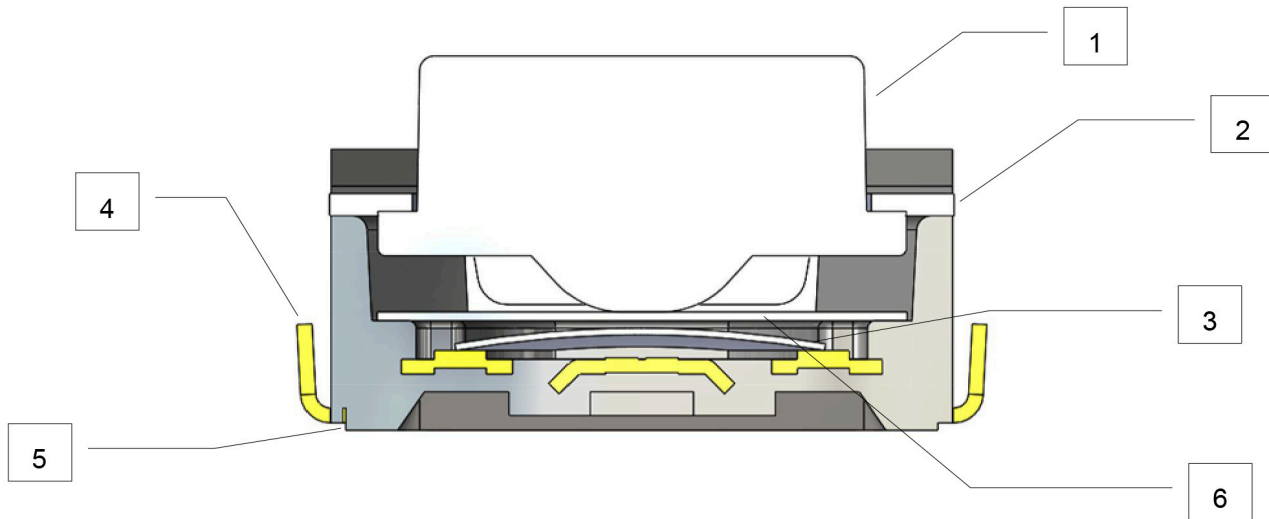




ITEM	DESC	Q'TY	METERIALS	TREATMENT	REMARK
1	STEM	1	HIGH-TEMP THERMOPLASITC PA	MOLDED BLACK/BROWN/WHITE	-
2	COVER	1	STAINLESS STEEL	NONE	-
3	CONTACT		STAINLESS STEEL	WITH SILVER PLATING	-
4	TERMINAL	1	BRASS	WITH SILVER PLATING	-
5	BASE	1	HIGH-TEMP THERMOPLASITC PA	MOLDED BLACK	-
6	TAPE	1	KAPTON	NONE	



STAH  Q R

Operating Force: \_\_\_\_\_

1=160gf  
2=260gf  
3=400gf

Package: Reel

Halogen Free

A1	DWG.REL	
REV.	ECO. NO.	APPD.

TITLE : TACT TYPE SWITCHES		APPD. :
PRROD. NO. : STAH□QR	PR. :	CHKD. :
FILE NO. : E-Q-CT112	REV. : A1	SHEET : 1/1



## 1. General(一般事項):

1.1 Operating Temperature Range (使用之溫度範圍): -30°C ~ +85°C

1.2 Storage Temperature Range(儲存之溫度範圍): -30°C ~ +85°C

1.3 Test conditions(測試狀態)

Unless otherwise specified, the test and measurements shall be carried out as follows.

除非另有說明，測試與測量應如下條件進行。

Ambient temperature(環境溫度) : 5 ~ 35 °C

Relative humidity(相對溼度) : 45 ~ 85 %

Air pressure(氣壓) : 86 ~ 106 kPa

However, if doubt arises on the decision based on the measured values under the above-mentioned conditions, the following conditions shall be employed.

無論如何，如果上述條件量測時有疑慮時，應在下列條件使用

Ambient temperature(環境溫度) : 20± 2°C

Relative humidity(相對溼度) : 65±5 %

Air pressure(氣壓) : 86 ~ 106 kPa

## 2. Rating(額定負載):

Min./Max. Voltage : 1V DC ~16V DC

Min./Max. Current : 10μ A~50 mA

## 3. Type of Actuation: Tactile feedback.(類型：觸動回復式)

## 4. Test Sequence(測試項目) :

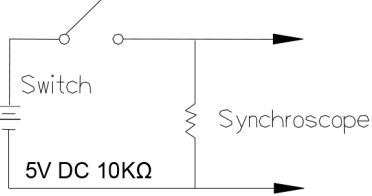
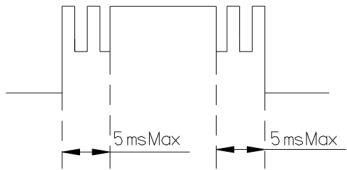

	Item	Description	Test Conditions	Requirements
Appearance 外觀	1	Visual Examination 目視檢查	By visual examination check without any out pressure & testing. 在未施加任何外力及試驗前,以目視方式檢測	There shall be no defects that affect the serviceability of the product. 產品的外觀不能有影響產品功能之不良缺點
Electrical Performance 電氣特性	2	Contact Resistance 接觸阻抗	Applying a static load 1.5-2 times the operating force to the center of the stem, measurements shall be made with a 1 kHz small current contact resistance meter 用一作動力 1.5-2 倍力量的靜態荷重,實際按壓觸鈕的中央處,並以 1KHz 規格的微電流阻抗計測量接觸阻抗值	500mΩ Max. (initial)

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Electrical Performance 電氣特性	3	Insulation Resistance 絕緣阻抗	100V DC, 1 minute ± 5 sec. 直流電壓 100V, 1 分鐘±5 秒	100MΩ Min.						
	4	withstand Voltage 耐電壓	250V AC (50Hz or 60 Hz 2mA) shall be applied between all the adjacent terminals and between the terminal and the frame for 1 minute. 以 250V 的交流電(50Hz 或 60Hz 2mA), 施於兩相鄰端子與底座間, 並保持 1 分鐘之加壓狀態後, 檢查是否能耐該值	No dielectric breakdown shall be occurred 成品不得有故障, 跳火及絕緣體破壞等不良現象						
Mechanical Performance 機械特性	5	Bounce 彈跳	3 to 4 operations at a rate of 1 cycles per second 每秒 3~4 次的速度為一循環, 觀察示波器上之顯示 	10 m seconds Max. 不得高於 10 毫秒 						
	6	Operation Force 作動力	Applied in the direction of operation. 測定觸鈕操作方向之力量 	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>160±50gf</td> <td>260±80gf</td> <td>400±100gf</td> </tr> </table>	1	2	3	160±50gf	260±80gf	400±100gf
	1	2	3							
	160±50gf	260±80gf	400±100gf							
7	Stroke 作動量	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 to a stop shall be measured 將成品放置定位後, 以一垂直力慢慢施壓在按鈕的中央處, 使按鈕從開始按壓到無法按壓停止, 測量實際按壓過程的距離	0.20 ±0.10mm							
8	Control strength 操作部強度	The static load of 3Kg shall be applied in the operating direction of the control unit for 15 seconds. 以 3Kg 的靜態荷重施於推鈕上方, 操作時間 15 秒	<p>1)As shown in item 4~7 2)Contact Resistance: 500 mΩ Max. 3)Insulation Resistance: 10 MΩ Min.</p> <p>1)受測後之成品仍需合述 4~7 測試項規格之要求 2)測試後之接觸阻抗值不得高於 500mΩ 3)受測後之絕緣阻抗值不得低於 10MΩ</p>							

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<p style="writing-mode: vertical-rl; text-orientation: upright;">Mechanical Performance 機械特性</p>	<p style="text-align: center;">9</p>	<p>Solder Heat Resistance 抗鐸錫熱</p>	<p>1)Soldering Temperature: 260±5°C 2)Duration of Solder Immersion: 5±1 sec 3)Frequency of Soldering Process 2 times Max. (PCB is 1.6mm in thickness) 1)鐸溫:260±5°C 2)浸鐸時間:5±1 秒 3)浸錫操作的次數, 最多 2 次 (PCB 的厚度為 1.6mm)</p>	<p>1)Shall be free from pronounced backlash and falling-off or breakage terminals 2)As shown in item 4、5 3)Contact Resistance: 500 mΩ Max. 4)Insulation Resistance: 10 MΩ Min . 1)浸鐸後, 端子不得有明顯的焦黑鍍層剝落或斷裂現象 2)受測後的成品仍需符合前述 4、5 測試項規格的要求 3)測試後之接觸阻抗值不得高於 500mΩ 4)受測後之絕緣阻抗值不得低於 10MΩ</p>
<p style="writing-mode: vertical-rl; text-orientation: upright;">Durability 耐久性</p>	<p style="text-align: center;">10</p>	<p>Life Test 壽命測試</p>	<p>Measurements shall be made following the test forth below: 1)5mA,5 V DC resistive load 2)Applying a static load the operating force to the center of the stem in the direction of operation 3)Cycle of Operation: 100,000 cycles 測試時需按照下列所設定之情況: 1)施以 5 mA, 5 VDC 之直流電 2)測定時需於開關操作方向以 OF 上限之靜態荷重施於按鈕中央處 3)受測次數: 100,000 cycles</p>	<p>1)Operating force:±50% of initial force 2)Contact Resistance: 10Ω Max. 3)Insulation Resistance: 10MΩ Min. 4)Bounce:10 m seconds Max. 1)測試後, 作動力之變化需為初始值±50% 2)測試後的接觸阻抗值不得高於 10Ω 3)受測後的絕緣阻抗值不得低於 10MΩ 4)受測後的回彈反應時間須於 10 毫秒內</p>
<p style="writing-mode: vertical-rl; text-orientation: upright;">Environmental Endurance 耐候性</p>	<p style="text-align: center;">11</p>	<p>Vibration 振動測試</p>	<p>Shall be vibrated in accordance with Method 201A of MIL-STD-202F 1)Frequency: 10-55-10 Hz 1 minute/cycle. 2)Swing distance=1.5mm 3)Direction: 3 vertical directions including the direction of operation. 4)Test Time: 2 hours each direction. 請依照 MIL-STD-202F, 201A 所規定之方法做測試 1)頻率:10-55-10Hz 的頻率循環測試, 週期 1 分鐘 2)全振幅=1.5mm 3)振動方向: 以 X, Y, Z 三軸向, 包含推鈕操作之方向 4)測試時間: 每一方向 2 小時</p>	<p>As shown in item 2~5 受測後之成品仍需符合前述 2~5 測試項規格的要求</p>

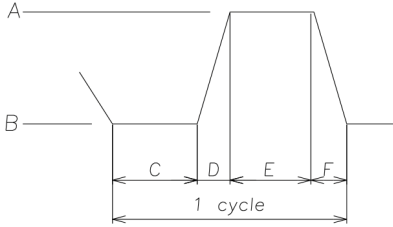
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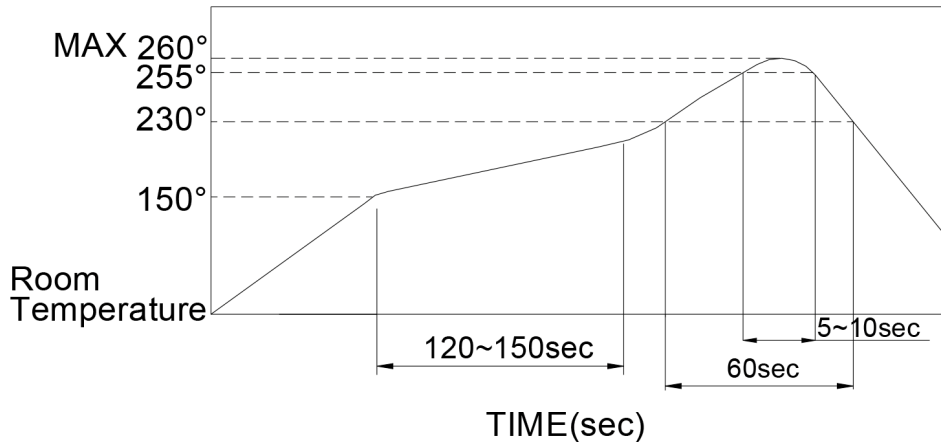
Environmental Endurance 耐候性	12	Shock 衝擊試驗	<p>Shall be shocked in accordance with Method 213B condition A of MIL-STD-202</p> <p>1)Acceleration: 50G.</p> <p>2)Action Time : 11 ± 1 m sec.</p> <p>3)Testing Direction: 6 sides.</p> <p>4)Test cycle : 3 times in each direction</p> <p>請依照 MIL-STD-202, 213B 條件 A 所規定之方法做測試</p> <p>1)加速度：50G</p> <p>2)測定時間：11±1 毫秒</p> <p>3)受測方向：以成品全周, 三軸六個方向做測試</p> <p>4)受測次數：每一方向 3 次</p>	<p>As shown in item 2~5</p> <p>受測後之成品仍需符合前述 2~5 測試項規格的要求</p>
	13	Cold Resistance 耐寒性	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made :</p> <p>1)Temperature : -40°C±2°C.</p> <p>2)Time: 96 hours.</p> <p>請依照下列所設定的條件測試後, 並於常溫常濕中放置 1 小時後測定</p> <p>1)受測溫度:-30±2°C</p> <p>2)受測時間:96 小時</p>	<p>1)As shown in item 4~7</p> <p>2&gt;Contact resistance : Less than 500mΩ</p> <p>3)Value insulation resistance: More than 10MΩ .</p> <p>1)受測後之成品仍需合述 4~7 測試項規格之要求</p> <p>2)經過測試後之接觸阻抗值不得高於 500mΩ</p> <p>3)受測後之絕緣阻抗不得低於 10MΩ</p>
	14	Heat Resistance 耐熱性	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made :</p> <p>1)Temperature : 80°C±2°C</p> <p>2)Time: 96 hours</p> <p>請依照下列所設定的條件測試後, 並於常溫常濕中放置 1 小時後測定</p> <p>1)受測溫度:90±2°C</p> <p>2)受測時間:96 小時</p>	<p>Ditto</p> <p>同上</p>

Environmental Endurance 耐候性	15	Humidity Resistance 耐濕性	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made : 1)Temperature : 60°C±2°C 2)Relative Humidity :90~95% 3)Time: 96 hour 請依照下列所設定的條件測試後,於常溫常濕中放置1小時後測定 1)受測溫度:60±2°C 2)相對濕度:90-95% 3)受測時間:96小時	Ditto 同上
	16	Change of temperature 溫度循環	After 5 cycles of following conditions, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 hr, and measurement shall be made within, 1 hr after that. Water drops shall be removed. 1)測試週期:5個循環 2)標準條件試驗後:1小時 3)1個循環: <div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 20px;">                     A= <u>  60  </u> °C                      B= <u>  10  </u> °C                      C= <u>  2  </u> H                      D= <u>  1  </u> H                      E= <u>  2  </u> H                      F= <u>  1  </u> H                 </div> </div>	Ditto 同上



## 6. Soldering Conditions(鐸錫條件):

- SMT



- The condition mentioned above is the temperature on the Cu foil of the P.C.B surface. There are cases where board' s temperature greatly differs from switchs surface temperature depending on board' s material, size, thickness, etc. Care, therefore, should be used not to allow switch' s surface temperature to exceed 260°C

上述提到的情況, 是 PCB 上銅箔之溫度。有一些情形是這 PCB 的溫度和開關表面之溫度會有很大的不同, 這和 PCB 材質. 大小. 厚度等有很大的關係, 因此要小心不要讓開關表面的溫度超過 260°C

- Manual Soldering(手工鐸錫)

Soldering Temperature(鐸錫溫度)	Max.350°C
Continuous Soldering Time(連續鐸錫時間)	Max. 5 seconds

### ■ Precautions in Handling(處理時注意事項):

1. Care should be exercised so that flux from the upper part of the printed circuit board does not adhere to the switch.  
在 P. C. B 板面上之助鐸劑, 不要黏到開關本身
2. Don' t clean the switch body except with top tape sealed type, which can only spray of cleaning method from top of s/w.  
除了有貼 TAPE 的產品形式, 可使用沖洗式清洗外, 其它則不可洗到開關本身。

**■Notes on storage conditions(儲存條件的注意事項):**

Do not store in the following environment or it may affect product's function and solderability:

當物品被儲存於以下的情形與條件它可能會影響產品功能變差及吃錫性等..

應避免儲存於下列情形

1. temperature of -10 (max)、 +40 (min) °C & humidity at 85% (min)

溫度在-10(Max.)、+40(Min.)&濕度在 85%(Min.)的地方

2. environment with corrosive gas

在有腐蝕性氣體的地方

3. storage over 6 months

長時間儲存至少 6 個月

4. place of direct sunlight

陽光直接照射的地方

\*Store with proper packaging conditions and to avoid loading heavy force.

以包裝的狀態儲存以避免重力承載

\*We suggest to use the products within 3 months or at least 6 months.

請儘快使用我們建議 3 個月之內最多 6 個月內使用完畢

\*After opening the package, the rest products must be stored in the appropriate moisture-proof & airtight environment

打開包裝後,要將未使用完剩餘產品存放在適當的防潮&密閉環境中