



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-1273XXX series
DRAWING NO.	图 形 号:	Tact Switch

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
研发部 戴海明 2022. 06. 08	品质部 黄自清 2022. 06. 08	工程部 庞军 2022. 06. 08	总经办 吴量 2022. 06. 08

东莞市溪榜电子有限公司

Dong guan Xi Bang Electronics Co., Ltd

地址：广东省东莞市黄江镇合路工业区

**Address:He Lu Industrial Zone, Huangjiang Town
Dongguan City, Guangdong Province**

Tel: (0769)82055138/82056828

Fax:(0769)83663452

邮箱: admin@alspr.com switch@alspr.com

<http://www.alpsr.cn/> <http://www.alpsr.com/>

Dong Guan XB ElectronicsCo., Ltd

AccountNumber: 705540238

BankName: CitibankN.A.,HongKongBranch

Country/Region: Hong Kong

BankCode:006

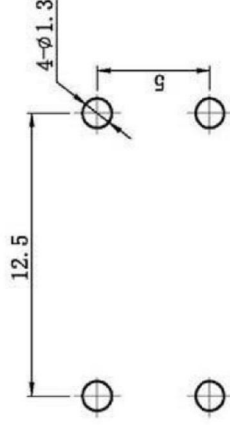
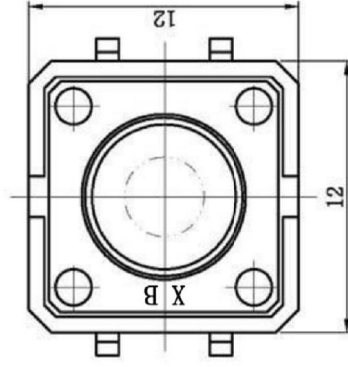
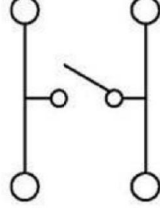
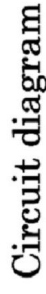
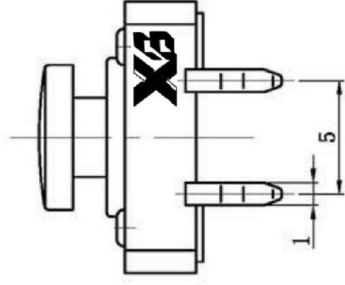
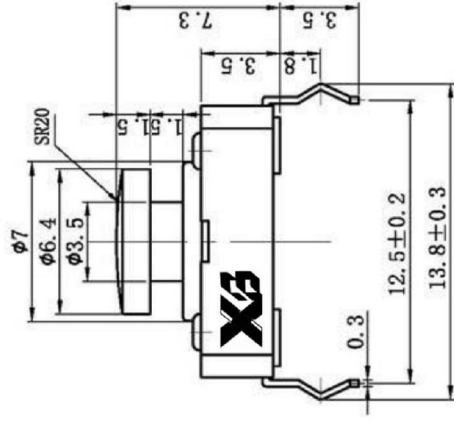
BankAddress: 3GardenRoad, Central, Hong Kong

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

MAiL: HK@ALPSR.CN XB@ALPSR.CN XB@ALPSR.COM

Quality core! Afterburner for Made in China!

ROHS



P.C.B LAYOUT
BOTTOM VIEW

SPECIFICATIONS:

1. Rating: DC12V 50mA
2. Contact Resistance: 50mΩ MAX.
3. Insulation Resistance: 100MΩ MIN.
4. Withstand Voltage: AC 250V for 1 minute
5. Travel: 0.3 ± 0.1 mm
6. Operating Force: 260 ± 50 gf
7. Life: 1,000,000 Cycles MIN.
8. General TOLERANCE: ± 0.3 mm.

NO.	NAME	MATERIAL	NATIONALITY	QTY.	SURFACE
1	TERMINAL	PPA	CHINA TAIWAN	1	Silver plating
2	CASE	PPA	CHINA TAIWAN	1	Black
3	CONTACT	SUS301	KOREA 1		Contact side silver plating
4	COVER	Brass	CHINA	1	CuSn plating
5	STEM	PPA	CHINA	1	Black

		东莞市溪榜电子有限公司 DONG GUAN XI BANG ELECTRONICS CO.,LTD									
TITLE : XB TACT SWITCH MODEL : XB-TS-1273DF						TOLERANCE		ANGLE TOL		<= 1.5mm ± 0.1 > 1.5mm ± 0.2 >= 10.0mm ± 0.3	
						DATE		DATE			
						DATE		DATE			
UNIT : MM	DWN.	ZENQ. CHEN	DATE								
SCALE : 5 : 1	CHK'D	PENG. GAO	DATE								
VERSION 01	APPD.	FEL. LONG. HE	DATE								



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1、 General characteristics

一般特性

1.2 Application

适用范围

This specification is applied to the requirements for TACTILE SWITCH (MECHANICAL CONTACT)

此规格书适用于机械式轻触开关的相关要求

1.3 Operating Temperature Range

使用温度范围

-20℃~70℃ (Normal humidity, normal air pressure)

-20℃~70℃ (在标准大气压、标准湿度条件下)

1.4 Storage Temperature Range

存温度范围

-30℃~80℃ (Normal humidity, normal air pressure)

-30℃~80℃ (在标准大气压、标准湿度条件下)

1.5 Test Conditions

测试条件

Unless otherwise specified, tests and measurement shall be made in the following standard conditions:

如果没有特别说明，测试和测量应在以下标准条件下进行：

Normal temperature.....5℃~35℃

常温.....5℃~35℃

Normal humidity.....relative humidity 45%~85%

标准湿度.....相对湿度 45%~85%

Normal air pressure.....86Kpa~106Kpa

标准大气压.....86KPa~106Kpa

If any doubt arise from the judgment, tests shall be conducted at the following conditions: 对判定结果有争议时，测试和测量应在以下条件下进行：

Temperature.....20℃±2℃

温度.....20℃±2℃

Relative humidity.....65%±5%

相对湿度.....65%±5%

Air pressure.....86KPa~106Kpa

环境气压.....86KPa~106Kpa



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2、Detailed specification

详细说明

2.1 Appearance: There should be no defects that affect the serviceability of product.

外观：应无影响、降低产品性能的缺陷；

2.2 Style and dimension: shall conform to the assemble drawings.

结构尺寸和安装尺寸：应符合装配图要求；

2.3 Type of actuating: Tactile feedback.

操作形式：有触觉反馈的操作；

2.4 Contact arrangement: 1 pole, 1 throw. (Details of contact arrangement are given in the assembly

drawings.)

开关结构：单回路单输出(具体的触点结构在装配图中已绘出)；

2.5 Ratings: 12V DC, 50mA (Effective value)

开关工作额定值：DC 12V, 50mA (有效值)

3、

Electrical specification

电气性能：

ITEM 项目		TEST CONDITIONS试 验 条 件	REQUIREMENTS要求
3.1	Contact Resistance 接触电阻	Applying a static load of 2 times operating force to the center of the stem, measurements shall be made by 5V DC 10mA or more than 1KHZ AC small-current contact resistance meter. 在以 5V 10mA 的直流电源或不低于 1KHz 的交流电源的电路中，以一个等于 2 倍按力的静负荷施加于按键中心	$\leq 50m \ \Omega$
3.2	Insulation Resistance 绝缘电阻	Measurement shall be made following application of 100V DC potential, across terminals, and across terminals and cover, for one minute. 在端子之间施加 DC 100V /1min. 的条件下,测量端子之间以及端子与盖板间的电阻值	$\geq 100M \ \Omega$
3.3	Dielectric voltage proof 介质耐压	250V AC (50HZ or 60HZ) shall be applied across terminals, for one minute. 在端子之间施加 250V AC(50HZ 或 60HZ)/1min.	No dielectric breakdown shall occur. 无击穿现象

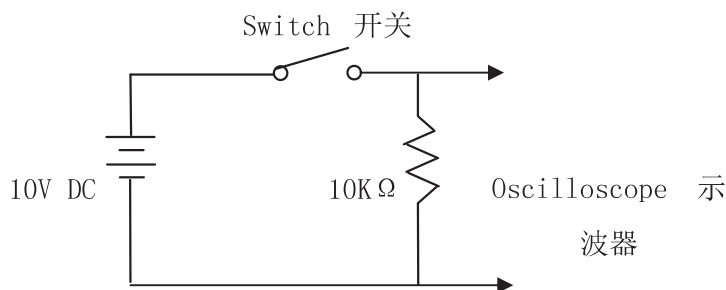
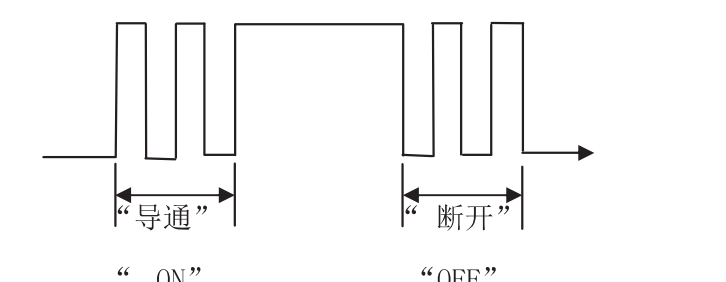


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ITEM 项目		TEST CONDITIONS试 验 条 件			REQUIREMENTS要求
3.4	Contact Bounce 触点跳动	Lightly striking the center of the stem at a rate encountered in normal use (3 to 4 times per second), and bounce shall be tested at “ON” and “OFF” 按照正常使用时的力度轻按按键中心(每秒 3~4 次), 在导通和断开过程中测试开关反弹特性 Switch 开关  10V DC 10K Ω Oscilloscope 示 波器  “ 导通 ” “ 断开 ” “ ON ” “ OFF ”			ON-3msec. max. OFF-8msec. max.
4、Mechanical specification 机械性能:					
4.1	Operating Force 按力	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 switch to come to a stop shall be measured. 开关垂直于操作方向放置, 在开关按键顶端中心逐渐施力, 测量开关导通所需的最大力度。			260±50gf
4.2	Full Travel 最大行程	Placing the switch such that the direction of switch operation is vertical and then applying static load of 2times operating force to the center of the stem; the travel distance for the switch to come to a stop shall be measured. 开关垂直操作方向放置, 以一个等于 2 倍按力的静负荷施加在开关按键顶端中心, 测量顶端移动的距离。			0.3±0.1mm



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ITEM 项目		TEST CONDITIONS试 验 条 件			REQUIREMENTS要求
4.3	Return Force 回弹力	The sample switch is installed such that the direction of switch operation is vertical and upon depressing the stem in its center to the whole travel distance, the force of the stem to return to its free position shall be measured. 开关垂直于操作方向放置,在开关按键顶端中心下降至全行程后,测量顶端向自由位置转换的力度。			40gf.min.
4.4	Stop Strength停 止强度	Placing the switch such that the direction of switch operation is vertical, and then a static load of 30N shall be applied in the direction of stem operation for a period of 1 min. 开关垂直于操作方向放置,从操作方向向按键施加 30N 的静负荷持续 1min。			There shall be no sign of damage mechanically and electrically. 无机械和电气损坏
4.5	Stem Strength 手柄拔出强度	Placing the switch such that the direction of switch operation is vertical, and then the maximum force to withstand a pull applied opposite to the direction of stem operation shall be measured. 开关垂直于操作方向放置,从操作方向的反方向对按键放加拉力,测量按键被拔出的最大拉力。			20N.min.
4.6	Soldering heat Resistance 耐焊接热	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h before measurement are made: 样品应放在常温及标准湿度的环境中 1 小时后,根据下面的测试要求进行测试: 1) Solder temperature : 260 ±5℃焊接温度: 260±5℃ 2) Immersion time: 5s±1s 浸入时间:5s±1s			There shall be no sign of damage mechanically and electrically. 无机械和电气损坏
4.7	Solderability 可焊性	Measurements shall be made following the test set forth below: 在以下设定条件下进行测量: 1) Solder temperature : 245 ±5℃焊接温度:245±5℃ 2) Immersion time: 2s±0.5s 浸入时间:2s±0.5s The other steps please refer to 《GB 5095.6-86》 TEST 12a 对于其它步骤参考 《GB 5095.6—86》 试验 12a			Except for the edge the coating should cover a minimum 90% 除边缘外涂层应均 匀覆盖 90%以上



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5、ENVIRONMENTAL SPECIFICATION

极限电气性能:

ITEM 项目		TEST CONDITIONS试 验 条 件	REQUIREMENTS要求												
5.1	Resistance to low temperature 低温测试	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h. before measurements are made: 根据下面的测试要求进行实验，将样品放置在常温及标准湿度的环境中 1 小时后对其进行测量： 1) Temperature : $-30\pm 2^{\circ}\text{C}$ 温度： $-30\pm 2^{\circ}\text{C}$ 2) Time: 96h 时间：96h	Contact resistance: $\leq 200\text{m}\Omega$ 接触电阻： $\leq 200\text{m}\Omega$ Item 3;4.1;4.2;4.3 项目 3;4.1;4.2;4.3												
5.2	Heat resistance 高 温测试	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h. before measurements are made: 根据下面的测试要求进行实验，将样品放置在常温及标准湿度的环境中 1 小时后对其进行测量： 1) Temperature: $80\pm 2^{\circ}\text{C}$ 温 度： $80\pm 2^{\circ}\text{C}$ 2) Time: 96h 时间：96h	Contact resistance: $\leq 200\text{m}\Omega$ 接触电阻： $\leq 200\text{m}\Omega$ Item 3;4.1;4.2;4.3 项目 3;4.1;4.2;4.3												
5.3	Change of temperature 温度周期性测试	After 5 cycles of following conditions, the sample shall be allowed to stand under normal temperature and humidity conditions for 1 h. and measurements shall be made. During the test waterdrops shall be removed. 根据下面的测试要求对开关进行 5 次循环的温度周期性实验,将样品放置在常温及标准湿度的环境中 1小时后对开关进行测量, 测量过程中样品应保持干燥： <table><tr><td></td><td>Temperature</td><td>Time</td></tr><tr><td rowspan="4">1cycle</td><td>$-10\pm 2^{\circ}\text{C}$</td><td>2 (hour)</td></tr><tr><td>$-10\sim 65^{\circ}\text{C}$</td><td>1</td></tr><tr><td>$65\pm 2^{\circ}\text{C}$</td><td>2</td></tr><tr><td>$65\sim -10^{\circ}\text{C}$</td><td>1</td></tr></table>		Temperature	Time	1cycle	$-10\pm 2^{\circ}\text{C}$	2 (hour)	$-10\sim 65^{\circ}\text{C}$	1	$65\pm 2^{\circ}\text{C}$	2	$65\sim -10^{\circ}\text{C}$	1	Contact resistance: $\leq 200\text{m}\Omega$ 接触电阻： $\leq 200\text{m}\Omega$ Item 3;4.1;4.2;4.3 项目 3;4.1;4.2;4.3
	Temperature	Time													
1cycle	$-10\pm 2^{\circ}\text{C}$	2 (hour)													
	$-10\sim 65^{\circ}\text{C}$	1													
	$65\pm 2^{\circ}\text{C}$	2													
	$65\sim -10^{\circ}\text{C}$	1													



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ITEM 项目		TEST CONDITIONS 试验条件			REQUIREMENTS 要求
5.4	Moisture resistance 湿温测试	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1h. before measurements are made: 根据下面的测试要求进行实验, 将样品放置在常温及标准湿度的环境中 1 小时后对其进行测量: 1) Temperature: $60 \pm 2^{\circ}\text{C}$ 温度: $60 \pm 2^{\circ}\text{C}$ 2) Relative humidity: 90% to 95% 相对湿度: 90%~95% 3) Time: 96h 时间: 96h			Contact resistance: $\leq 200\text{m}\Omega$ 接触电阻: $\leq 200\text{m}\Omega$ Item 3;4.1;4.2;4.3 项目 3;4.1;4.2;4.3
5.5	Sulfuration resistance 硫化试验	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1h. before measurements are made: 根据下面的测试要求进行实验, 将样品放置在常温及标准湿度的环境中 1 小时后对其进行测量: 1) H ₂ S gas concentration: 3ppm $\pm$ 1ppm H ₂ S 气体浓度: 3ppm $\pm$ 1ppm 2) Time: 24h 时间: 24h 3) Temperature: $40 \pm 2^{\circ}\text{C}$ (90~95%RH) 温度: $40 \pm 2^{\circ}\text{C}$ (90~95%RH)			Contact resistance: $\leq 200\text{m}\Omega$ 接触电阻: $\leq 200\text{m}\Omega$ Item 3;4.1;4.2;4.3 项目 3;4.1;4.2;4.3
5.6	Salt Mist 盐雾试验	The switch shall be checked after following test:在以下设定条件下进行实验: 1) Temperature: $35^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 温度: $35^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 2) Salt solution : 5 $\pm$ 1%(solids by mass) 盐溶液浓度: 5 $\pm$ 1% (质量百分比) 3) Time: 24h $\pm$ 1 hour 时间: 24h $\pm$ 1h After test, salt deposit shall be removed by running water. 实验后的盐沉积物用水冲洗掉。			No remarkable corrosion shall be recognized in metal part. 金属件上没有腐蚀斑点



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6、ENDURANCE SPECIFICATION

极限机械性能:

ITEM 项目		TEST CONDITIONS试 验 条 件	REQUIREMENTS 要求
6.1	工作寿命 Operation life	Measurement shall be made following the test set forth below: 根据下面的测试要求进行测试: 1) DC 12V, 50 mA resistive load DC 12V, 50mA 带负载 2) Rate of operation: 120 times/min. 按动速率: 120 次/分钟 3) Operating Force: 320~350gf 按力: 250~300gf 4) Average fault-free life: 1,000,000 cycles平均无故障寿命: 1,000,000 次	Contact resistance: $\leq 200\text{m}\Omega$ 接触电阻 $\leq 200\text{m}\Omega$ Contact bounce: $\leq 10\text{ms}$ 触点跳动 $\leq 10\text{ms}$ Operating Force: initial value $\pm 30\%$ 按力: 初值的 $\pm 30\%$ Item 3;4.1;4.2;4.3 项目 3;4.1;4.2;4.3
6.2	振动 Vibration	Measurement shall be made following the test set forth below: 根据以下给定条件进行测试: 1) Vibration frequency range: 10Hz to 55Hz to 10Hz 振动频率范围: 10~55~10Hz 2) Amplitude: 1.5mm 振幅(峰—峰): 1.5mm 3) Direction of vibration: Three mutually perpendicular direction including the direction of stem travel 振动方向: 包括手柄行程方向在内的三个相互垂直的方向 4) Duration: Each 2hours. 测试时间: 每个方向 2hours .	Item 3;4.1;4.2;4.3项目 3;4.1;4.2;4.3



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7. Soldering conditions:

焊接条件:

ITEM 项目	RECOMMENDED CONDITIONS 推荐条件
7.1 Hand soldering 手工焊接	Please practice according to below conditions: 请按以下条件进行焊接: 1) Soldering temperature: 350℃ Max. 焊锡温度: $\leq 350^{\circ}\text{C}$ 2) Continuous soldering time: 3 s Max. 连续焊接时间: $\leq 3\text{ s}$
7.2 自动浸焊 Conditions for Auto-dip	Temperature($^{\circ}\text{C}$) Max. 260 217 180 120 30~40s 2min$\pm$0.3min 10s max. 3~4min 焊接炉内通过的时间 Time inside soldering equipment Caution: The condition mentioned above is a temperature on the PWB surface on which parts are mounted. There are cases where PWB temperature greatly differs from switch' s surface temperature depending on PWB material , size , thickness , etc . Care , therefore , should be used not to allow switch' s surface temperature to exceed 260℃. 说明: 以上提及的条件是零部件上 PWB 表面的温度, 由于 PWB 的材料, 尺寸、厚度等不同 PWB 从开关表面获得的温度也会有很大的不同, 因此, 千万小心不要让开关表面的温度超过 260℃。

Note: 附加说明

- 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。
- Right after switches were soldered; please be careful not to load to on the knobs of switches. Please be careful not to pile up PCB. after switches were soldered.
浸焊后, 注意不要在顶部施加负荷, 印刷基板注意不要叠放。
- 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。如需要长时间保存, 请不要打开包装箱。