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APPROVAL SPECIFICATIONS

Title. 拨动开关

Product Model. MSK-01P G1/394

Customer's Part NO.

Customer's Model:

Customer's Approval Requested.

Please return this copy as a certification of your approval.

Checked by: Date:

Approved by: Date:

| 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: Slide Switch 拨动开关
- 1.2 Switch rating 最大额定值: DC 5V 0.3A
- 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

2.1Electrical characteristics 电气性能

| | Item | Test con | ndition | Performance |
|-------|-----------------------|--------------------------------|---------------------|---------------------------|
| | 项 目 | 测试 | 规 格 | |
| 2.1.1 | Contact Resistance | Push force: (Operation force) | 70mΩ max. | |
| | 接触电阻 | 测定时的负荷:操作方向动作 | | 70 毫歐以下。 |
| | | Measurement tool: Contact resi | stance meter | |
| | | 测定器: 微电流接触电阻计 | (1kHz,20mV,5~50mA) | |
| 2.1.2 | Insulation Resistance | DC 250V(Between terminals) | frame for 1 minute. | 100Μ $Ω$ min. |
| | 绝缘电阻 | 不相接的两端子间、端子与塑 | 見胶间施加 DC250V 电压,持 | 100 兆歐以上。 |
| | | 续1分钟测量 | | |
| 2.1.3 | Withstand Voltage | AC 250V (Between terminals) | frame for 1 minute. | No insulation destruction |
| | 耐电压 | 不相接的两端子间、端子与塑 | 型胶间施加 AC250V 电压,持 | 无绝缘破坏 |
| | | 续1分钟测量 | | |
| 2.1.4 | Bouncing | Operation speed:3~4times/s | | ON: 3ms max 以下 |
| | 触点抖动 | 操作速度:每秒3~4次 | | OFF: 8ms max 以下 |
| | | Switch Do 10k 10k "0N" | | |
| | ı | WRITTEN BY | CHECKED BY | APPROVED B Y |
| | | LBW | HGX | CQB |

| 2.2 Me | chanical Characteristi | cs 机械性能 | | | | | | |
|--------|--------------------------------------|---|--|--|--|--|--|--|
| | Item | Test condition | n | Performance | | | | |
| | 项 目 | 测试条件 | | 规 格 | | | | |
| 2.2.1 | Operations Force 动作力 | Push by recommended operating 按开关动作方向均匀施加静负荷 | sh by recommended operating condition. 开关动作方向均匀施加静负荷 | | | | | |
| 2.2.2. | Travel to closure 运作行程 | Push by recommended operating cond 在开关动作方向施加 1.5-2.0 倍力 顶端应平。 | | 1.5±0.1mm | | | | |
| 2.2.3 | Push strength 强 度 | 9.8N (1Kgf) for 1 minute 在开关驱动器件顶端中央,在动作 压力,作用 60 秒。 | 在开关驱动器件顶端中央,在动作力方向加 9.8N(1Kgf) | | | | | |
| 2.2.4 | Vibration test 耐振性 | 扫描速度: 10-55-10Hz 1分钟 3) Sweep method: Logarithmic frequent 扫描方式: 对数频率扫描速度 4) Vibration direction: X、Y、Z 振动方向: X、Y、Z (3方向) | 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) | | | | | |
| 2.2.5 | SOLDER HEAT RESISTANCE 回流焊接热试验 | REFLOW SOLDERTING: Max 260 230 150 120-150 Time (sec) | 5~10 60 Max | 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℃ 温度: 245±5℃ Soldering time: 3±0.5sec 焊接时间: 3±0.5秒 | 涂上助焊剂后 temperature: 245±5℃ 温度: 245±5℃ Soldering time: 3±0.5sec | | | | | |
| | | WRITTEN BY | CHECKED B Y | APPROVED B Y | | | | |
| | | LBW | HGX | CQB | | | | |

| 2. 3 Cli | imatic characteristics 耐修 | | | | | |
|----------|---------------------------|---------------------------------------|---------------------------|--|--|--|
| | Item | Test condition | on | Performance | | |
| | 项 目 | 测试条件 | 规 格 | | | |
| 2.3.1 | Cold test | 1) Temperature: -40±2°C | | Contact resistance: 200m Ω max | | |
| | 耐寒性 | 温度: -40±2℃ | | 接触电阻: 200 mΩ以下 | | |
| | | 2) Duration of test: 96h | | Insulation resistance: 100M Ω min | | |
| | | 持续时间:96 小时 | | 绝缘电阻: DC. 250V, 大于 100M Ω | | |
| | | 3) Take off a drop water | | Withstand voltage :No. | | |
| | | 去掉水珠 | | destruction. | | |
| | | 4) Standard conditions after | test:1h | 耐电压: 无绝缘破坏。 | | |
| | | 试验后的放置条件: 1 小时 | | 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 | 1) Temperature: $80\pm2^{\circ}$ C | | Contact resistance : $200 \text{m} \Omega \text{ max}$ | | |
| | 耐热性 | 温度: 80±2℃ | | 接触电阻: 200 m Ω 以下 | | |
| | | 2) Duration of test: 96h | | Insulation resistance: $100M \Omega \min$ | | |
| | | 持续时间: 96 小时 | | 绝缘电阻: DC. 250V, 大于 100M Ω | | |
| | | 3) Standard conditions after test :11 | h | Withstand voltage :No. | | |
| | | 试验后的放置条件: 1 小时 | | 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 | According to following figure, | after 5cycles, test after | Contact resistance : $200 \text{m} \Omega \text{ max}$ | | |
| | TEST | keeping in normal condition for 30n | nin. | 接触电阻: 200 m Ω 以下 | | |
| | 温度交变试验 | 如图示环境中,循环5次后,放5 | 置在正常环境中,1小时 | Insulation resistance: $100M \Omega \min$ | | |
| | | 后进行测量。 | | 绝缘电阻: DC. 250V,大于 100M Ω | | |
| | | _ + 85°C | | Withstand voltage :No. | | |
| | | | \ | destruction. | | |
| | | / | \ | 耐电压: 无绝缘破坏。 | | |
| | | -40℃ / | \ | No. 2. 2. 1 to 2. 2. 2 shall be | | |
| | | - | One cycle | satisfied | | |
| | | 2 1 2 × | 1 Hours | 满足 2.2.1 到 2.2.2 项 | | |
| | | | | | | |
| 2.3.4 | Humidity test | 1) Temperature: 60±2℃ | | Contact resistance: 200m Ω max | | |
| | 耐湿性 | 温度: 60±2℃ | | 接触电阻: 200 m Ω 以下 | | |
| | | 2) Relative humidity:90~95% | | Insulation resistance: 100M Ω min | | |
| | | 相对湿度: 90~95% | | 绝缘电阻:DC. 250V,大于 1 00M Ω | | |
| | | 3) Duration of test: 96h | | Withstand voltage :No. | | |
| | | 持续时间: 96 小时 | destruction. | | | |
| | | 4) Take off a drop water | 耐电压: 无绝缘破坏。 | | | |
| | | 去掉水珠 | | No. 2. 2. 1 to 2. 2. 2 shall be | | |
| | | test:1h | satisfied | | | |
| | | 试验后的放置条件: 1 小时 | | 满足 2. 2. 1 到 2. 2. 2 项 | | |
| | l | WRITTEN BY | CHECKED B Y | APPROVED B Y | | |
| | | LBW | HGX | CQB | | |
| | | 71, 77 | 110/1 | # c 五 | | |

| | Item | Test co | ondition | Performance | | |
|--------|----------------|--|--|---|--|--|
| | 项 目 | | 条件 | 规 格 | | |
| 2.3.5 | | | 規格 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 be fore testing 动作力的变化范围在初始值的±30% | | | |
| | | | | 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 | 1) Density: 3±1ppm | | Contact resistance : $200 \text{m} \Omega \text{ max}$ | | |
| | 耐 H2S | 浓度: 3±1ppm | | 接触电阻: 200 m Ω 以下 | | |
| | | 1) Temperature: 40±2°C | | Insulation resistance: 100M Ω min | | |
| | | 温度: 40±2℃ | | 绝缘电阻: DC. 250V, 大于 100MΩ | | |
| | | 2) Relative humidity:90 \sim | 95% | Withstand voltage :No. | | |
| | | 相对湿度: 90~95% | | destruction. | | |
| | | 3) Duration of test: 12h | | 耐电压: 无绝缘破坏。 | | |
| | | 持续时间: 12 小时 | | No. 2. 2. 1 to 2. 2. 2 shall be | | |
| | | 4) Standard conditions af | fter test:1h | satisfied | | |
| | | 试验后的放置条件: 1 小时 | | 满足 2. 2. 1 到 2. 2. 2 项 | | |
| 2.3.7 | Salt mist | • | nours depend on 35°C, after | No remarkable corrosion shall be | | |
| | 雾实验 | washing , keep in normal o | | recognized in metal part. | | |
| | | | .5~7.2,在35℃的条件下喷 | 在金属件上没有腐蚀斑点。 | | |
| | | | 卜时。用清水洗干净后并在室 | | | |
| 2.3.8 | Shock | Peak acceleration: 500m/S ² | | Contact resistance : 200m Ω max | | |
| 2.3.6 | 耐冲击性 | 冲击加速度: 500m/S ² | | 接触电阻: 200 m Ω 以下 | | |
| | 101 1 1 11 11. | 脉冲持续时间 11ms | | Insulation resistance: 100M Ω min | | |
| | | Test time-6direction, each | 绝缘电阻: DC. 250V,大于 100 M Ω | | | |
| | | 测试次数-6 个方向,各 3 次 | Withstand voltage :No. | | | |
| | | _ | destruction. | | | |
| | | | 耐电压: 无绝缘破坏。 | | | |
| | | | No. 2. 2. 1 to 2. 2. 2 shall be | | | |
| | | 1 | satisfied | | | |
| | | • | | 满足 2. 2. 1 到 2. 2. 2 项 | | |
| | | WRITTEN BY | CHECKED BY | APPROVED BY | | |
| | | LBW | HGX | CQB | | |

3. Precaution 注意事项

3.1Soldering 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℃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℃ 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 | |
| | | |
| | | |
| | | |

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。

2) In the case of using soldering iron, soldering conditions shall be $280\,^\circ\!\text{C}$ max and 3 sec max.

在使用铬铁的情况下,焊锡温度应在280℃以下、3秒以内。

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。

- 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。

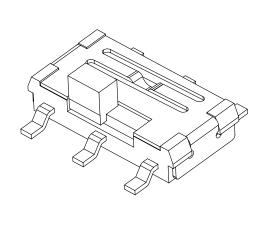
4) SMT 焊接时,刷锡厚度应控制在 0.13mm 以内。

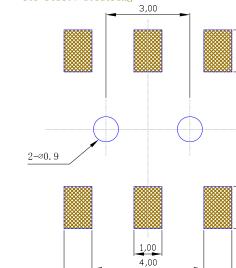
SMT were soldered., thickness control $0.13 mm \; MAX$

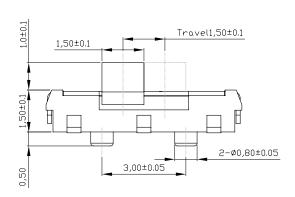
| WRITTEN BY | CHECKED BY | APPROVED BY |
|------------|------------|-------------|
| LBW | HGX | CQB |

P.C.B MOUNTING PATTERN DIMENSION

the following soldering are recommended for reflow soldering







7,00±0.2

2,50

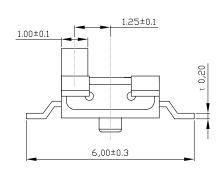
2,50

0,50

借(通)用件登记

旧底图总号

校



技术参数

| NO | 项目 | 参 数 |
|----|-------|---------------------------|
| 1 | 额定电流 | 0.3A 5V DC |
| 2 | 接触电阻 | ≤70mΩ |
| 3 | 动 作 力 | $200 \pm 100 gf$ |
| 4 | 行 程 | 1.5 <u>±</u> 0.1mm |
| 5 | 绝缘电阻 | $> \! 100 \text{M}\Omega$ |
| 6 | 抗电强度 | AC250V 50Hz 1Min |
| 7 | 寿 命 | 10,000 сус |

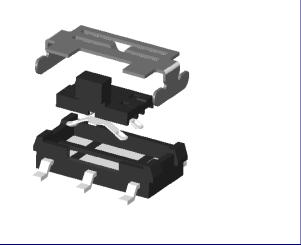
6,00

CIRCUIT DIAGRAM

| 底图 | 总号 | | | | | | | | 未 注 公 | 差 | | | | | | | ÷□ <i>a th</i> | 拨动开关 |
|----|----|-------|-----|----|---------|-----|-----|----|--|---------------|------|----------|-----|------|-------|----------------|----------------|----------------|
| | | | | | | | | | 30 <l< th=""><th>±0.30</th><th>深圳市港</th><th>源实:</th><th>业发展</th><th>有图</th><th>限公</th><th>司</th><th>产品名称</th><th>SLIDE SWITCH</th></l<> | ±0.30 | 深圳市港 | 源实: | 业发展 | 有图 | 限公 | 司 | 产品名称 | SLIDE SWITCH |
| 签 | 字 | | | | | | | | 10 <l≤30< th=""><th><u>±</u>0.25</th><th></th><th></th><th></th><th></th><th></th><th></th><th>产品刑문</th><th>MSK-01P G1/394</th></l≤30<> | <u>±</u> 0.25 | | | | | | | 产品刑문 | MSK-01P G1/394 |
| | | | | | | | | | 5 <l≪10< th=""><th>±0.20</th><th>设计</th><th>20110727</th><th></th><th>UNIT</th><th>SCALE</th><th>PR0J</th><th>/ HH 포 フ</th><th>W3K-01F 01/394</th></l≪10<> | ±0.20 | 设计 | 20110727 | | UNIT | SCALE | PR0J | / HH 포 フ | W3K-01F 01/394 |
| 日 | 期 | | | | | | | | L≪5 | <u>±</u> 0.15 | 审核 | | | mm | 5:1 | • - | | |
| | | 更改文件号 | 标 记 | 日期 | 变 更 内 容 | 担 当 | 审 核 | 批准 | 角 度 | <u>±</u> 2° | 批准 | | | | | | | |

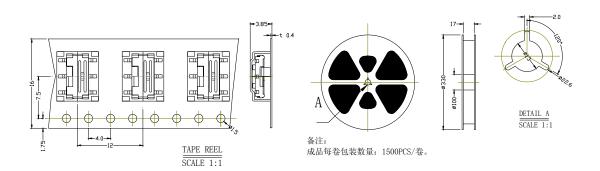
4. Specification 材质

| NO | Part Name | QT'Y | Material | Specification |
|----|-----------|------|----------|---------------|
| | 名称 | 数量 | 颜 色 | 材 质 |
| 1 | 盖板 | 1 | 本色 | 不锈钢 |
| 2 | 手柄 | 1 | 黑色 | PPA |
| 3 | 簧片 | 2 | 银白色 | 覆银铜 |
| 4 | 基座 | 1 | 黑色 | LCP |
| 5 | 端子 | 1 | 银白色 | 黄铜镀银 |



Photos 照片

5.Reel page 编带尺寸



WRITTEN BY CHECKED B Y APPROVED B Y