Product Specifications

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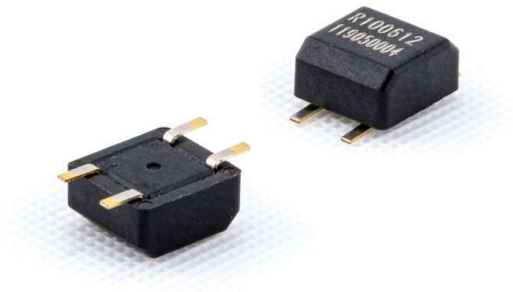
● FUNCTION

Vibration detection in horizontal position.

● APPLICATIONS

1. Wireless mouse
2. Anti-theft / Anti-tamper devices
3. Alarm system
4. Toys / Entertainment devices



● FEATURES

1. Suitable for horizontal PCB.
2. Switch State：SMD Normal open
   RBS100612T acts like a normally open switch which chatters closed and open as it is tilted or vibrated. Note that the RBS100612T is not guaranteed to be open --- occasionally the sensing mechanism may remain close when at rest. The engineer should design his or her software to look for high-to-low and low-to-high edge transitions rather than an open or closed state of the switch.
3. Small size & compact space.
4. Housing made of high insulation plastic material, free from electric conduction and rust problem.
5. Terminals and balls are gold plated to enhance the life.
6. All plastic material subject to industrial purpose meets high temperature and fireproof function.
7. Simple switch signal, easy for circuit design.

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8. Comply with RoHS, complete replacement of mercury switch and meet environmental protection.
9. More economic than IC design.
10. All made in Taiwan and examined before shipment.

● PATENTS

1. Taiwan Patent No. I 239025
2. Taiwan Patent No. I 261280
3. Taiwan Patent No. M 455971
4. Taiwan Patent No. I 505313
5. U.S.A. Patent No. US 7,045,724 B1
6. U.S.A. Patent No. US 7,473,857 B2
7. U.S.A. Patent No. US 8,969,747 B2
8. China Patent No. CN 1779878 A
9. China Patent No. CN 101075510 A
10. China Patent No. CN 202977296 U
11. China Patent No. CN 103854918 A

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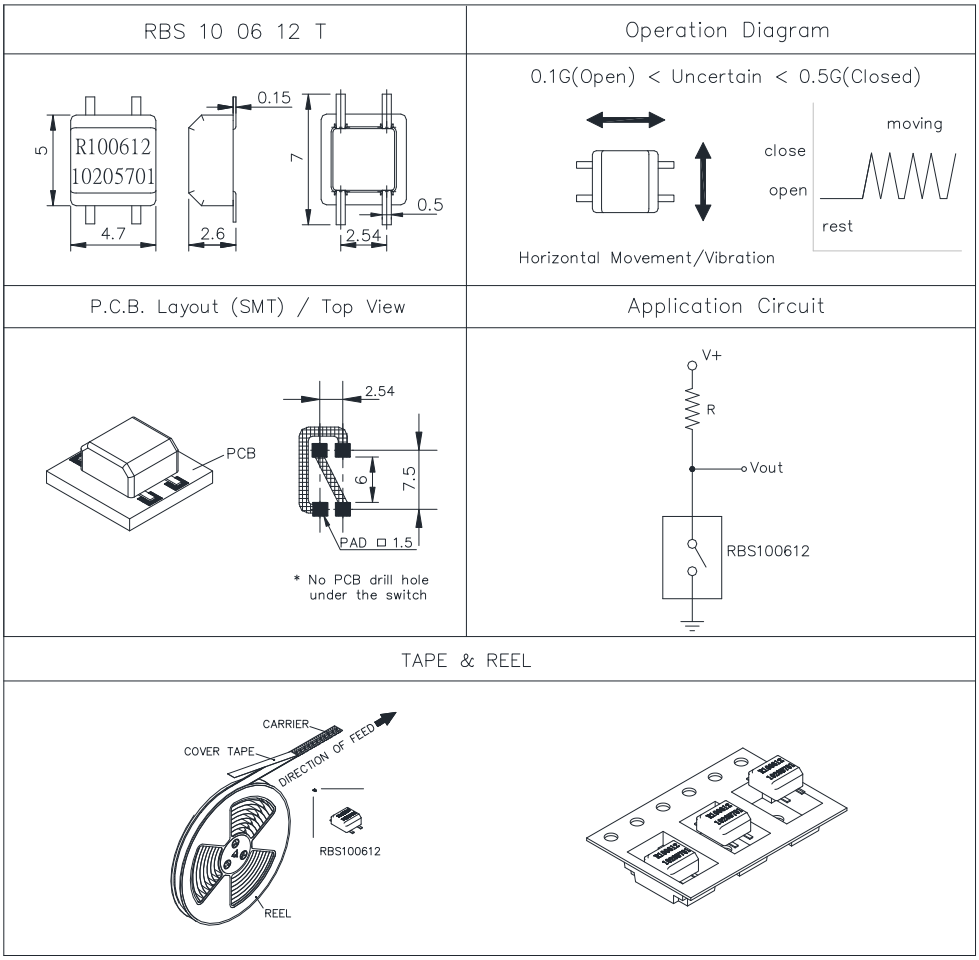
● DIMENSIONS / OPERATION / P.C.B. LAYOUT (Unit: mm, Tolerance: ±0.25mm)

Fig. 1



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● Current/Voltage Suggested

Input Current	Minimum Operating Voltage	Condition
1.0 mA	3 V	--

● ELECTRICAL CHARACTERISTICS

1.	Maximum Contact Current	10 mA
2.	Operation Diagram	Refer to Fig. 1

● RELIABLE TEST ITEMS

Reliable Test for RBS100612T

	Test Item	Contents
1	IR Reflow	Peak temp.=255~260°C
2	Operating Temperature	-25°C ~ 85°C
3	Storage Temperature	-40°C ~ 85°C
4	Humidity	40 °C / 95 %RH
5	Mechanical Life	2 Hz horizontal 1,000,000 times
6	Electrical Life	100,000 times

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● SOLDERING CONDITION

Following soldering conditions are for reference only, please use soldering information that solder paste manufacturer recommends.

Condition / Suitable Production Process	Soldering Temperature	Soldering Time	Wattage of Manual Soldering	Type
IR Reflow	Please refer to following < Table of classification Reflow profile > and Fig. 2		-	SMD
Manual Soldering	300±5°C	< 3 seconds max.	30W or Temperature-controlled manual soldering	SMD

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< Table of classification Reflow profile >

Item	Pb process	Pb free process
Pre-heat and Soak Temperature min.(Tsmin) Temperature max.(Tsmax) Time (Tsmin to Tsmax)(ts)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-120 seconds
Average Rate of temperature rising up (Tsmax to Tp)	3°C/second max.	3°C/second max.
Liquidous Temperature (TL) Time at Liquidous (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak package body Temperature (Tp)*	230°C ~235°C *	255°C ~260°C *
Classification temperature(Tc)	235°C	260 °C
Time(tp)** within 5 °C of the specified classification temperature (Tc)	20** seconds	30** seconds
Average ram-down Rate (Tp to Tsmax)	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (Tp) is defined as a supplier minimum and a user maximum.

** Tolerance for time at peak profile temperature (tp) is defined as a supplier minimum and a user maximum.

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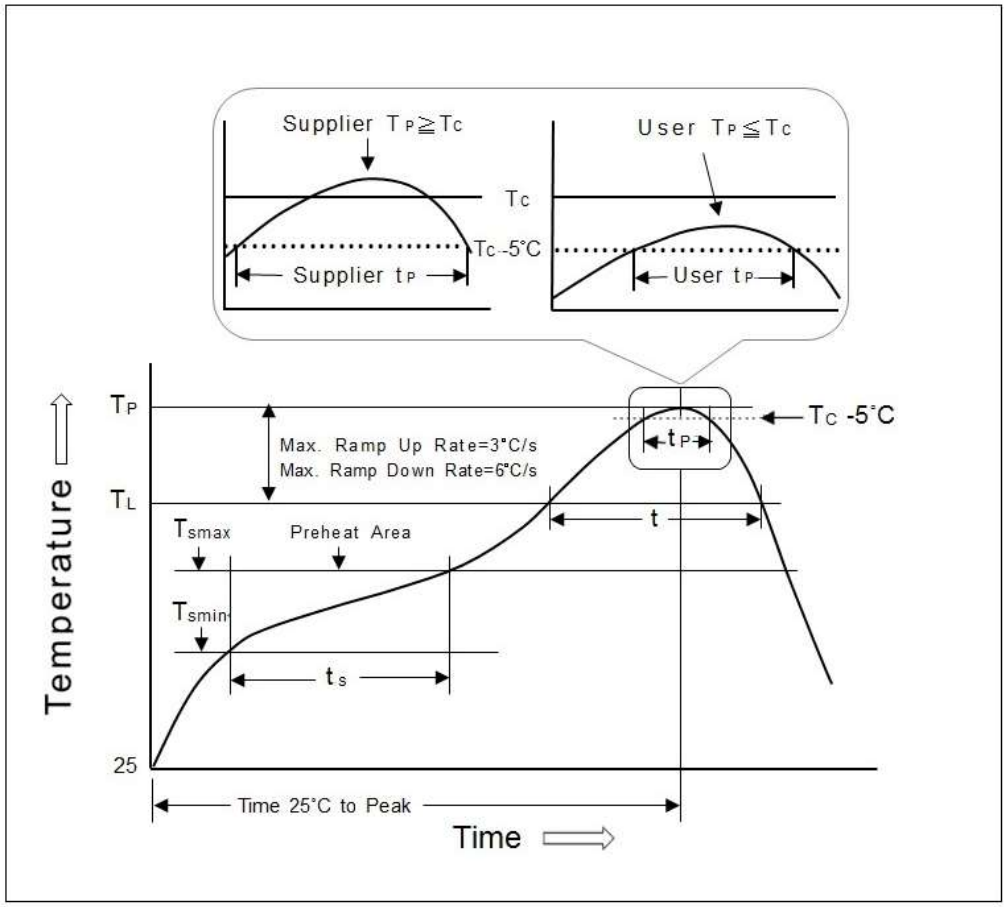
Fig. 2



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● PACKAGE

	Parts No.	Package	Quantity	Total	Dimension (mm)
3.	RBS100612T	Tape & Reel	2,500 pcs	2,500 pcs	φ330*12.5H
		Inner box	2 Reels	5,000 pcs	355L*340W*68H
		Carton	4 Boxes	20,000 pcs	373L*358W*309H

※ Package shown as below for reference.

Tape & Reel　　Inner Box　　Carton

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● NOTES

1. Suggestion for usage: For vibration usage or application, we suggest to add hysteresis for IC; if vibration is heavy, optical type of sensor switch is recommended.
2. For the continued product improvement as one of the company policy, specifications may change or update without notice. The latest information can be obtained through our sales offices. Normally, all products are supplied under our standard conditions.
3. If buyer's products will stay in power supply for a long time which needs very high stability, optical sensor switch is strongly recommended.

● PRECAUTIONS FOR USE

1. If the products are intended to be used for other endurance equipment requiring higher safety and reliability such as life support system, space and aviation devices, disaster and safety system, it's necessary to make verification of conformity or contact us for the details before using.
2. Don't try to clean the switch with a solvent or similar substance after the soldering process.
3. Use water-soluble flux may damage the switch.
4. Please follow the soldering instruction accordingly, otherwise might lead to defective.
5. Do not use switch in the environment of high humidity, because such an environment may cause the leakage current between the terminals.
6. Please do not exceed the rated load as there will be a risk of disabling the product function.
7. In the circuit, switch should not be near or directly connected with the magnetic component solder joints (for example: relays, transformers, etc.).

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● PRECAUTIONS

1. Application:

1.1 It is recommended to add an on-delay design when it is used in a place with vibration; if the vibration is too strong, it is recommended to use photoelectric products.

1.2 If the customer's product installation switch has long-term and stable requirements, it is recommended to use photoelectric products.

1.3 Do not overload the switch with momentary voltage when turning on and off the circuit.

1.4. When using pulse devices, take care to maintain the current within the set value range.

1.5 The circuit must not be close to or directly connected to the solder joints of strong magnetic components (such as: relays, transformers, etc.).

1.6 The post-production process of the customer's product includes the ultrasonic processing process, and the feasibility of installing the switch needs to be consulted.

1.7 The PCB Layout Pad is based on the recommendations in the specification.

2. storage environment

2.1 In order to avoid moisture absorption, it is recommended to solder the parts on immediately after opening the package.

2.2 If the product is not opened, it should be stored in the following environment:

(1) Temperature: 5°C - 30°C (40°F)/Humidity: Relative Humidity Max 60% (RH 60% MAX)

(2) If the product must be dried before welding due to long-term storage, please refer to IPC JEDEC J-STD-033 and IPC JEDEC J-STD-020 related specification processing

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3. Process related

3.1 In the case of hand soldering, use a soldering iron tip temperature of 350 degrees (maximum) within 2mm of the front end of the terminal. Complete the work within 3 seconds, and be careful not to apply force to the terminal during the work. After soldering, do not move the terminal part for 1 minute. Also, please confirm whether the switch is mounted horizontally or vertically relative to the PCB board.

3.2 Photoelectric products are built-in photoelectric circuit breaker detection switches. Due to the nature of semiconductors, please be careful when using continuously for a long time in a high-temperature, low-humidity and high-humidity environment, the light output of the LED may decrease, and the output voltage may change significantly. In this case, please take appropriate measures in order to allow a margin for changes in output characteristics and improve reliability. Since this product is a non-sealed type (waterproof structure), when using it in an environment where water may splash or condense, please take countermeasures, such as adopting a sealed structure for the entire device. When sealing with a sealant for printed circuit boards, please fully evaluate and confirm that the sealant does not penetrate in the main body.

3.3 In order to prevent IR and PT from being damaged, please do electrostatic protection treatment, for example: use conductive wrist straps or anti-static gloves during the process, and ground the facilities and machines, etc.

3.4 Do not use solvents or similar things to clean the switch after the soldering process is complete

3.5 Use of water-soluble flux may lead to breakage of the switch, it is recommended to use low-flux solder paste. (to avoid flux penetration)

3.6 There are related process precautions in the specification, please read carefully to avoid poor use of the produ

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4. Others

4.1 Due to different usage conditions and environments, solder migration may cause short circuits between terminals. When mounting on the printed circuit board, please confirm whether the insulation distance is ensured.

4.2 To prevent malfunction, please avoid using it in places exposed to direct sunlight, and avoid using light around the switch

4.3 Static electricity, surge voltage, induction and other interference may cause malfunction, please pay attention

4.4. Please follow the welding instructions in the specifications, otherwise it may cause defective

4.5 Do not use the switch in an environment with high humidity or the possibility of getting wet, as such an environment may cause leakage current between terminals.

4.6 The performance recorded in this specification is the evaluation result of a single item and a certain period of time. Therefore, when using, in order to improve reliability, please confirm the quality under the actual use condition.

4.7 If you do not follow the recommendations in the specification, set the operating angle and circuit design yourself or do not pay attention to the process-related parameters, resulting in flux penetration and poor operation or long-term storage (avoid more than 1 year), our company cannot guarantee the quality requirements, and does not accept customer complaints

4.8 If the product is to be used in other durable equipment with higher safety and reliability (such as life support devices, aerospace device, disaster prevention and safety device), please confirm whether it is applicable, or ask us for details.

4.9 Since the company policy is to continuously improve product quality, specifications may be changed or modified without prior notice. You can obtain the latest version

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information through the company's sales staff. Under normal circumstances, all products of our company are produced according to the standard conditions of the specifications.

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