

1 GENERAL

1.2 APPLICATION

This specification is applied to the requirements for TACTILE SWITCH (MECHANICAL CONTACT)

1.3 Operating Temperature Range

-20℃～70℃ (Normal humidity, normal air pressure)

1.4 Storage Temperature Range

-30℃～80℃ (Normal humidity, normal air pressure)

1.5 Test Conditions

Unless otherwise specified, tests and measurement shall be made in the following standard conditions:

Normal temperature.....5℃～35℃

Normal humidity.....relative humidity 25%～85%

Normal air pressure.....86Kpa～106Kpa

If any doubt arise from the judgment, tests shall be conducted at the following conditions:

Temperature.....20℃±2℃

Relative humidity.....65%±5%

Air pressure.....86KPa～106Kpa

GOLDSUN ELECTRONICS CO., LTD.			
JAMECO NO. 149948		GOLDSUN NO. BTS-1102D	
Description TACT SWITCH BLACK SPST N.0 (N.C.) PC LEAD.			Rev. 1
UNIT: mm	SCALE:	SHEET 1 OF 1	CAS No: ERN No:

2.

Detailed specification

2.1

Appearance: There should be no defects that affect the serviceability of product.

2.2

Style and dimension: shall conform to the assemble drawings.

2.3

Type of actuating: Tactile feedback.

2.4

Contact arrangement: 1 pole, 1 throw

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

2.5

Ratings: 12V DC, 50mA (effective value)

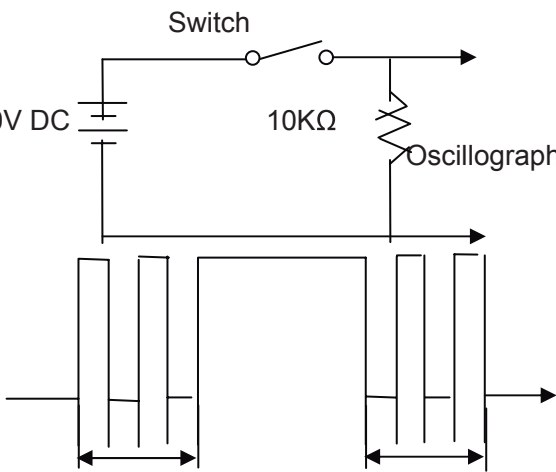
3.

ELECTRICAL SPECIFICATION

ITEM		TEST CONDITIONS	REQUIREMENTS
1	Contact Resistance	Applying a static load of 2 times operating force to the center of the stem, measurements shall be made by 5V DC 10mA or more than 1KHZ AC small-current contact resistance meter.	$\leq 50m\ \Omega$
2	Insulation Resistance	Measurement shall be made following application of 100V DC potential, across terminals, and across terminals and cover, for one minute.	$\geq 100M\ \Omega$
3	Dielectric voltage proof	250V AC (50HZ or 60HZ) shall be applied across terminals, for one minute.	There should be no breakdown and flashover

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ITEM		TEST CONDITIONS	REQUIREMENTS
4	Bounce	<p>Lightly striking the center of the stem at a rate encountered in normal use (3 to 4 times per second), and bounce shall be tested at "ON" and "OFF"</p>  <p style="text-align: center;">" ON" "OFF"</p>	<p>ON-3msec.max OFF-8msec.max</p>

4 MECHANICAL SPECIFICATION

1	Operating Force	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 switch to come to a stop shall be measured.	refer to drawing
2	Full Travel	Placing the switch such that the direction of switch operation is vertical and then applying static load of 2times operating force to the center of the stem; the travel distance for the switch to come to a stop shall be measured.	0.25±0.1mm

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ITEM		TEST CONDITIONS	REQUIREMENTS
3	Return Force	The sample switch is installed such that the direction of switch operation is vertical and upon depressing the stem in its center to the whole travel distance, the force of the stem to return to its free position shall be measured.	refer to drawing
4	Stop Strength	Placing the switch such that the direction of switch operation is vertical, and then a static load of 30N shall be applied in the direction of stem operation for a period of 1 min.	There shall be no sign of damage mechanically and electrically.
5	Stem Strength	Placing the switch such that the direction of switch operation is vertical, and then the maximum force to withstand a pull applied opposite to the direction of stem operation shall be measured.	20N.min.
6	Solderability	<p>Measurements shall be made following the test set forth below:</p> <p>(1) Solder temperature : $245\pm 5^{\circ}\text{C}$</p> <p>(2) Immersion time: $2\text{s}\pm 0.5\text{s}$</p> <p>The other steps please refer to 《GB 5095.6-86》 TEST 12a</p>	Except for the edge, the coating should cover a minimum 90%

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ITEM		TEST CONDITIONS	REQUIREMENTS												
5、ENVIRONMENTAL SPECIFICATION															
1	Resistance to low temperature	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h before measurements are made: (1) Temperature : -30±2℃ (2) Time: 96h	Contact resistance: ≤200mΩ Item 3,4.1,4.2,4.3												
2	Heat resistance	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h before measurements are made: (1) 温度: 80±2℃ temperature:80±2℃ (2) 时间: 96h time: 96h	Contact resistance: ≤200mΩ Item 3,4.1,4.2,4.3												
3	Change of temperature	After 5 cycles of following conditions, the sample shall be allowed to stand under normal temperature and humidity conditions for 1 h. and measurements shall be made. During the test water drops shall be removed. <table><tr><td></td><td>Temperature</td><td>Time</td></tr><tr><td rowspan="4">1cycle</td><td>-10±2℃</td><td>2(hour)</td></tr><tr><td>-10～65℃</td><td>1</td></tr><tr><td>65±2℃</td><td>2</td></tr><tr><td>65～-10℃</td><td>1</td></tr></table>		Temperature	Time	1cycle	-10±2℃	2(hour)	-10～65℃	1	65±2℃	2	65～-10℃	1	Contact resistance: ≤200mΩ Item 3,4.1,4.2,4.3
	Temperature	Time													
1cycle	-10±2℃	2(hour)													
	-10～65℃	1													
	65±2℃	2													
	65～-10℃	1													

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ITEM		TEST CONDITIONS	REQUIREMENTS
4	Moisture resistance	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h before measurements are made:</p> <p>(1) temperature: $60\pm 2^{\circ}\text{C}$</p> <p>(2) relative humidity: 90% to 95%</p> <p>(3) time: 96h</p>	<p>Contact resistance: $\leq 200\text{m}\Omega$</p> <p>Item 3,4.1,4.2,4.3</p>
5	Sulfuration resistance	<p>Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 h before measurements are made:</p> <p>(1) H_2S 气体浓度: $3\text{ppm}\pm 1\text{ppm}$ H_2S gas concentration: $3\text{ppm}\pm 1\text{ppm}$</p> <p>(2) 时间: 72h Time: 72h</p> <p>(3) 温度: $40\pm 2^{\circ}\text{C}$ (90~95%RH) temperature: $40\pm 2^{\circ}\text{C}$ (90~95%RH)</p>	<p>Contact resistance: $\leq 200\text{m}\Omega$</p> <p>Item 3,4.1,4.2,4.3</p>
6	Salt Mist	<p>The switch shall be checked after following test:</p> <p>(1) temperature: $35^{\circ}\text{C}\pm 2^{\circ}\text{C}$</p> <p>(2) salt solution : $5\pm 1\%$(solids by mass)</p> <p>(3) Time: $8\text{h}\pm 1$ hour</p> <p>After test, salt deposit shall be removed by running water.</p>	<p>No remarkable corrosion shall be recognized in metal part.</p>

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6、 ENDURANCE SPECIFICATION

ITEM		TEST CONDITIONS	REQUIREMENTS									
1	Operation life	<p>Measurement shall be made following the test set forth below:</p> <p>(1) DC 12V, 50 mA resistive load</p> <p>(2) Rate of operation: 2 times/s</p> <p>(3) Operating Force: Operating Force1.5~2 倍</p> <p>(4) Average fault-free life</p> <table><tr><td>1</td><td>100gf</td><td>100000 次</td></tr><tr><td>2</td><td>160gf</td><td>80000 次</td></tr><tr><td>3</td><td>250gf</td><td>60000 次</td></tr></table>	1	100gf	100000 次	2	160gf	80000 次	3	250gf	60000 次	<p>resistance≤200MΩ</p> <p>Shock resistance ≤10ms</p> <p>Operating Force: initial value±30%</p> <p>Item 3,4.1,4.2,4.3</p>
1	100gf	100000 次										
2	160gf	80000 次										
3	250gf	60000 次										
2	Vibration	<p>Measurement shall be made following the test set forth below:</p> <p>(1) Vibration frequency range: 10 to 55 to 10Hz</p> <p>(2) Amplitude: 1.5mm</p> <p>(3) Direction of vibration:Three mutually perpendicular direction including the direction of stem travel</p> <p>(4) Duration: Each 2hours.</p>	<p>Item 3,4.1,4.2,4.3</p>									

7.
SOLDERING CONDITIONS:

7.1	Hand soldering	Please practice according to below conditions: (1) Soldering temperature: 350℃ Max. (2) Continuous soldering time: 3 s Max.
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7.2	Conditions for Auto-dip	Items	Condition
		Flux built-up	Mounting surface should not be coated with flax
		Preheating temperature	Ambient temperature of the soldered surface of PC board. 100 °C max.
		Preheating time	60s max.
		Soldering temperature	255 °C max.
		Continuous dipping time	5s max.
		Number of soldering	2hours later 2times max.

1、 Description of switch

1.1

After switches were soldered, please be careful not to clean switches with solvent.

1.2

In the case of using soldering iron, soldering conditions shall be 350°C max and 3 sec.max.

1.3

Right after switches were soldered; please be careful not to load to on the knobs of switches.

2、 (Design instructions)

2.1

Follow recommended P.W.B. piercing plan in outside drawing page.

3、 (Note):

3.1

Please be cautious not to give excessive static load or shock to switches.

3.2

Please be careful not to pile up P.W.B. after switches were soldered.

3.3

Preservation under high temperature and high humidity or corrosive gas should be avoided Especially . When you need to preserve for a long period ,do not open the carton.

3.4

Panasert RH and RH6 shall be used as the standard insert machine (use N type clinch).

3.5

Control hazardous substance: The product should be meet SONY-SS-00259 specification.

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