

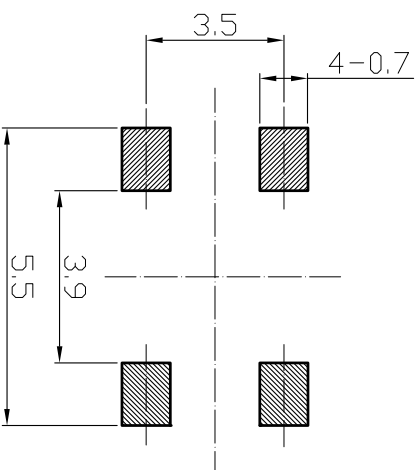
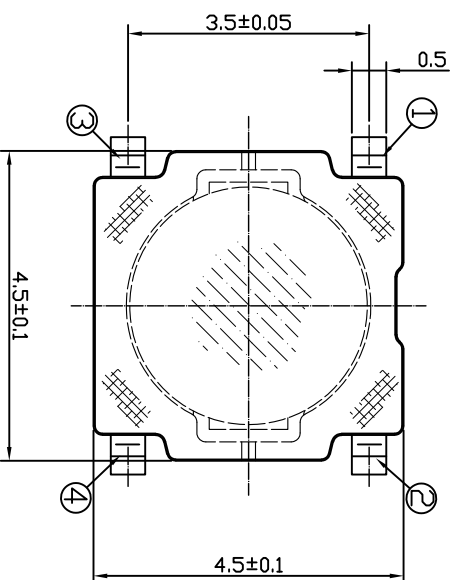
GT-TC078X-H0055-LX

G-SWITCH

A=160gf
B=250gf

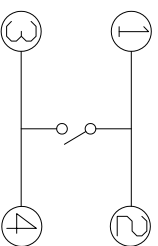
H=0055 (0.55mm)

L1=100,000 Cycles (B)
L5=500,000 Cycles (A)

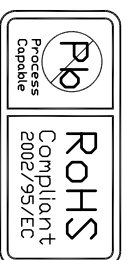


PCB. 焊接尺寸图

G-Switch Specification:
 Operating temperature range: -30°C to +85°C
 Rating: 50mA, 12V DC
 Insulation resistance: 100MΩ min, 100V DC
 Dielectric strength: 250V AC for 1 min
 Contact resistance: 100mΩ max.
 Travel: 0.15±0.05mm



电气原理图



Unless otherwise specified, Tolerance:
 ±0.30
 X.X
 ±0.20
 X.XX
 ±0.15
 X.XXX
 ±0.10
 Angles
 ±5

G-Switch Electronic (HongKong) CO., Ltd.

DESIGN	陈春桃	DATE	2016.05.29	TITLE:	GT-TC078X-H0055-LX
CHECKED		DATE		REV: X1	SCALE: 4:1
APPROVED		DATE		SIZE: A4	SHEET: 1/1
http://www.dg-switch.com				UNIT: mm	
TEL: 0769-82388879					

品赞电子	TACT SWITCH SPECIFICATION (轻触开关规格书)	LANGUAGE
		English /Chinese

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 to70°C(normal humidity, normal press.) 正常湿度, 标准压力

1.3 Storage Temperature Range 保存温度范围
-30 to80°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 to85%) 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

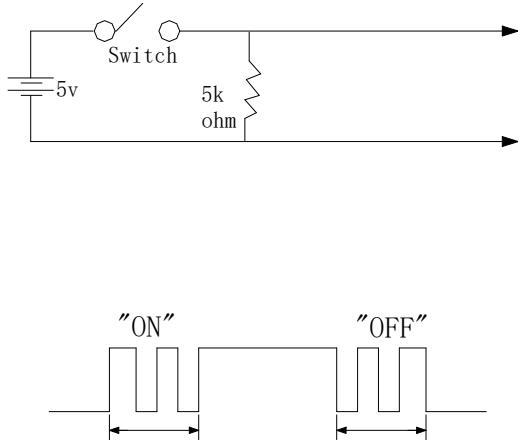
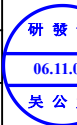
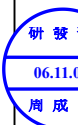
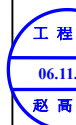
Tactile feedback 轻触返回




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

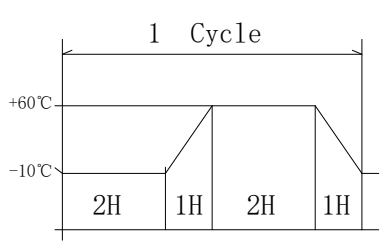



(Details of contact arrangement are given in the assembly drawings.)
细接点形式在装配图中

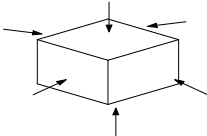



5.MAXIMUM RATING DC 12 V 50 mA 最大额定值

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品赞电子		TACT SWITCH SPECIFICATION (轻触开关规格书)					LANGUAGE English /Chinese		
6.PERFORMANCE 性能 6.1 Electrical 电气									
Item 项目	Test Condition 测试条件					Requirements 要求			
6.1.1. Contact resistance 接触电阻	Applying astatic 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> m ohm max.			
6.1.2. Insulation resistance 绝缘电阻	Measurements shall be made following application of DC100V potential 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 DC100V,一分钟					<u>100</u> M ohm min.			
6.1.3. Dielectric withstanding voltage 电气耐压	AC250V(50Hz or60Hz) 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-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.			
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品赞电子		TACT SWITCH SPECIFICATION (轻触开关规格书)					LANGUAGE	
							English /Chinese	
6.2Mechanical 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地增加负荷直到推柄停止时所测量的最大负荷					160 ± 50 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 actuating 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,并以双倍动作力的静负荷作用推柄中心,测推柄从开始到停止的行程距离					0.15 ± 0.05 mm		
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					50 gf min		
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品赞电子		TACT SWITCH SPECIFICATION (轻触开关规格书)				LANGUAGE English /Chinese	
6.3 Environmental 环境							
Item 项目	Test Condition 测试条件				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件下放置 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: $80 \pm 2^{\circ}\text{C}$ 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: $85 \pm 2^{\circ}\text{C}$ 温 度 (2) Relative humidity: 80 to 85% 相对湿度 (3) Time: 500 hours 时 间 (1) Water drops shall be removed. 擦除水珠				Contact resistance: <u>100</u> m ohm max 接触电阻 Insulation resistance <u>10</u> M ohm min. 绝缘电阻 Item 6.1.3 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;">  <p>1 Cycle</p> <p>+60°C</p> <p>-10°C</p> <p>2H 1H 2H 1H</p> </div>				Item 6.1 Item 6. 2.1 Item 6.2.2		
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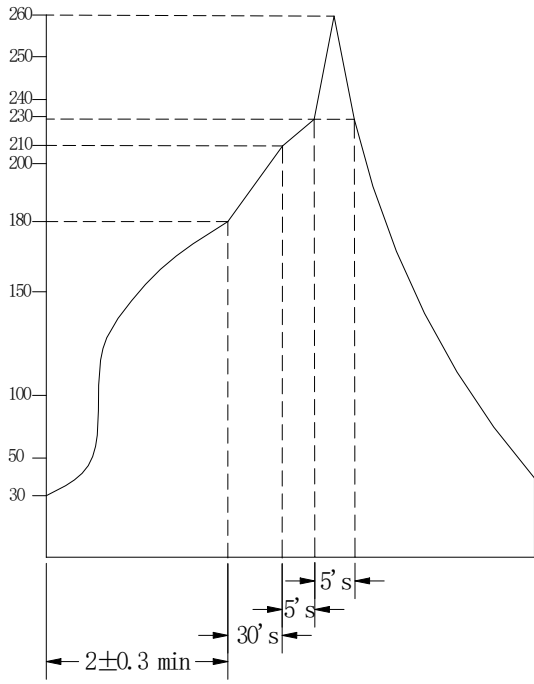
品赞电子		TACT SWITCH SPECIFICATION (轻触开关规格书)					LANGUAGE			
							English /Chinese			
6.4Endurance 耐久性										
Item 项目	Test Condition 测试条件					Requirements 要求				
6.4.1. Operating life 动作寿命	Measurements shall be made following the test set forth below:按下下列条件进行寿命试验 (1)DC 5V 5mA resistive load. DC 5V 5mA 阻性负载 (2)Rate of operation:2 to 3 operations per second 动作频率:2-3 次/每秒 (3)Depression: <u>275</u> gf 减压力 (4)Cycles of operation: 10×10^4 cycles 动作次数: 10×10^4					Contact resistance: <u>200m</u> Ω max. 接触电阻 Insulation resistance : <u>10</u> M ohm min. 绝缘电阻 Actuating force: 动作力 + <u>30</u> %or- <u>30</u> %of initial force. $\pm 30\%$ 初始动作力 Item 6.1.3 Item 6.2.2				
6.4.2. Vibration resistance 耐振动	Measurements shall be made following the test set forth below: 按下下列条件进行抗振动试验 (1)Range of oscillation:10 to 55Hz 频率范围 (2)Amplitude,pk-to-pk:1.5 mm 振幅: 峰-峰 1.5mm (3)Cycle of sweep: 10-55-10Hz in one minute,approx. 扫描周期: 10-55-10Hz 约一分钟内 (4)Mode of sweep :Logarithmically sweep or uniform sweep. 扫描方式:对数扫描式恒定扫描 (1) 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 (2) 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					Item 6.1 Item 6.2.1 Item 6.2.2				
6.4.3. Impact shock resistance 抗冲击	Measurements shall be made following the test set forth below: 按下下列条件进行冲击试验 (1)Acceleration:80g 加速度 (2)Cycles of test :3 cycles each in 6directions, for a total of 18cycles 试验次数:每个方向 3 次,6 个方向共 18 次 <div style="text-align: center;">  </div>					Item 6.1 Item 6.2.1 Item 6.2.2				
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		English /Chinese

7. Environmental Endurance 环境耐久性

Item 项目	Test Condition 测试条件	Requirements 要求
7.1. High temperature cycling 高温循环	Following ten cycles of high temperature test . Sample shall be Place in Normal temperature and humidity Condition for one hour before measurements are made. During this test, water drops shall be removed. 样品按下列条件进行高低温循环试验,测试前在正常温度和湿度条件下放置 1 小时,除去水珠 (2) Temperature (温度): -10°C~60°C (3) Cycling(周期): Ten cycles (10 个周期) <div style="text-align: center;"> <p>1 Cycle</p> <p>60°C</p> <p>-10°C</p> <p>20Min 10M 20Min 10M</p> </div>	Item 6.1 Item 6. 2.1 Item 6.2.2
7.2 (THB1) High temperature humidity Adds the Rated voltage(12v) electric current (50mA) 加额定电压电流在高温高湿下	Sample following the test below both condition In the constant temperature and constant humidity testing box 样品按下列条件在恒温恒湿箱中进行试验 (1) T a= 8 5 °C (2) R H = 8 5 % (3) 5 0 0 h	Item 6.1 Item 6. 2.1 Item 6.2.2

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品赞电子		TACT SWITCH SPECIFICATION (轻触开关规格书)				LANGUAGE	
						English /Chinese	
8.Use Endurance 使用耐久性							
Item 项目	Test Condition 测试条件				Requirements 要求		
8.1 Solderability 焊接性	Oven Temperature:235℃±5℃, Time: 5S±1S 锡炉温度: 235℃±5℃ 时间:5 秒±1 秒				Tin Area:90% 焊接面积 90%以上		
8.2 Patience high temperature 焊接耐热性	<p>Preheat: Temperature on the copper foil surface should reach 180℃, 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℃</p> <p>Soldering heat: Temperature on the copper foil surface should reach the peak temperature of 260℃ within 5 seconds after the P.B.W entered into soldering heat zone. 焊接温度: 在 P.W.B(印刷线路板)进入焊接温区 5 秒内, 铜箔表面达到峰值温度 260℃</p> 				表面无起泡,变型 Surface of plastics don't frothed And formed		
					APPD 研发部	CHKD 研发部	DSGD 工程 部
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品赞电子	TACT SWITCH SPECIFICATION (轻触开关规格书)	LANGUAGE
		English /Chinese

9. 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 90 天以上

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10. REEL PACKAGING 盘装

10.1 Scope 范围

This specification covers the requirements of the reel packaging for SMD standard type of tact switches.
该规范包含 SMD 标准型拨动开关的绕带封装的要求

10.2 Packaging Materials 封装材料

Item	项目	Description	说明
Package	包装	Cartons	卡通箱
Reel	转轴	Delete Cartons	可降解箱
Careier Tape	载带	Polypropylene	聚丙烯

10.3 Packaging Quantity 封装数量

10.3.1. The number of the reels. 转轴数量

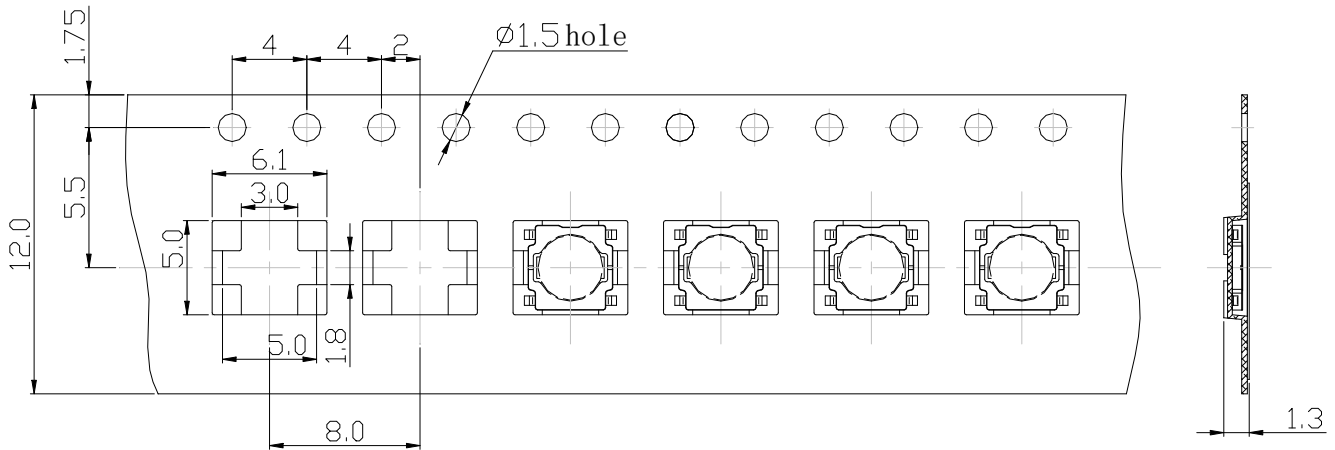
Twenty (25) reels at maximum. Which contain 100k pcs switches.

Shall be packed in a package. 一箱装 20 盘, 有 100K 只产品

10.3.2 The number of the switches. 产品数量

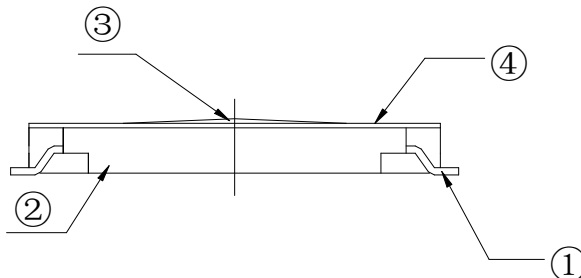
5k pcs switches shall be packed in a reel. 一个转轴包 5K 只产品

10.3.3 It should be noted that we regard two cartons 对出口包装需注意用两个箱子包装 mentioned above as on package for export.



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品赞电子	TACT SWITCH SPECIFICATION (轻触开关规格书)	LANGUAGE
		English /Chinese



ITEM 项目	COMPONENTS 部件	MATERIAL ARTICLE 材料	SPECIFICATION 规格
1	TERMINAL	TIN PHOSPHORUS BRONZE	C5191
	PLATE LAYER	CYANIDE SILVER-PLATING	SILVER
2	FRAME	PA6T	RA230NK
3	CONTACT	AG-SUS301	Ag=0.5u
4	TAPE	GATHERS THE IMIDE	TI

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