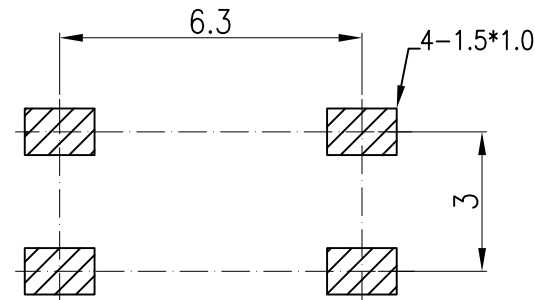
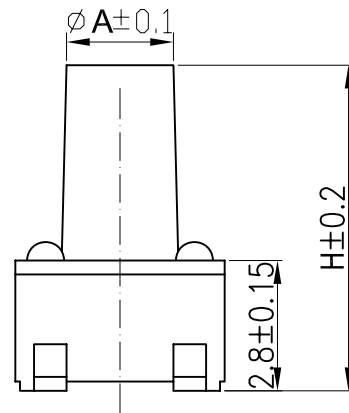
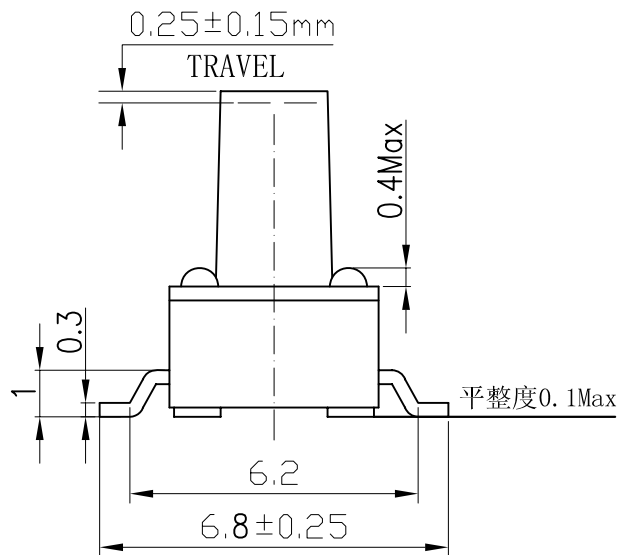
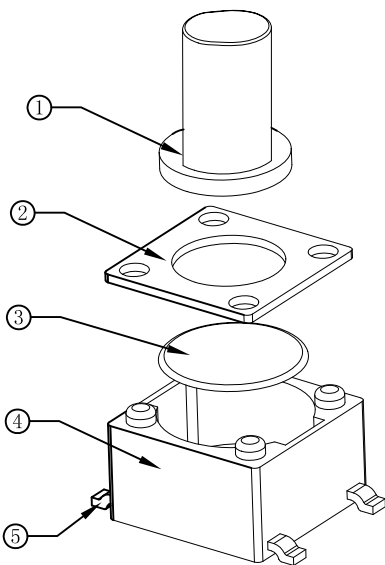


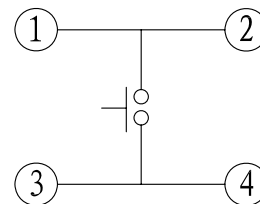
RoHS
REACH



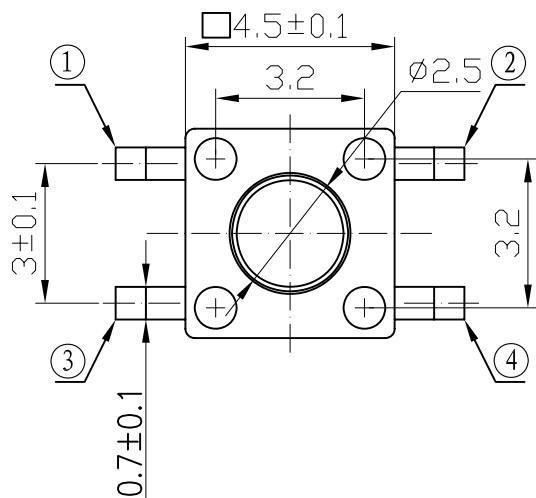
PCB线路板安装图(±0.1)

技术参数:

1. 做用温度: -25~+85°C;
2. 额定负荷: DC 12V 50mA;
3. 接触电阻: ≤50mΩ;
4. 绝缘电阻: ≥100MΩ;
5. 耐 压: AC250V (50Hz)/min;



电路图



| A | H(高度) |
|------|-------|
| Ø2.5 | 3.8 |
| Ø2.5 | 4.3 |
| Ø2.5 | 4.5 |
| Ø2.3 | 4.8 |
| Ø2.3 | 5.0 |
| Ø2.2 | 6.0 |
| Ø2.2 | 7.0 |
| Ø2.1 | 8.0 |

| 序号 | 零件名称 | 材料规格 | 表面处理 | 数量 | 备注 |
|----|------|----------|-------------|----|----|
| 5 | 接触脚 | 黄铜 | 镀银0.2um | 1 | |
| 4 | 基座 | PPA (黑色) | —— | 1 | |
| 3 | 簧片 | 不锈钢 | Ag/Ni 0.2um | 1 | |
| 2 | 盖板 | 冷轧钢带 | 铜锡2.0um | 1 | |
| 1 | 按钮 | PPA (黑色) | —— | 1 | |

| 未注尺寸公差(mm) | | | |
|------------|-------|-------|-------|
| 0~3 | ±0.05 | ±0.10 | ±0.20 |
| >3~6 | ±0.05 | ±0.10 | ±0.30 |
| >6~30 | ±0.10 | ±0.20 | ±0.50 |
| >30~120 | ±0.15 | ±0.30 | ±0.80 |
| 角度 | ±1° | | |

| | |
|-----|--|
| 设计 | |
| 审核 | |
| 标准化 | |
| 批准 | |

| |
|--------------------------------------|
| 产品名称: 轻触开关 |
| 产品型号: TD-10XA-□□ |
| 产品图号: 4.5*4.5贴片6.8间距 |
| HAOFU ELECTRONICS TECHNOLOGY CO.,LTD |

| | |
|----|-----|
| 图面 | A4 |
| 单位 | MM |
| 比例 | |
| 重量 | |
| 页码 | 1/1 |
| 版次 | A/0 |

TACT SWITCH SPECIFICATION(轻触开关说明书)

1. General specification 基本说明

1.1 Scope 范围 This specification covers the requirements for single key switches which have no keytop (TACT SWITCHES:MECHANICAL CONTACT). 此规范含盖单推柄和无推柄的轻触开关要求。

1.2 Operating Temperature Range 使用温度范围
-20 to 70 °C (normal humidity, normal press). 正常湿度, 标准压力

1.3 Storage Temperature Rang 保存温度范围
-20 to 80 °C (normal humidity, normal press).

1.4 Test Conditions 测试条件

Tests and measurements shall be made in the following standard cnditions unless otherwise specified:
测试和计量按下列标准条件除非特殊说明

Normal temperature (temperature 5 to 35°C) 标准温度

Normal humidity (relative humidity 45 to 85%) 正常湿气

Normal pressure (pressure 860 to 1060 mbars) 标准压力

In case any question arises from the judgement made, tests shall be conducted in the following conditions:

Temperature (20±2°C) 温度

Relative humidity (65±5%) 相对湿度

Pressure (860 to 1060 mbars) 压力

2. APPEARANCE, STYLE, AND DIMENSIONS 外形, 类型和尺寸

2.1 Appearance 外形

There shall be no defects that affect the serviceability of the product 外形必须无缺陷才不影响产品适用性

2.2 Style and Dimensions 类型和尺寸

Shall conform to the assembly drawings. 符合装配图

3. TYPE OF ACTUATION 动作类型

Tactile feedback 轻触返回

4. CONTACT ARRANGEMENT 1 poles 1 throws 接触形式 1 接点 1 回路

(Details of contact arrangement are given in the assembly drawings).

细接点形式在装配图中

5. MAXIMUM RATINGS DC 12 V 10 mA 最大额定值

| | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|-------------|--|
| | | | | | | APPD | CHKD | DSGD | TD-10XA-6.0 | |
| | | | | | | | | | 1/7 | |
| ZONE | SYMB | DATE | APPD | CHKD | DSGD | | | | | |

TACT SWITCH SPECIFICATION(轻触开关说明书)

6.2 Mechanical 机械特性

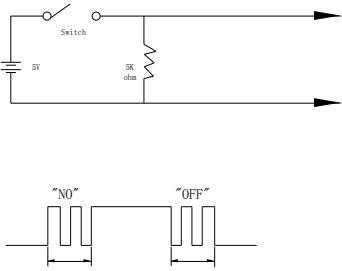
| Item 项目 | Test Condition 试验条件 | Requirements 规格 |
|--|--|--|
| 6.2.1. Actuating Force 动作力 | Placing the switch such that the direction of switch operation is vertical and then gradually increasing the load applied to the center of the stem, the maximum load required for the stem to come to a stop shall be measured. 开关的动作方向为垂直放置开关向推柄中心逐渐增加负荷直到推柄停止时所测量的最大负荷 | 160gf±30 gf |
| 6.2.2. Travel 行程 | Placing the switch such that the direction of switch operation is vertical and then applying a static load twice the actuation force to the center of the stem, the travel distance for the stem to come to a stop shall be measured. 开关的动作方向为垂直放置开关，在已有行程的推柄中心向上减小压力，推柄回到自由位置时所测量到的力 | 0.25±0.15mm |
| 6.2.3. Return Force 返回力 | The sample switch is installed such that the direction of switch operation is vertical and, upon depression of the stem in its center the whole travel distance ,the force of the stem to return to its free position shall be measured. 开关的动作方向垂直放置开关，在已有行程的推柄中心向上减小压力，推柄回到自由位置时所测量到的力 | 80gf min |
| 6.2.4. Stop Strength 静止强度 | Placing the switch such that the direction of switch operation is vertical, a static load of <u>3</u> kgf shall be applied in the direction of stem operation for a period of <u>60</u> seconds. 开关的动作方向为垂直放置开关，在推柄动作方向施加 3 KG 的静负荷，60 秒时间 | There shall be no sign of damage mechanically and electrically 无机械的和电气的损伤迹象 |
| 6.2.5. Stem Strength 推柄的强度 | Placing the switch such that the direction of switch operation is vertical, the maximum force to withstand a pull applied oppsite to the direction of stem operation shall be measured. 开关的动作方向为垂直放置开关从推柄动作方向反方向施加拉力所测量到的最大承受力 | 3 kgf |

| | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|-------------|--|
| | | | | | | APPD | CHKD | DSGD | TD-10XA-6.0 | |
| | | | | | | | | | 2/7 | |
| ZONE | SYMB | DATE | APPD | CHKD | DSGD | | | | 2/7 | |

TACT SWITCH SPECIFICATION(轻触开关说明书)

6.PERFORMANCE 性能

6.1 Electrical 电气

| Item 项目 | Test Condition 试验条件 | Requirements 要求 |
|--|--|-------------------------------------|
| 6.1.1. Contact Resistance 接触电阻 | Applying a static load twice the actuating force to the center of the stem, measurements shall be made with a 1 kHz small-current contact resistance meter. 用两倍的动作用力作静负载施加于按钮的中心, 并用 1 千赫小电流接触电阻仪测量 | <u>100</u> mΩmax. |
| 6.1.2. Insulation Resistance 绝缘电阻 | Measurements shall be made following application of DC 100 V potential across terminals and across terminals and frame for one minute. 在端子之间, 端子与外壳之间施加 DC100V, 一分种 | <u>100</u> MΩmin |
| 6.1.3. Dielectric Withstanding voltage 电气耐压 | AC250V (50Hz or 60Hz) shall be applied across terminals and across terminals and frame for one minute. 在端子与端子之间, 端子与外壳之间施加 AC250V(50Hz or 60Hz) | There shall be no breakdown 没有击穿 |
| 6.1.4. Bounce 抖动 | Lightly striking the center of the stem at a rate encountered in normal use (3 to 4 operations per sec), Bounce shall be tested at "ON" and "OFF" 在正常使用中(以每秒 3-4 次周期)轻轻地在手柄中心加力, 在通与断瞬间测试抖动。  | <u>5</u> m sec max . |

| | | | | | | | | | |
|------|------|------|------|------|------|-----|------|------|-------------|
| | | | | | | APP | CHKD | DSGD | TD-10XA-6.0 |
| | | | | | | | | | |
| ZONE | SYMB | DATE | APPD | CHKD | DSGD | | | | 3/7 |

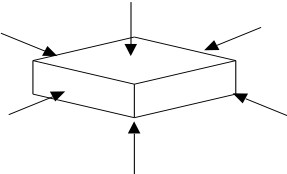
TACT SWITCH SPECIFICATION(轻触开关说明书)

6.3 Environmental 环境

| Item 项目 | Test Condition 试验条件 | Requirements 要求 | | | | |
|--|---|---|------|------|------|------------|
| 6.3.1. Resistance to Low Temperatures 耐低温 | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made: 样品按下列条件进行耐低温试验, 测试前在正常温度和湿度条例上放置 1 小时 (1) Temperature: $-30\pm 2^{\circ}\text{C}$ 温度 (2) Time: 96 hours 时间 (3) Water drops shall be removed 擦除水珠 | Item 6.1 Item 6.2.1 Item 6.2.2 | | | | |
| 6.3.2. Heat Resistance 耐热 | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made: 样品按下列条件进行耐热试验, 测试前在正常温度和湿度条件下放置 1 小时 (1) Temperature: $80\pm 10^{\circ}\text{C}$ 温度 (2) Time: 96 hours 时间 | Item 6.1 Item 6.2.1 Item 6.2.2 | | | | |
| 6.3.3. Moisture Resistance 耐潮湿 | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made: 样品按下列条件进行耐潮湿试验, 测试前在正常温度和湿度条件下放置 1 小时 (1) Temperature: $60\pm 2^{\circ}\text{C}$ 温度 (2) Relative humidity: 90 to 95% 相对湿度 (3) Time: 96 hours 时间 (4) Water drops shall be removed 擦除水珠 | Contact resistance: 100 m ohm max 接触电阻 Insulation resistance 100 M ohm min. 绝缘电阻 Item 6.1 Item 6.2.1 Item 6.2.2 | | | | |
| 6.3.4. Temperature Cycling 温度循环 | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made. 样品按下列条件进行温度循环试验, 测试前在正常温度和湿度条件下放置 1 小时 During this test, water drops shall be removed, 在试验期间, 擦除水珠。 <div style="text-align: center;"> </div> | Item 6.1 Item 6.2.1 Item 6.2.2 | | | | |
| | APPD CHKD DSGD | TD-10XA-6.0 | | | | |
| ZONE | SYMB | DATE | APPD | CHKD | DSGD | 4/7 |

TACT SWITCH SPECIFICATION(轻触开关说明书)

6.4 Endurance 耐久性

| Item 项目 | Test Condition 试验条件 | Requirements 要求 |
|--|--|--|
| <p>6.4.1. Operating Life 动作寿命</p> | <p>Measurements shall be made following the test set forth below:</p> <p>(1)DC 5V 5mA resistive load . DC 5V 5mA 阻性负载</p> <p>(2) Rate of operation : 2 to 3 operations per second 动作频率: 2-3 次/每秒</p> <p>(3)Depression : 160±30 gf 动作力</p> <p>(4) Cycles of operation : 100,000cycles 动作次数 100,000</p> | <p>Contact resistance: 100mΩ max 接触电阻</p> <p>Insulation resistance 100MΩmin. 绝缘电阻</p> <p>Actuating force: 动作力 + <u>30</u> % or -<u>30</u>%of initial force. ±30%初始动作力</p> <p style="text-align: center;">Item 6.1.3 Item 6.2.2</p> |
| <p>6.4.2. Vibration Resistance 耐振动</p> | <p>Measurements shall be made following the test set forth below: 按下列条件进行抗振动试验</p> <p>(1) Range of oscillation : 10 to 55 Hz 频率范围</p> <p>(2) Amplitude,pk-to -pk : 1.5mm 振幅: 峰-峰 1.5mm</p> <p>(3) Cycle of sweep : 10-55-10Hz in one minute, approx</p> <p>(4) Mode of sweep : Logarithmically sweep or</p> <p>(5) uniform sweep. 扫描周期: 10-55-10-Hz 约一分钟内</p> <p>(6) Direction of oscillation: 振动方向 Three mutually perpendicular directions, including the direction of stem travel, 3 个相互垂直方向, 包括推柄行程方向</p> <p>(7) Duration of testing 持续时间 2 hours each ,for a total of 6hours. 每方向 2 小时, 共 6 小时</p> | <p>Item 6.1 Item 6.2.1 Item 6.2.2</p> |
| <p>6.4.3. Impact Shock Resistance 抗冲击</p> | <p>Measurements shall be made following the test set forth below: 按下列条件进行冲击试验</p> <p>(1) Acceleration : 80g 加速度</p> <p>(2) Cycles of test :3 cycles each in 6 directions,</p> <p>(3) for a total of 18cycles 试验次数: 每个方向 3 次, 6 个方向共 18 次</p> <div style="text-align: center;">  </div> | <p>Item 6.1 Item 6.2.1 Item 6.2.2</p> |

| | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|-------------|--|
| | | | | | | APPD | CHKD | DSGD | TD-10XA-6.0 | |
| | | | | | | | | | 5/7 | |
| ZONE | SYMB | DATE | APPD | CHKD | DSGD | | | | | |

TACT SWITCH SPECIFICATION(轻触开关说明书)

7.Conditions for soldering 焊接条件

wave-soldering conditions 波峰焊条件

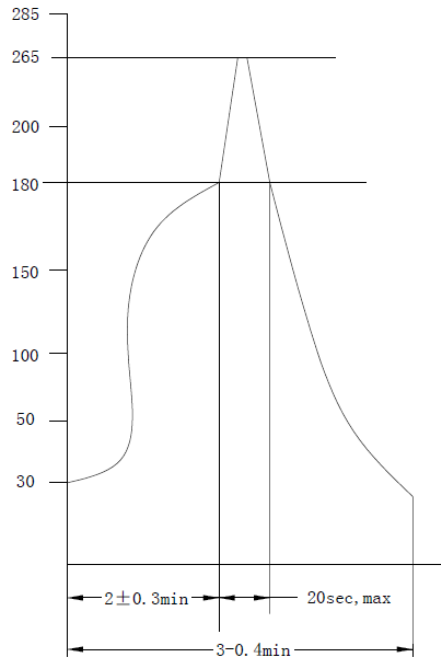
Preheat: Temperature on the copper foil surface should reach 180°C, 2±0.3 minutes after

The P.W. B entered into the soldering equipment

预热：在 P.W.B(印刷线路板)进入焊接设备后，2±0.3 分钟内铜箔表面要达到 180°C

Soldering heat: Temperature on the copper foil surface should reach the peak temperature of 265°C within 20 seconds after the P.W.B entered into soldering heat zone.

焊接温度：在 P.W.B (印刷线路板)进入焊接温区 20 秒内，铜箔表面达到峰值温度 265°C



Time inside soldering Equipment

Temperature Profile

| | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|-------------|--|
| | | | | | | APPD | CHKD | DSGD | TD-10XA-6.0 | |
| | | | | | | | | | | |
| | | | | | | | | | 6/7 | |
| ZONE | SYMB | DATE | APPD | CHKD | DSGD | | | | | |

TACTING SWITCH SPECIFICATION

7.1 Other precautions 其他注意事项

(1) Following the soldering process,do not try to clean the switch with a solvent or the like .

进行焊接过程中，不可以用溶剂或类似品清洗开关

(2) Safeguard the switch assembly against flux penetration from its topside.

防止助焊剂从开关的顶端渗入。

(3) Please have the products keep in close status and the storage time is 90 days guaranty after delivering the goods at most.

交货后保证开关处于封密状态并库存时间不超过 90 天以上

| | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|-------------|--|
| | | | | | | APPD | CHKD | DSGD | TD-10XA-6.0 | |
| | | | | | | | | | | |
| ZONE | SYMB | DATE | APPD | CHKD | DSGD | | | | 7/7 | |

Dimension Inspection Report

| | | | | |
|----------------------|---|------------------------|---------------|-----------|
| PN | E170002521 | 供应商名称 Supplier Name | 东莞市皓富电子科技有限公司 | |
| 物料名称 Product Name | 4.5*4.5*H6.0mm, SMT, 力度160g, 型号:TD-10XA-6.0 | 测量人员Tester | 张也成 | |
| 版次 Rev | T1 | MR号 | 日期 Date | 2021/3/20 |

测试仪器 Equipment:

A.工具显微镜 B.千分尺 C.卡尺 D.钢卷(直)尺 E.塞规 F.高度尺 G.万用表
H.光功率计 I.光谱仪 J.漏电流测试仪 K.显微镜 L.数字磁通计 M.影像测试仪 N.中心距卡尺

| NO. | spec (mm) | +Tol | -Tol | 1# | 2# | 3# | 4# | 5# | Pass/Fail | 测量仪器 | Remark |
|-----|--------------|------|------|--------|--------|--------|--------|--------|-----------|------|--------|
| 1 | 1.00 | | | 1.0100 | 0.9800 | 1.0000 | 0.9900 | 1.0000 | | M | |
| 2 | 0.30 | | | 0.320 | 0.330 | 0.310 | 0.300 | 0.320 | | M | |
| 3 | 0.25±0.15 | 0.40 | 0.10 | 0.240 | 0.250 | 0.250 | 0.230 | 0.240 | | F | |
| 4 | 0.4 + 0/-0.1 | 0.40 | 0.30 | 0.3800 | 0.3500 | 0.3700 | 0.3900 | 0.4000 | | M | |
| 5 | 0.1 + 0/-0.1 | 0.10 | 0.00 | 0.0500 | 0.0600 | 0.0400 | 0.0500 | 0.0500 | | M | |
| 6 | 6±0.2 | 6.20 | 5.80 | 6.01 | 6.03 | 5.99 | 6.02 | 6.00 | | C | |
| 7 | 2.2±0.1 | 2.30 | 2.10 | 2.21 | 2.19 | 2.18 | 2.20 | 2.23 | | C | |
| 8 | 2.8±0.15 | 2.95 | 2.65 | 2.8500 | 2.8600 | 2.8400 | 2.8500 | 2.8100 | | C | |
| 9 | 3±0.1 | 3.10 | 2.90 | 3.0500 | 3.0000 | 3.0100 | 3.0200 | 3.0100 | | M | |
| 10 | 0.7±0.1 | 0.80 | 0.60 | 0.7200 | 0.7100 | 0.7100 | 0.7200 | 0.7100 | | C | |
| 11 | 4.5±0.1 | 4.60 | 4.50 | 4.5200 | 4.5500 | 4.5400 | 4.4900 | 4.5000 | | C | |
| 12 | 3.20 | | | 3.2100 | 3.2100 | 3.2000 | 3.1900 | 3.2000 | | M | |
| 13 | 2.50 | | | 2.5100 | 2.5100 | 2.5000 | 2.5200 | 2.5000 | | M | |
| 14 | 3.20 | | | 3.2100 | 3.2100 | 3.2000 | 3.1900 | 3.2000 | | M | |
| 15 | 6.20 | | | 6.21 | 6.22 | 6.21 | 6.23 | 6.20 | | M | |
| 16 | 6.8±0.25 | 7.05 | 6.55 | 6.850 | 6.870 | 6.880 | 6.800 | 6.820 | | C | |
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备注Remark

未标公差部分全部按照±0.10mm;

| | | |
|--------------|------------|-------------|
| Inspected by | Checked by | Approved by |
| | | |

CPK Report

| Part Number(料号) | E170002521 | | | | Vendor(供应商) | 东莞市皓富电子科技有限公司 | | | |
|-----------------------|-----------------------|-------|-------|-------|------------------|---------------|-------|-------|--|
| Description(零件名称) | 轻触按键 | | | | Inspected(确认者) | 陈贵昌 | | | |
| Modle Number(型号) | 力度160g,型号:TD-10XA-6.0 | | | | Inches/MM(英寸/毫米) | 毫米/MM | | | |
| Revision(版本) | V-1 | | | | Date(日期) | 2021-03-19 | | | |
| Dim. Designator(尺寸序号) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Upper Limit(规格上限) | 4.60 | 6.20 | 0.80 | 2.30 | 2.95 | 7.05 | 0.40 | 0.10 | |
| Lower Limit(规格下限) | 4.40 | 5.80 | 0.60 | 2.10 | 2.65 | 6.55 | 0.20 | 0.01 | |
| 1.000 | 4.510 | 6.020 | 0.700 | 2.220 | 2.840 | 6.850 | 0.330 | 0.040 | |
| 2.000 | 4.500 | 6.010 | 0.740 | 2.230 | 2.800 | 6.860 | 0.300 | 0.050 | |
| 3.000 | 4.520 | 6.020 | 0.700 | 2.210 | 2.810 | 6.840 | 0.330 | 0.050 | |
| 4.000 | 4.520 | 6.010 | 0.730 | 2.220 | 2.840 | 6.850 | 0.300 | 0.050 | |
| 5.000 | 4.500 | 6.020 | 0.720 | 2.200 | 2.820 | 6.840 | 0.330 | 0.060 | |
| 6.000 | 4.550 | 6.010 | 0.720 | 2.230 | 2.850 | 6.830 | 0.300 | 0.050 | |
| 7.000 | 4.550 | 6.030 | 0.740 | 2.220 | 2.830 | 6.850 | 0.310 | 0.050 | |
| 8.000 | 4.500 | 6.010 | 0.710 | 2.230 | 2.780 | 6.830 | 0.300 | 0.050 | |
| 9.000 | 4.540 | 6.030 | 0.720 | 2.240 | 2.820 | 6.840 | 0.310 | 0.050 | |
| 10.000 | 4.510 | 6.020 | 0.730 | 2.220 | 2.820 | 6.830 | 0.300 | 0.040 | |
| 11.000 | 4.510 | 6.010 | 0.710 | 2.230 | 2.810 | 6.850 | 0.320 | 0.050 | |
| 12.000 | 4.490 | 6.000 | 0.730 | 2.240 | 2.790 | 6.820 | 0.300 | 0.050 | |
| 13.000 | 4.500 | 6.010 | 0.710 | 2.190 | 2.810 | 6.850 | 0.330 | 0.050 | |
| 14.000 | 4.510 | 5.990 | 0.720 | 2.210 | 2.790 | 6.820 | 0.320 | 0.040 | |
| 15.000 | 4.500 | 6.010 | 0.710 | 2.230 | 2.810 | 6.850 | 0.320 | 0.050 | |
| 16.000 | 4.530 | 5.980 | 0.730 | 2.180 | 2.790 | 6.840 | 0.320 | 0.060 | |
| 17.000 | 4.520 | 6.010 | 0.710 | 2.220 | 2.800 | 6.850 | 0.320 | 0.050 | |
| 18.000 | 4.550 | 6.030 | 0.720 | 2.210 | 2.820 | 6.830 | 0.300 | 0.040 | |
| 19.000 | 4.500 | 6.030 | 0.710 | 2.220 | 2.810 | 6.850 | 0.320 | 0.050 | |
| 20.000 | 4.520 | 6.020 | 0.730 | 2.200 | 2.840 | 6.820 | 0.310 | 0.050 | |
| 21.000 | 4.540 | 5.990 | 0.710 | 2.230 | 2.810 | 6.810 | 0.310 | 0.030 | |
| 22.000 | 4.530 | 6.030 | 0.700 | 2.220 | 2.830 | 6.850 | 0.310 | 0.050 | |
| 23.000 | 4.513 | 6.020 | 0.710 | 2.230 | 2.820 | 6.820 | 0.300 | 0.070 | |
| 24.000 | 4.498 | 6.010 | 0.730 | 2.210 | 2.810 | 6.850 | 0.320 | 0.050 | |
| 25.000 | 4.530 | 6.020 | 0.710 | 2.220 | 2.840 | 6.830 | 0.300 | 0.080 | |
| 26.000 | 4.500 | 6.010 | 0.720 | 2.200 | 2.810 | 6.850 | 0.320 | 0.050 | |
| 27.000 | 4.500 | 6.030 | 0.720 | 2.220 | 2.820 | 6.840 | 0.330 | 0.050 | |
| 28.000 | 4.520 | 6.050 | 0.710 | 2.230 | 2.810 | 6.850 | 0.310 | 0.050 | |
| 29.000 | 4.500 | 6.010 | 0.715 | 2.210 | 2.820 | 6.870 | 0.320 | 0.050 | |
| 30.000 | 4.530 | 6.020 | 0.710 | 2.240 | 2.840 | 6.850 | 0.300 | 0.040 | |
| 31.000 | 4.520 | 6.010 | 0.720 | 2.190 | 2.860 | 6.820 | 0.310 | 0.050 | |
| MAX. | 4.550 | 6.050 | 0.740 | 2.240 | 2.860 | 6.870 | 0.330 | 0.080 | |
| MIN. | 4.490 | 5.980 | 0.700 | 2.180 | 2.780 | 6.810 | 0.300 | 0.030 | |
| AVERAGE | 4.52 | 6.02 | 0.72 | 2.22 | 2.82 | 6.84 | 0.31 | 0.05 | |
| STDEV | 0.02 | 0.01 | 0.01 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | |
| CP | 1.93 | 4.81 | 3.07 | 2.19 | 2.67 | 5.89 | 3.03 | 1.68 | |
| Cpk | 1.61 | 4.44 | 2.53 | 1.80 | 2.35 | 4.95 | 2.64 | 1.49 | |
| TOOLING(测量工具) | 高度尺 | 高度尺 | 高度尺 | 高度尺 | 高度尺 | 高度尺 | 影像测试仪 | CCD | |

东莞市皓富电子科技有限公司

鹽水噴霧試驗記錄表

客戶：台德

日期：2020年11月15日

| | | | | | |
|-----------------------------|---|--|-------|------------|-----|
| 料號/品名 | TD-10XA-6.0 | 試驗樣品數量 | 5PCS | 生產序號 | |
| 試驗時間 | 2020年11月15日06:30---2020年11月16日06:30 | | | | 24H |
| 實驗有否中斷 | <input type="checkbox"/> 又中斷 <input checked="" type="checkbox"/> 無中斷 | 試驗中斷原因 | | | |
| 項次 | 試驗條件 | | | 試驗前樣品 | |
| | 項目 | 條件 | 實測 | | |
| 1 | 氯化鈉品質 | 試藥一級 | | | |
| 2 | 蒸餾水品質 | 純水 | YES | | |
| 3 | 噴霧器噴霧量 | 1.5-2.0ML/8+0C m ² /h | 1.8 | | |
| 4 | 收集溶液室溫的比重貨清 | 鹽水溶度5% | 5% | | |
| 5 | PH值 | 6.5-7.2 | 6.9 | | |
| 6 | 試樣種類 | <input checked="" type="checkbox"/> 銅/鎳 <input checked="" type="checkbox"/> 鍍銀/鎳 <input type="checkbox"/> 鍍錫/鎳 <input type="checkbox"/> 鍍鋅 | | | |
| 7 | 壓縮空氣壓力 | 1.0±0.1Kgf/c m ² | 1.5 | | |
| 8 | 試驗室相對濕度 | 85%以上 | 90% | | |
| 9 | 試驗室溫度 | 35±1℃ | 35℃ | | |
| 10 | 壓力桶溫度 | 47±1℃ | 47℃ | | |
| 試樣表面外觀的變化 | | | 評定等級 | 腐蝕率r (%) | |
| a.無變化 | | | 10 | 0 | |
| b.輕微到中度的變色 | | | 9 | 0<r≤0.25 | |
| c.嚴重變色到極微的發光 | | | 8 | 0.25<r≤0.5 | |
| d.輕微的發光貨出現極微的腐蝕產物 | | | 7 | 0.5<r≤0.1 | |
| e.嚴重失光或在試樣局部表面上布有薄層的腐蝕產物或點蝕 | | | 6 | 1<r≤2 | |
| f.有腐蝕物貨點蝕且其中之一集中分佈在此整個試樣表面上 | | | 5 | 2<r≤4 | |
| g.整個表面上布有厚的腐蝕產物層或點蝕，並有深的點蝕 | | | 4 | 4<r≤8 | |
| h.整個表面上布有非常厚的腐蝕產物或點蝕，並有深的點蝕 | | | 3 | 8<r≤16 | |
| i.出現基體金屬腐蝕 | | | 2 | 16<r≤32 | |
| 判定 | 1.依據[CNS4158,H2040標準】判定為 9 級. 2. <input checked="" type="checkbox"/> 合格 <input type="checkbox"/> 不合格 | | | | |
| 核准 | 張茂軍 | 審查 | 李小勤 | 製錶 | 李依依 |

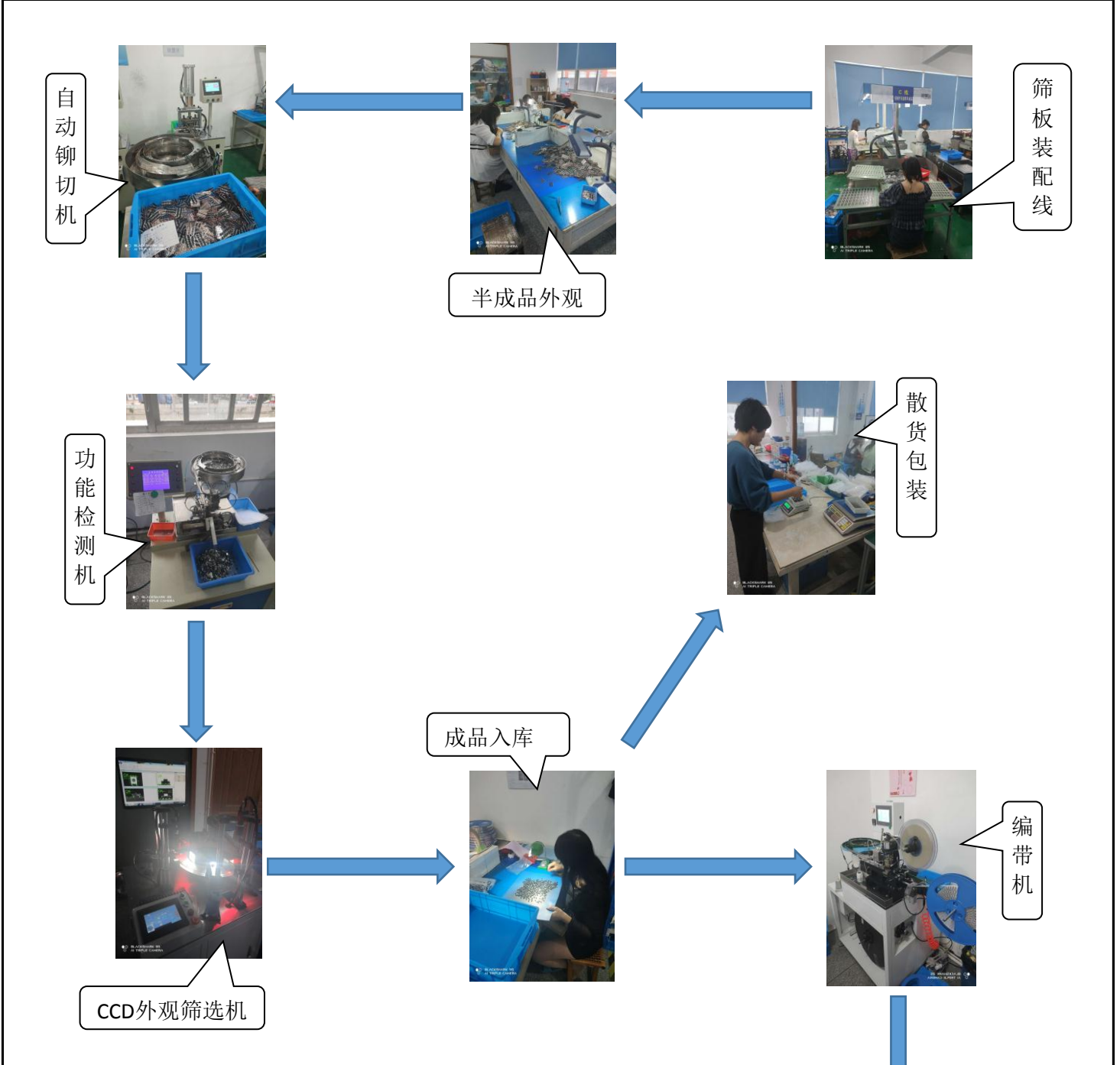
保存位置：品保課

保存期限：3年

表格編號：CD03-10(A0)

东莞市皓富电子科技有限公司

| | | | | | | | | | |
|------------|-----------|----|-----|--------------------|-----|----|-----|--|--|
| 文件编号 | 编制日期 | 页数 | 版本 | TD-10XA系列开关生产流程工艺卡 | | | | | |
| HF-SOP-001 | 2018/5/18 | 1 | A/0 | 编制 | 胡纪云 | 审批 | 胡华清 | | |



| 设备名称 | 作业类型 | 标准工时 | 人员配置 |
|--------|------|------|------|
| 筛板装配线 | 组装 | 8 | 3 |
| 半成品外观检 | 检验 | 8 | 1 |
| 自动铆切机 | 成型 | 8 | 1 |
| 功能检验机 | 检验 | 8 | 1 |
| CCD筛选机 | 检验 | 8 | 1 |
| 成品入库检 | 检验 | 8 | 1 |
| 散货包装 | 包装 | 8 | 1 |
| 编带机 | 包装 | 8 | 1 |
| 编带查带检 | 检验 | 8 | 1 |

东莞市皓富电子科技有限公司

轻触开关出货检验报告

客户：台德智慧

检验方法：抽检，抽样水准 GB2828 正常单次抽样一般 II 级水准

表单号：QR15-03/A0

| 物料名称 | 轻触开关 | 型号规格 | TD-10XA-6.0 160G | 物料编码 | E170002521 | 批量 | 2000PCS | | |
|----------|--|------|------------------|--------|----------------|------|---------|------|----|
| 生产批号 | 2021012101 | 送货日期 | 2021.02.05 | 报检人/日期 | 黄世超/2021.02.05 | 抽样数 | 5 | | |
| 检验项目 | 技术要求 | 质量特性 | 检验记录 | | | | | 不合格数 | 判定 |
| | | | 1 | 2 | 3 | 4 | 5 | | |
| 外观 | 开关各部件加工良好，表面无锈蚀、油污及其他可见损伤；引脚电镀良好、无锈迹、无氧化、无折断、无弯曲；按键部分应光滑、无毛刺、无突起，与本体结合牢固无松动；开关表面数字或字母标识清晰、完整。 | C | OK | OK | OK | OK | OK | | OK |
| 结构尺寸 | 1、本体长： <u>4.5</u> ，公差 <u>±0.1 mm</u> | C | 4.52 | 4.51 | 4.53 | 4.50 | 4.52 | | OK |
| | 2、本体宽： <u>4.5</u> ，公差 <u>±0.1 mm</u> | | 4.51 | 4.53 | 4.50 | 4.51 | 4.50 | | OK |
| | 3、本体高： <u>6.0</u> ，公差 <u>±0.2 mm</u> | | 6.02 | 6.03 | 6.01 | 6.00 | 6.03 | | OK |
| 包装 | 1、包装标志：标识按要求正确无误，包装标志清晰，无内容欠缺及标志模糊。 | C | OK | OK | OK | OK | OK | | OK |
| | 2、包装质量：外包装应无破损、防潮湿；确保元件不易变形，自动取料时顺畅，盒子不夹住元件。 | D | OK | OK | OK | OK | OK | | OK |
| 功能动作 | 动作特性：按压开关通断准确、清晰，开关动作灵活、无卡滞现象 | B | OK | OK | OK | OK | OK | | OK |
| 电气性能 | 1、接触电阻：常态下接触电阻应 ≤ <u>100mΩ</u> | B | 21 | 18 | 20 | 17 | 23 | | OK |
| | 2、动作力： <u>160±30 gf</u> | | 175 | 183 | 177 | 162 | 178 | | OK |
| | 3、行程： <u>0.20±0.1mm</u> | | 0.21 | 0.23 | 0.22 | 0.24 | 0.21 | | OK |
| 安全性能 | 1、耐电压：端子间施加 AC250V，1 分钟，漏电流不超过 <u>0.5mA</u> ，无绝缘破坏。 | A | OK | OK | OK | OK | OK | | OK |
| | 2、绝缘电阻：端子间施加 DC250V，1 分钟，绝缘电阻在 <u>100MΩ</u> 以上。 | A | OK | OK | OK | OK | OK | | OK |
| 焊接性能 | 250℃ ± 5℃ / 2~3 秒，上锡面积大于 90%。 | B | OK | OK | OK | OK | OK | | OK |
| 机械性能 | 开关引脚应能经受 9.8N 的轴向拉力的作用。试验后，引脚应无脱落、破损、开关应能动作。 | B | OK | OK | OK | OK | OK | | OK |
| RoHS | 符合环保要求，在外包装及最小包装上标注环保标识 | A | OK | OK | OK | OK | OK | | OK |
| 质量特性 | A | B | C | 备注： | | | | | |
| 判定 Ac/Re | 0/1 | 0/1 | 0/1 | | | | | | |
| 供应商综合判定 | <input checked="" type="checkbox"/> 合格 <input type="checkbox"/> 不合格 检验员/日期：朱钺东/2021.02.05 主管签名/日期：樊剑森/2021.02.05 | | | | | | | | |
| 客户综合判定 | <input type="checkbox"/> 合格 <input type="checkbox"/> 不合格 检验员/日期： 主管签名/日期： | | | 备注： | | | | | |

东莞市皓富电子科技有限公司

机械寿命测试报告

| | | | | | | | | | | | | | | | | | | | |
|----------------------------|------|--|--------------------------|--|---|--------------------------|-----------|------------------------------|--------------------------|-----------|--|--------------------------|--|-----------------------------------|----------------------------------|---|--|--|--|
| 系列 SERIES: 轻触开关 | | | | 型号 PART NO: TD-10XA-6.0 | | | | 供应商: 东莞市皓富电子科技有限公司 | | | | | | 开始日期 Begin date: 2020.12.15 | | | | | |
| 测试工序 () | | | | 料号 P/N NO: E170002521 | | | | Test Quantity: 6 pcs | | | | | | 结束日期 End date: 2020.12.22 | | | | | |
| 测试条件 | | | | 寿命测试lifecyle test 100000 次cycles (以 2~3 次/秒钟的速度, 5V 负载) | | | | | | | | | | | | | | | |
| 项目 ITEM | | 接 触 电 阻(单位: mΩ) Contact resistance(unit :MΩ) | | | 作 动 力(单位: gf) Operating force (unit:gf) | | | | | | 绝 缘 阻 抗(单位:MΩ) Insulation resistance (unit:MΩ) | | | 耐 电 压 Withstand voltage | | | | | |
| 规格 Spec | | 100 m Ω or less 以下 | | | 160g±30 gf | | | | | | Between Terminals 端子之间 | | Between Individual Terminals and Frame 端子和外壳之间 | | Between terminals 端子之间 | | Between individual Terminals and Frame 端子和外壳之间 | | |
| 接触阴抗 | | 设置最大范围 (100mΩ) | | | 克力 Forwarding force | | | 回弹力 Retuming force | | | 手感值 Handle value | | | 100mΩ or Less | | Without damage to parts arcing or Breakdown.etc.没有电气故障 | | | |
| | | 测试前 Before test | 测试后 After test | 判 定 | 测试前 Before test | 测试后 After test | 判 定 | 测试前 Before test | 测试后 After test | 判 定 | 测试前 Before test | 测试后 After test | 判 定 | 测试前 Before test | 测试后 After test | 测试前 Before test | 测试后 After tes | | |
| Samp Le | NO.1 | 19 | 30 | OK | 160.1 | 156.1 | OK | 70.4 | 56.9 | OK | 60% | 68% | OK | PASS | PASS | PASS | PASS | | |
| | NO.2 | 22 | 26 | OK | 165.4 | 153.4 | OK | 42.5 | 64 | OK | 75% | 63% | OK | PASS | PASS | PASS | PASS | | |
| | NO.3 | 18 | 36 | OK | 168.3 | 159.3 | OK | 66.7 | 56.65 | OK | 64% | 66% | OK | PASS | PASS | PASS | PASS | | |
| | NO.4 | 20 | 32 | OK | 161.9 | 154 | OK | 52.8 | 57.3 | OK | 71% | 66% | OK | PASS | PASS | PASS | PASS | | |
| | NO.5 | 22 | 39 | OK | 172.15 | 155.3 | OK | 50 | 52.3 | OK | 72% | 68% | OK | PASS | PASS | PASS | PASS | | |
| | NO.6 | 21 | 38 | OK | 175.8 | 156.8 | OK | 58.3 | 55.9 | OK | 69% | 66% | OK | PASS | PASS | PASS | PASS | | |
| 寿 命 实 测 | 编号 | 调试法码力度 (g) | | | 过程跟踪测试记录1 Record 1 | | | 过程跟踪测试记录2 Record 2 | | | 过程跟踪测试记录3 Record 3 | | | 过程跟踪测试记录4 Record 4 | | 实测总次数 Finalrecord | 最终判定 | | |
| | NO.1 | 170 | | | 10000 | | | 30000 | | | 50000 | | | 80000 | | 100000 | OK | | |
| | NO.2 | 170 | | | 10000 | | | 30000 | | | 50000 | | | 80000 | | 100000 | OK | | |
| | NO.3 | 170 | | | 10000 | | | 30000 | | | 50000 | | | 80000 | | 100000 | OK | | |
| | NO.4 | 170 | | | 10000 | | | 30000 | | | 50000 | | | 80000 | | 100000 | OK | | |
| | NO.5 | 170 | | | 10000 | | | 30000 | | | 50000 | | | 80000 | | 100000 | OK | | |
| | NO.6 | 170 | | | 10000 | | | 30000 | | | 50000 | | | 80000 | | 100000 | OK | | |
| 结 果 Result | | | | OK | | | OK | | | OK | | | OK | | OK | OK | | | |
| 判定 JUDGE: OK ■ | | | | NG □ | | | | 测试 TESTED BY: 黄一严 | | | | 确认: CHECKED BY: 张海军 | | | | 审批: APPROVED BY: 王佳仁 | | | |