

# 东莞市高钺达电子有限公司

**DONGGUAN GYUEDA ELECTRONICS CO.,LTD**

## 承 认 书 SPECIFICATION FOR APPROVAL

Customer : \_\_\_\_\_

Description : 4.5\*4.5\*3.8H 贴片

Part No. : TAT-454538-TG

Customer P/N : \_\_\_\_\_

| 高钺达电子有限公司             |  | 客 户                   |  |
|-----------------------|--|-----------------------|--|
| 工程<br>承<br>认<br>章     |  | 工程<br>承<br>认<br>章     |  |
| 品<br>管<br>承<br>认<br>章 |  | 品<br>管<br>承<br>认<br>章 |  |

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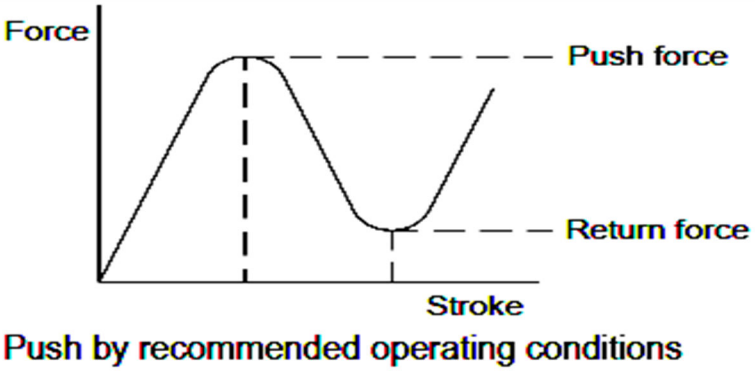
CHINA FACTORY: 东莞市高钺达电子科技有限公司

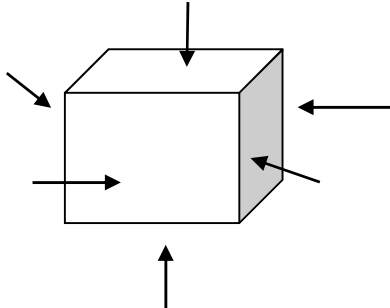
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|                                                                                                      |      |      |                  |             |
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| 东莞市高钺达电子科技有限公司                                                                                       |      |      | File No.<br>文件编号 |             |
|                                                                                                      |      |      | Version<br>版本号   | A/0         |
| TACT SWITCH SPECIFICATION<br>轻触开关产品承认书                                                               |      |      |                  |             |
| 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、标准温度条件下)                                                                            |      |      |                  |             |
| -20℃～70℃ (Normal humidity,normal air pressure)                                                       |      |      |                  |             |
| 1.3 贮藏温度范围                                                                                           |      |      |                  |             |
| Storage Temperature Rane                                                                             |      |      |                  |             |
| -40℃～85℃ (在标准大气压、标准温度条件下)                                                                            |      |      |                  |             |
| -40℃～85℃ (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 45%～85%                                                                                |      |      |                  |             |
| Normal humidity.....relative humidity 45%～85%                                                        |      |      |                  |             |
| 标准大气压.....86KPa～106 KPa                                                                              |      |      |                  |             |
| Normal air pressure.....86KPa～106 KPa                                                                |      |      |                  |             |
| 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～106 KPa                                                                               |      |      |                  |             |
| Air pressure.....86KPa～106 KPa                                                                       |      |      |                  |             |
| 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.                                          |      |      |                  |             |
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| 东莞市高钺达电子科技有限公司                                                                                                                                                                                                                                                   |      |                                                                                      | File No.<br>文件编号 |             |
|                                                                                                                                                                                                                                                                  |      |                                                                                      | Version<br>版本号   | A/0         |
| TACT SWITCH SPECIFICATION<br>轻触开关产品承认书                                                                                                                                                                                                                           |      |                                                                                      |                  |             |
| 2.3 操作形式：有触觉反应的操作<br>Type of actuating:Tactile feedback.<br>2.4 开关结构：单回路输出（具体的触点结构在装配图中已绘出）<br>Contact arrangement:1 pole,1 throw<br>(Details of contact arrangement are given in the assembly drawings.)<br>2.5 开关工作额定值：DC12V 50mA<br>Ratings: DC12V 50mA       |      |                                                                                      |                  |             |
| 测试项目 TEST ITEM                                                                                                                                                                                                                                                   |      |                                                                                      |                  |             |
| 3. 电器性能 ELECTRICAL PERFORMANCE                                                                                                                                                                                                                                   |      |                                                                                      |                  |             |
| 3-1 接触电阻 CONTACT RESISTANCE<br>在 1kHz 小电流电压（50mA，20mV）下测量。<br>Being tested at 1kHz small current and voltage (50mA，20mV) by contact resistance meter.<br>100 毫欧以下。<br>100mΩ max.                                                                                 |      |                                                                                      |                  |             |
| 3-2 绝缘电阻 INSULATION RESISTANCE<br>在端子之间和端子与壳之间加 DC250V 条件下，持续 1 分钟测量。<br>DC 250v shall be applied for test between terminals and between terminals and frame for one minute.<br>100 兆欧以上。<br>100MΩ min.                                                          |      |                                                                                      |                  |             |
| 3-3 耐电压 WITHSTAND VOLTAGE<br>在端子之间和端子于壳之间加 AC250V（50Hz 或 60Hz）感应电流 1mA 条件下，持续 1 分钟测量。<br>AC 250V and induction current 1mA shall be applied for test between terminals and between terminals and frame for one minute.<br>无击穿现象。<br>There shall be no breakdown. |      |                                                                                      |                  |             |
| 4. 机械性能 MECHANICAL PERFORMANCE                                                                                                                                                                                                                                   |      |                                                                                      |                  |             |
| 4-1 动作力 OPERATING FORCE<br><br>160±30gf<br>260±50gf                                                                                                                                                                                                              |      |  |                  |             |
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| 东莞市高钺达电子科技有限公司                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |      |      | File No.<br>文件编号 |     |
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| TACT SWITCH SPECIFICATION<br>轻触开关产品承认书                                                                                                                                                                                                                                                                                                                                                                                                                      |      |      |      |                  |     |
| <p>4-2 行程 TRIP</p> <p>给开关施加动作力 2 倍不变的力，开关停止时的移动距离。</p> <p>The force exerted 2 times the constant force on the switch and the moving distance at the switch stop.</p> <p>0.15±0.05mm</p>                                                                                                                                                                                                                                                                     |      |      |      |                  |     |
| <p>4-3 手感值 HAND VALUE</p> <p>开关按力减去回弹力的差值所占开关按力的百分比 Hand value: 30-70%</p> <p>Percentage of switching pressures by the difference of switching pressures minus resilience.</p> <p>手感值: 30-70%</p>                                                                                                                                                                                                                                                           |      |      |      |                  |     |
| <p>4-4 端子强度 TERMINAL STRENGTH</p> <p>一个 300 克之静负荷施加端子顶部的一个方向持续 1 分钟。</p> <p>A static force of 300g being applied in one direction on the tip of the terminal for 1 minute.</p> <p>无任何迹象显示机械及电器性能之损坏。</p> <p>There shall be of mechanical and electrical damage.</p>                                                                                                                                                                                         |      |      |      |                  |     |
| <p>4-5 手柄强度 KNOB STRENGTH</p> <p>开关垂直于操作方向放置，测量推柄所能承受的最大拉力 3KG</p> <p>Place the switch vertically to the operation direction, test the maximum pulling force that knob can withstand 3KG.</p> <p>无任何迹象显示机械及电器性能之损坏。</p> <p>There shall be of mechanical and electrical damage.</p>                                                                                                                                                                          |      |      |      |                  |     |
| <p>4-6 冲击 IMPACT SHOCK</p> <p>6 个方向，每个方向 3 次。(18 次)</p> <p>980m/s<sup>2</sup>, 11ms, 3 Cycles 6 Directions (Total 18 Cycles)</p> <p>(1) 接触电阻 200 毫欧以下。 Contact resistance 200mΩ.</p> <p>(2) 动作力变化范围初始值 30%。 Operating force 30% initial value.</p> <p>(3) ITEM 项目——1.2</p> <p>(4) ITEM 项目——1.3</p> <p>(5) ITEM 项目——2.2</p> <div data-bbox="1038 1552 1430 1859"></div> |      |      |      |                  |     |
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TACT SWITCH SPECIFICATION  
轻触开关产品承认书

5. 耐久性 DURABILITY

5-1 可焊性试验 SOLDERING TEST

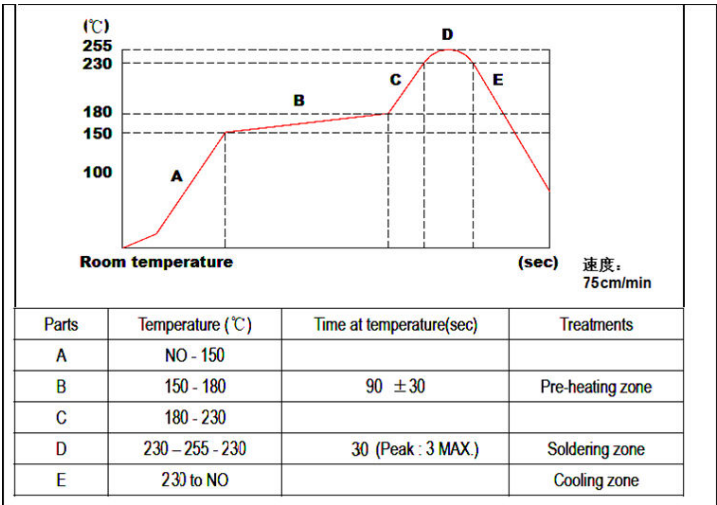
端子顶部被侵入锡池 0.5mm 深，温度 230±5℃，时间 3 秒。  
The tip of the terminal shall be dipped 0.5mm in the solder bath within temperature of 230±5℃ for 3s.  
侵入的部分 95%以上表面将被锡覆盖  
Over 95% of the immersed surface was covered by tin .

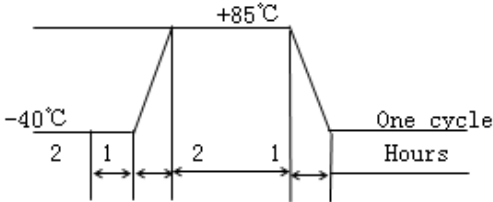
5-2 耐焊性试验 SOLDERING RESISTANT TEST

焊炉锡的温度控制在 260±5℃，时间为 3±0.5 秒, 与(基板)厚度 1.6mm.  
Soldering temperature 260±5℃,soldering time 3±0.5s,immersion depth up to the surface of the board, thickness of PCB 1.6mm.  
手焊接时温度控制在 350±5℃，时间为 3±0.5 秒，但不能在端子上施加异常压力。  
Manual soldering temperature350±5℃, soldering time 3±0.5s,however excessive pressure shall not be applied to the terminal.  
本体无变形,能满足与机械、电器性能。  
Without deformation of case or excessive looseness of electrical properties

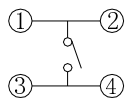
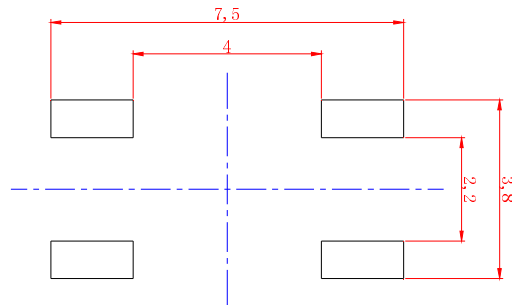
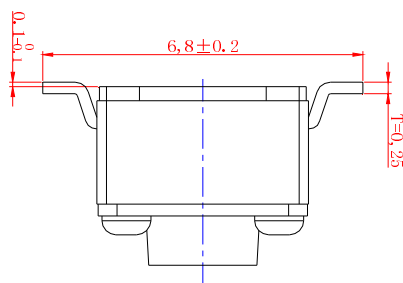
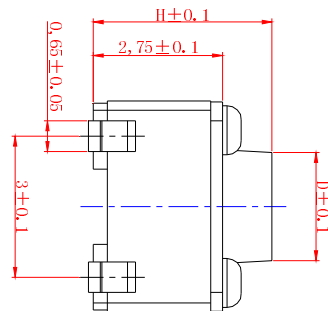
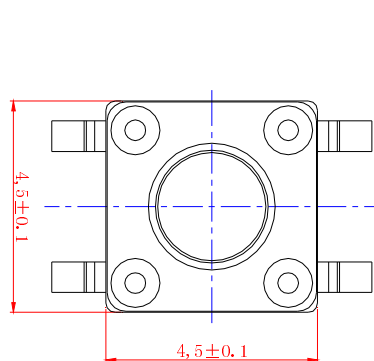
5-3 回流焊接热试验 REFLOW SOLDERING  
HEAR TEST

本体无变形,能满足与机械、电器性能。  
Without deformation of case or  
excessive looseness of electrical  
properties

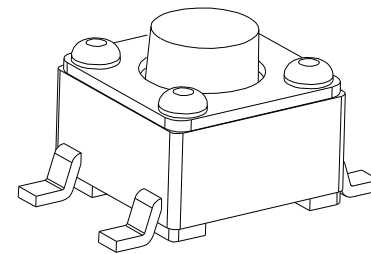
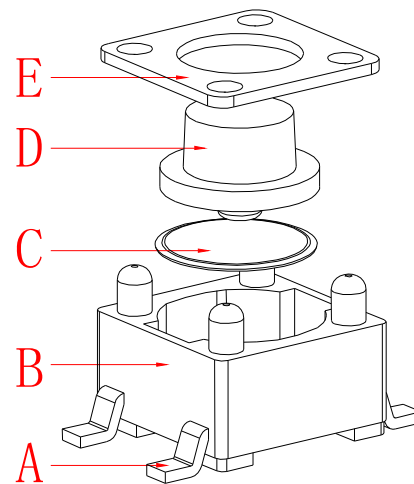


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| TACT SWITCH SPECIFICATION<br>轻触开关产品承认书                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |      |                                                                                                                                                                                                                                                                                                          |     |
| <p>5-4 寿命测试 LIFE TEST</p> <p>无负载条件，每分钟 100-120 次的速度操作 50,000 次。</p> <p>50,000cycles of operation at a rate of 100-120 cycles per minute with unloading</p> <p>(1) 接触电阻 200 毫欧以下。Contact resistance200mΩ</p> <p>(2) 动作力变化范围初始值 30%。Operating force 30% initial value.</p> <p>(3) ITEM 项目——1.2</p> <p>(4) ITEM 项目——1.3</p> <p>(5) ITEM 项目——2.2</p>                                                                                                                                                                                                                                                                                                                                                  |      |      |      |                                                                                                                                                                                                                                                                                                          |     |
| <p>5-5 盐雾 SAIL SPRA</p> <p>1) 测试温度：35±2℃ Temperature: 35±2℃</p> <p>2) 循环次数：8 小时喷雾 1 小时停，连续 3 次。喷雾 24 小时。Cycle: 8 Hours testing(3Times) and 1 Hours stop.Based on total 24 hours.</p> <p>3) 盐雾浓度：5±1% Salt solution concentration: 5±1% by weight.</p> <p>(1) 接触电阻 200 毫欧以下。Contact resistance200mΩ.</p> <p>(2) 绝缘电阻 100 兆欧以上。Insulation resistance 100MΩ min.</p> <p>(3) 无任何迹象显示机械及电器性能之损坏</p> <p>there shall be no sign of mechanical and electrical damage.</p>                                                                                                                                                                                                                                 |      |      |      |                                                                                                                                                                                                                                                                                                          |     |
| <p>5-6 耐热试验 HEAT RESISTAN TEST</p> <p>在 80±2℃环境中放 96 小时，再置于正常环境中，30 分钟后进行测试。</p> <p>80±2℃ for 96H, test after keeping in normal condition for 30min.</p> <p>5-7 耐湿试验 MOISTURE RESISTANT TEST</p> <p>在 60±2℃ 90~95%环境中放 96 小时，再置于正常环境中，30 分钟后进行测试。</p> <p>At 60±2℃ 90~95% RH for 96H, test after keeping in normal condition for 30min.</p> <p>5-8 耐冷试验 COLD RESISTANT TEST</p> <p>在-40±2℃环境中放 96 小时，再置于正常环境中，30 分钟后进行测试。</p> <p>At -40±2℃for 96H, test after keeping in normal condition for 30min.</p> <p>5-9 温度交变试验 TEMPERATURE CYCLIG TEST</p> <p>如图示之环境中，循环 5 次后，再置于正常环境中，1 个小时后进行测试。</p> <p>According to following figure, after 5cycles, test after keeping in normal condition for 1H.</p> |      |      |      |  <p>(1) 接触电阻 200 毫欧以下。<br/>Contact resistance 200mΩ.</p> <p>(2) 绝缘电阻 100 兆欧以上。<br/>insulation resistance 100MΩ min.</p> <p>(3) 无任何迹象显示机械及电器性能之损坏<br/>there shall be no sign of mechanical and electrical damage.</p> |     |
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|     |   |     |  |
|-----|---|-----|--|
|     | D | H   |  |
|     |   | 3.8 |  |
| 2.3 |   | 4.5 |  |
|     |   | 4.8 |  |
|     |   | 5.0 |  |
| 2.2 |   | 5.5 |  |
|     |   | 6.0 |  |
| 2.1 |   | 7.0 |  |
|     |   | 8.0 |  |



电器原理图

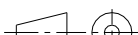


### 技术参数

- 额定电流: 50mA 12V DC
- 接触电阻: 100毫欧
- 行程:  $0.15 \pm 0.05$ mm
- 绝缘电阻: 100兆欧
- 抗电强度: 100v 50Hz 1Min

|    |          |          |
|----|----------|----------|
| 按力 | 160±30gf | 260±50gf |
| 寿命 | 5万次      | 5万次      |

P C B 参考图

|    |    |              |    |     |             |    |       |            |    |                                                                                            |       |                  |                    |                       |
|----|----|--------------|----|-----|-------------|----|-------|------------|----|--------------------------------------------------------------------------------------------|-------|------------------|--------------------|-----------------------|
|    |    |              |    |     |             |    |       |            |    | 第一视角  | 比例    | 规格型号/<br>Part No | 4. 5*4. 5*3.8H四脚贴片 |                       |
|    |    |              |    |     |             |    |       |            |    | 一般公差                                                                                       | 1:1   |                  |                    |                       |
| E  | 盖板 | Q195 T=0. 25 | 1  | 镀铜锡 |             |    |       |            |    | >0. 5-2                                                                                    | ±0. 1 | 单位               |                    | 产品名称/<br>Product Name |
| D  | 按钮 | PPA          | 1  |     |             |    |       |            |    | >2-5                                                                                       | ±0. 2 |                  |                    |                       |
| C  | 簧片 | 不锈钢覆银        | 1  |     | 標記          | 處數 | 更改文件號 | 簽字         | 日期 | >5以上                                                                                       | ±0. 3 |                  |                    |                       |
|    |    |              |    |     |             |    |       |            |    | 角度                                                                                         | ±1°   | mm               |                    |                       |
| B  | 基座 | PPA          | 1  | 清洗  | 设计/Designed |    |       | 审核/Checked |    | 批准/Approved                                                                                |       | 东莞市高钺达电子科技有限公司   |                    |                       |
| A  | 卡件 | 黄铜0. 25      | 1  | 镀银  |             |    |       |            |    |                                                                                            |       |                  |                    |                       |
| 序号 | 名称 | 材 料          | 数量 | 备 注 |             |    |       |            |    |                                                                                            |       |                  |                    |                       |