

APPROVAL SPECIFICATIONS

Title: **PUSH SWITCH**

Product Model: **PB12E06371**

Customer's Part NO. _____

Customer's Model: _____

Customer's Approval Requested.

Please return this copy as a certification of your approval.

Checked by: _____ **Date:** _____

Approved by: _____ **Date:** _____

APPROVE	REVIEW	POLT
Jack Wu	孙斌	盛方坤



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		PB12E06371	PUSH SWITCH	A

1、概述

GENERAL

1.2 适用范围

APPLICATION

此规格书适用于机械式按键开关的相关要求

This specification is applied to the requirements for PUSH SWITCH (MECHANICAL CONTACT).

1.3 工作温度范围

Operating Temperature Range

-40℃~85℃(在标准大气压、标准湿度条件下)

-40℃~85℃(Normal humidity, normal air pressure)

1.4 贮藏温度范围

Storage Temperature Range

-30℃~80℃(在标准大气压、标准湿度条件下)

-30℃~80℃(Normal humidity, normal air pressure)

1.5 测试条件

Test Conditions

在没有其它特定的条件下, 应该在以下的条件下进行测试和测量:

Unless otherwise specified, tests and measurement shall be made in the following standard conditions:

常温.....5℃~35℃

Normal temperature.....5℃~35℃

标准湿度.....相对湿度 25%~85%

Normal humidity.....relative humidity 25%~85%

标准大气压.....86KPa~106Kpa

Normal air pressure.....86Kpa~106Kpa

在制造过程中, 测试和测量应该在以下的条件下进行:

If any doubt arise from the judgment, tests shall be conducted at the following conditions:

温度.....20℃±2℃

Temperature.....20℃±2℃

相对湿度.....65%±5%

Relative humidity.....65%±5%

环境气压.....86KPa~106Kpa

Air pressure.....86KPa~106Kpa



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2、 详细说明

Detailed specification

2.1 外观：应无影响、降低产品性能的缺陷；

Appearance: There should be no defects that affect the serviceability of product.

2.2 结构尺寸和安装尺寸：应符合装配图要求；

Style and dimension: shall conform to the assemble drawings.

2.3 接触形式：2P2T

FUNCTION : 2P2T

2.4 时间特性：NON-SHORTING

TIMING : NON-SHORTING

2.5 负载：DC 30V, 0.1A

Ratings: DC 30V, 0.1A

3. 电气性能：**ELECTRICAL SPECIFICATION**

项 目 ITEM		试 验 条 件 TEST CONDITIONS	要 求 REQUIREMENTS
1	接触电阻 Contact Resistance	在微小电流（100 mA）以下测试 Measured at small current (100 mA or less) 1000Hz	$\leq 100m\Omega$
2	绝缘电阻 Insulation Resistance	输入 500V DC 电压 1 分钟，按以下接触方法测试： Apply a voltage of 500V DC shall be applied for 1 min. After which measurement be made: (1) 不接触的插脚之间 Between conductors not to be contact (2) 插脚与外壳之间 Between individual terminlas and frame	$\geq 100M\Omega$
3	介质耐压 Dielectric voltage proof	输入 AC 500V (50-60HZ) 电压, 1 分钟, 感应电流为 0.5mA, 按以下接触方法测试： AC 500V rms (50-60Hz) For 1 MIN , trip current:0.5mA (2) 不接触的插脚之间 Between conductors not to be contact (2) 插脚与外壳之间 Between individual terminlas and frame	无击穿、无飞弧 There should be no breakdown and flashover



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4. 机械性能: MECHANICAL SPECIFICATION				
1	操作力 Operating Force	开关垂直于操作方向放置, 在开关按键顶端中心逐渐施力, 测量按键停止所需的最大力度。 Placing the switch such that the direction of switch operation is vertical and then gradually increasing the load applied to the center of the KNOB, the maximum load required for the KNOB to come to a stop shall be measured.	200 ± 50 gf	
2	端子强度 Terminal Strength	在插脚前端任意一个方向加 500gf 力度测试, 时间为 60 秒 A static load of 500gf shall be applied to the Terminal for 60 Sec. in any direction.	产品无裂开、松动异常, 满足于机械, 电器性能 Electrical characteristics shall be satisfied without damage or excessive looseness of terminals	
3	柄强度 Displacement of KNOB	A static force of 1Kgf shall be applied to the direction of operation for 15sec. 1 公斤力的静力作用方向操作, 持续 15 秒。 A static force of 0.5Kgf shall be applied in the direction of pulling for 15sec. (for free state) 用 0.5 公斤的力向外拉手柄, 持续 15 秒。(自由状态) A static force of 1Kgf shall be applied to the vertical direction of operation at the tip of the lever for 15sec. 1 公斤力的静力作用于垂直动作方向的手柄的顶端, 持续 15 秒。	柄部无严重变形, 可以正常工作。 The lever shall have no serious deformation and function is normally.	
4	可焊性 Solderability	在以下设定条件下进行测量: Measurements shall be made following the test set forth below: (1) 焊接温度: 245±5℃ Solder temperature : 245±5℃ (2) 浸入时间: 3s±0.5s Immersion time: 3s±0.5s 对于其它步骤参考《GB 5095.6—86》试验 12a The other steps please refer to 《GB 5095.6—86》TEST 12a	除边缘外涂层应均匀覆盖 90%以上 Except for the edge, the coating should cover a minimum 90%	



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项目 ITEM	试验条件 TEST CONDITIONS		要求 REQUIREMENTS													
5、极限电气性能： ENVIRONMENTAL SPECIFICATION																
1	低温测试 COLD	<p>样品应按照以下实验条件进行测试，实验后样品应放在常温及标准湿度的环境中 1 小时后做性能测试： Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h before measurements are made:</p> <p>(1) 温度：-30±2℃ Temperature : -30±2℃</p> <p>(2) 时间：96h Time: 96h</p>	<p>接触电阻：≤500mΩ Contact resistance: ≤500mΩ 项目 3, 4. 1, 4. 2, 4. 3 Item 3, 4. 1, 4. 2, 4. 3</p>													
2	高温测试 HEAT	<p>样品应按照以下实验条件进行测试，实验后样品应放在常温及标准湿度的环境中 1 小时后做性能测试： Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h before measurements are made:</p> <p>(1) 温度：85±2℃ temperature:85±2℃</p> <p>(2) 时间：96h time: 96h</p>	<p>接触电阻：≤500mΩ Contact resistance: ≤500mΩ 项目 3, 4. 1, 4. 2, 4. 3 Item 3, 4. 1, 4. 2, 4. 3</p>													
3	温度周期性测试 Change of Temperature	<p>根据下面的测试要求进行 5 次循环的温度周期性测试，实验后样品应放在常温及标准湿度的环境中 1 小时后做性能测试。测试期间样品应保持干燥。 After 5 cycles of following conditions, the sample shall be allowed to stand under normal temperature and humidity conditions for 1 h. and measurements shall be made. During the test water drops shall be removed.</p> <table border="1"> <thead> <tr> <th></th> <th>Temperature</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td rowspan="4">1 cycle</td> <td>-10±2℃</td> <td>2 (hour)</td> </tr> <tr> <td>-10~65℃</td> <td>1</td> </tr> <tr> <td>65±2℃</td> <td>2</td> </tr> <tr> <td>65~-10℃</td> <td>1</td> </tr> </tbody> </table>		Temperature	Time	1 cycle	-10±2℃	2 (hour)	-10~65℃	1	65±2℃	2	65~-10℃	1	<p>接触电阻：≤500mΩ Contact resistance: ≤500mΩ 项目 3, 4. 1, 4. 2, 4. 3 Item 3, 4. 1, 4. 2, 4. 3</p>	
	Temperature	Time														
1 cycle	-10±2℃	2 (hour)														
	-10~65℃	1														
	65±2℃	2														
	65~-10℃	1														



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4	湿温测试 Moisture resistance	<p>样品应按照以下实验条件进行测试，实验后样品应放在常温及标准湿度的环境中 1 小时后做性能测试： Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h before measurements are made:</p> <p>(1) 温度：60±2℃ Temperature: 60±2℃</p> <p>(2) 相对湿度：90~95% Relative humidity: 90~95%</p> <p>(3) 时间：96 h Time: 96 h</p>			<p>接触电阻：≤500mΩ Contact resistance: ≤500mΩ</p> <p>绝缘电阻：≥10MΩ Insulation resistance: ≥10MΩ</p> <p>项目 3, 4. 1, 4. 2, 4. 3 Item 3, 4. 1, 4. 2, 4. 3</p>
5	硫化试验 Sulfuration resistance	<p>样品应按照以下实验条件进行测试，实验后样品应放在常温及标准湿度的环境中 1 小时后做性能测试： Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h before measurements are made:</p> <p>(1) H₂S 气体浓度：3ppm±1ppm H₂S gas concentration: 3ppm±1ppm</p> <p>(2) 时间：72h Time: 72h</p> <p>(3) 温度：40±2℃ (90~95%RH) Temperature: 40±2℃ (90~95%RH)</p>			<p>接触电阻：≤500mΩ Contact resistance: ≤500mΩ</p> <p>项目 3, 4. 1, 4. 2, 4. 3 Item 3, 4. 1, 4. 2, 4. 3</p>
6	盐雾试验 Salt Mist	<p>在以下设定条件下进行测量： The switch shall be checked after following test:</p> <p>(1) 温度：35℃±2℃ temperature: 35℃±2℃</p> <p>(2) 盐溶液浓度：5±1% (质量百分比) salt solution : 5±1%(solids by mass)</p> <p>(3) 时间：8h±1h Time: 8h±1 h</p> <p>实验后的盐沉积物后水冲掉 After test, salt deposit shall be removed by running water.</p>			<p>金属件上没有腐蚀斑点 No remarkable corrosion shall be recognized in metal part.</p>



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6、极限机械性能:

ENDURANCE SPECIFICATION

项目 ITEM	试验条件 TEST CONDITIONS	要求 REQUIREMENTS
1 工作寿命 Operation life	根据下面的测试要求进行测试: Measurement shall be made following the test set forth below: (1) 无负载 Without load (2) 按动速率: 15~20 次/分 Rate of operation: 15~20 times/min (3) 寿命: 10, 000 次 Life: 10,000 cycles	接触电阻 $\leq 500\text{m}\Omega$ Contact resistance $\leq 500\text{m}\Omega$ 绝缘电阻: $\geq 10\text{M}\Omega$ Insulation resistance: $\geq 10\text{M}\Omega$
2 负载寿命	根据下面的测试要求进行测试: Measurement shall be made following the test set forth below: (1) DC30V, 0.1A 带负载 DC30V, 0.1A resistive load (2) 按动速率: 15~20 次/分 Rate of operation: 15~20 times/min (3) 寿命: 10, 000 次 Life: 10,000 cycles	按力: 初值的 $\pm 30\%$ Operating Force: initial value $\pm 10\%$ 项目 3, 4.1, 4.2, 4.3 Item 3, 4.1, 4.2, 4.3
3 振动 Vibration	根据以下给定条件进行测试: Measurement shall be made following the test set forth below: (1) 振动频率范围: 10~55~10Hz Vibration frequency range: 10 to 55 to 10Hz (2) 振幅(峰-峰): 1.5mm Amplitude: 1.5mm (3) 振动方向: 包括手柄行程方向在内的三个相互垂直的方向 Direction of vibration: Three mutually perpendicular direction including the direction of stem travel (4) 测试时间: 每次 2hours . Duration: Each 2hours.	项目 3, 4.1, 4.2, 4.3 Item 3, 4.1, 4.2, 4.3
4 Shock	开关应在实验后测量 Switch shall be measured after following test. 1. 安装方法: 正常安装 Mounting method: Normal mounting method 2. 加速 490 m/s ² (50G) Acceleration: 490 m/s ² (50 G) 3. 持续时间: 11 ms Duration: 11 ms 4. 测试方向: 6 个方向 Test direction: 6 directions 5. 冲击次数: 每个方向 3 次 (18 次计) Number of shocks: 3 times per direction (18 times in total)	项目 3, 4.1, 4.2, 4.3 Item 3, 4.1, 4.2, 4.3

7. 焊接条件:

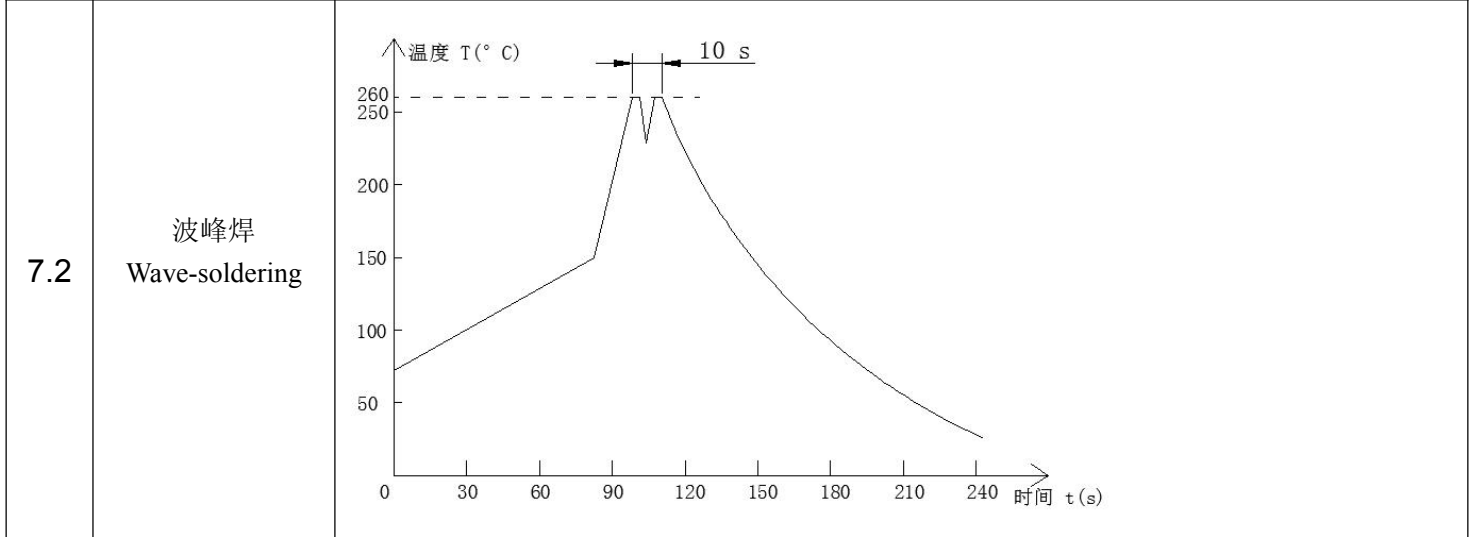
SOLDERING CONDITIONS:

7.1 手工焊接 Hand soldering	请按以下条件进行焊接: (1) 焊锡温度: $\leq 350^\circ\text{C}$ Soldering temperature: 350°C Max. (2) 连续焊接时间: ≤ 3 s Continuous soldering time: 3 s Max.
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项目 ITEM	推荐条件 Recommended conditions
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说明:

- 1.1 开关浸焊后，注意不要用溶剂清洗。
After switches were soldered, please be careful not to clean switches with solvent.
- 1.2 在使用烙铁的情况下，焊锡温度应在 380°C 以下、3 秒以内。
In the case of using soldering iron, soldering conditions shall be 380°C max and 3 sec.max.
- 1.3 浸焊后，注意不要在顶部施加负荷。
Right after switches were soldered; please be careful not to load to on the knobs of switches.

2 设计中应注意的事项(Design instructions):

- 2.1 印刷基板的安装孔尺寸参见产品图。
Follow recommended P.W.B. piercing plan in outside drawing page.

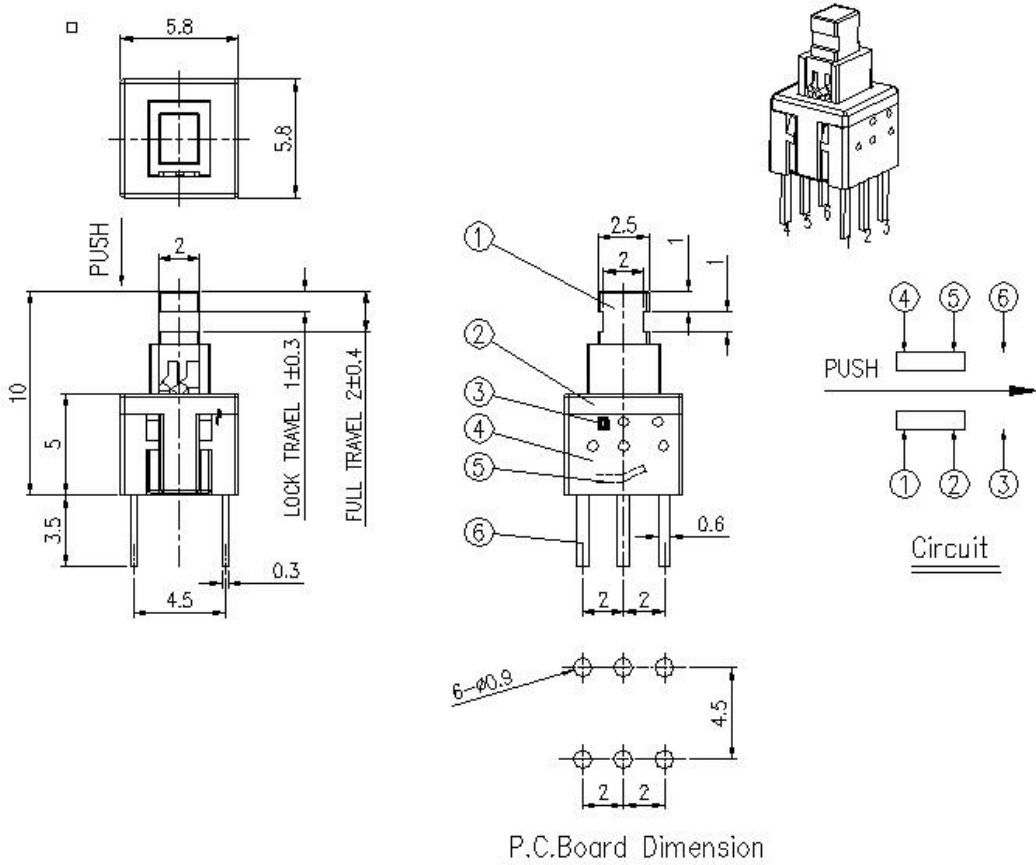
3 注意点(Note):

- 3.1 注意不要施加超负荷的压力或晃动开关
Please be cautions not to give excessive static load or shock to switches.
- 3.2 开关浸焊后，印刷基板注意不要叠放。
Please be careful not to pile up P.W.B.after switches were soldered
- 3.3 保管时尤其应注意避开高湿高温和有腐蚀性气体的环境。如需要长时间保存，请不要打开包装箱。
Preservation under high temperature and high high humidity or corrosive gas should be avoided Especially . When you need to preserve for a long period ,do not open the carton .



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General tolerance: ±0.2mm

NO.	NAME	MATERIAL	QTY	FINISHING
1	KNOB	PPA	1	WHITE
2	COVER	PPA	1	GREY
3	CONTACT	PBS	2	Ag Plated
4	CASE	PA	1	BLACK
5	LOCK NEEDLE	SUS	1	Natural
6	TERMINAL	BRASS	6	Ag Plated
7	SPRING	SUS	1	Natural