

APPROVAL SPECIFICATIONS

Title. TACT SWITCH _____

Product Model. KAN0447-C/HY _____

Customer's Part NO. _____

Customer's Model: _____

Customer's Approval Requested.

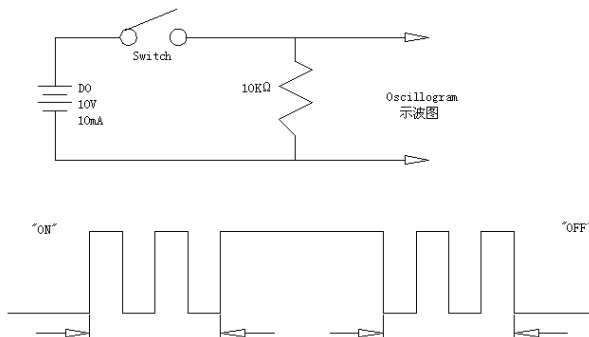
Please return this copy as a certification of your approval.

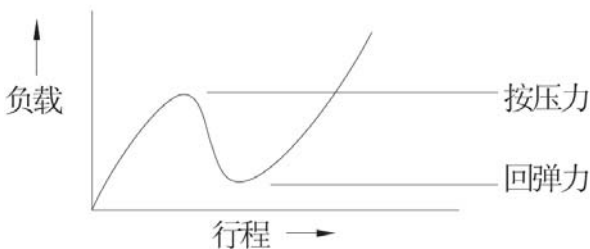
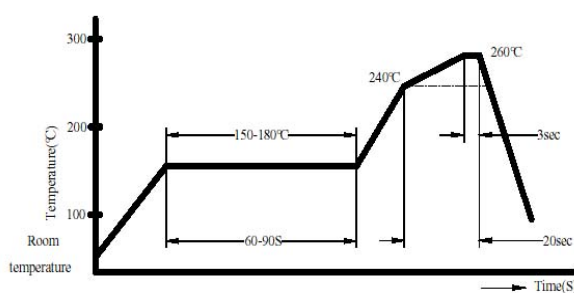
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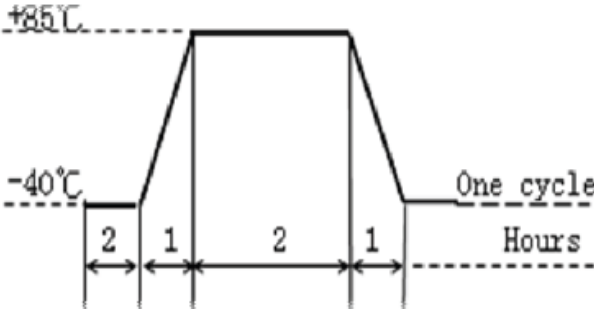
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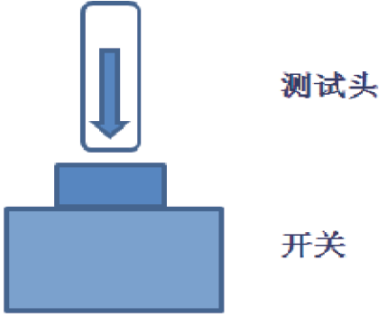
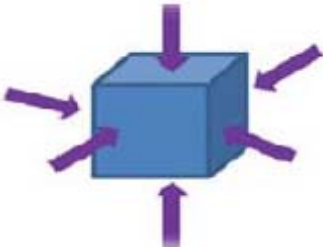
APPROVE	REVIEW	POLT
Jack Wu	孙斌	徐明娥

Shenzhen Gangyuan Microkey Technology Co.,ltd

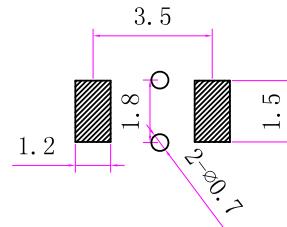
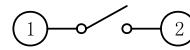
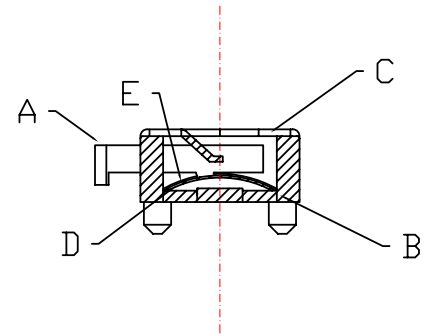
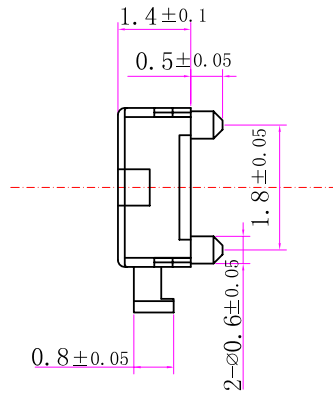
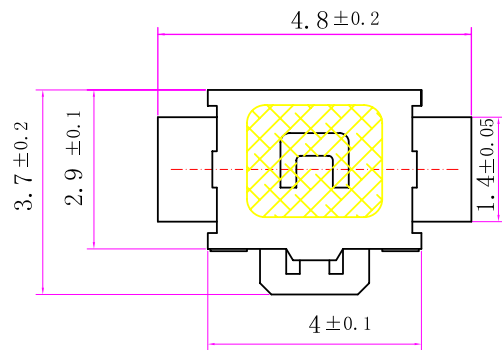
1.General specification 基本事项		
1.1 Switch action 开关种类: Tact Switch 轻触开关		
1.2 Switch rating 最大额定值: DC 12V, 50ma		
1.3 Operation temperature range 使用温度试验范围: -20℃~+85℃		
1.4 Preservative temperature range 保存温度范围: -40℃~+85℃		
1.5 Appearance and dimensions : See outside drawing page 外形尺寸: 见外形尺寸图		
1.6 Standard condition :Unless otherwise specified, the test and measurements shall be carried out as follows: 试验、测定状态 Ambient temperature 温度: 5~35℃ Relative humidity 相对湿度: 45~85% Air pressure 气压: 86~106kpa(860~1060mbar) However , if doubt arises on the decision based on the measured Values under the above—mentioned conditions, the following conditions be employed; 但是在对判定生产疑义时, 按下述状态实施: Ambient temperature 温度: 20±2℃ Relative humidity 相对湿度: 65±5% Air pressure 气压: 86~106kpa(860~1060mbar)		
2. Performance 性能		
2.1 Electrical characteristics 电气性能		
Item 项目	Test condition 测试条件	Performance 规格
2.1.1 Contact Resistance 接触电阻	Push force:(Operation force)X2。 测定时的负荷: 操作方向动作力基准值的 2 倍 Measurement tool: Contact resistance meter 测定器: 微电流接触电阻计 (1KHz,20mV, 5~50Ma)	100mΩ max 100 毫欧以下。
2.1.2 Insulation Resistance 绝缘电阻	DC 250V (Between terminals) frame for 1 minute. 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 100 兆欧以上
2.1.3 Withstand Voltage 耐电压	AC 250V (Between terminals) frame for 1minute. 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 无绝缘破坏
2.1.4 Bouncing 触点抖动	Operation speed:3~4times/s 	ON:3ms max 以下 OFF:8ms max 以下
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2.2 Mechanical Characteristics 机械性能			
Item 项目		Test condition 测试条件	Performance 规格
2.2.1	Operations Force 动作力	Push by recommended operating condition. 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。  <p>The graph plots Force (负载) on the y-axis and Travel (行程) on the x-axis. It shows two curves: '按压力' (Push force) which rises to a peak and then levels off, and '回弹力' (Return force) which starts at a low level and rises to a peak before returning to zero.</p>	Push force 按压力 250±50gf Return force 回弹力 不低于 50gf
2.2.2	Travel to closure 运作行程	Push by recommended operating condition $F=(\text{Operation force})\times 2$ 在开关的顶端的面中央沿开关动作方向施压加 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 按压强度	30N(3Kgf) for 1 minute 在开关驱动器件顶端中央，在按压力方向加 30N (3Kgf) 压力，作用 60 秒。	No damage(Electrical and mechanical) 无异常(电气、机械性能)
2.2.4	Vibration test 耐震性	1) Amplitude 全振幅: 1.2mm 2) Sweep rate:10-55-10Hz for 1 minute 扫描速度: 10-55-10Hz 1 分钟 3) Sweep method: Logarithmic frequency sweep rate 扫描方式: 对数频率扫描速度 4) Vibration direction: X、Y、Z (3directions) 震动方向: X、Y、Z (3 分钟) 5) Time: Each direction 2 hours (Total 6 hours) 时间: 每个方向 2 个小时 (共 6 小时)	No.2.1 and 2.2.2 shall be satisfied 满足 2.1 项和 2.2.1 至 2.2.2 项。
2.2.5	Solder Heat Resistance 回流焊接热试验	REFLOW SOLDERING:  <p>The graph shows Temperature (°C) on the y-axis (0, 100, 200, 300) and Time (S) on the x-axis. The profile starts at 'Room temperature', rises to a plateau at 150-180°C for 60-90S, then rises to a peak at 240°C, reaches a maximum of 260°C, and then falls. A 3sec dwell is shown at the peak, and a 20sec dwell is shown during the cooling phase.</p>	No damage (Electrical and mechanical) 无异常(电气、机械性能)
2.2.6	Solderability 可焊性	After sprated flux 涂上助焊剂后 Temperature: 245±5°C 温度: 245±5°C Soldering time:3±0.5sec 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 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 项目	Test condition 测试条件	Performance 规格	
2.3.1 Cold test 耐寒性	1) Temperature:-40±2℃ 温度：-40±2℃ 2) Duration of test:96h 持续时间：96 小时 3) Take off a drop water 去掉水珠 4) Standard conditions after test:1h 试验后的放置条件：1 小时	Contact resistance: 200mΩ 接触电阻：200mΩ 以下 Insulation resistance:100MΩmin 绝缘电阻：DC.250V,大于 100MΩ Withstand voltage: No. destruction. 耐电压：去绝缘破坏。 No.2.2.1 to 2.2.2 shall be satisfied 满足 2.2.1 到 2.2.2 项	
2.3.2 Heat test 耐热性	1) Temperature:80±2℃ 温度：80±2℃ 2) Duration of test :96h 持续时间：96 小时 3) Standard conditions after test:1h 试验后的放置条件：1 小时	Contact resistance: 200mΩ 接触电阻：200mΩ 以下 Insulation resistance:100MΩmin 绝缘电阻：DC.250V,大于 100MΩ Withstand voltage: No. destruction. 耐电压：去绝缘破坏。 No.2.2.1 to 2.2.2 shall be satisfied 满足 2.2.1 到 2.2.2 项	
2.2.3 Temperature Cyclig test 温度交变试验	According to following figure, after 5cycles, test after keeping in normal condition for 30min. 	Contact resistance: 200mΩ 接触电阻：200mΩ 以下 Insulation resistance:100MΩmin 绝缘电阻：DC.250V,大于 100MΩ Withstand voltage: No. destruction. 耐电压：去绝缘破坏。 No.2.2.1 to 2.2.2 shall be satisfied 满足 2.2.1 到 2.2.2 项	
2.2.4 Humidity test 耐湿性	1) Temperature:60±2℃ 温度：60±2℃ 2) Relative humidity:90~95% 相对湿度：90~95% 3)Duration of test:96h 4) Take off a drop water 去掉水珠 5) Standard conditions after test :1h 试验后的放置条件：1 小时	Contact resistance: 200mΩ 接触电阻：200mΩ 以下 Insulation resistance:100MΩmin 绝缘电阻：DC.250V,大于 100MΩ Withstand voltage: No. destruction. 耐电压：去绝缘破坏。 No.2.2.1 to 2.2.2 shall be satisfied 满足 2.2.1 到 2.2.2 项	
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Item 项目	Test condition 测试条件	Performance 规格
2.3.5 Endurance (switching) 耐久特性（开关 寿命）	1) Operation speed: 1time/s 动作速度：1 次/秒 2) Push force: Maximum value of operation force 接力：动作力规格值的上限 3) Operation number: 100,000 times 动作次数：100,000 次 安装示意图 	Contact resistance: 200mΩ 接触电阻：200mΩ 以下 Bouncing: 10ms max 触点抖动：10 毫秒以下 Insulation resistance:100MΩmin 绝缘电阻：DC.250V,大于 100MΩ Withstand voltage: No. destruction. 耐电压：去绝缘破坏。 Variations rate of operation force shall be within ±30% to the value be fore testing 动作力的变化范围在初始值的 ±30% 以内 2.2.2 shall be satisfied 满足 2.2.2 项
2.3.6 Withstand H2s 耐 H2S	1) Density: 3±1ppm 浓度：3±1ppm 2) Temperature: 40±2℃ 温度：40±2℃ 3) Relative humidity: 90~95% 相对湿度： 90~95% 4) Duration of test: 12h 持续时间：12 小时 5) Standard conditions after test: 1h 实验后的放置条件：1 小时	Contact resistance: 200mΩ max 接触电阻：200mΩ 以下 Insulation resistance:100MΩ min 绝缘电阻：DC.250V, 大于 100MΩ Withstand voltage : No. destruction. 耐电压：无绝缘破坏。 No.2.2.1 to2.2.2 shall be satisfied 满足 2.21 到 2.2.2 项
2.3.7 Salt mist 雾实验	At 5% NaCl liquor for 48hors depend on 35℃,after washing , keep in normal condition. 5%的 NaCl 溶液，PH 值：6.2-5~7.2，在 35℃的条 件下喷雾。铜材 48 小时，不锈钢 48 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. 在金属件上没有腐蚀斑点。
2.3.8 Shock 耐冲击性	Peak acceleration: 500m/S ² 冲击加速度：500m/S ² 脉冲持续时间 11ms Test time-6direction, each 3 tines total 18 times 测试次数-6 个方向，各 3 次共计 18 次 	Contact resistance: 200mΩ max 接触电阻：200mΩ 以下 Insulation resistance:100MΩ min 绝缘电阻：DC.250V, 大于 100MΩ Withstand voltage : No. destruction. 耐电压：无绝缘破坏。 No.2.2.1 to2.2.2 shall be satisfied 满足 2.21 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	110°C max(Environmental temperature of soldering surface of P.C.B)		
预热温度	110°C 以下 (印刷基板焊锡周围的温度)		
Preheat time	60sec,max		
预热时间	60 秒以内		
Area of flux	1/2max of P.C.B thickness		
助焊剂面积	印刷基板厚度的 1/2 以内		
Temperature of solder	260±5°C max		
焊锡温度	260±5°C 以下		
Times of immersion	Within 5sec		
浸焊时间	5 秒以内		
Soldering number	Within 2times (But should bring down heat of the first soldering)		
浸焊次数	2 次以内 (但应把第一次焊锡的温度降下来)		
Printed wiring board	Single sided copper-clad laminates		
印刷基板	单面铜箔		
<p>1) After switches were soldered, please be careful not to clean switches with solvent 开关浸锡后, 注意不要溶剂清洗。</p> <p>2) In the case of using soldering iron, soldering conditions shall be 280°C max and 3 sec max. 在使用的烙铁的情况下, 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. 浸锡后, 注意不要在手柄顶部施压加负荷。</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. 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. 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. 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. 保管时尤其应注意避开高湿温度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 0.13mm 以内。 SMT were soldered. ,thickness control 0.13mm MAX			
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项 目	规 格
额定电负荷:	DC12V 50mA
绝缘电阻:	≥100MΩ
耐压强度:	AC250V 50Hz/1min
电气寿命:	100.000 cycles Min
环境温度:	-25℃ ~ +70℃
相对湿度:	(40℃) ≤95%
接触电阻:	≤50mΩ
行程:	0.2±0.05mm
动作力:	250gf ±50gf

序号	名 称	数量	材 料	镀涂 颜色
E	薄 膜	1	聚酰亚胺 (杜邦)	黄 色
D	接 触 簧 片	1	进口复银不锈钢	银白色镶银
C	盖 子	1	进口不锈钢	银 白 色
B	底 座	1	进口L C P	黑色与镀银
A	主 轴	1	进口增强尼龙	黑 色

HY-C-03					
(侧按)					
设计	标准化	阶段标记	数量	重量	比例
校对	审定				
审核					
工艺	日期	共 张	第 张		

借通用件登记
描 图
校 描
旧底图总号
签 字
日 期