



**标准&定制开关连接器产品制造商**  
DONG GUAN XI BANG ELECTRONICS CO., LTD.

# 规格书

## SPECIFICATION

CUSTOMER NAME 客户名称: \_\_\_\_\_  
 CUSTOMER NO. 客户编号: \_\_\_\_\_  
 SERIES 系列: 轻触开关  
 MODEL NO. 型号: XB-TS-066  
 DRAWING NO. 图形号: Tact Switches

If specification of this product meets your request, please confirm all the items of it and return to us with signature and stamp, it will be basis of our production and record. Thanks your cooperation in advance!

若此产品规格符合贵司要求，敬请确认此规格书内所有项目  
 并签名和盖章后回传给我司，以作我司产品制作之  
 依据和存档之用，多谢合作！

### EXAMINE & APPROVAL 审批

APPROVE 接受	NOT APPROVE 不接受
SIGNATURE 签署      STAMP 盖章      DATE 日期	

PREPARED BY. 制表人	CHECKED BY. 校对	APPROVED BY. 审核	APPROVAL BY. 批准
<div style="border: 1px solid red; padding: 2px; text-align: center;">研发部</div> <div style="border: 1px solid red; padding: 2px; text-align: center;">戴海明</div> <div style="border: 1px solid red; padding: 2px; text-align: center;">2022. 06. 08</div>	<div style="border: 1px solid red; padding: 2px; text-align: center;">品质部</div> <div style="border: 1px solid red; padding: 2px; text-align: center;">黄自清</div> <div style="border: 1px solid red; padding: 2px; text-align: center;">2022. 06. 08</div>	<div style="border: 1px solid red; padding: 2px; text-align: center;">工程部</div> <div style="border: 1px solid red; padding: 2px; text-align: center;">庞军</div> <div style="border: 1px solid red; padding: 2px; text-align: center;">2022. 06. 08</div>	<div style="border: 1px solid red; padding: 2px; text-align: center;">总经办</div> <div style="border: 1px solid red; padding: 2px; text-align: center;">吴量</div> <div style="border: 1px solid red; padding: 2px; text-align: center;">2022. 06. 08</div>

**东莞市溪榜电子有限公司**

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**Dong Guan XB Electronics Co., Ltd**

Account Number: 705540238

Bank Name: Citibank N. A., Hong Kong Branch

Country/Region: Hong Kong

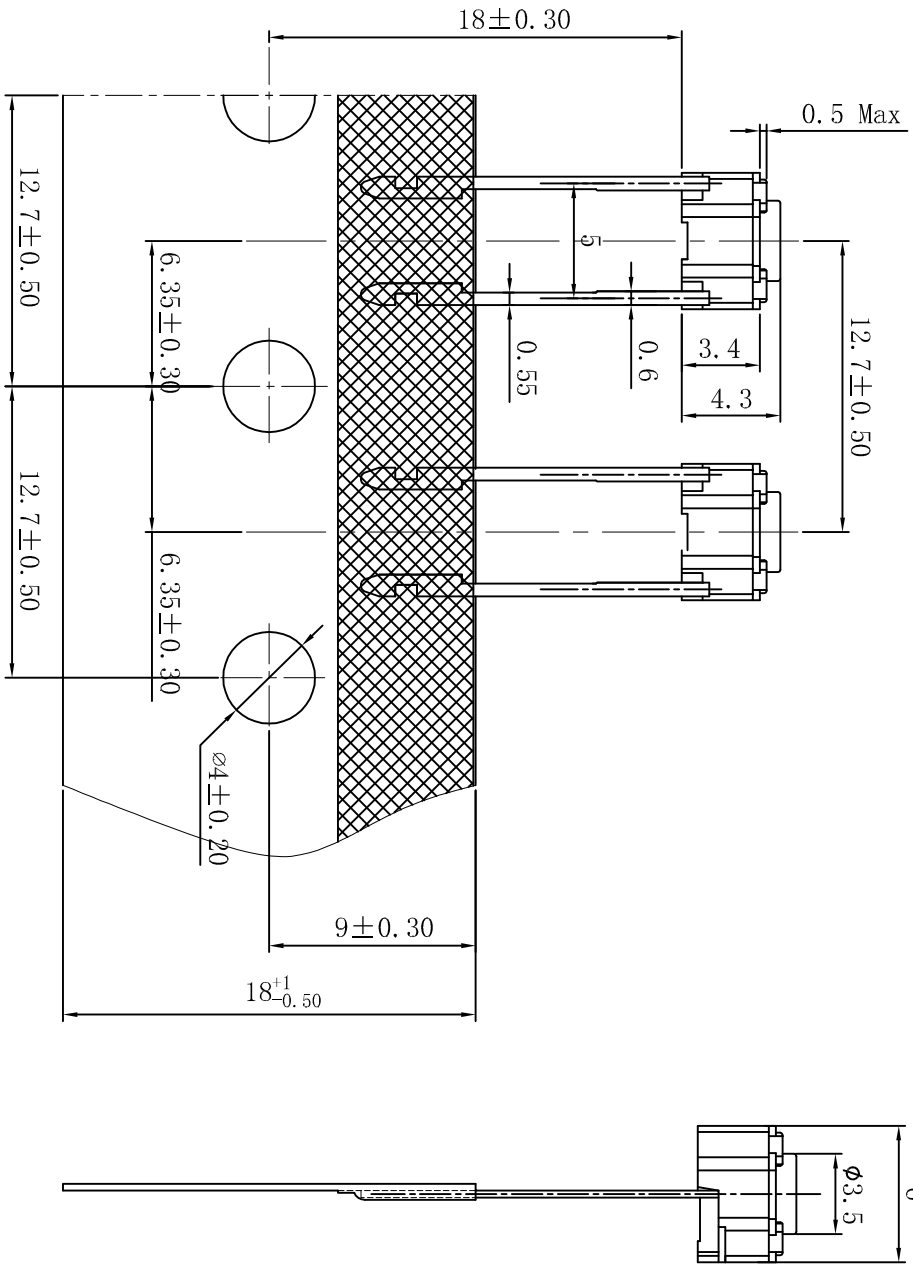
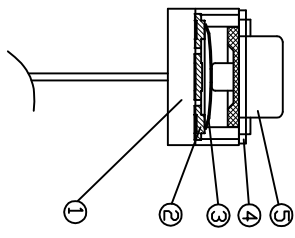
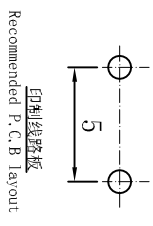
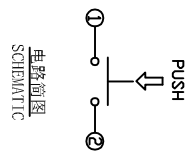
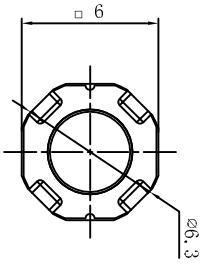
Bank Code: 006

Bank Address: 3 Garden Road, Central, Hong Kong

SWIFT/BIC: CITIHKHX (CITIHKHXXXX\*If 11 characters are required)

MAil: HK@ALPSR.CN    XB@ALPSR.CN

Quality core! Afterburner for Made in China!



1. Rating: DC12V 50mA.
2. Travel: 0.3±0.1mm.
3. Operating Force: 250±50gf.
4. Contact Resistance: 100m Ω Max.
5. Life: 100, 000 Cycles Min.

序号 NO.	名称 DESCRIPTION	数量 Q'TY	材料 MATERIAL	颜色 COLOR	备注 REMARK
5	帽头	1	PPA	白色	—
4	盖板	1	黄铜	—	镀铜锡
3	弹片	1	覆银铜	—	—
2	嵌件	1	黄铜	—	镀银
1	底座	1	PPA	黑色	—

**东莞市长安XI BANG ELECTRONI CS CO., LTD.**

品名: 圆长二脚轻触开关  
料號: PART NO. XB-TS-066  
圖號: DRAWING NO. B 蓋鑲座  
SCALE

工程變更通知單 ECON(DCN) NO.	版本 REV	日期 DATE	說明 DESCRIPTION	更改 CHANGE	承認 APPRO.	公差 UNLESS OTHERWISE NOTED	設計 DESIGN	校對 CHECK	審核 VERIFY	批准 APPROVAL
						Angle 30~ 10~30 ~ 10	±2° ±0.3 ±0.2 ±0.15			



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### 一、GENERAL SPECIFICATION 基本说明

1.Scope 范围 This specification covers the requirements for single key switches which have no key.

(TACT SWITCHES: MECHANICAL CONTACT).此规范含盖单推柄和无推柄的轻触开关要求。

2.Operating Temperature Range 使用温度范围: -40 to 85 °C。

3.Storage Temperature Rang 保存温度范围: -45 to 85 °C。

二、TYPE OF ACTUATION 动作类型: Tactile feedback 轻触返回

三、MAXIMUM RATING 最大额定值: DC 12 V, 50 mA

### 四、TEST ITEM 测试项目

Characteristic 特性	Item 项次	Test Breed 测试种类	Test Condition 测试条件	Test Requirements 测试要求
Appearance 外观	1	Visual Check 目视检查	<b>Without any external force applied and test prior to the visual way to test.</b> 在未施加任何外力及试验前, 以目视方式测试	<b>Not affect the product appearance of products</b> <b>Bad function defects.</b> 产品的外观不能有影响产品功能之不良缺点
Electrical Performance 电气 特性	2	Contact Resistance 接触阻抗	<b>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.</b> 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。	<b><u>100 mΩ</u>Max.</b> 接触阻抗不得高于 100mΩ
	3	Insulation Resistance 绝缘阻抗	<b>Measurements shall be made following application of DC 100 V potential across terminals and across terminals and frame for one minute.</b> 在端子之间, 端子与外壳之间施加 DC100V 一分种。	<b><u>100 MΩ</u>Min</b> 绝缘阻抗不得低于 100MΩ
	4	Dielectric Withstanding Voltage 电气耐压	<b>AC250V (50Hz or 60Hz) shall be applied across terminals and across terminals and frame for one minute.</b> 在端子与端子之间, 端子与外壳之间施加 AC250V(50Hz or 60Hz)。	<b>There shall be no breakdown</b> 没有击穿

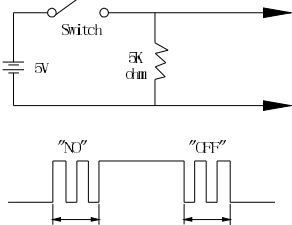
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电气特性 Electrical Performance	5	<b>Bounce</b> 抖动	<p><b>Lightly striking the center of the stem at a rate encountered in normal use ( 3 to 4 operations per sec ), Bounce shall be tested at “ON” and “OFF”.</b></p> <p>在正常使用中(以每秒 3-4 次周期)轻轻地在手柄中心加力，在通与断瞬间测试抖动。</p> 	<p><b>5 m sec max .</b></p> <p>最大为 5 毫秒</p>
机械特性 Mechanical	6	<b>Actuating Force</b> 动作力	<p><b>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.</b></p> <p>以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。</p>	<p>250±50 gf</p>
	7	<b>Travel</b> 行程	<p><b>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 distance required for the stem to come to a stop shall be measured.</b></p> <p>以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距离。</p>	<p>0.30±0.1 mm</p>

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机械 特性 Mechanical	8	<b>Return Force</b> 返弹力	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. 以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。	70gfMin
	9	<b>Stop Strength</b> 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
	10	<b>Stem Strength</b> 推柄强度	Placing the switch such that the direction of switch operation is vertical, the maximum force to withstand a pull applied opposite 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
环境 Environmental	11	<b>Resistance to Low Temperatures</b> 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) <b>Temperature</b> 温度: $-45\pm 2^{\circ}\text{C}$ (2) <b>Time</b> 时间: 96 hours (3) <b>Water drops shall be removed</b> 擦除水珠	<b>Contact resistance:</b> <b>200 m ohm max.</b> <b>Insulation resistance</b> <b>10 M ohm min.</b> 1.接触电阻最大 200 mΩ. 2.绝缘电阻最小 10 MΩ.

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<b>Environmental 环境</b>	12	<b>Heat Resistance</b> 耐热	<p><b>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made.</b>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</p> <p><b>(1) Temperature</b> 温度: 85±2℃ <b>(2) Time</b> 时间: 96 hours</p>	<p><b>Item 2~5</b> <b>Item 6</b> <b>Item 7</b></p>
	13	<b>Moisture Resistance</b> 耐潮湿	<p><b>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made:</b> 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</p> <p><b>(1)Temperature</b> 温度: 40±2℃ <b>(2)Relative humidity</b> 相对湿度: 90 to 95% <b>(3)Time</b> 时间: 96 hours <b>(4)Water drops shall be removed</b> 擦除水珠</p>	<p><b>Contact resistance:</b> <b>200 m ohm max.</b> <b>Insulation resistance</b> <b>10 M ohm min.</b> 1.接触电阻最大 200 mΩ. 2.绝缘电阻最小 10 MΩ.</p> <p style="text-align: center;"><b>Item 2~5</b> <b>Item 6</b> <b>Item 7</b></p>
	14	<b>Temperature Cycling</b> 温度循环	<p><b>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made.</b>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</p> <p><b>During this test, water drops shall be removed.</b>在试验期间，擦除水珠。</p> <div style="text-align: center;"> <p>1 Cycle</p> <p>+60°C</p> <p>-10°C</p> <p>2H H 2H H</p> </div>	<p><b>Item 2~5</b> <b>Item 6</b> <b>Item 7</b></p>

# TACT SWITCH SPECIFICATION

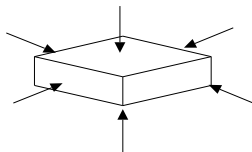
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Characteristic 特性	Item 项次	Test Breed 测试种类	Test Condition 测试条件	Test Requirements 测试要求
Endurance 耐久性	15	Operating Life 动作寿命	<p>Measurements shall be made following the test set forth below:</p> <p>(1) DC 12V 50mA resistive load 阻性负载: DC 12V 50mA</p> <p>(2) Rate of operation : 2 to 3 operations per second 动作频率: 2-3 次/每秒。</p> <p>(3) Depression 动作力: 250±50gf</p> <p>(4) Cycles of operation 动作次数: 100,000 次。</p>	<p><b>1-Contact resistance:</b> 1000m Ω Max 接触电阻</p> <p><b>2-Insulation resistance</b> 100M Ω min. 绝缘电阻</p> <p><b>3-action force attenuation rate was 30% of the initial value</b> 动作力衰减率为初始值的 30%左右。</p>
	16	Vibration Resistance 耐振动	<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 频率范围: 10~55 Hz</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 扫描周期:10-55-10-Hz 一分钟内。</p> <p>(4)Mode of sweep : Logarithmically sweep or uniform sweep. 扫描方式:对数扫描或统一扫描。</p> <p>(5)Direction of oscillation: Three mutually perpendicular directions, including the direction of stem travel. 振动方向:3 个相互垂直方向, 包括推柄行程方向</p> <p>(6)Duration of testing :2 hours each ,for a total of 6hours. 持续时间:每方向 2 小时, 共 6 小时</p>	<p>Item 2~5 Item 6 Item 7</p>
	17	Impact Shock Resistance 抗冲击	<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 加速度: 80g</p> <p>(2) Cycles of test :3 cycles each in 6 directions.for a total of 18 cycles. 试验次数: 每个方向 3 次, 6 个方向共 18 次</p>	<p>Item 2~5 Item 6 Item 7</p>



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### 五、Reference welding condition 参考焊接条件

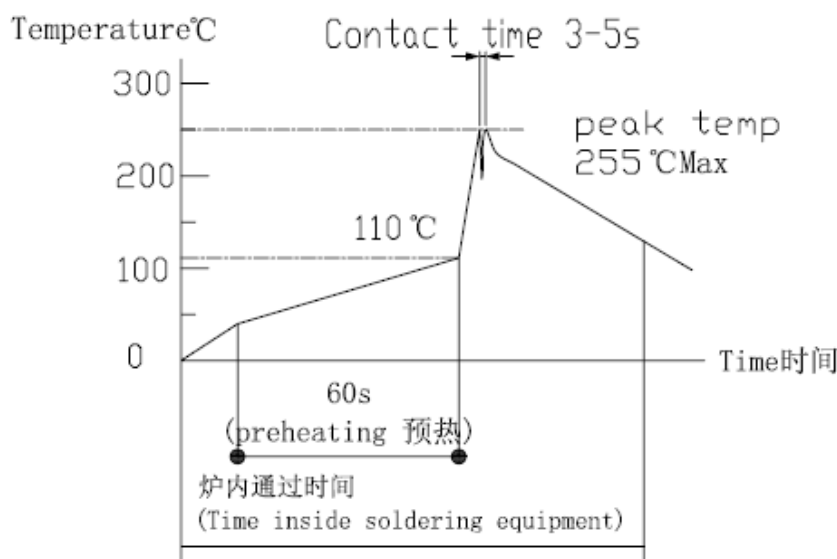
#### 1. Wave soldering conditions 波峰焊条件

**Preheat: In the P.W.B (printed circuit board) to welding equipment, copper foil surface, about 60 seconds to reach 110 °C preheat temperature**

预热：在 P.W.B(印刷线路板)进入焊接设备，约 60 秒内铜箔表面达到 110°C 预热温度

**Soldering heat: In the P.W.B zone (printed circuit board) to the welding temperature, peak temperature control at 255 °C, 3 ~ 5 seconds**

焊接温度：在 P.W.B (印刷线路板)进入焊接区内，波峰峰值温度控制在 255°C，时间 3~5 秒。



#### 2. Hand soldering 手工焊条件

(1) **Ferrochrome temperature: 350°C Max.** 烙铁温度:  $\leq 350^{\circ}\text{C}$

(2) **Continuous soldering time: 3~5S.** 续焊接时间: 3~5S

#### 3. Explain 说明:

(1) **Suggest to use the solder that contained less than 0.2% flux, to avoid the failure of the the switch caused by the flux seep in to switch.**

建议选用含助焊剂 0.2% 以下的锡膏，并避免助焊剂进入开关内而导致开关失效。

(2) **When designing the press handle, please refer to the drawings provided. Do not press the switch directly with a sharp object. The press handle should be placed vertically at the center of the switch, and the shake of the press handle should be controlled within (+) 3 degrees.**

设计按压推柄时，请参考所提供的图纸，切勿以尖状物直接压开关，且压柄需垂直置于开关中心位置按压，并将压柄摇晃度控制在  $\pm 3^{\circ}$  以内。

(3) **When welding switch, special attention should be paid to controlling the temperature and time of welding part within 255 ~3~5 seconds. Otherwise, too high temperature and too long time will lead to damage or shorten the service life of switch.**

开关焊接加工时，应特别注意将焊接部分温度及时间控制在 255°C、3~5 秒内，否则过高的温度及过长的时间会导致开关的损坏或使用寿命减短。

(4) **Switches should be kept in OFF state during welding process to avoid switch damage. Repeated welding is not recommended.**

焊接加工时开关应保持 OFF 状态，以避免开关损坏，不建议重复焊接。



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### 六、Salt Spray 盐雾

#### (1) Test Condition 测试条件

**Under normal conditions (temperature is 35 °C, 5% concentration of brine, continuous spray test), more than 48 hours .**

盐雾：在正常条件下（温度为 35℃，5%的盐水浓度，连续喷雾测试），时间超过 48 小时。

#### (2) Test Requirements 测试要求

**appearance should be good, No matrix exposed phenomenon**

外观应良好，无基体裸露现象。

### 七、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) Storage condition 储存条件

**1. storage time: after delivery to ensure that the switch is in a closed state, please pay attention to the inventory time not more than 90 days**

储存时间：交货后保证开关处于封密状态,请注意库存时间不要超过 90 天以上

**2. storage temperature range: 0°C ~30°C (in the standard atmospheric pressure, standard humidity conditions)**

储存温度范围：0°C~30°C（在标准大气压、标准湿度条件下）

**3. storage relative humidity: 10-70% (warehouse to be equipped with desiccant equipment)**

储存相对湿度：10-70%(仓库需配备除湿设备)