1. SCOPE（适用范围）

This specification covers the performance, tests and quality requirements for the TOUCH SWITCH.

(本规范涵盖了轻触开关的性能、测试和质量要求。)

2. PRODUCT DESCRIPTION（ 产品描述）

DESCRIPTION（描述）	Part Number（料号）
轻触开关3x3x2.0贴片 160gf基座白色	TS-1177-B-B-W

3. APPLICABLE DOCUMENT（适用文件）

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.（下列文件构成本规范的一部分，在此规定的范围内。本规范要求与产品图纸有冲突时，以产品图纸为准。如果本规范的要求与参考文件发生冲突，应以本规范为准。）

4. REQUIREMENTS（要求）

4.1. Design and Structure （设计和结构）

Product shall be of the design, structure and physical dimensions specified on the applicable product drawing.（产品的设计、结构和物理尺寸参考所适用的产品图纸）

4.2. Materials/ Finish (材料/表面处理)

Materials used in the structure of product shall be as specified on the applicable product drawing. (产品结构中使用的材料参考所适用的产品图纸)

4.3. Ratings （额定功率）

Item（项目）	Standard（标准）
Rated Voltage (Maximum)额定电压	12V DC
Rated Current (Maximum)额定电流	50mA
Operating temperature range工作温度范围	-30℃～+85℃ From -30 to +85 degree centigrade
Storage Temperature Range储存温度范围	-30℃～+80℃ From -30 to +80 degree centigrade

5. TEST STANDARD（测试条件）

5.1 Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows（除另有说明外，用以进行测量和测试的标准环境条件范围如下）

Ambient temperature（环境温度）: 5℃ to 35℃

Normal humidity（正常湿度）: 45% to 85%

Air pressure（气压）: 86Kpa to 106Kpa

5.2 However if doubt arises on the decision based on the measured Values under the above-mentioned Conditions.The following conditions shall be employed:（但是在对判定产生疑问时,按下述状态实施）

Temperature（温度）：20±2℃

Relative humidity（相对湿度）：65±5%

Air pressure（气压）: 86Kpa to 106Kpa

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6. PERFORMANCE AND TEST DESCRIPTION（性能和测试类型）

6.1 APPEARANCE（外观）

ITEM	DESCRIPTION（类型）	TEST CONDITION（测试条件）	REQUIREMENT（要求）

1	**Appearance** （外观）	**Visual.**（目视）	**Should not have any flaw Scratch discoloration and crushed**（无任何裂痕、刮伤、污染和变形）

6.2 ELECTRICAL （电气）

ITEM	DESCRIPTION（类型）	TEST CONDITION （测试条件）	REQUIREMENT（要求）
2	**Contact Resistance** **接触电阻**	**1000Hz Measuerd at small current (100mA or less)1000Hz** 在小电流(100 毫安或以下)1000 赫兹测试	**100 mΩ Max.**
3	**Insulation Resistance** **绝缘电阻**	**After 500 VDC for 1 minute, measure the insulation resistance between the adjacent contacts of mated and unmated connector assemblies.**（使用500 V交流電測試1分鐘，测量相邻两端的绝缘电阻）	**100MΩ MIN.**
4	**Dielectric strength** **耐电压**	**AC250V(50-60HZ,0.5mA current) being applied between all the adjacent terminals and between the terminal and frame for 1 minute**（在接触端子或排脚之间输入 **250VAC(50-60** 赫兹）电压 **1** 分钟，感应电流为 **0.5mA**	**There shall be no breakdown.** **(无击穿、闪烁现象)**

6.3 MECHANICAL （机械）

ITEM	DESCRIPTION（类型）	TEST CONDITION （测试条件）	REQUIREMENT（要求）

5	**Operating force** 作动力	**Place the switch such that the direction of switch operation is vertical and then gradually increase the load applied to the center of the stem, the maximum load required for the stem to come to a stop shall be measured.**（开关的动作方向为垂直放置开关向推柄中心逐渐地增加负荷直到推柄停止时所测量的最大负荷）	**160gf**
6	**Displacement of actuator (knob)** 推柄强度	**Fixed switch so that the switch is perpendicular to the direction of operation and exerts 1 kgf force in the opposite direction of the push handle action.**（固定开关，使开关与操作方向垂直，以推柄动作方向反方向施加 1Kgf 力）	**The handle is not seriously deformed and can work normally.**（柄部无严重变形, 可以正常工作）
7	**LIFE TEST** 寿命试验	**Endurance without loading: A switch shall be subjected to 100,000 cycles at a speed of 15 to 18 cycles per minute without loading.**（无负荷：在无负荷的条件下以每分钟 15~18 回的速度进行 100, 000 次的测试）	**(1) Contact Resistance**（接触电阻）: **150mΩ MAX.** **(2) Insulation resistance**（绝缘电阻）:**100M Ω MIN.** **(3) Dielectric strength**（耐电压）: **AC 500V,1 minute.** **(4) Operating force**(作动力): **160gf** **(5) Without damage to parts arcing or breakdown etc.**（测试后外表无损伤, 并且满足机械性能）

6.4 ENVIRONMENTAL (环境)

ITEM	DESCRIPTION（类型）	TEST CONDITION（测试条件）	REQUIREMENT（要求）

8	**Resistance to soldering heat 耐焊性试验**	**Solder bath method: solder temperature 260±10 ℃ immersion time 2±0.5 sec immersion depth up to the supface of the board thickness of prince ted wiring board 1.6mm dim sions of component holes in the printed wiring board shall being accordance with those specified in this specification** 焊炉焊接的时候温度控制在 260±10℃, 过炉时间 2±0.5 秒, 于(基板)厚度 1.6mm	**No deformation of the housing. To meet the mechanical and electrical properties** 本体无变形, 能满足于机械、电器性能
9	**Low Temperature test** 低温试验	**Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made:** 样品按下列条件进行耐低温试验, 试验后在正常温度和湿度条件下放置 1 小时后测定 **(1)Temperature** 温度:**-20±3℃** **(2)Time** 时间: **96 hours** **Water drops shall be removed.**擦除水珠	**No deformation of the housing. To meet the mechanical and electrical properties** 本体无变形, 能满足于机械、电器性能
10	**Heat Resistance** 高温	**Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made:** 样品按下列条件进行耐热试验, 试验后在正常温度和湿度条件下放置 1 小时后测定 **（1）Temperature** 温度: **85±2℃** **（2）Time**时间: **96 hours**	**No deformation of the housing. To meet the mechanical and electrical properties** 本体无变形, 能满足于机械、电器性能
11	**Salt Spray** （盐水喷雾）	**Based upon EIA-364-26A/MIL-STD-202 Method 101D Cond.B** **24±1 hours exposure to a salt spray from the 5±1% solution at 35±2℃.** （在温度 35±2℃, 盐水浓度 5±1%下, 盐水喷雾 24±1 小时）	**Appearance** 外观： **No Damage** 无异状 **Contact Resistance** 接触阻抗:**150 mΩ Max.**

12	**Moisture Resistance （耐潮湿）**	**Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made: 样品按下列条件进行耐潮湿试验, 试验后在正常温度和湿度条件下放置 1 小时后测定** **（1）Temperature 温度: 40±2℃** **（2）Relative humidity 相对湿度: 90 to 95%** **（3）Time 时间: 96hours** **Water drops shall be removed.擦除水珠**	**No deformation of the housing. To meet the mechanical and electrical properties** **本体无变形, 能满足于机械、电器性能**

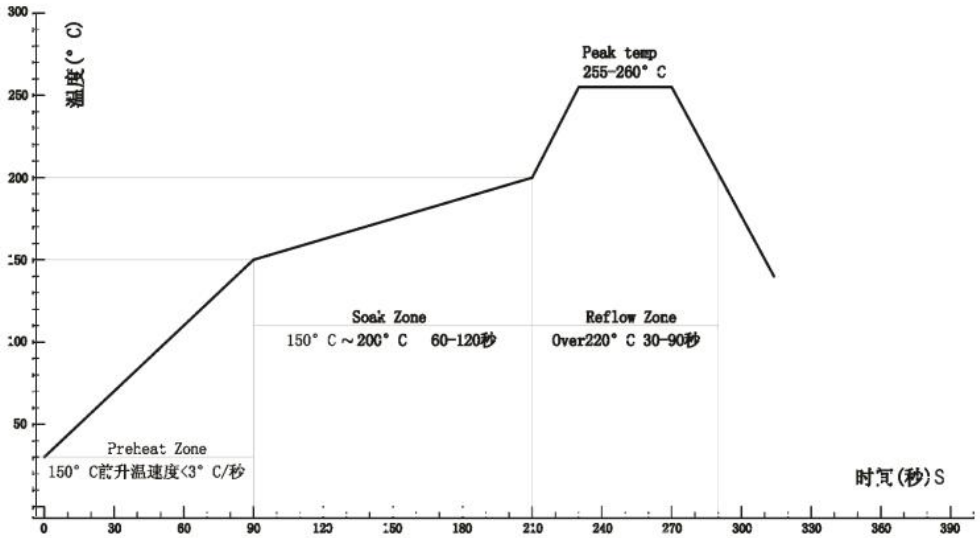
7. SOLDERING AND CLEANING PROCESSES 焊接和清洗：

7.1. Keep all switch contacts in their "OFF" position for all operations.
在所有操作过程中，请确保开关在 OFF 位置

7.2. Wave soldering（波峰焊）: DIP Suggestions solder temperature at 260℃(500°F) max.5 seconds . DIP 型推荐焊接焊锡温度为 260℃（500°F) 最多 5 秒

7.3. Hand soldering （手焊）: Use a soldering iron of 30 watts controlled at 350℃ approximately 5 seconds. while applying solder.
使用 30W 烙铁控制温度在 350℃,焊接时长约 5 秒

7.4. Reflow soldering profile(回炉焊):When the maximum temperature of the reflow furnace is 260 °C and the temperature is 260 °c. 10 seconds MAX. (reference) SMT 型回焊炉最高温度为 260℃，温度为 260℃时，最长时间不超过 10 秒（如图）



8. PACKAGING 包装

Please refer to the packing drawing. 请参考产品包装图纸

Rev.	Description	Date revised	Created/ Revised by
A0	New Release	2024/08/19	Shanzha