



日昇電子科技有限公司  
 深圳市丰华日昇科技有限公司

RI SHENG HI-TECH ELECTRICAL CO., LIMITED  
 TEL: 0755-29663560 FAX: 0755-29648851

承认书  
 Acknowledgment

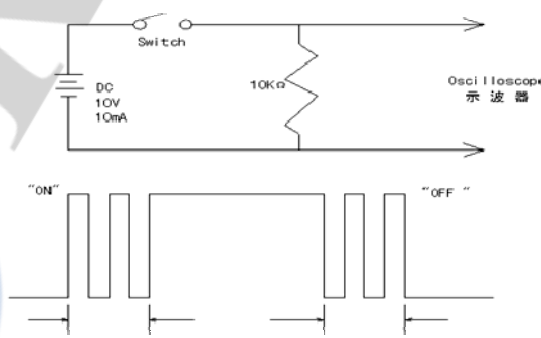

CUSTOMER NAME 客户名称: \_\_\_\_\_  
 CUSTOMER PARTS NO 客户料号: \_\_\_\_\_  
 DESIGNATION 系列: \_\_\_\_\_  
 MODEL NO 型号: ST-1186BM  
 DRAWING NO 图型号: \_\_\_\_\_  
 FORDRAWING ON 客户机种: \_\_\_\_\_

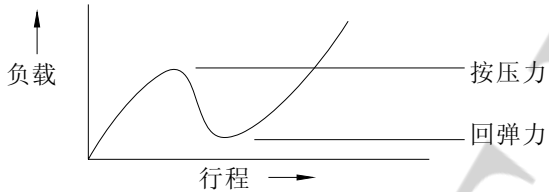
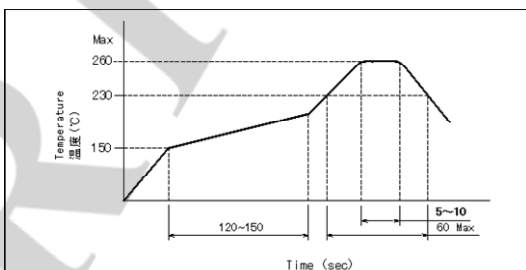

PLEASE CONFIRM OUR SPECIFICATION. 敬请确认规格书之内容。  
 PLEASE CONFIRM AND RETURN TO US. 请确认后惠返 (1) 份。

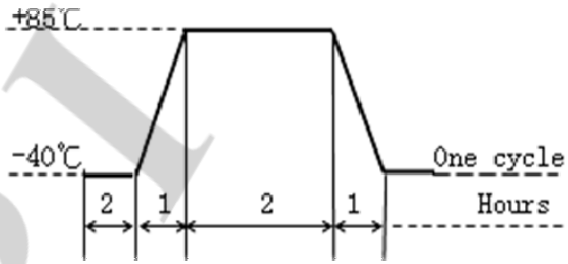

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| APPROVAL STATUS 审批 |            |
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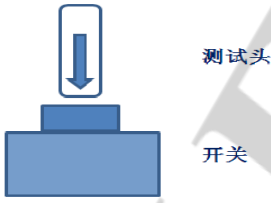
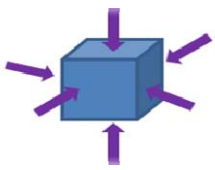

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| 刘丽       | 张伟       |          |    |
| DATE 日期/ | DATE 日期/ | DATE 日期/ | NO |


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|   |                               |   |                                    |
|---|-------------------------------|---|------------------------------------|
| 1. General specification 基本事项   |                               |   |                                    |
| 1.1 Switch action 开关种类: Tact Switch 轻触开关  |                               |   |                                    |
| 1.2 Switch rating 最大额定值: DC 12V, 50mA   |                               |   |                                    |
| 1.3 Operation temperature range 使用温度试验范围: -20℃~+85℃   |                               |   |                                    |
| 1.4 Preservative temperature range 保存温度范围: -40℃~+85℃  |                               |   |                                    |
| 1.5 Appearance and dimensions : See outside drawing page 外形尺寸: 见外形尺寸图   |                               |   |                                    |
| 1.6 Standard condition :Unless otherwise specified ,the test and measurements shall be carried out as follows :试验、测定状态<br>Ambient temperature 温度: 5~35℃<br>Relative humidity 相对湿度: 45~85%<br>Air pressure 气压: 86~106kPa(860~1060mbar)<br>However ,if doubt arises on the decision based on the measured<br>Values under the above-mentioned conditions ,the following conditions be employed:<br>但是在对判定产生疑义时,按下述状态实施:<br>Ambient temperature 温度: 20±2℃<br>Relative humidity 相对湿度: 65±5%<br>Air pressure 气压: 86~106kPa(860~1060mbar) |                               |   |                                    |
| 2. Performance 性能   |                               |   |                                    |
| 2.1 Electrical characteristics 电气性能   |                               |   |                                    |
| Item<br>项目  |                               | Test condition<br>测试条件  | Performance<br>规格                  |
| 2.1.1   | Contact Resistance<br>接触电阻    | Push force: (Operation force)X2.<br>测定时的负荷: 操作方向动作力基准值的 2 倍<br>Measurement tool: Contact resistance meter<br>测定器: 微电流接触电阻计 (1kHz,20mV,5~50mA) | 100mΩ max.<br>100 毫欧以下。            |
| 2.1.2   | Insulation Resistance<br>绝缘电阻 | DC 250V(Between terminals) frame for 1 minute.<br>不相接的两端子间、端子与塑胶间施加 DC250V 电压,持续 1 分钟测量   | 100MΩ min.<br>100 兆欧以上。            |
| 2.1.3   | Withstand Voltage<br>耐电压      | AC 250V (Between terminals) frame for 1 minute.<br>不相接的两端子间、端子与塑胶间施加 AC250V 电压,持续 1 分钟测量  | No insulation destruction<br>无绝缘破坏 |
| 2.1.4   | Bouncing<br>触点抖动              | Operation speed:3~4times/s<br>操作速度: 每秒 3~4 次<br>          | ON: 3ms max 以下<br>OFF: 8ms max 以下  |
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| 2.2 Mechanical Characteristics 机械性能   |                                   |  |   |
|---|-----------------------------------|--|---|
| Item<br>项目  |                                   | Test condition<br>测试条件   | Performance<br>规格   |
| 2.2.1   | Operations Force<br>动作力           | Push by recommended operating condition.<br>测量时在开关的顶端的面中央、按开关动作方向均匀施加静负荷。<br>  | Push force<br>按压力 2.25±0.5N (240±50gf)<br>Return force<br>回弹力 0.5N (50gf 最小)                                      |
| 2.2.2.  | Travel to closure<br>运作行程         | Push by recommended operating condition<br>$F=(\text{Operation force})\times 2$<br>在开关的顶端的面中央沿开关动作方向施加2倍操作力测量行程，测量仪器的顶端应平。   | 0.2±0.1mm   |
| 2.2.3   | Push strength<br>按压强度             | 30N (3Kgf) for 1 minute<br>在开关驱动器顶端中央，在按压力方向加 30N (3Kgf) 压力，作用 60 秒。   | No damage(Electrical and mechanical)<br>无异常 (电气、机械性能)   |
| 2.2.4   | Vibration test<br>耐振性             | 1) Amplitude 全振幅: 1.5mm<br>2) Sweep rate: 10-55-10Hz for 1 minute<br>扫描速度: 10-55-10Hz 1分钟<br>3) Sweep method: Logarithmic frequency sweep rate<br>扫描方式: 对数频率扫描速度<br>4) Vibration direction : X、Y、Z (3 directions)<br>振动方向: X、Y、Z (3方向)<br>5) Time: Each direction 2 hours (Total 6 hours)<br>时间: 每个方向2个小时 (共6小时) | No.2.1 and 2.2.1 to 2.2.2 shall be satisfied<br>满足 2.1 项和 2.2.1 至 2.2.2 项。  |
| 2.2.5   | SOLDER HEAT RESISTANCE<br>回流焊接热试验 | REFLOW SOLDERING:<br>  | No damage (Electrical and mechanical)<br>无异常 (电气、机械性能)  |
| 2.2.6   | Solderbility<br>可焊性               | After sprated flux<br>涂上助焊剂后<br>temperature: 245±5°C<br>温度: 245±5°C<br>Soldering time: 3±0.5sec<br>焊接时间: 3±0.5秒  | 90% or more of surface area of the portion immersed in solder shall be covered by new solder<br>90%或更多的浸焊面积能被焊锡覆盖 |
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| 2.3 Climatic characteristics 耐候性能  |  |   |             |
|--|--|---|-------------|
| Item<br>项目   | Test condition<br>测试条件   | Performance<br>规格   |             |
| 2.3.1<br>Cold test<br>耐寒性  | 1) Temperature: $-40\pm 2^{\circ}\text{C}$<br>温度: $-40\pm 2^{\circ}\text{C}$<br>2) Duration of test: 96h<br>持续时间: 96 小时<br>3) Take off a drop water<br>去掉水珠<br>4) Standard conditions after test:1h<br>试验后的放置条件: 1 小时  | Contact resistance : 200m $\Omega$ max<br>接触电阻: 200 m $\Omega$ 以下<br>Insulation resistance: 100M $\Omega$ min<br>绝缘电阻: DC.100V, 大于 100M $\Omega$<br>Withstand voltage :No. destruction.<br>耐电压: 无绝缘破坏。<br>No.2.2.1 to 2.2.2 shall be satisfied<br>满足 2.2.1 到 2.2.2 项。 |             |
| 2.3.2<br>Heat test<br>耐热性  | 1) Temperature: $80\pm 2^{\circ}\text{C}$<br>温度: $80\pm 2^{\circ}\text{C}$<br>2) Duration of test: 96h<br>持续时间: 96 小时<br>3) Standard conditions after test :1h<br>试验后的放置条件: 1 小时   | Contact resistance : 200m $\Omega$ max<br>接触电阻: 200 m $\Omega$ 以下<br>Insulation resistance: 100M $\Omega$ min<br>绝缘电阻: DC.100V, 大于 100M $\Omega$<br>Withstand voltage :No. destruction.<br>耐电压: 无绝缘破坏。<br>No.2.2.1 to 2.2.2 shall be satisfied<br>满足 2.2.1 到 2.2.2 项。 |             |
| 2.3.3<br>TEMPERATURE CYCLIG TEST<br>温度交变试验   | According to following figure, after 5cycles, test after keeping in normal condition for 30min.<br>如图示环境中, 循环 5 次后, 放置在正常环境中, 1 小时后进行测量。<br>                                   | Contact resistance : 200m $\Omega$ max<br>接触电阻: 200 m $\Omega$ 以下<br>Insulation resistance: 100M $\Omega$ min<br>绝缘电阻: DC.100V, 大于 100M $\Omega$<br>Withstand voltage :No. destruction.<br>耐电压: 无绝缘破坏。<br>No.2.2.1 to 2.2.2 shall be satisfied<br>满足 2.2.1 到 2.2.2 项  |             |
| 2.3.4<br>Humidity test<br>耐湿性  | 1) Temperature: $60\pm 2^{\circ}\text{C}$<br>温度: $60\pm 2^{\circ}\text{C}$<br>2) Relative humidity:90~95%<br>相对湿度: 90~95%<br>3) Duration of test: 96h<br>持续时间: 96 小时<br>4) Take off a drop water<br>去掉水珠<br>5) Standard conditions after test:1h<br>试验后的放置条件: 1 小时 | Contact resistance : 200m $\Omega$ max<br>接触电阻: 200 m $\Omega$ 以下<br>Insulation resistance: 100M $\Omega$ min<br>绝缘电阻: DC.100V, 大于 100M $\Omega$<br>Withstand voltage :No. destruction.<br>耐电压: 无绝缘破坏。<br>No.2.2.1 to 2.2.2 shall be satisfied<br>满足 2.2.1 到 2.2.2 项  |             |
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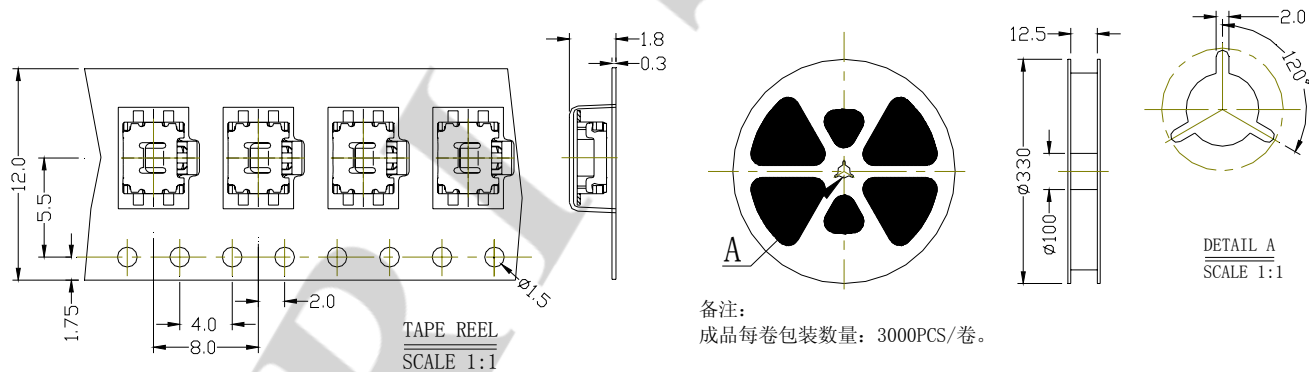
| Item<br>项目  |  | Test condition<br>测试条件  | Performance<br>规格  |             |
|---|--|---|--|-------------|
| 2.3.5   | Endurance (switching) action<br>耐久特性(开关寿命) | 1) Operation speed: 1time/s<br>动作速度: 1次/秒<br>2) Push force: Maximum value of operation force<br>按力: 动作力规格值的上限<br>3) Operation number: 50,000 times<br>动作次数: 50,000次<br><br>安装示意图<br> | Contact resistance : 200mΩ max<br>接触电阻: 200 mΩ 以下<br>Bouncing : 10 ms max<br>触点抖动: 10 毫秒以下<br>Insulation resistance: 100MΩ min<br>绝缘电阻: DC. 100V, 大于 100MΩ<br>Withstand voltage :No. destruction.<br>耐电压: 无绝缘破坏。<br>Variations rate of operation force shall be within ±30% to the value before testing<br>动作力的变化范围在初始值的±30%以内<br>2.2.2 shall be satisfied<br>满足 2.2.2 项 |             |
| 2.3.6   | Withstand H2S<br>耐 H2S                     | 1) Density: 3±1ppm<br>浓度: 3±1ppm<br>1) Temperature: 40±2℃<br>温度: 40±2℃<br>2) Relative humidity: 90~95%<br>相对湿度: 90~95%<br>3) Duration of test: 12h<br>持续时间: 12 小时<br>4) Standard conditions after test: 1h<br>试验后的放置条件: 1 小时  | Contact resistance : 200mΩ max<br>接触电阻: 200 mΩ 以下<br>Insulation resistance: 100MΩ min<br>绝缘电阻: DC. 100V, 大于 100MΩ<br>Withstand voltage :No. destruction.<br>耐电压: 无绝缘破坏。<br>No. 2.2.1 to 2.2.2 shall be satisfied<br>满足 2.2.1 到 2.2.2 项   |             |
| 2.3.7   | Salt mist<br>雾实验                           | At 5% Nacl liquor for 24 hours depend on 35℃, after washing ,keep in normal condition.<br>5% 的 Nacl 溶液, PH 值: 6.5~7.2, 在 35℃ 的条件下喷雾。铜材 24 小时, 铁材 8 小时。用清水洗干净后并在室温下晾干  | No remarkable corrosion shall be recognized in metal part.<br>在金属件上没有腐蚀斑点。   |             |
| 2.3.8   | Shock<br>耐冲击性                              | Peak acceleration: 500m/S <sup>2</sup><br>冲击加速度: 500m/S <sup>2</sup><br>脉冲持续时间 11ms<br>Test time-6direction, each 3 times total 18 times<br>测试次数-6 个方向, 各 3 次共计 18 次<br><br>       | Contact resistance : 200mΩ max<br>接触电阻: 200 mΩ 以下<br>Insulation resistance: 100MΩ min<br>绝缘电阻: DC. 100V, 大于 100MΩ<br>Withstand voltage :No. destruction.<br>耐电压: 无绝缘破坏。<br>No. 2.2.1 to 2.2.2 shall be satisfied<br>满足 2.2.1 到 2.2.2 项   |             |
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| 3. Precaution 注意事项   |  |            |             |
|--|--|------------|-------------|
| 3.1 Soldering condition 浸焊条件   |  |            |             |
| Item 项目  | Condition 测试条件   |            |             |
| Preheat temperature<br>预热温度  | 110°C max (Embilmental temperature of soldering surface of P.C.B )<br>110°C 以下 (印刷基板焊锡周围的温度) |            |             |
| Preheat time<br>预热时间   | 60 sec, max<br>60 秒以内  |            |             |
| Area of flux<br>助焊剂面积  | 1/2 max of P.C.B. thickness<br>印刷基板厚度的 1/2 以内  |            |             |
| Temperature of solder<br>焊锡温度  | 260±5°C max<br>260±5°C 以下  |            |             |
| Times of immersion<br>浸焊时间   | Within 5 sec<br>5 秒以内  |            |             |
| Soldering number<br>浸焊次数   | Within 2 times (But should bring down heat of the first soldering)<br>2 次以内 (但应把第一次焊锡的温度降下来) |            |             |
| Printed wiring board<br>印刷基板   | Single sided copper- clad laminates<br>单面铜箔  |            |             |
| <p>1) After switches were soldered, please be careful not to clean switches with solvent<br/>开关浸焊后, 注意不要用溶剂清洗。</p> <p>2) In the case of using soldering iron, soldering conditions shall be 280°C max and 3 sec max.<br/>在使用烙铁的情况下, 焊锡温度应在 280°C 以下、3 秒以内。</p> <p>3) Right after switches were soldered; please be careful not to load on the knobs of switches.<br/>浸焊后, 注意不要在手柄顶部施加负荷。</p> |  |            |             |
| 3.2 Design instructions (设计中应注意事项)   |  |            |             |
| 1) Follow recommended P.C.B. piercing plan in the outside drawing page.<br>印刷基板的安装孔尺寸参见产品图   |  |            |             |
| 3.3 Note (注意点)   |  |            |             |
| 1) Please be cautious not to give excessive static load or shock to switches.<br>注意不要施加超过负荷的压力或晃动开关。   |  |            |             |
| 2) Please be careful not to pile up P.C.B. after switches were soldered.<br>开关焊接以后, 印刷基板注意不要叠放。  |  |            |             |
| 3) Preservation under high temperature and high humidity or corrosive gas should be avoided especially. When you need to preserve for a long period, do not open the carton.<br>保管时尤其应注意避开高湿高温和有腐蚀性气体的环境, 如需长时间保存, 请不要打开包装箱。   |  |            |             |
| 4) SMT 焊接时, 刷锡厚度应控制在 0.11mm 以内。<br>SMT were soldered., thickness control 0.11mm MAX  |  |            |             |
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|  |  |            |             |

#### 4. Specification 材质

| NO | Part Name<br>名称 | QTY<br>数量 | Material<br>颜色 | Specification<br>材质 | Photos<br>照片  |
|----|-----------------|-----------|----------------|---------------------|---|
| 1  | 盖板              | 1         | 本色             | 不锈钢                 |  |
| 2  | 按钮              | 1         | 黑色             | PA                  |   |
| 3  | 薄膜              | 2         | 黄色             | KTC                 |   |
| 4  | 簧片              | 2         | 本色             | 不锈钢覆银               |   |
| 5  | 基座              | 1         | 黑色             | 6T                  |   |
| 6  | 端子              | 1         | 银白色            | 磷铜镀银                |   |

#### 5.Reel page 编带尺寸



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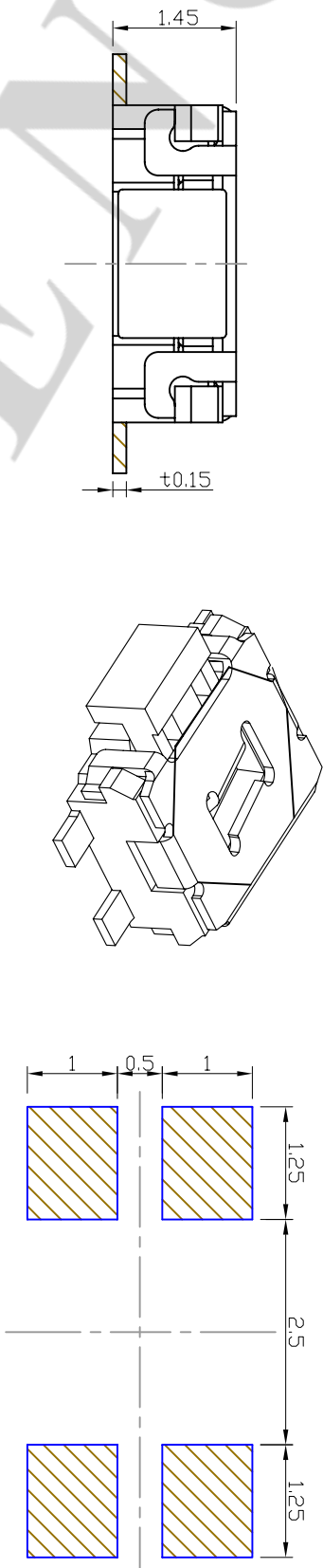
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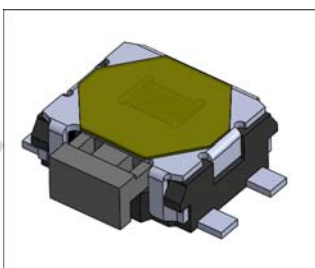
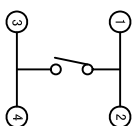
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P. C. B MOUNTING PATTERN DIMENSION  
 the following soldering are recommended  
 for reflow soldering

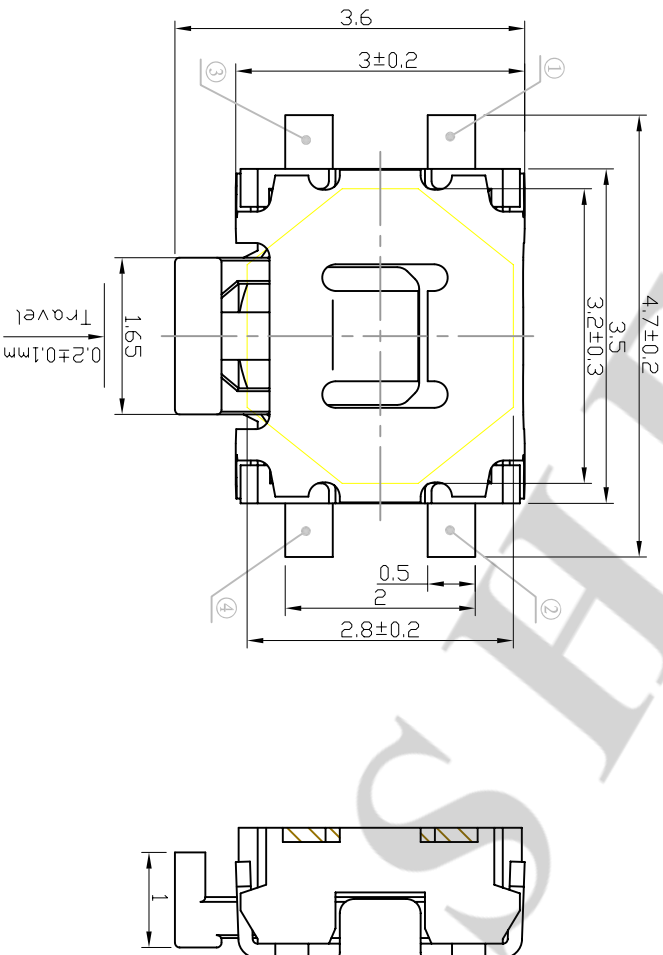


CIRCUIT DIAGRAM



技术参数

| NO | 项目   | 参数                |
|----|------|-------------------|
| 1  | 额定电流 | 50mA 12V DC       |
| 2  | 接触电阻 | 100mΩ             |
| 3  | 按压力  | 240±50gf          |
| 4  | 行程   | 0.2±0.1mm         |
| 5  | 绝缘电阻 | 100MΩ             |
| 6  | 抗电强度 | AC 250V 50Hz 1Min |
| 7  | 寿命   | 50, 000 cyc       |



|       |  |      |               |                  |                 |              |     |    |    |    |
|-------|--|------|---------------|------------------|-----------------|--------------|-----|----|----|----|
| 底图总号  |  | 未注公差 | 30<L<br>±0.30 | 10<L≤30<br>±0.20 | 5<L≤10<br>±0.15 | L≤5<br>±0.10 | ±2° | 设计 | 审核 | 批准 |
| 签字    |  | 角度   |               |                  |                 |              |     |    |    |    |
| 日期    |  | 变更内容 |               |                  |                 |              |     |    |    |    |
| 更改文件号 |  | 标记   |               |                  |                 |              |     |    |    |    |
| 日期    |  | 日期   |               |                  |                 |              |     |    |    |    |
| 描述    |  | 变更内容 |               |                  |                 |              |     |    |    |    |
| 描图    |  | 负责   |               |                  |                 |              |     |    |    |    |
| 描校    |  | 审核   |               |                  |                 |              |     |    |    |    |
| 旧底图总号 |  | 批准   |               |                  |                 |              |     |    |    |    |
| 底图总号  |  | 角    |               |                  |                 |              |     |    |    |    |
| 底图总号  |  | 度    |               |                  |                 |              |     |    |    |    |
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产品名称  
TACT SWITCH

产品型号  
ST-1186BM

设计  
20080515

单位  
mm

比例  
5:1



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