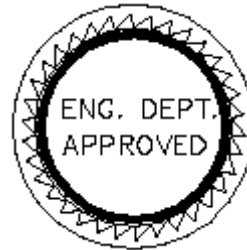


OUTLINE OF CHANGES ON THE DOCUMENT				
Version	Description	Page of modification	Issue by	Issue date
A	First released	-	Polly	2020.08.14

## SPECIFICATION FOR DETECTOR SWITCH

ATTENTION	
<p><i>Customer shall acknowledge the datasheet by returning "this cover page with authorized signature" before placing order. Lack of acknowledgement or additional response constitutes acceptance of the herein contents.</i></p> <p>下單前請將此份"規格書封面簽回",未簽回則視為承認本規格書內容.</p>	
<b>Approved By</b>	<b>Entered Date</b>



**CUSTOMER:** \_\_\_\_\_  
**PART NO.:** \_\_\_\_\_  
**TAIWAY P/N:** TPS-TEM-T/R-03  
**DATE OF ISSUE:** 2020 Aug.14  
**ISSUE BY:** Polly Li  
**APPROVED BY:** Amy Yen

**1. Style**

This specification describes "DETECTOR SWITCH", mainly used as signal switch of electric devices, with the general requirements of mechanical and electrical characteristic.

1.1 Operating Temperature Range : -20 °C ~ +70 °C

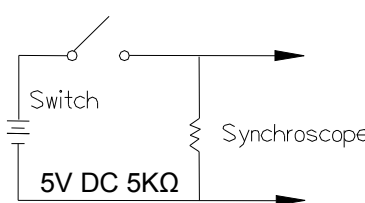
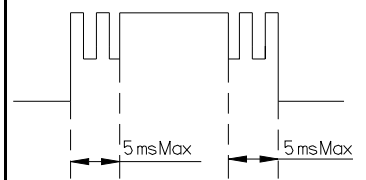
1.2 Storage Temperature Range : -30 °C ~ +80 °C

1.3 The shelf life of product is within 6 months.

**2. Current Range:** 5mA, 5 V DC

**3. Type of Actuation:** Auto Return

**4. Test Sequence:**

	ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS	
<b>APPEARANCE</b>	1	Visual Examination	By visual examination check without any out pressure & testing	There shall be no defects that affect the serviceability of the product.	
	<b>ELECTRIC PERFORMANCE</b>	2	Contact Resistance	Applying force press on the center of stem. When actuator depressed 0.75±0.2mm then measure contact resistance with KHz unit micro resistance meter.	500mΩ Max
		3	Insulation Resistance	Measurements shall be made following application of 250 V DC potential across terminals and cover for 1 minute ± 5 seconds	100MΩ min
		4	Dielectric Withstanding Voltage	250 V AC(50Hz or 60Hz) shall be applied across terminals and cover for 1 minute	There shall be no breakdown or flashover
		5	Capacitance	1 MHz ±10 kHz	5 pF max.
		6	Bounce	3 to 4 operations at a rate of 1 cycles per second  	5 m seconds max.  

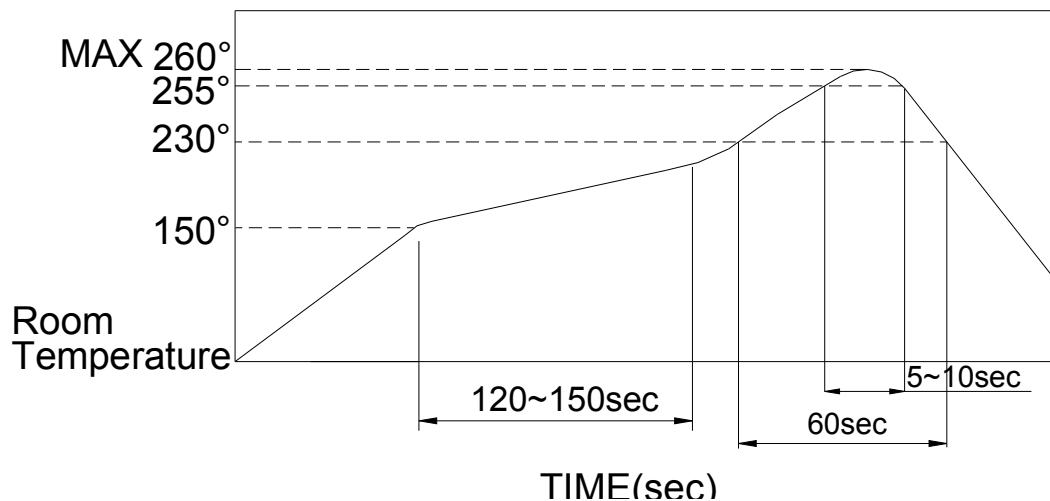
<b>MECHANICAL PERFORMANCE</b>	7	Operating Force(OF)	Applying in the direction of operating stroke is 2.0mm.	35gf MAX (.343N MAX)
	8	Contact(ON) point	Based from switch bottom to the top of stem	8~7.45mm
	9	Stop Strength	Fixing the switch then apply with a static load of 1kg in vertical for 1 minute	As shown item 2~7
	10	Solder Heat Resistance	<ul style="list-style-type: none"> <li>■ Through Hole Type</li> <li>1) Soldering Temperature: 260±5°C</li> <li>2) Duration of Solder Immersion: 5±1 seconds</li> <li>3) Frequency of Soldering Process 2 times max. (PCB is 1.6mm in thickness)</li> <li>■ SMT TYPE Series</li> </ul>	<ul style="list-style-type: none"> <li>1) Shall be free from pronounced backlash and falling-off or breakage terminals</li> <li>2) As shown in item 2~5</li> </ul>
	11	Vibration	<p>Shall be vibrated in accordance with Method 201A of MIL-STD-202F</p> <ul style="list-style-type: none"> <li>1) Swing distance=1.5mm</li> <li>2) Frequency: 10-55-10Hz in 1-min/cycle.</li> <li>3) Direction: 3 vertical directions including the directions of operation</li> <li>4) Test time: 2 hours each direction</li> </ul>	As shown in item 2~7
<b>MECHANICAL PERFORMANCE</b>	12	Shock	<p>Shall be shocked in accordance with Method 213B condition A of MIL-STD-202F</p> <ul style="list-style-type: none"> <li>1) Acceleration; 50G</li> <li>2) Action time: 11±1m seconds</li> <li>3) Testing Direction: 6 sides</li> </ul> <p>Test Cycle: 3 times in each direction</p>	As shown in item 2~7

	13	Solderability	<p>① Through Hole Soldering Temperature : 245±3°C Lead-Free solder : M705E JIS Z 3282 A (Tin 96.5% , Silver 3% , Copper 0.5%)</p> <p>② Flux : 5~10 sec</p> <p>③ Duration of solder Immersion : 5±1 sec</p>	No anti-soldering and the coverage of dipping into solder must more than 66% were requested.
<b>DURABILITY</b>	14	Operating Life	<p>Measurements shall be made following the test forth below:</p> <p>① 5mA, 5 VDC resistive load</p> <p>② Applying a static load the operating force to the center of the stem in the direction of operation Static Load = OF Max.</p> <p>③ Rate of Operation: 1 operation per minute</p> <p>④ Cycle of Operation: 50,000 cycles min.</p>	<p>1.As shown in item 4、5</p> <p>2. Insulation Resistance: 10MΩ min</p> <p>3. Bounce: 10 m seconds Max</p>
<b>WEATHER-PROOF</b>	15	Resistance Low Temperature	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before the measurements are made:</p> <p>① Temperature: -30±2°C</p> <p>② Time: 168 hours</p>	As shown in item 2~7
	16	Heat Resistance	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before the measurements are made:</p> <p>① Temperature: 80±2°C</p> <p>② Time: 96 hours</p>	As shown in item 2~7

<b>WEATHER-PROOF</b>	17	Humidity Resistance	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before the measurements are made:</p> <p>① Temperature: <math>40 \pm 2^{\circ}\text{C}</math>          ② Relative Humidity: 90~95%          ③ Time: 168 hours</p>	<p>① As shown in item 4~7          ② Contact Resistance: 200mΩ Max          ③ Insulation Resistance: 10MΩ min</p>
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**5. SOLDERING CONDITIONS:**

■ Condition for Soldering



- The condition mentioned above is the temperature on the Cu foil of the PCB surface. There are cases where board's temperature greatly differs from switch's surface be used not to allow switch's surface temperature to exceed 260°C.

■ Manual Soldering

Soldering Temperature	Max.350°C
Continuous Soldering Time	Max. 5 seconds

■ Precautions in Handling

1. Care should be exercised so that flux from the upper part of the printed circuit board does not adhere to the switch.
2. Except for washable type do not wash the switch
3. Please make sure that there is no flux rose over the surface of the PCB.



# Taiway Electronics Components Co., Ltd.

ISO 9001, 14001, IECQ QC 080000 Registered

## ■ Notes on storage conditions:

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

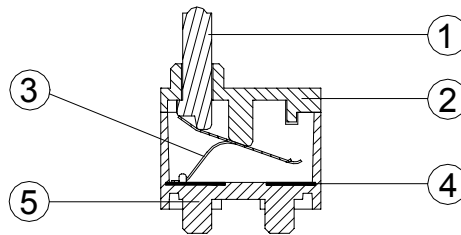
1. temperature of -10 (max) ~ +40 (min) °C & humidity at 85% (min)
2. environment with corrosive gas
3. storage over 6 months
4. place of direct sunlight

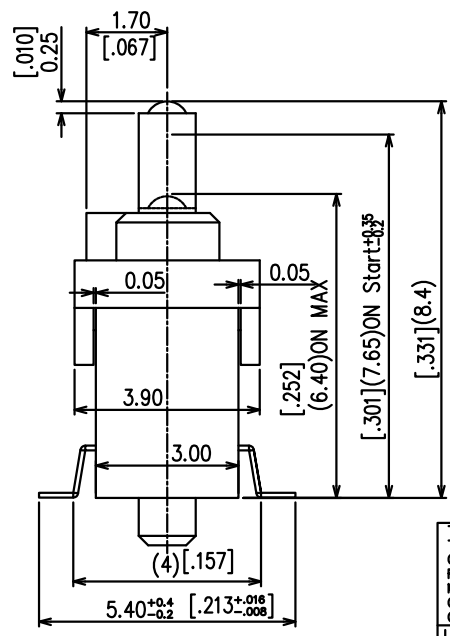
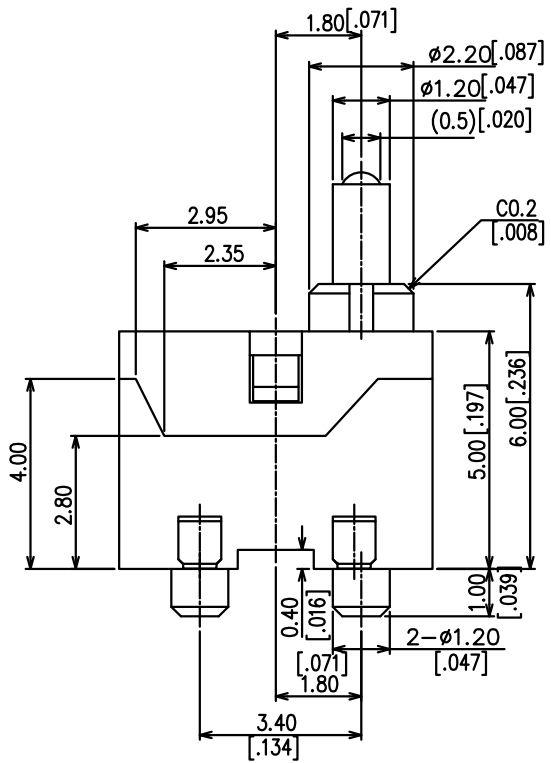
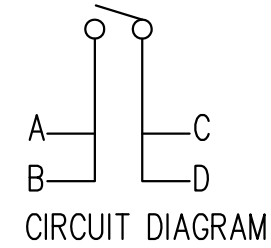
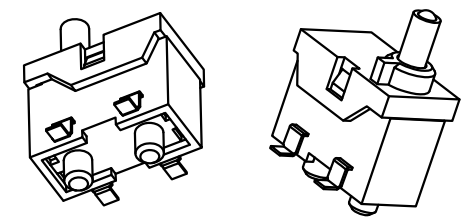
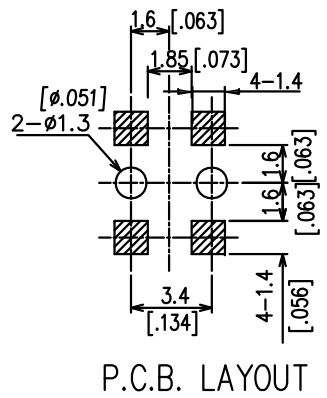
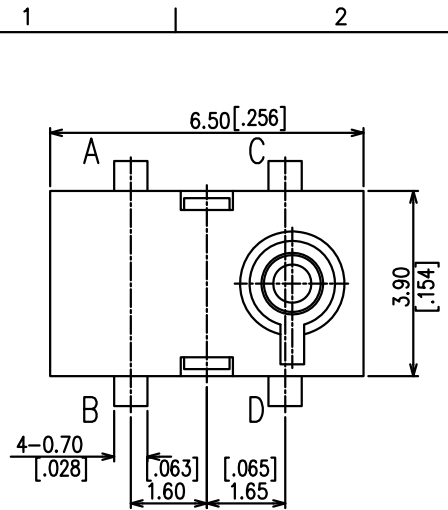
Store with proper packaging conditions and to avoid loading heavy force

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

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

ITEM	DESC.	Q'TY	MATERIAL	TREATMENT	REMARK
1.	STEM	1	HIGH-TEMP THERMOPLASTIC LCP UL 94V-0	NONE	-
2.	COVER	1	HIGH-TEMP THERMOPLASTIC PA9T UL 94V-0	-	-
3.	CONTACT	1	STAINLESS STEEL	WITH SILVER CLADDING	-
4.	TERMINAL	1	Phosphor bronze	WITH SILVER PLATING	-
5.	BASE	1	HIGH-TEMP THERMOPLASTIC LCP UL 94V-0	MOLDED BLACK	-
6.	TERMINAL OIL	1	TMD-D	-	-





- SPECIFICATIONS:**
- 1.Current Range:5mA, 5V DC
  - 2.Type of Actuation: Auto Return
  - 3.Contact Resistance: 500mΩ Max.
  - 4.Insulation Resistance: 250V DC for 1 minute±5s, 100MΩ Min.
  - 5.Dielectric Withstanding Voltage: 250V AC(50Hz or 60Hz) for 1 minute
  - 6.Capacitance: 5 pF max.
  - 7.Bounce: 5 m seconds max.
  - 8.Operating Force(OF): 35gf Max. (.343N Max.)
  - 9.Operating Life: 50,000 cycles Min.
  - 10.Operating Temperature Range: -20°C~+70°C
  - 11.Storage Temperature Range: -30°C~+80°C

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS ANGULAR TOLERANCE: ±1.0°

DIMENSIONS	TOLERANCE
0.00 TO 10.00mm	±0.20mm
10.01 TO 20.00mm	±0.25mm
20.01 TO 30.00mm	±0.30mm
30.01 ↑	±0.40mm

<p>泰瑋電子有限公司 TAIWAY ELECTRONICS COMPONENTS CO.,LTD.</p>			
USED 用途	TPS	APPD. 審核	Amy 2020/08/14
FINISH 處理		CHKD. 校對	Amy 2020/08/14
SCALE 比例	10 / 1	UNIT 單位	mm[in]
		DR. 製圖	Polly 2020/08/14
TITLE 名稱	DETECTOR SWITCH		
DWG NO. 圖號	TPS-TEM-T/R-03		SIZE 圖紙
FILE NAME 檔案名稱	TPS-TEM-T/R-03.dwg	SHEET 張	1 / 1
		REV. 更改	1

ITEM NO. 料號	TPS-TEM-T/R-03 YTPS-TEM-T/R-03
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