

# DATA SHEET

**SUNGMUN CODE :** STP-1238 SERIES  
**DESCRIPTION :** TACT SWITCH

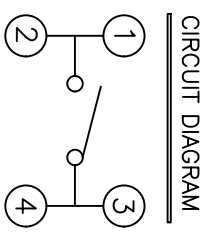
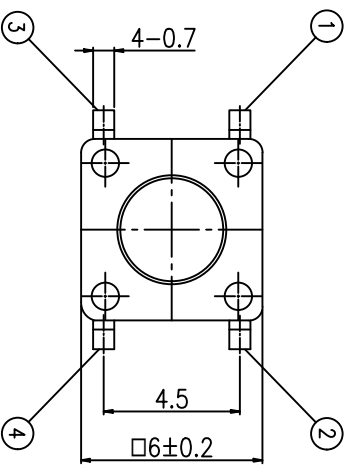
## **SUNGMUN ELECTRONICS CO., LTD.**

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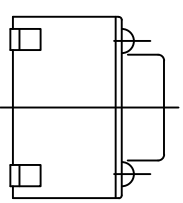
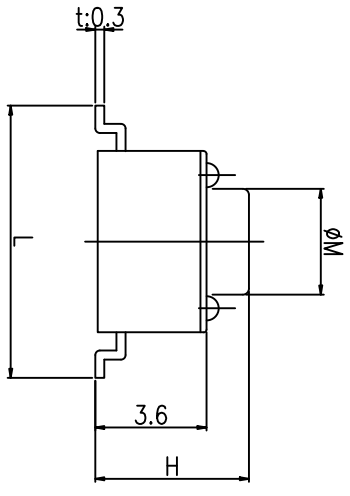
**SUNGMUN**  
ELECTRONICS

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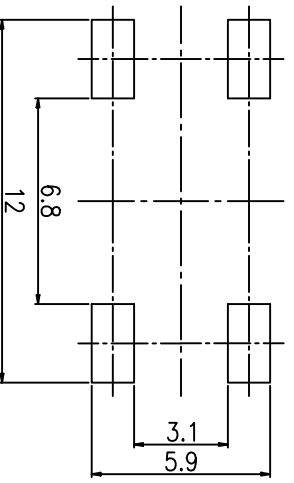
**SPECIFICATION**

1. RATING : DC 12V 50mA
  2. TRAVEL : 0.25±0.1mm
  3. CONTACT RESISTANCE : 100mΩ MAX.
  4. BOUNCE : 10m SEC MAX.
  5. LIFE CYCLES : 80,000 CYCLES (STP-1238AW : 50,000 CYCLES)
- \*L(mm) : 9.0, 10.0



MODEL	H(mm)	Ø M	OPERATING FORCE
STP-1238	4.3	3.4	160±50gf
STP-1238A	5.0	3.4	160±50gf
STP-1238AW	5.0	3.4	250±50gf
STP-1238B	9.5	3.3	160±50gf
STP-1238C	8.0	3.4	160±50gf
STP-1238D	13.0	2.8	160±50gf
STP-1238E	7.3	3.3	160±50gf
STP-1238F	8.5	3.2	160±50gf
STP-1238G	7.0	3.4	160±50gf
STP-1238H	6.0	3.3	160±50gf
STP-1238L	12.5	3.3	160±50gf
STP-1238Q	9.0	3.1	160±50gf

**P.C.B MOUNTING PATTERN**



DRAW/DESIGNED	CHECKED	APPROVED	G.TOL ±0.3	TITLE TACT SWITCH
K.N KIM	W.J LEE	K.I LEE		
2022-04-19	2022-04-19	2022-04-19	UNIT mm	MODEL NO.
<b>SUNGMUN ELECTRONICS CO.,LTD</b>			SCALE N:5	STP-1238XX
			SIZE A4	DRAW NO.
				STP-1298XX-S-03
				REV.
				03

### 1. Description:

This specification covers the requirements for single key switches which have no key top(Tact switches mechanical contact).

1-1 Operating Temperature Range : -40°C ~ +70°C (normal humidity, normal press)

1-2 Storage Temperature Range : -40°C ~ +80°C

1-3 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 1,060 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 1,060 mbars)

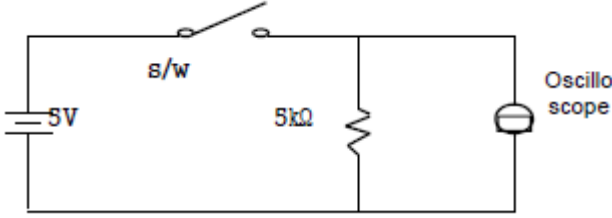
### 2. Rating:

2-1 Maximum Rating : 50 mA, DC 12V

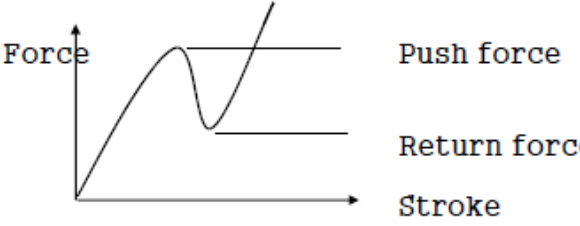
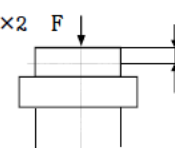
3. Type of Actuation : Push – ON type

4. Contact Arrangement : 1 poles 1 throws (SPST)

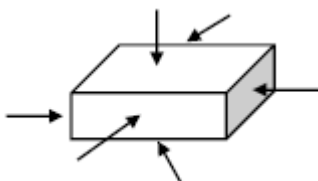
### 5. Electrical Characteristics

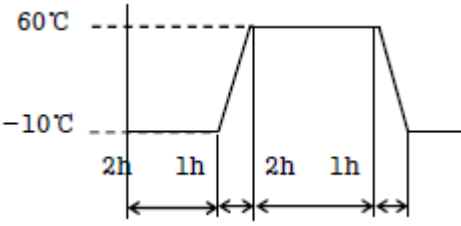
ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
5-1	Visual Examination	By visual examination check without any out pressure & testing.	There shall be no defects that affect the serviceability of the product.
5-2	Contact Resistance	Push force : (Operation force) x 2 Measurements shall be made with a 1kHz small current contact resistance.	100mΩ max.
5-3	Insulation Resistance	DC 100V for 1 minute. (Between terminals)	100 MΩ min.
5-4	Dielectric withstanding Voltage	250V AC(50Hz or 60Hz) shall be applied between all the adjacent terminal and between the terminal and the frame for 1 minute.	There shall be no breakdown or flashover.
5-5	BOUNCE	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".  	10msec max.

### 6. Mechanical Characteristics

ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
6-1	Operation Force	Push by recommended operating condition. 	See outside drawing
6-2	Travel	Push by recommended operating condition. $F = (\text{Operation force}) \times 2$ 	0.25±0.1 mm
6-3	Stem Strength	The maximum force to withstand a pull applied opposite to the direction of stem operation shall be measured.	0.5 kgf min
6-4	Stop Strength	A static load of 3 kgf shall be applied in the direction of stem operation for a period of 60 seconds.	There shall be no sign of damage mechanically and electrically.
6-5	Operation Life	Measurements shall be made following the test set forth below: 1) 50mA, 12V DC resistive load 2) Rate of operation: 2 ~ 3 cycles/ sec 3) Push force: Maximum value of operation force 4) Cycles of operation: See outside drawing	1)As shown in item 5-3, 5-4, 6-2 2)Contact Resistance: 200mΩ max 3)Bounce : 20m sec max 4)Actuating force : ±30% initial force

### 7. Environmental Characteristics

ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
7-1	Moisture Resistance	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for one hour before measurements. Are made :</p> <p>1) Temperature : <math>60 \pm 2^{\circ}\text{C}</math>            2) Relative humidity : 90 to 95%            3) Time : 96 hours</p> <p>Water drops shall be removed.</p>	<p>1)As shown in item 5-3, 5-4, 5-5, 6-1, 6-2</p> <p>2)Contact Resistance: 200m<math>\Omega</math> max</p>
7-2	Resistance Low Temperature	<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: <math>-40^{\circ}\text{C} \pm 2^{\circ}\text{C}</math>            2)Time: 96 hours</p> <p>Water drops shall be removed.</p>	<p>1)As shown in item 5-3, 5-4, 5-5, 6-1, 6-2</p> <p>2)Contact Resistance: 200m<math>\Omega</math> max</p>
7-3	Resistance High Temperature	<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: <math>80 \pm 2^{\circ}\text{C}</math>            2)Time: 96 hours</p> <p>Water drops shall be removed.</p>	<p>1)As shown in item 5-3, 5-4, 5-5, 6-1, 6-2</p> <p>2)Contact Resistance: 200m<math>\Omega</math> max</p>
7-4	Impact Shock Resistance	<p>Measurements shall be made following the test set forth below :</p> <p>1) Acceleration : 80G            2) Cycles of test : 3 cycles each in 6 directions, for a total of 18 cycles.</p> <div style="text-align: center;">  </div>	<p>Item 5 Item 6-1, 6-2</p>

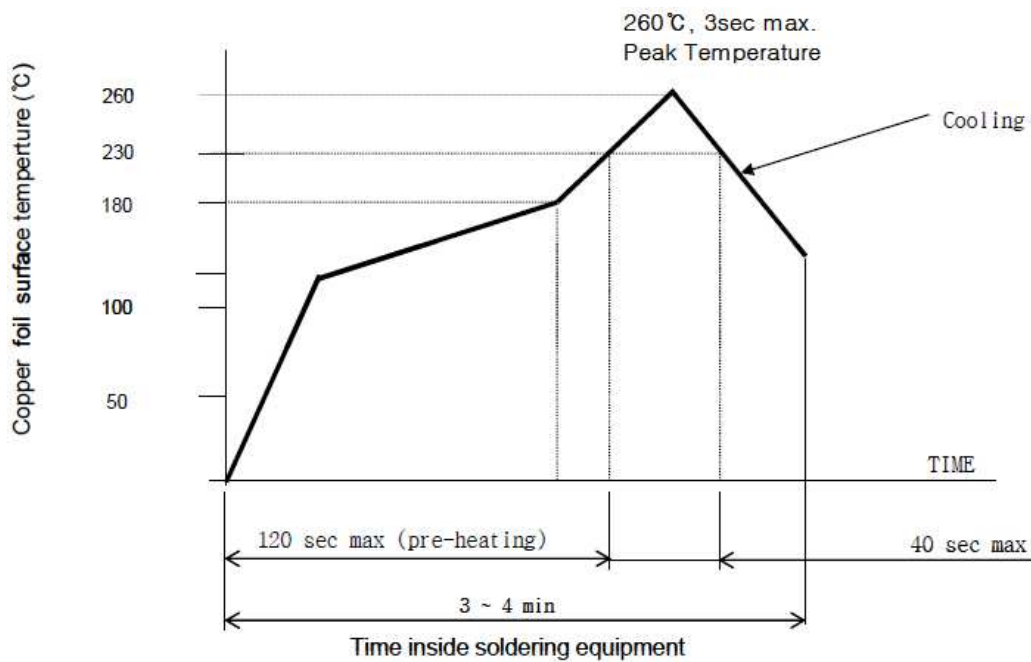
ITEM	DESCRIPTION	TEST CONDITIONS	REQUIREMENTS
7-5	Change of Temperature	<p>Following 5 cycles of high temperature test. The sample shall be placed in normal temperature and humidity conditions for one hour before measurements are made. During this test, water drops shall be removed.</p>  <p style="text-align: center;">Cycling : 1 cycles</p>	<p>1)As shown in item 5-3, 5-4, 5-5, 6-1, 6-2</p> <p>2)Contact Resistance: 200mΩ max</p>
7-6	Vibration Resistance	<p>Measurements shall be made following the test set forth below :</p> <ol style="list-style-type: none"> <li>1) Range of oscillation : 10 to 55Hz</li> <li>2) Amplitude, peak to peak : 1.5mm</li> <li>3) Cycle of sweep : 10-55-10Hz in a minute.</li> <li>4) Mode of sweep : Logarithmically seep or uniform sweep.</li> <li>5) Direction of oscillation : Three mutually perpendicular direction, including the direction of stem travel.</li> <li>6) 2 hours each for a total of 6 hours.</li> </ol>	<p>Item 5 Item 6-1, 6-2</p>
7-7	Soldering Test	<ol style="list-style-type: none"> <li>1) Soldering area: t/2 of P.W.B thickness (P.W.B : t = 1.6)</li> <li>2) Soldering temperature: 260±5°C</li> <li>3) Soldering time: 5±1 sec</li> </ol>	<p>No damage (Electronical and mechanical)</p>
7-8	Salt Mist Test	<p>Switch shall be checked after following test.</p> <ol style="list-style-type: none"> <li>1) Temperature: 260±5°C</li> <li>2) Salt solution: 5±1%</li> <li>3) Duration of test: 48 hours</li> </ol>	<p>Without excessive rust or discoloration.</p>

8. This item is "RoHS" Compliant

### 9. Reflow Soldering Conditions:

9-1 Preheat : Temperature on the copper foil surface should reach 180°C, 2±0.3 minutes after the P.W.B entered into the soldering equipment.

9-2 Soldering heat : Temperature on the copper foil surface should reach the peak temperature of 260°C within 40 seconds after the P.W.B entered into soldering heat zone.



Temperature Profile