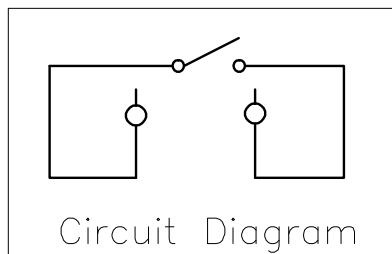
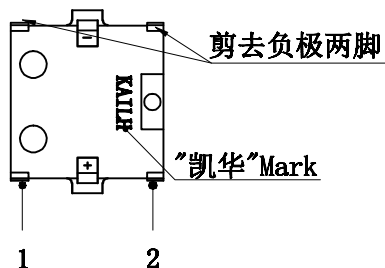
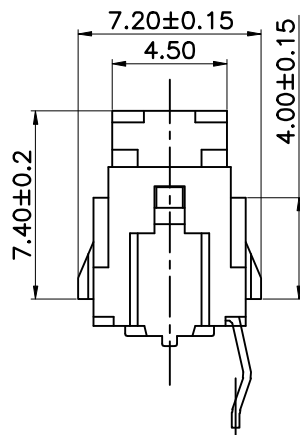
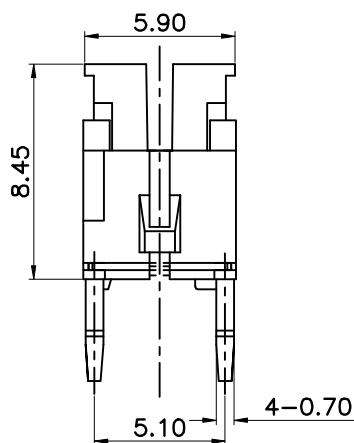
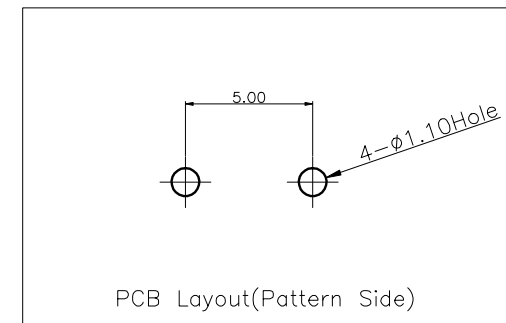
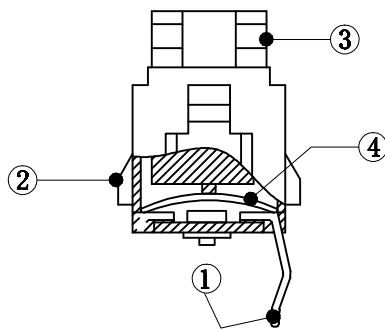
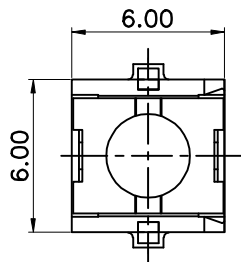


成品检验图



产品规格:

- 1. 额定值: DC12V 50mA
- 2. 接触阻抗: 100毫欧 最大
- 3. 绝缘阻抗: 100兆欧 最小 (DC250V)
- 4. 耐高压: 交流250伏 (50-60赫兹) 持续 1 分钟
- 5. 操作力: 150±50gf
- 6. 机械寿命: 10万次以上
- 7. 预行程 (PT): 0.25±0.10
- 8. 该产品需符合《凯华环境有害物质管制标准》

NOTE:

- ◇: 重点管控尺寸及参数, 首件检查及巡检必查尺寸及参数。
- △: 次重点管控尺寸及参数, 首件检查必检尺寸及参数。
- △: 一般尺寸及参数, 材料变更或生产设备变更时需进行测量。

④	号 芯	——	1	POM	乳白色	——
③	弹 片	——	1	复合板		UL94HB
②	盖 座	——	1	PBT	黑 色	UL94HB
①	端 子	——	4	黄铜	Plating Silver	——
ITEM	PART NAME	TER'NO.	QTY.	MATERIAL	FINISHING	REMARK
承 认			日 期	 东莞市凯华电子有限公司 DONGGUAN CITY KAIHUA ELECTRONICS CO.,LTD		
设 计	唐海华	2013-9-16				
审 核				名 称	LA6141不带灯剪负极两脚	
核 准				凯华料号	LA606301D107	
未注尺寸公差		30<L	±0.30	角 度	单位: mm	比例 1:1
		10<L≤30	±0.20			
		5<L≤10	±0.15	±2'	图 号	KHA-LA6063-0011
		L≤5	±0.10			

	A		NEW			
工程变更单号	版次	日期	说明	修改	审核	核准



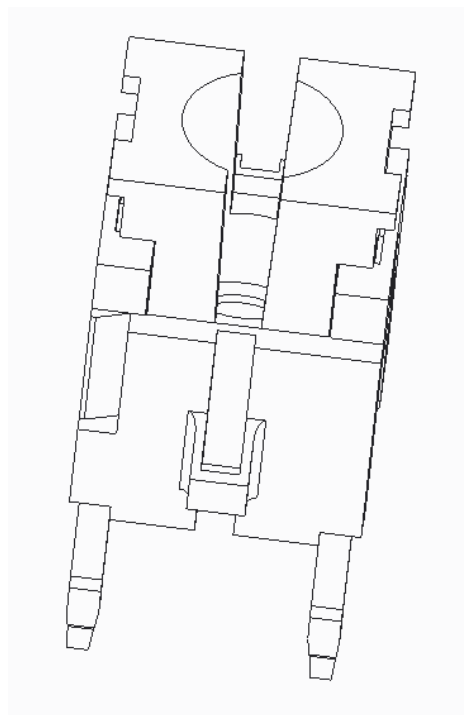
凱華電子
KAIHUA EEELETRONICS

Document Number:

KH-PS2101-05

产品规格书

Product Specification



P/N: CLA606301D107			Title : Lamp Switch		
Rev.	ECN	Release and Revision Description:	Prepared By/Date:	Checked By/Date:	Approved By/Date:
A	-----	New releasing 初版发行	张朝栋 2021/01/05	吕攀豪 2021/01/05	郑建军 2021/01/05



凱華電子
KAIHUA EEELETRONICS

Product Specification

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1. Scope/范围:

This Product Specification covers the requirement of Lamp Switch on product performance, test methods and quality assurance provisions.

本规格书内容涵盖带灯开关产品的要求，包括性能指标、测试方法及质量保证方面等。

2. Product Application/产品应用:

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.

该开关产品适用于所有类型的家用电器，如果用于本文中未提及的领域请在使用前告知。

3. Technology Parameters/技术参数

Ambient Humidity 工作湿度:	45~85% R.H.;
Operating Temperature Range 使用温度范围:	-10℃ ~ +70℃;
Storage Temperature Range 保存温度范围:	-20℃ ~ +70℃;
Normal Condition:	
Ambient temperature 环境温度:	20±5℃
Relative humidity 相对湿度:	65%±5% R.H.;
Air pressure 气压:	86~101KPa;
Contact Resistance 接触阻抗:	100 mΩ Max;
Operation Force 操作力:	150±50gf;
Solder Ability 可焊性:	245±5℃, 3±0.5s;
Withstand Soldering Temperature 耐焊接热:	260±5℃, 3±0.5s;

4. Ratings/额定性能要求

Rating 额定负荷:	DC12V / 50mA;
Insulation Resistance 绝缘电阻:	≥100MΩ/DC 250V;
Withstand Voltage 耐电压:	250V AC 1 Minute;
Mechanical Life 机械寿命:	100,000 Cycles.

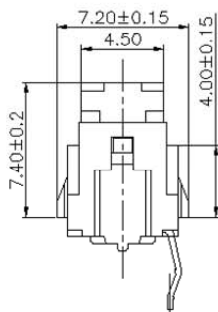
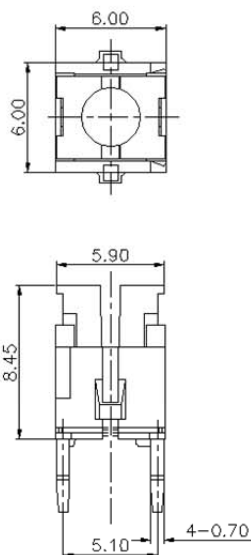
5. Profile Dimensions /外形尺寸



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6. Electrical Performance/电气性能

Item 项目	Description 项目描述	Test Condition 测试条件	Requirement 规格要求
6.1	Contact Resistance 接触电阻	Static load: (Operation force)x2, which is applied on the center of Switch stem. 静态负载：动作力的 2 倍，施加在手柄中心. Measurement tool: Contact resistance Meter. 测量工具：微电流接触电阻计(1KHz, 20mV,5~50mA) 在低电流（≤100mA）条件下测试. Measured at low current (100mA or less).	100mΩ Max 100mΩ 以下
6.2	Insulation Resistance 绝缘电阻	Apply a Voltage of DC 250 V for 1 minute, according to the below method. (1) Between terminals. (2) Between terminal and Body. 输入 250V DC 电压 1 分钟，按如下接触方法测试： (1) 端子与端子之间. (2) 端子与外壳之间.	100MΩ Min 100 兆欧以上

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6.3

Dielectric
withstanding
voltage
耐电压

Apply a Voltage of AC 250 V (50~60Hz) for 1 minute, according to the below method.

- (1) Between terminals.
- (2) Between terminal and Body.

输入 250V AC 电压 1 分钟, 按如下接触方法测试:

- (1) 端子与端子之间.
- (2) 端子与外壳之间.

No evidence of
breakdown
无瞬断、击穿等破坏.

6.4

Bouncing
触点抖动

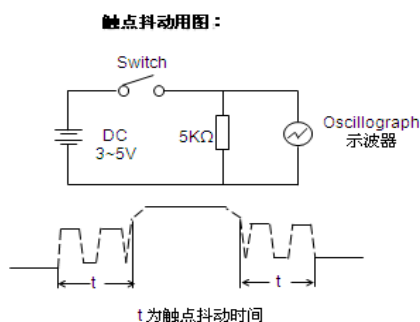
Operation speed: 1~2 times/s

操作速度: 每秒 1~2 次

Slightly push the center of stem by 1~2 times/s, to test the bounce at "ON" and "OFF"
以每秒 1~2 次的速度, 轻轻在手柄中心加力, 在"导通"与"瞬断"间测试.

Oscillo scope 示波器

Switch Bouncing Test Circuit 抖动测定回路.



Before Life cycle:

On: 5ms MAX, 5 毫秒以下

Off: 5ms MAX, 5 毫秒以下

After Life cycle:

On: 10ms MAX, 10 毫秒以下

Off: 10ms MAX, 10 毫秒以下

7. Mechanical Performance/机械性能

Item 项目	Description 项目描述	Test Condition 测试条件	Requirement 规格要求
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7.1

Operation
force
操作力

Operate the keystroke of the switch and then increase press strength gradually, Measured maximum operation force while the travel of the switch is full.

逐渐施力操作开关按键，测量开关到达全部工作行程时所需的最大操作力度。

150±50gf

7.2

Travel
行程

Operate the keystroke of the switch vertically, the travel distance of keystroke moving from its free position to maximum moving distance shall be measurement. 垂直操作开关按键，量测开关顶端最大移动距离。

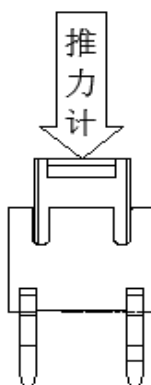
Travel:
行程
0.25+0.10/-0.10mm

7.3

Static
Strength
静止强度

A static load of 3 Kgf shall be applied in the direction of button operation for a period of 60 seconds.

在手柄动作方向施加 3kgf 的静负荷 60 秒，然后测试参数。

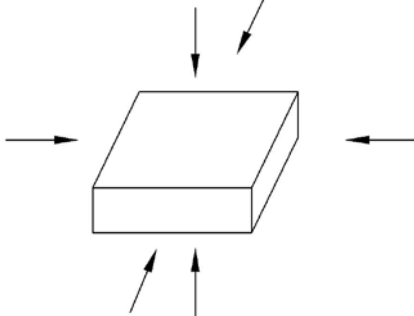


No damage (Electrical And mechanical) 电气和机械性能正常。

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7.4	Stem Pull Strength 手柄拉拔强度	Break by a pull force applied opposite to the direction of stem operation. 在推柄动作方向反向垂直施加拉力，使其破坏的程度。	500gf Min
7.5	Shock 机械冲击	Measured by according to the below condition: (1) Acceleration: 80g 加速度 (2) Cycles of test: 3 cycles each in 6 directions, for a total of 18 cycles. 试验次数：每个方向 3 次，6 个方向共 18 次。 	Shall meet No.6, 7.1, 7.2. 满足 6, 7.1, 7.2 要求。
7.6	Life Test 寿命测试	(1) Weight: 320gf 砝码：320gf (2) Operation speed: 60cycles/ minute 操作速度：60 次/分钟 (3) Push force: Maximum value of operation force. 按压力：操作力规格值的上限。 (4) Cycles: 100,000 times Min 操作次数：10 万次以上	Contact resistance: 500 mΩ Max 接触电阻：500 毫欧以下 Bouncing: 10ms Max 触点抖动：10 毫秒以下 Operation force: Variation rate within ±50% 操作力的变化范围在初始值的±50%以内。

8.Environmental Performance/环境性能

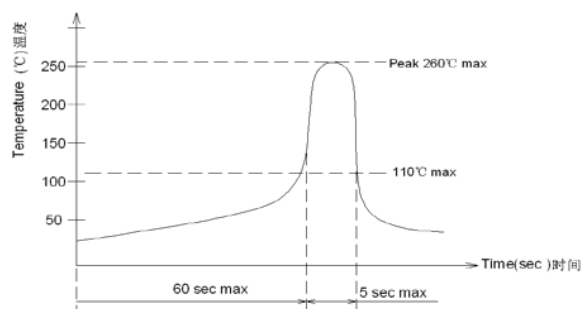
Item 项目	Description 项目描述	Test Condition 测试条件	Requirement 规格要求
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8.1	Cold test 耐寒性	(1) Temperature : - 20±2℃ 温度: - 20±2℃ (2) Duration of test: 96h 持续时间: 96 小时 (3) Take off a drop water 去掉水珠 (4) Standard conditions after test : 1h 试验后的放置条件: 1 小时			Contact resistance: 200mΩ Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2 接触电阻 200mΩ 以下 满足: No. 6.2 to 6.4 No. 7.1 to 7.2
8.2	Heat test 耐热性	(1) Temperature : 70±2℃ 温度: 70±2℃ (2) Duration of test: 96h 持续时间: 96 小时 (3) Take off a drop water 去掉水珠 (4) Standard conditions after test : 1h 试验后的放置条件: 1 小时			Contact resistance: 200mΩ Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2 接触电阻 200mΩ 以下 满足: No. 6.2 to 6.4 No. 7.1 to 7.2
8.3	Temperature cycle 温度循环	(1) Test cycles: 5 cycles 试验周期: 5 个 周期 (2) Standard condition after test:1h 试验后的放置条件: 1 小时			Contact resistance: 200mΩ Max Shall meet : No. 6.2 to 6.4 No. 7.1 to 7.2 接触电阻 200mΩ 以下 满足: No. 6.2 to 6.4 No. 7.1 to 7.2
			Temperature 温度	Duration of test 持续时间	
		1 cycle 一次循环	20±5℃	1h	
			-20±2℃	1h	
			20±5℃	1h	
			70±5℃	1h	
8.4	Soldering heat test 耐焊接热	Soldering area: T/2 of PWB thickness. (PWB: T=1.6mm) 焊接面积: 印刷基板的 1/2 厚度处 Soldering temperature: 260±5℃ Soldering time: 3±0.5s 焊接温 度: 260±5℃ 焊接时间: 3±0.5 秒			Appearance: No abnormality. 外观无异常
8.5	Solderability 可焊性	1. Hand soldering 手工焊接: Please practice according to below condition: (1) Soldering Temperature : 350±5℃ 焊接温度: 350±5℃ (2) Continual soldering time: 3±0.5s 连续焊接时间: 3±0.5 秒 (3) Capacity of soldering iron: ≤20w 电烙铁功率: 20 瓦以下			At least 95% of surface area of immersed portion shall be covered by solder. 侵焊面积大于 95%以上.



2. Automatic PIP soldering 自动焊接:
For the product of T/H, according to below condition:



8.6

Humidity
test
耐湿性

- (1) Temperature : $60 \pm 2^{\circ}\text{C}$
温度: $60 \pm 2^{\circ}\text{C}$
- (2) relative humidity: 90~95% R.H.
相对湿度: 90~95% R.H.
- (3) Duration of test: 96h
持续时间: 96 小时
- (4) Take off a drop water
去掉水珠
- (5) Standard conditions after test: 1h
试验后的放置条件: 1 小时

Contact resistance:
 $200\text{m}\Omega$ Max
Shall meet :
No. 6.2 to 6.4
No. 7.1 to 7.2
接触电阻 $200\text{m}\Omega$ 以下
满足:
No. 6.2 to 6.4
No. 7.1 to 7.2

8.7

Salt Spray
盐雾测试

- Apply the following environment to test:
根据下列条件进行测试:
- (1) Temperature : $35 \pm 5^{\circ}\text{C}$
温度: $35 \pm 5^{\circ}\text{C}$;
 - (2) Salt water density: $5 \pm 1\%$
盐水浓度: $5 \pm 1\%$;
 - (3) Duration: 24 hours
持续时间: 24 小时;
 - (4) After test, the salt deposit shall be removed by running water.
实验后将盐沉积物用水冲掉

Appearance:
No corrosion spot, no crack, no base plate naked.
外观: 无腐蚀点, 无裂纹, 无裸露基材.

Contact Resistance:
 $200\text{m}\Omega$ Max 接触电阻: 200 毫欧以下



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8.8

Withstand
K₂S
硫化测试

Apply the following environment to test:
根据下列条件进行测试

(1) Temperature: 35±5℃ 温度: 35±5℃

(2) K₂S Density: 2%;
硫化钾浓度: 2%

(3) Duration: 2 minute.
持续时间: 2 分钟

Appearance:

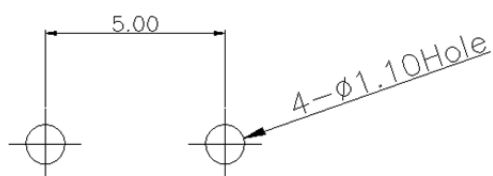
No corrosion spot, no crack, no base plate naked.

外观: 无腐蚀点, 无裂纹, 无裸露基材.

Contact Resistance:
200 mΩ Max 接触电阻: 200 毫欧以下

9. Recommended PCB Layout 推荐的 PCB 安装焊盘规格

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

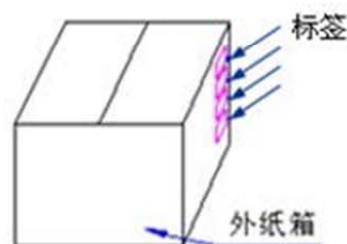
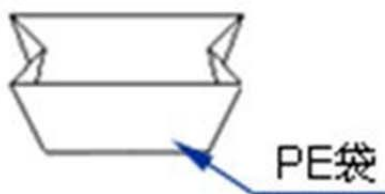


PCB Layout(Pattern Side)

10. Packaging 包装

Packaging type: PE Bag, 1000Pcs/Bag, 10000Pcs/ Carton.

包装方式: PE 袋, 1000Pcs/袋. 10000Pcs/箱



11. Precaution 注意事项

ITEM 项目	CONDITION 条件
Preheat temperature 预热温度	110℃ Max (Ambient temperature of soldering surface of P.W.B) 110℃ 以下(印刷基板焊锡面周围的温度)
Preheat time 预热时间	60s, Max 60 秒以内
Area of flux 助焊剂面积	1/2 Max of PWB Thickness 印刷基板厚度的 1/2 以内

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Temperature of solder 焊锡温度	260±5℃ 260±5℃
Time of immersion 浸焊时间	Within 5s 5 秒以内
Number of soldering 焊接次数	2time Max (But should down heat of the first soldering) 2 次以内
Printed wiring board 印刷基板	Single side copper-clad laminates 单面铜箔

- (1) After switches were soldered, please be careful not to clean switches with solvent
开关浸焊后,注意不要用溶剂清洗.
- (2) Under the condition of using soldering iron, soldering temperature shall be 350℃±5℃
max within 3 sec.

在使用烙铁的情况下,焊锡温度应在 350℃±5℃,焊接时间 3 秒以内.

11.2 Notes 注意点

- (1) Please be cautious not to give excessive static load or shock to switches.
注意不要施加超负荷的压力或晃动开关.
- (2) Please be careful not to stack up P. W. B. after switches were soldered.
开关焊接以后,印刷基板注意不要叠放.
- (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. 保管时尤
其应注意避开高湿高温和有腐蚀性气体的环境.如需长时间保存,请不要打开包装箱.
- (4) Products meet the ROHS & REACH environmental management substances control
standards
产品满足 ROHS & REACH 环境管理物质管制标准