

機種規格說明書

(SPECIFICATION)

本公司使用機種:

OUR PART NAME: TACT SWITCH

本公司使用名稱:

OUR PART NAME: TSHA-T-2.5B2-19SH

客戶名稱:

CUSTOMER'S NAME: _____

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Version : A

Drawing NO.: TS-249

1. GENERAL

1-1 Scope : This specification covers the requirements for single key switches which have no key top(TACT SWITCHES:MECHANICAL CONTACT).

1-2 Operation temperature range : - 20°C ~ 70°C

1-3 Storage temperature range : - 25°C ~ 85°C

1-4 Test Conditions

Tests and measurements shall be made in the following standard conditions unless otherwise specified:

Normal temperature (temperature 5 to 35°C)

Normal humidity (relative humidity 45 to 85%)

Normal pressure (pressure 860 to 1060 mbars)

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

Temperature (20±2°C)

Relative humidity (65±5%)

Pressure (860 to 1060 mbars)

2. TYPE OF ACTUATION : Tactile feedback

3. CONTACT ARRANGEMENT 1 poles 1 throws

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

4. MAXIMUM RATINGS DC 12 V 50 mA

5. Appearance and structure

5.1 Appearance:It should no obvious shrinking、upset metal、Scrape、plating path well-distributed and no coming off.

5.2 Size:Making (drawing attached):

備注:
(REMARK)

核 準 APPROVED	審 核 REVIEWED	經 辦 者 PREPARED
Terry	Terry	Ken
2020.8.28	2020.8.28	2020.8.28

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6. General specification 性能

6.1 Electrical characteristics 電氣的性能

NO.	ITEM	TEST CONDITIONS	REQUIREMENTS
6.1.1	Contact Resistance 接觸電阻	Applying 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. 用兩倍的動作用力作靜負載施加于按鈕的中心, 並用1 千赫小電流接觸電阻儀測量	50mΩ 以下
6.1.2	Insulation Resistance 絕緣電阻	Measurements shall be made following application of DC100V potential between terminals and between individual terminals and frame for one minute. 在端子與端子之間, 端子與外殼之間施加DC100V, 一分鐘	100MΩ 以上
6.1.3	Dielectric withstanding voltage 電氣耐壓	AC 250 V (50Hz or60Hz) shall be applied between terminals and between individual terminals and frame for one minute. 在端子與端子之間, 端子與外殼之間施加AC250V(50HZ-60HZ)	There shall be no breakdown. 無擊穿、閃爍現象
6.1.4	Bounce 抖動	Lightly striking the center of the stem at a rate encountered in normal use (3 to 4 operations per sec), Bounce shall be tested when "ON" and "OFF". 在正常使用中(以每秒3-4 次週期)輕輕地在手柄中心加力, 在通與斷瞬間測試抖動	10mS 以下

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NO.	ITEM	TEST CONDITIONS	REQUIREMENTS
6.1.4	Bounce 抖動	<p>t 为触点抖动时间</p>	

6-2 Mechanical characteristics 機械的性能

NO.	ITEM	TEST CONDITIONS	REQUIREMENTS
6.2.1	Actuating Force 動作力	<p>Place the switch such that the direction of switch operation is vertical and then gradually increase the load applied to the center of the stem, the maximum load required for the stem to come to a stop shall be measured.</p> <p>開關的動作方向為垂直放置開關向推柄中心逐漸地增加負荷直到推柄停止時所測量的最大負荷</p>	160 ± 50 gf
6.2.2	Travel 行程	<p>Place the switch such that the direction of switch operation is vertical and then apply 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.</p> <p>開關的動作方向為垂直放置開關, 並以雙倍動作力的靜負荷作用推柄中心, 測量推柄從開始到停止的行程距離</p>	0.25 ± 0.10 mm

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NO.	ITEM	TEST CONDITIONS	REQUIREMENTS
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. 開關的動作方向為垂直放置開關, 在已有行程的推柄中心向上減小壓力, 推柄回到自由位置時所測量到的力	50 gf Min
6.2.4	Static Strength 靜止強度	Placing the switch such that the direction of switch operation is vertical, a static load of 3 kgf shall be applied in the direction of stem operation for a period of 60 seconds. 開關的動作方向為垂直放置開關, 在推柄動作方向施加3KG的靜負荷, 60 秒時間	There shall be no sign of damage mechanically and electrically. 無機械的和電氣的損傷跡象

6-3 Climatic characteristics 使用的性能

NO.	ITEM	TEST CONDITIONS	REQUIREMENTS
6.3.1	Operating Life 動作壽命	Measurements shall be made following the test set forth below: 按下列條件進行壽命試驗 (1)DC 12V 50mA resistive load. DC 12V 50mA 阻性負載 (2)Rate of operation:60 to 100 operations per minute 動作頻率:60~100 次/每分 (3)Operating Force: Operating Force1.5 倍; 按力的1.5 倍。 (4)Cycles of operation:100000 cycles,動作次數:10 萬次	Contact resistance 接觸電阻: 200mΩ Max. Insulation resistance 絕緣電阻: 50 MΩ Min. Actuating force 動作力: + 30 % or- 30% of initial force. ±30%初始動作力 Item 6.1.3 Item 6. 2.2

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NO.	ITEM	TEST CONDITIONS	REQUIREMENTS
6.3.2	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: 樣品按下列條件進行耐潮湿試驗, 試驗後在正常溫度和濕度條件下放置1 小時後測定 (1) Temperature: 60±2°C 溫度 (2) Relative humidity: 90 to 95% 相對濕度 (3) Time: 96 hours 時間 Water drops shall be removed. 擦除水珠	Contact resistance: 200 mΩ Max. 接觸電阻 Insulation resistance : 50 MΩ Min. 絕緣電阻 Item 6.1.3、6.1.4 Item 6. 2.1~6.2.3
6.3.3	Low Temperature Resistance 耐低溫	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made: 樣品按下列條件進行耐低溫試驗, 試驗後在正常溫度和濕度條件下放置1 小時後測定 (1) Temperature: -40±2°C 溫度 (2) Time: 96hours 時間 Water drops shall be removed. 擦除水珠	Contact resistance: 200 mΩ Max. 接觸電阻 Insulation resistance : 50 MΩ Min. 絕緣電阻 Item 6.1.3、6.1.4 Item 6. 2.1~6.2.3
6.3.4	Heat Resistance 耐熱	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements are made: 樣品按下列條件進行耐熱試驗, 試驗後在正常溫度和濕度條件下放置1 小時後測定 (1)Temperature: 85±2°C 溫度 (2)Time: 96 hours 時間	Contact resistance: 200 mΩ Max. 接觸電阻 Insulation resistance : 50 MΩ Min. 絕緣電阻 Item 6.1.3、6.1.4 Item 6. 2.1~6.2.3

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NO.	ITEM	TEST CONDITIONS	REQUIREMENTS
6.3.5	Change of Temperature 溫度迴圈	<p>Following ten cycles of high temperature test .The Sample shall be Placed in Normal temperature and humidity Conditions for one hour before measurements are made. During this test, water drops shall be removed.</p> <p>樣品按下列條件進行高低溫迴圈試驗, 試驗後在正常溫度和溫度條件下放置 1 小時後測定</p> <p>A: $+85 \pm 2^{\circ}\text{C}$ B: $-25 \pm 2^{\circ}\text{C}$ C: 2 小时 D: 1 小时 E: 2 小时 F: 1 小时</p> <p>Cycling: Five cycles 周期: 5 次</p>	<p>Contact resistance: 200 mΩ Max. 接觸電阻</p> <p>Insulation resistance : 50 MΩ Min. 絕緣電阻</p> <p>Item 6.1.3、6.1.4</p> <p>Item 6. 2.1~6.2.3</p>
6.3.6	Salt Spray Test 鹽霧試驗	<p>The salt spray test shall be conducted at the following conditions :</p> <p>樣品按下列條件進行鹽霧試驗</p> <p>(1) Density(濃度): 溶液(5 ± 1)% NaCl (品質百分比)</p> <p>(2)Temperature: $35 \pm 2^{\circ}\text{C}$ 溫度</p> <p>(3) Time: 48hours 時間</p>	<p>金屬件無發黃、生銹.</p>

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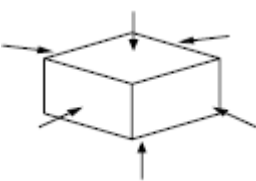
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NO.	ITEM	TEST CONDITIONS	REQUIREMENTS
6.3.7	Vibration Resistance 耐振動	<p>Measurements shall be made following the test set forth below: 按下列條件進行抗振動試驗</p> <p>(1)Range of oscillation:10 to 55Hz 頻率範圍</p> <p>(2)Amplitude,pk-to-pk:1.5 mm 振幅: 峰-峰1.5mm</p> <p>(3)Cycle of sweep: 10-55-10Hz in one minute, approx. 掃描週期: 10-55-10Hz 約一分鐘內</p> <p>(4)Mode of sweep: Logarithmically sweep or uniform sweep. 掃描方式:對數掃描式恒定掃描</p> <p>(4) Direction of oscillation振動方向: Three mutually perpendicular directions, including the direction of stem travel. 3 個相互垂直方向, 包括推柄行程方向</p> <p>(5)2 hours each ,for a total of 6hours. 每方向2 小時,共6 小時</p>	<p>Item 6.1</p> <p>Item 6. 2.1、 6.2.2</p>
6.3.8	Impact Shock Resistance 抗衝擊	<p>Measurements shall be made following the test set forth below: 按下列條件進行衝擊試驗</p> <p>(1)Acceleration:80g 加速度</p> <p>(2)Cycles of test :3 cycles each in 6directions, for a total of 18cycles 試驗次數:每個方向3 次,6 個方向共18 次</p> 	<p>Item 6.1</p> <p>Item 6. 2.1 、 6.2.2</p>

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7. soldering

NO.	ITEM	RECOMMENDED CONDITIONS
7.1	Hand soldering 手工焊接	<p>Please practice according to bellow conditions:</p> <p>(1)Soldering temperature : $\leq 260^{\circ}\text{C}$ (2)Continuous soldering time: $\leq 5\text{ S}$ (3)Capacity of soldering iron: $\leq 20\text{ W}$</p> <p>請按以下條件進行焊接：</p> <p>(1) 焊錫溫度：$\leq 260^{\circ}\text{C}$ (2) 連續焊接時間：$\leq 5\text{ S}$ (3) 電烙鐵的功率：$\leq 20\text{ W}$</p>
7.2	Automatic flow soldering 自動焊接	<p>For the product of SMD ,type solder according to the following conditions</p> <p>對於SMD 產品，請按以下條件進行焊接</p> <p>time inside soldering equipment 炉内通过时间</p>

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NO.	ITEM	RECOMMENDED CONDITIONS
7.2	Automatic flow soldering 自動焊接	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. The switch's surface temperature shall not allowed to exceed 260°C 注意：以上提及的條件是零部件上PWB 表面的溫度，由於PWB 的材料、尺寸、厚度等不同，PWB 從開關表面獲得的溫度也會有很大產不同，因此，千萬小心不要讓開關表面溫度超過260°C

8. Other precautions 其他注意事項：

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

進行焊接過程中，不可以用溶劑或類似品清洗開關

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

防止助焊劑從開關的頂端滲入

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

交貨後保證開關處於封密狀態並庫存時間 90 天以下。

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RoHS Compliance

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