

## 承 認 書

### APPROVE SHEET

	客户名称 Customer:  品 名 PART NAME: 3*3 Tact Switch  型号 PART NUMBER:								
	Design	Check	Review	Approval					
	贵公司承认印 Approal signatures								
	Approv	val/Date	Rema	11 K					
Send us a copy of reference, thank you! 日期 Date:									

# SPECIFICATION Page 1/8 Version A/0 MODEL LBB1 Date 2016.04.20

#### 1、 概述

**GENERAL** 

#### 1.1 适用范围

APPLICATION

此规格书适用于机械式轻触开关的相关要求

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

#### 1.2 工作温度范围

Operating Temperature Range

- -20℃~70℃(在标准大气压、标准湿度条件下)
- -20°C ~70°C (Normal humidity, normal air pressure)

#### 1.3 贮藏温度范围

Storage Temperature Range

- -30℃~80℃(在标准大气压、标准湿度条件下)
- $-30^{\circ}\text{C} \sim 80^{\circ}\text{C}$  (Normal humidity, normal air pressure)

#### 1.4 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:

Normal temperature  $\cdots 5^{\circ}$   $\sim 35^{\circ}$ 

标准湿度 ……相对湿度 25% ~ 85%

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

标准大气压······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  $\cdots 20^{\circ}$ C  $\pm 2^{\circ}$ C

相对湿度 -------65% ± 5%

Relative humidity  $\cdots 65\% \pm 5\%$ 

环境气压······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 操作形式:有触觉反应的操作

Type of actuating: Tactile feedback.

2.4 开关结构:单回路单输出(具体的触点结构在装配图中已绘出);

Contact arrangement: 1 pole, 1 throw

(Details of contact arrangement are given in the assembly drawings.)

2.5 开关工作额定值: DC 12V, 50mA (有效值)

Ratings: 12V DC, 50mA (effective value)

3、 电气性能:

ELECTRICAL SPECIFICATION

NO.	项目	试验条件	要求	
	ITEM	TEST CONDITIONS	REQUIREMENTS	
3. 1	接触电阻 Contact Resistance	在以 5V 10mA的直流电源或不低于1KHz的交流电源的电路中,以一个等于2倍按力的静负荷施加于手柄中心Applying a static load of 2 times operating force to the center of the stem, measurements shall be made by 5V DC 10mA or more than 1KHZ AC small-current contact resistance meter.	≤100mΩ	
3. 2	绝缘电阻 Insulation Resistance	在端子之间施加DC 100V /1min的条件下,测量端子之间底座、盖板的电阻值 Measurement shall be made following application of 100V DC potential, across terminals, and across terminals and cover, for one minute.	≥100MΩ	
3. 3	介质耐压	在端子之间施加250V AC(50HZ或60HZ)/1min	无击穿、无飞弧	
	Dielectric	250V AC (50HZ or 60HZ) shall be applied	There should be no breakdown	
	voltage proof	across terminals, for one minute.	and flashover	

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NO.	项目 ITE		试验条件 TEST CONDITIONS	REG	要求 QUIREMENTS
3. 4	触点抖动	Bounce	按照正常使用时的力度轻按手柄中心(每秒3~4次),在导通和断开过程中测试开关抖动 Lightly striking the center of the stem at a rate encountered in normal use (3 to 4 times per second), and bounce shall be tested at "ON" and "OFF"  ##  Switch  10V DC  10V DC  **  **  **  **  **  **  **  **  **	ON-3msec. ma OFF-8msec. n	
	L械性能:	DECIRICA	TION		
4. 1	ECHANICAL S 按力 Operating	J	开关垂直于操作方向放置,在开关驱动件顶端中心逐渐施力,测量开关导通所需的最大力度 Placing the switch such that the direction of switch operation is vertical and then gradually increasing the load applied to the center of the stem, the maximum load required for the switch to come to a stop shall be measured	refer to ch 按力: 250± Operating F	
4.2	最大行 Full Tr		开关垂直于操作方向放置,以一个等于2倍按力的静负荷施加在开关驱动件顶端中心,测量顶端移动的距离。 Placing the switch such that the direction of switch operation is vertical and then applying static load of 2times operating force to the center of the stem; the travel distance for the switch to come to a stop shall be measured.	$0.2 \pm 0.1$ mm	

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4. 3	回弹 Return	-	开关垂直于操作方向放置,在开关驱动件顶端中心下降至全行程后,测量顶端向自由位置转换的力度。 The sample switch is installed such that the direction of switch operation is vertical and upon depressing the stem in its center to the whole travel distance, the force of the stem to return to its free position shall be measured.		
4. 4	停止强 Stop Str		开关垂直于操作方向放置,从操作方向向驱动件施加30N的静负荷持续1min。 Placing the switch such that the direction of switch operation is vertical, and then a static load of 30N shall be applied in the direction of stem operation for a period of 1 min.	无机械和电气损坏 n There shall be no sign o	
4. 5	手柄拔出 Ste Stren	n	开关垂直于操作方向放置,反方向实施最大操作力,并测量手柄的行程范围。 Placing the switch such that the direction of switch operation is vertical, and then the maximum force to withstand a pull applied opposite to the direction of stem operation shall be measured.	n 20N. min.	
4. 6	可焊 Solderat		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:2s±0.5s Immersion time: 2s±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	Except for	层应均匀覆盖90%以上 the edge, the ould cover a %

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	及限电气性能: NVIRONMENTA	:			2010101120
NO.	项目 ITE		试验条件 TEST CONDITIONS	RE	要求 QUIREMENTS
5. 1	低温测 Resistance tempera	to low	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: (1) 温度: -30±2℃ Temperature: -30±2℃ (2) 时间: 96h Time: 96h		
5. 2	高温测 Heat resi		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:  (1) 温度: 80±2℃  temperature:80±2℃  (2) 时间: 96h  time: 96h	Contact re 项目:	担阻: ≤200mΩ sistance: ≤200mΩ 3,4.1,4.2,4.3 3,4.1,4.2,4.3
5. 3	测 境 干 Af th no fo Du 温度周期性测试 Change of temperature		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. +65±2°C		

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NO.	项目 ITE		试验条件 TEST CONDITIONS	RE	要求 QUIREMENTS
5. 4	湿温测 Moist resist	ure	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:  (1) 温度: 60±2℃ temperature: 60±2℃ (2) 相对湿度: 90%~95% relative humidity:90% to 95%  (3) 时间: 96h time: 96h	接触目	<b>೬阳:</b> ≤200mΩ
5. 5	硫化证 Sulfura resist	ition	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: (1) H2S气体浓度: 3ppm±1ppm H2S gas concentration: 3ppm±1ppm (2) 时间: 72h Time: 72h (3) 温度: 40±2℃(90~95%RH) temperature: 40±2℃(90~95%RH)	Contact re 项目:	sistance: $\leq 200 \text{m} \Omega$ 3, 4. 1, 4. 2, 4. 3 3, 4. 1, 4. 2, 4. 3
5. 6	盐雾i Salt M		在以下设定条件下进行测量: The switch shall be checked after following test: (1) 温度: 35℃±2℃    temperature: 35℃±2℃ (2) 盐溶液浓度: 5±1% (质量百分比)    salt solution: 5±1%(solids by mass) (3) 时间: 8h±1h    Time: 8h±1 hour 实验后的盐沉积物后水冲掉 After test, salt deposit shall be removed by running water.		有腐蚀斑点 ple corrosion ecognized in metal

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	限机械性能:	OIDIOAMI	ov.			
NO.	DURANCE SPE 项目 ITE	1	UN 试验条件 TEST CONDITIONS	RE	要求 QUIREMENTS	
6. 1	工作寿命 Operation 1	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) DC 12V, 50mA带负载 DC 12V, 50 mA resistive load (1) 按动速率: 2次/秒 Rate of operation: 2 times/s (3) 按力: 按力的1.5倍 (4) Operating Force: Operating Force 1.5倍 (5) 平均无故障寿命: Average fault-free life 80,000次	接触电阻≤200mΩContac resistance≤200mΩ 触点弹力≤10ms Contact bounce≤10ms 按力: 初值的±30% Operating Force: initial value±30% 项目3,4.1,4.2,4.3 Item 3,4.1,4.2,4.3		
6. 2	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(峰一峰): 1.5mm	项目3, 4. 1, 4 Item 3, 4. 1,		
	 接条件:  LDERING CON	DITIONS:				
7. 1	手工焊接 Hand solder	ring	请按以下条件进行焊接: (1) 焊锡温度: ≤350℃ (2) 连续焊接时间: ≤5 s Please practice according to below condition (1) Soldering temperature: 350℃ Max. (2) Continuous soldering time: 5 s Max.	ons:		

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7. 2	自动焊接 Automatic soldering		In case th (1) 预热 Prehea (2) 峰值温度 Peak te (3) 焊接区温	祝下自动焊接 e automatic flow soldering is	, 40 ~ 80 sec , 40 ~ 80 sec times (max) 0℃, 1 ~ 4 se	

- 8、 Other precautions其他注意事项
- 8.1 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.

- 8.2 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 swiches.
- 8.3 进行焊接过程中,不可以用溶剂或类似品清洗开关
  - Following the soldering process, do not try to clean the switch with a solvent or the like.
- 8.4 防止助焊剂从开关的顶端渗入
  - Safeguard the switch assembly against flux penetration from its topside.
- 8.5 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.