



承 認 書

APPROVE SHEET

客户料号: _____
Customer P/N

产品名称: 七脚拨动
Part Name Spec

料 号: YX-3Q1-08
P/N

日 期: 2022. 12. 09
Date

核 准: _____
Approved

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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℃~70℃ (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℃~80℃ (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:

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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<p>2、 详细说明 Detailed specification</p> <p>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.</p> <p>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.</p> <p>2.3 操作形式：有触觉反应的操作 Type of actuating: Tactile feedback.</p> <p>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.)</p> <p>2.5 开关工作额定值：DC 12V, 50mA (有效值) Ratings: 12V DC, 50mA (effective value)</p> <p>3、 电气性能： ELECTRICAL SPECIFICATION</p>				
NO.	项目 ITEM	试验条件 TEST CONDITIONS	要求 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倍推力的静负荷拨动开关 In the circuit with 5V 10mA DC power supply or AC power supply not lower than 1kHz, move the switch with a static load equal to twice the thrust	≤200mΩ	
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 Dielectric voltage proof	在端子之间施加250V AC(50HZ或60HZ)/1min 250V AC (50HZ or 60HZ) shall be applied across terminals, for one minute.	无击穿、无飞弧 There should be no breakdown and flashover	
<p>4、 机械性能： MECHANICAL SPECIFICATION</p>				
4.1	动作力 Operating Force	开关固定于检测治具内，检测拨动开关推柄所需的最大力度 The switch is fixed in the detection fixture to detect the maximum force required to toggle the switch push handle	按力：100±50gf Operating Force:100±50gf	

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NO.	项目 ITEM	试验条件 TEST CONDITIONS		要求 REQUIREMENTS	
4.2	最大行程 Full Travel	开关按柄一端拨动到另一端，测量移动的距离。 Move one end of the switch handle to the other end to measure the moving distance.		1.6±0.2mm	
4.3	回弹力 Return Force	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	停止强度 Stop Strength	开关垂直于操作方向放置，从操作方向向驱动件施加20N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 20N shall be applied in the direction of stem operation for a period of 1 min.		/	
4.5	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: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		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%	
5、极限电气性能： ENVIRONMENTAL SPECIFICATION					
5.1	低温测试 Resistance to low temperature	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：48h Time: 48h		接触电阻：≤200mΩ Contact resistance: ≤200mΩ 绝缘电阻：≥10MΩ Insulation Resistance: ≥10MΩ	



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项目
ITEM试验条件
TEST CONDITIONS要求
REQUIREMENTS

5.2

高温测试
Heat resistance

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： $80\pm 2^{\circ}\text{C}$
temperature: $80\pm 2^{\circ}\text{C}$
- (2) 时间：48h
time: 48h

5.3

湿温测试
Moisture resistance

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:

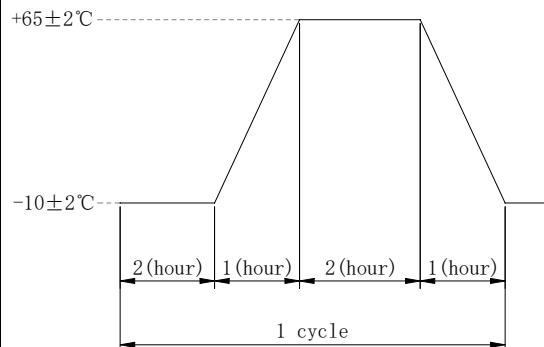
- (1) 温度： $60\pm 2^{\circ}\text{C}$
temperature: $60\pm 2^{\circ}\text{C}$
- (2) 相对湿度：90%~95%
relative humidity:90% to 95%
- (3) 时间：48h
time: 48h


接触电阻： $\leq 200\text{m}\Omega$
Contact resistance: $\leq 200\text{m}\Omega$
绝缘电阻： $\geq 10\text{M}\Omega$
Insulation Resistance: $\geq 10\text{M}\Omega$

5.4

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.



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5.5	硫化试验 Sulfuration resistance	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：24h Time: 24h (3) 温度：40±2℃（90~95%RH） temperature: 40±2℃（90~95%RH）		金属件无明显腐蚀、氧化 No obvious corrosion and oxidation of metal parts	
5.6	盐雾试验 Salt Mist	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：24h±1h Time: 24h±1 hour 实验后的盐沉积物后水冲掉 After test, salt deposit shall be removed by running water.		金属件上没有腐蚀斑点 No remarkable corrosion shall be recognized in metal part.	
6、 极限机械性能： ENDURANCE SPECIFICATION					
6.1	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 No load (2) 拨动速率：60次/分 Rate of operation: 60 times/minute (3) 按力：/ Operating Force: / (4) 平均无故障寿命/Average fault-free life:20000次		接触电阻≤500Ω Contact resistance≤500Ω 按力：初值的±30% Operating Force: initial value±30%	
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：≤350℃ (2) 连续焊接时间：≤3 s Please practice according to below conditions: (1) Soldering temperature: 350℃ Max. (2) Continuous soldering time: 3 s Max.			



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7.2

自动焊接
Automatic soldering

在使用的情况下自动焊接

In case the automatic flow soldering is to be used

(1) 预热 ----- 150°C ~ 175°C, 40 ~ 80 sec

Preheat ----- 150°C ~ 175°C, 40 ~ 80 sec

(2) 峰值温度----- 260°C (max)

Peak temperature ----- 260°C (max)

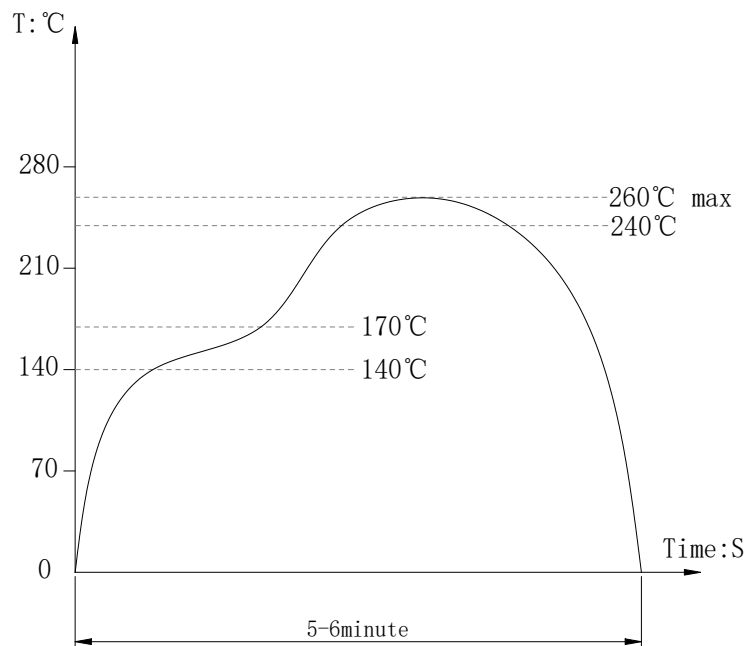
(3) 焊接区温度----- 260°C, 1 ~ 4 sec

Soldering area temperature ----- 260°C, 1 ~ 4 sec

(4) 焊接次数 Allowable Frequency Of Soldering Process ----- 1 time

(5) 高温后性能衰变值±20%

After high temperature, the decay data about performance will be ±20%



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；保存建议期限为3个月，允许期限为6个月。

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. The recommended preservation period is 3 months, and the allowed preservation period is 6 months.

1 2 3 4

A

A

B

B

C

C

D

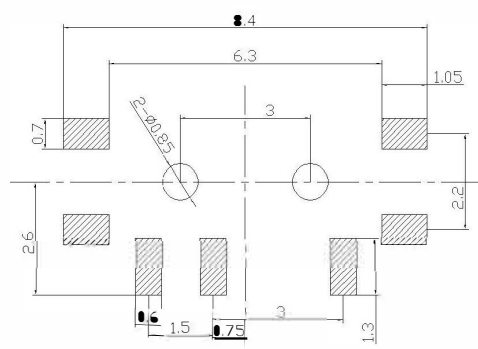
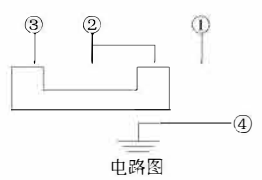
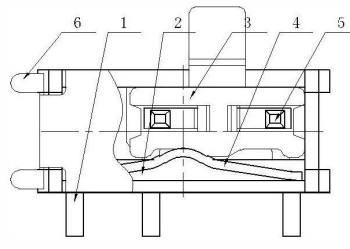
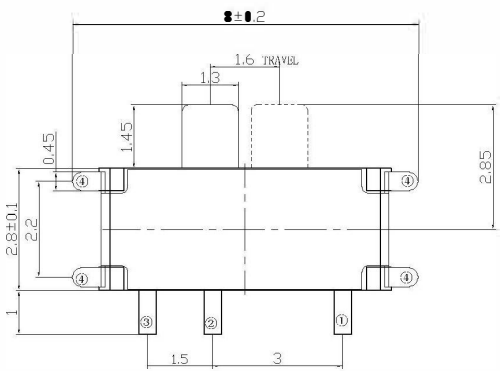
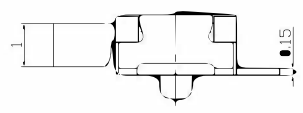
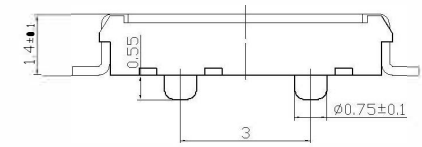
D

E

E

F

F



安装参考图

技术要求:

1. 零部件表面光洁无划伤, 水花, 变形, 影响外观及性能等缺陷。
2. 额定电流: 50mA. 12V DC, 绝缘电阻100MΩ min, 100V DC, 介电强度250V AC for 1min, 接触电阻200mΩ max。操作温度-30° +70°。260°高温后衰变值在初始值的20%内;
3. 开关手感明显, 档位清晰可靠, 无卡滞现象, 消除外力后, 应能快速回位。
4. 一般尺寸公差±0.2。

6	盖板	QC17-1	磷铜0.2	1	镀镍
5	簧片	●E21	0.07铍青铜	1	镀银
4	弹片	●T1	半硬不锈钢	1	
3	按钮	QD34-1	■PA黑	1	
2	底座	QB18	LC■黑	1	
1	卡件	●A9	磷铜0.15	1	镀银
序号	名称	图号	材料	数量	备注

				材料	角度公差	比例	名称	七脚拨动	
				电镀颜色	±1°	1:1			
				厚度	标尺公差	单位	型号	YX-3Q1-08	
					±0.01	mm			
标记	处数	更改文件号	签字日期		日期	版本	图号	成品外形图	
设计		标准化		审核	批准				
								东莞市颖鑫电子科技有限公司	