MΩ/DC 100V Withstand Voltage: 100 AC 1 Minute Mechanical Life: 80,000,000 Cycles

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. 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 D. C. 10V 10mA 10KΩ 0scillo Scope Switch Bouncing Test Circuit "ON" "OFF"	Before Life cycle: On: 5ms MAX Off: 5ms MAX After Life cycle: On: 10ms MAX Off: 10ms MAX



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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. Force Trave I – diagram 120 100 100 Pressure point Operating Point (mm) 120 100 100 100 100 100 100 100 100 100	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

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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
Stem Pull Strength	Break by a pull force applied opposite to the direction of stem operation.	5kgf Min
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.	Shall meet No.6, 7.1, 7.2.
Life Test	1) D.C.12V 10mA resistance load 2) Operation speed: 5-6 times / s 3) Push force: 150gf 4) Push travel: 3.6mm 5) Operation number: 80,000,000 cycles	Contact resistance: 1Ω Max Bouncing: 10ms Max Operation force and tactile force: Variation rate within ±30%
	Stem Pull Strength	Static Strength Stem Pull Strength Break by a pull force applied opposite to the direction of stem operation. 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. Shock 1) D.C.12V 10mA resistance load 2) Operation speed: 5-6 times / s 3) Push force: 150gf 4) Push travel: 3.6mm



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8. Environmental Performance

Item	Description	Test Condition	Requirement	
8.1	Cold test	(1) Temperature: -20±2°C (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 to 6.4 No. 7.1 to 7.2		
8.2	Heat test	 (1) Temperature: 70±2°C (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 to 6.4 No. 7.1 to 7.2	
8.3	Temperature cycle	(1) Test cycles: 5 cycles (2) Standard condition after test: 1h Temperature Duration of test 20±5°C 1h -20±5°C 1h 20±5°C 1h 70±5°C 1h	Contact resistance: 200mΩ Max Shall meet: No. 6.2 to 6.4 No. 7.1 to 7.2	

Product Specification Kailh P/N: DOC. No.: Rev.: Page: **KAIHUA ELECTRONICS** Ε 8/11 CPG1511F01S07 KH-PS1706-36 Soldering area: T/2 of PWB thickness. (PWB: T=1.6mm) Soldering Appearance: 8.4 Soldering temperature: 260±5°C No abnormality. heat test Soldering time: 3±0.5s 1. Hand soldering: Please practice according to below condition: (1) Soldering Temperature: 350±5°C (2) Continual soldering time: 3±0.5s (3) Capacity of soldering iron: ≤20w 2. Automatic PIP soldering: At least 95% of surface area For the product of T/H according to below of immersed portion shall be condition: 8.5 Solder ability covered by solder. Wave Soldering Temperature Curve (Single Wave Peak) 200

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8.6	Humidity test	 (1) Temperature: 60±2°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 r 200mΩ N Shall me No. 6.2 to No. 7.1 to	et : o 6.4	:
8.7	Salt Spray	Apply the following environment to test(Only for contact test): (1) Temperature: 35±5°C (2) Salt water density: 5±1% (3) Duration: 12hours (4) After test, the salt deposit shall be removed by running water.	no base	sion spot, plate nake Resistance	ed.
8.8	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.	Between terminal the crust	g is norma terminals and surfac , withstanc	ce of
8.9	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.	Water do electric p switch ins Between terminal a the crust.	g is normand is normal sector of the sarts of the side. terminals and surfact, withstance withstance.	ee of
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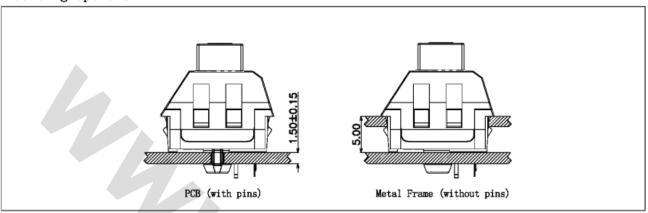
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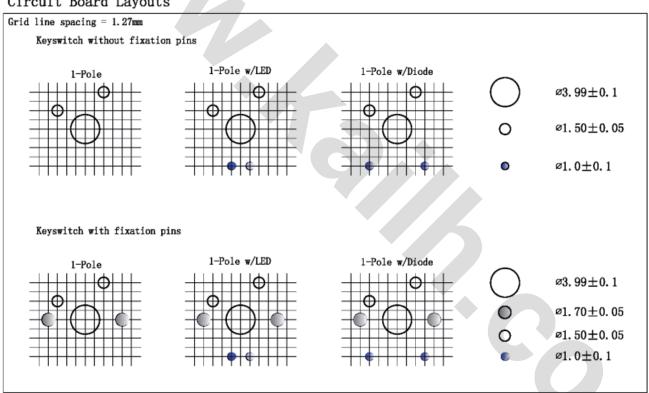
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9. Recommended PCB Layout

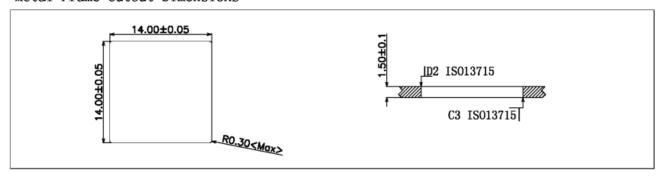
Mounting Options



Circuit Board Layouts



Metal Frame Cutout Dimensions





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

Parameter	Unit	Specification	Remark
TT	mm	3.60 ± 0.3	
PT	mm	2.0 ± 0.4	
ОТ	mm	1.30	Min
TF	gf	70 ± 10	
OF	gf	60 ± 15	
RF	gf	15	Min

11.Precaution

11.1 Immersion Soldering condition

ITEM	CONDITION
Preheat temperature	110°C 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°C
Time of immersion	3s±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°C±5°C max within 3 sec.

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) 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.
- (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.