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# APPROVAL SPECIFICATIONS

Title. TACT SWITCH \_\_\_\_\_

Product Model. KAN0447B-0351C-29/079 \_\_\_\_\_

Customer's Part NO. \_\_\_\_\_

Customer's Model: \_\_\_\_\_

## **Customer's Approval Requested.**

Please return this copy as a certification of your approval.

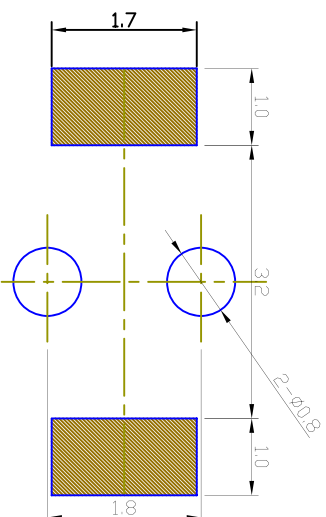
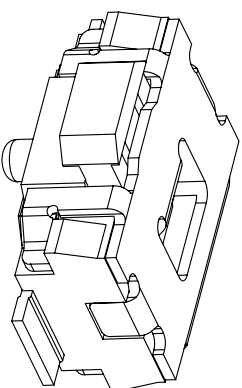
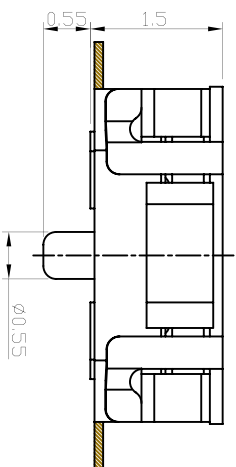
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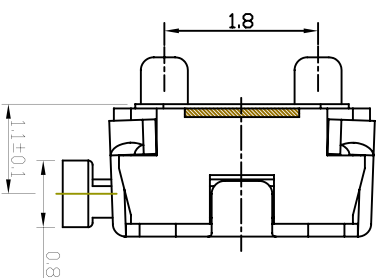
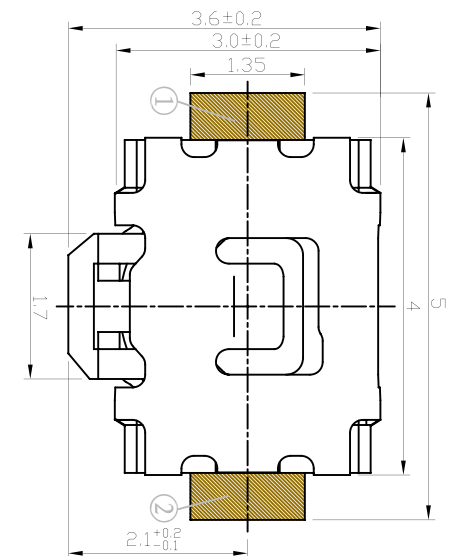
APPROVE	REVIEW	POLT
Jack Wu	孙斌	徐明娥

**Shenzhen Gangyuan Microkey Technology Co.,ltd**

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



CIRCUIT DIAGRAM



NO	项目	参数
1	额定电流	DC 12V 50mA
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	100V 50Hz 1Min
7	寿命	50000 cyc

技术参数

Travel  
 $0.2 \pm 0.13$

借(通)用件登记  
 描 图  
 描 校  
 旧底图总号

底图总号

签 字

日 期

未注公差

30 < L ±0.30

10 < L ≤ 30 ±0.20

5 < L ≤ 10 ±0.15

L ≤ 5 ±0.10

角 度 ±2°

深圳市港源实业发展有限公司

产品名称 轻触开关

TACT SWITCH

产品型号 KAN0447B-0351C-29/079

文件号

更改文件号 标记 日期 变更内容

负责 审核 批准

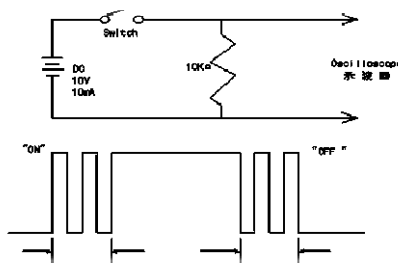
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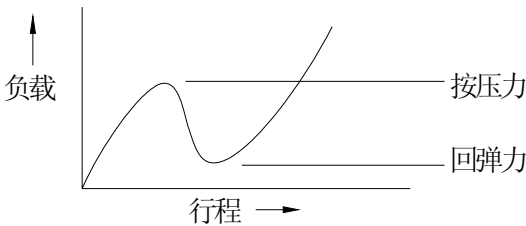
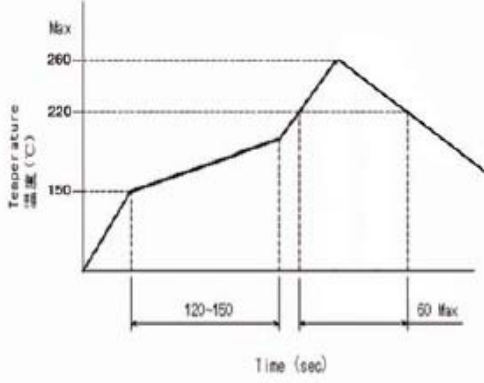
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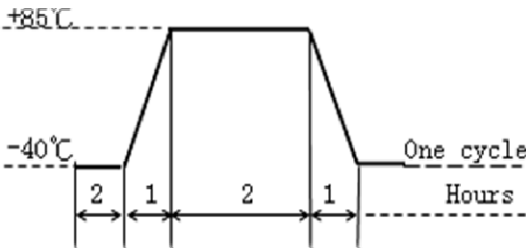
20060515 图样标记 单位 比例 视图

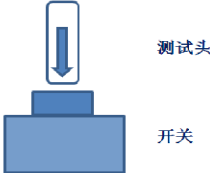
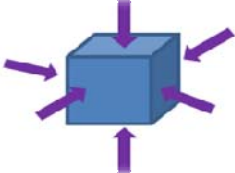
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共 1 页 第 1 页

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:			
但是在对判定产生疑义时,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 1 minute. 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 操作速度: 每秒3~4次 	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。 	Push force 按压力 240±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 耐振性	1) Amplitude 全振幅：1.5mm 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 (3 directions) 振动方向：X、Y、Z (3方向) 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 2.2.1 to 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: 	No damage (Electrical and mechanical) 无异常（电气、机械性能）
2.2.6	Solderbility 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: $-40\pm 2^{\circ}\text{C}$ 温度: $-40\pm 2^{\circ}\text{C}$ 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 : 200m $\Omega$ max 接触电阻: 200 m $\Omega$ 以下 Insulation resistance: 100M $\Omega$ min 绝缘电阻: DC. 250V, 大于100M $\Omega$ Withstand voltage :No. destruction. 耐电压: 无绝缘破坏。 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: $80\pm 2^{\circ}\text{C}$ 温度: $80\pm 2^{\circ}\text{C}$ 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 : 200m $\Omega$ max 接触电阻: 200 m $\Omega$ 以下 Insulation resistance: 100M $\Omega$ min 绝缘电阻: DC. 250V, 大于100M $\Omega$ Withstand voltage :No. destruction. 耐电压: 无绝缘破坏。 No. 2. 2. 1 to 2. 2. 2 shall be satisfied 满足2.2.1到2.2.2项。
2.3.3	TEMPERATURE CYCLIG TEST  温度交变试验	According to following figure, after 5cycles, test after keeping in normal condition for 30min.  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。  	Contact resistance : 200m $\Omega$ max 接触电阻: 200 m $\Omega$ 以下 Insulation resistance: 100M $\Omega$ min 绝缘电阻: DC. 250V, 大于100M $\Omega$ Withstand voltage :No. destruction. 耐电压: 无绝缘破坏。 No. 2. 2. 1 to 2. 2. 2 shall be satisfied 满足2.2.1到2.2.2项
2.3.4	Humidity test 耐湿性	1) Temperature: $60\pm 2^{\circ}\text{C}$ 温度: $60\pm 2^{\circ}\text{C}$ 2) Relative humidity: 90~95% 相对湿度: 90~95% 3) Duration of test: 96h 持续时间: 96小时 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 : 200m $\Omega$ max 接触电阻: 200 m $\Omega$ 以下 Insulation resistance: 100M $\Omega$ min 绝缘电阻: DC. 250V, 大于100M $\Omega$ Withstand voltage :No. destruction. 耐电压: 无绝缘破坏。 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) action 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 按力: 动作力规格值的上限 3) Operation number: 50,000 times 动作次数: 50,000 次  安装示意图 	Contact resistance : 200m Ω max 接触电阻: 200 m Ω 以下 Bouncing : 10 ms max 触点抖动: 10毫秒以下 Insulation resistance: 100M Ω min 绝缘电阻: DC. 250V, 大于100M Ω Withstand voltage :No. destruction. 耐电压: 无绝缘破坏。 Variations rate of operation force shall be within ±30% to the value before 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 1) Temperature: 40±2℃ 温度: 40±2℃ 2) Relative humidity:90~95%  相对湿度: 90~95% 3) Duration of test: 12h  持续时间: 12小时 4) Standard conditions after test:1h  试验后的放置条件: 1 小时	Contact resistance : 200m Ω max 接触电阻: 200 m Ω 以下 Insulation resistance: 100M Ω min 绝缘电阻: DC. 250V, 大于100M Ω Withstand voltage :No. destruction.  耐电压: 无绝缘破坏。 No.2.2.1 to 2.2.2 shall be satisfied  满足2.2.1到2.2.2项
2.3.7	Salt mist 雾实验	At 5% Nacl liquor for 24 hours depend on 35℃, after washing ,keep in normal condition. 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.  在金属件上没有腐蚀斑点。
2.3.8	Shock 耐冲击性	Peak acceleration: 500m/S <sup>2</sup> 冲击加速度: 500m/S <sup>2</sup> 脉冲持续时间11ms Test time-6direction, each 3 times total 18 times 测试次数-6个方向, 各3次共计18次  	Contact resistance : 200m Ω max 接触电阻: 200 m Ω 以下 Insulation resistance: 100M Ω min 绝缘电阻: DC. 250V, 大于100M Ω Withstand voltage :No. destruction.  耐电压: 无绝缘破坏。 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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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 ( Embilomental 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	60 sec, max	
预热时间	60秒以内	
Area of flux	1/2 max 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 5 sec	
浸焊时间	5秒以内	
Soldering number	Within 2 times (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. 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. 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. 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0.13mm以内。 SMT were soldered. , thickness control 0.13mm MAX		
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## PART LIST

ITEM	TACT SWITCH
MODEL NO.	KAN0447B-0351C-29/079



NO	Part Image 图片	Part Name 名称	QT'Y 数量	Material 颜色	Specification 材质	SGS Report 环保检测
1		盖子	1	本色	不锈钢	SGS
2		按钮	1	黑色	PA46	SGS
3		防尘膜	1	黄色	KTC	SGS
4		弹片	2	单面银 白色	不锈钢覆银	SGS
5		基座	1	白色	LCP	SGS
6		端子	1	银白色	磷铜镀银	SGS

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