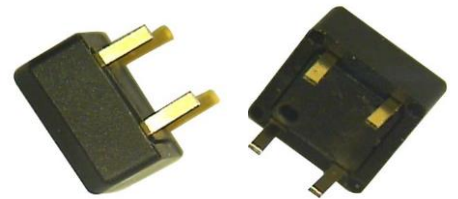


## SENSOR SWITCH

|          |                |             |             |               |    |
|----------|----------------|-------------|-------------|---------------|----|
| Item No. | RBS1006 Series | Description | TILT SWITCH | Version       | 11 |
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## ● FUNCTION

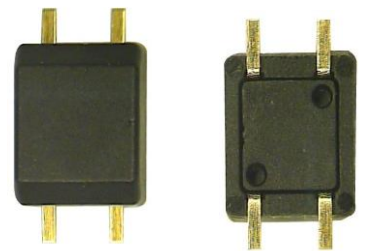
1. RBS100600 、RBS100610T :  
25° Tilt Detecting for 4 Directions in horizontal position.
2. RBS100601 、RBS100611T :  
Rotation detection at 45° in vertical position.
3. RBS100602 、RBS100612T :  
Vibration detection in horizontal position.



RBS100600, RBS100601, RBS100602

## ● APPLICATIONS

- 1 RBS100600 、RBS100610T :
  - 1.1 Wake up systems for power saving, such like remote controllers
  - 1.2 Automatically shut off for home appliances
  - 1.3 Automatically shut off for Sporting equipment
  - 1.4 Alarm system
  - 1.5 Anti-theft / Anti-tamper devices
  - 1.6 Being motion detection (personal locator)
2. RBS100601 、RBS100611T :
  - 2.1 Rotation Detection for kinds of monitor/device
  - 2.2 Toys 、entertainment devices
3. RBS100602 、RBS100612T :
  - 3.1 Wireless mouse
  - 3.2 Anti-theft / Anti-tamper devices
  - 3.3 Alarm system
  - 3.4 Toys 、entertainment devices



RBS100610T, RBS100611T, RBS100612T



## SENSOR SWITCH

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## ● FEATURES

### 1. PCB direction for applications:

Horizontal PCB : RBS100600 、 RBS100610T 、 RBS100602 、 RBS100612T

Vertical PCB : RBS100601 、 RBS100611T

### 2. Switch State:

#### ■ Rotation detection

Normal open: RBS100600 、 RBS100610T

Normal close: RBS100601 、 RBS100611T

#### ■ Vibration detection RBS100602 、 RBS100612T :

RBS1006X2 acts like a normally open switch which chatters closed and open as it is tilted or vibrated. Note that the RBS1006X2 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.

### 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.



## SENSOR SWITCH

|          |                |             |             |               |    |
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● PATENTS

1. Taiwan Patent No. I 239025
2. Taiwan Patent No. I 261280
3. Taiwan Patent No. M 455971
4. U.S.A. Patent No. US 7,045,724 B1
5. U.S.A. Patent No. US 7,473,857 B2
6. China Patent No. ZL 200410091589.7
7. China Patent No. ZL 200610078234.3
8. China Patent No. ZL 201220661492.5

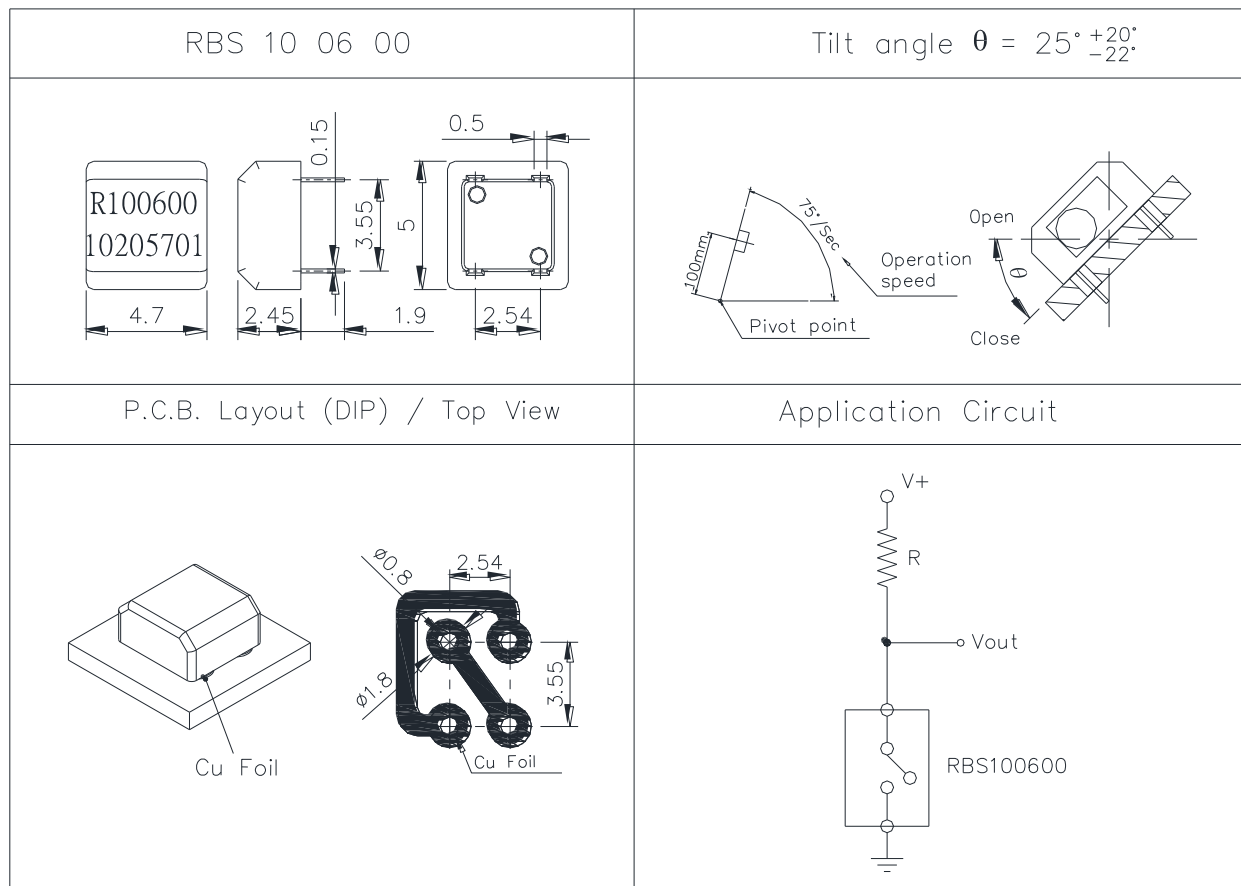


## SENSOR SWITCH

|          |                |             |             |               |    |
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● DIMENSIONS / OPERATION / P.C.B. LAYOUT (Unit: mm, Tolerance:  $\pm 0.25\text{mm}$ )

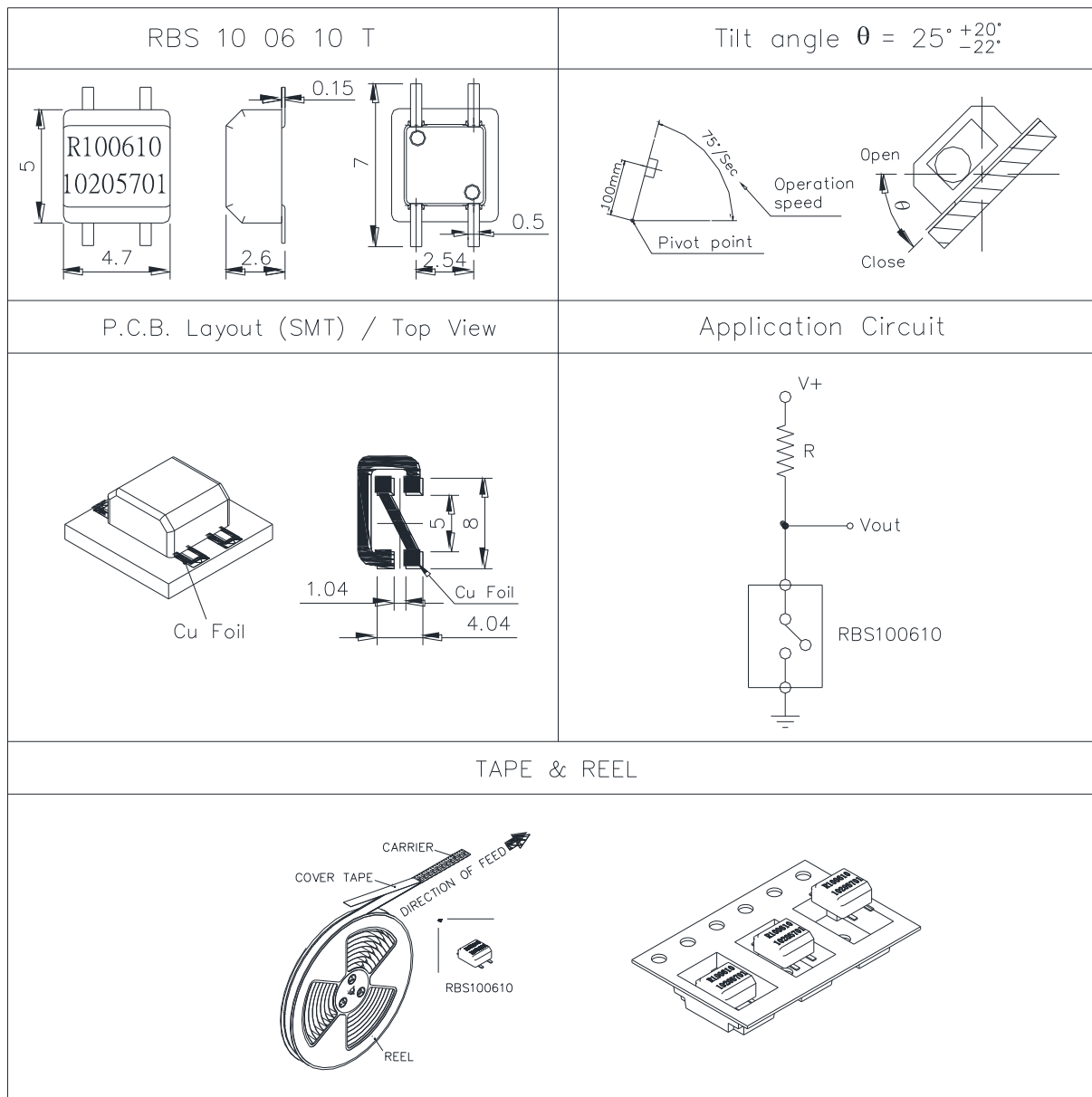
Fig. 1



## SENSOR SWITCH

|          |                |             |             |               |    |
|----------|----------------|-------------|-------------|---------------|----|
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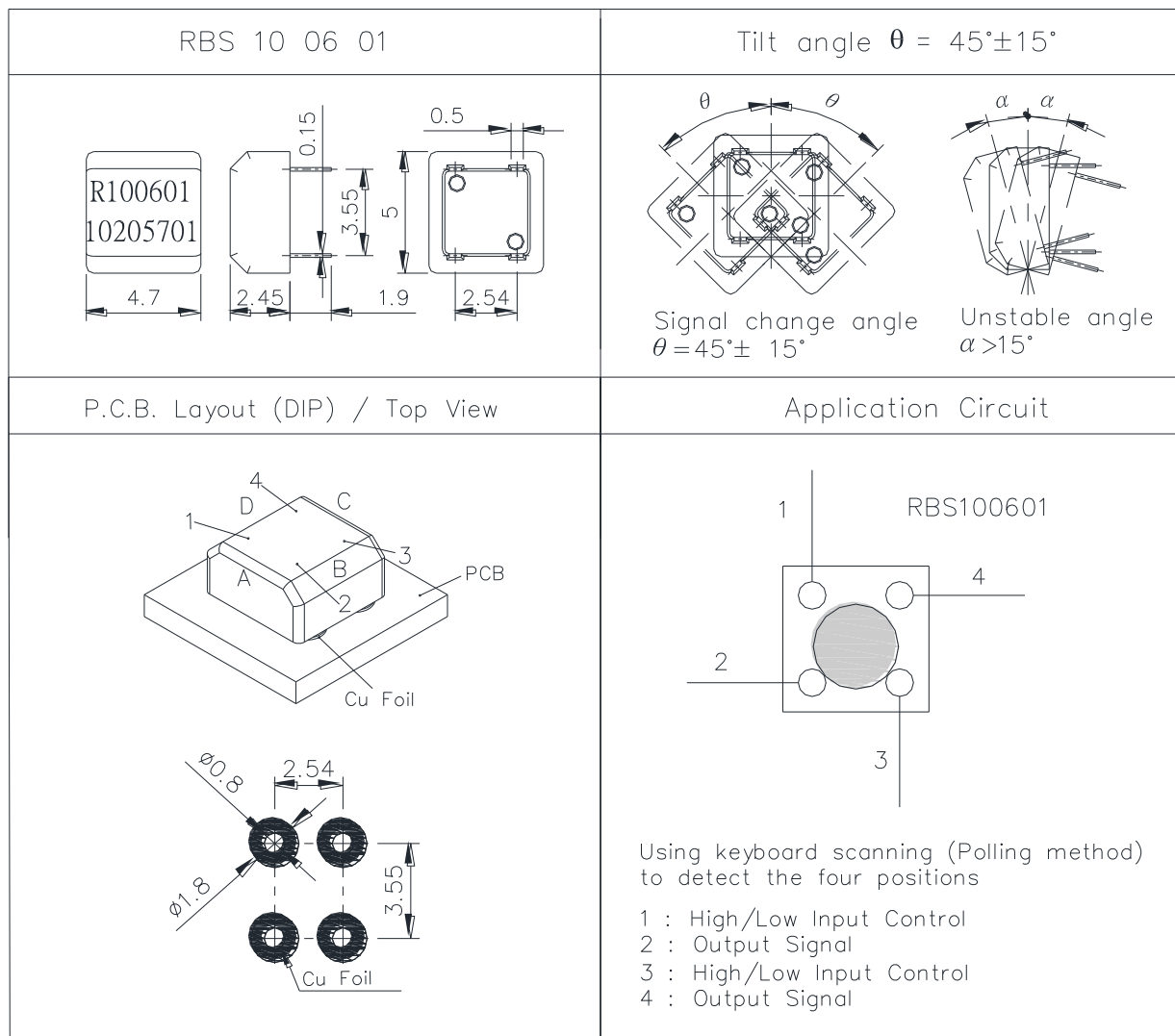
Fig. 2



## SENSOR SWITCH

|          |                |             |             |               |    |
|----------|----------------|-------------|-------------|---------------|----|
| Item No. | RBS1006 Series | Description | TILT SWITCH | Version       | 11 |
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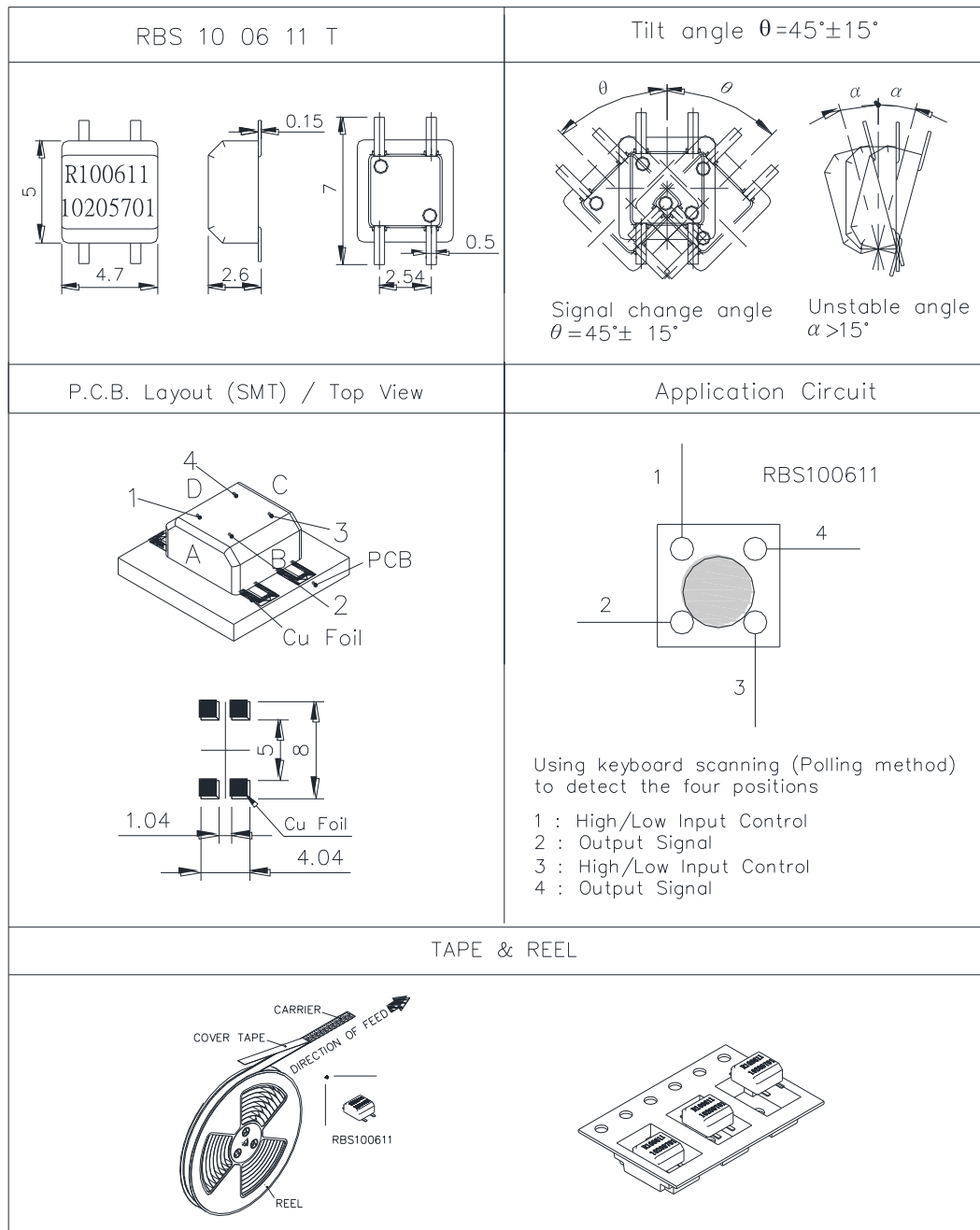
Fig. 3



## SENSOR SWITCH

| Item No. | RBS1006 Series | Description | TILT SWITCH | Version       | 11 |
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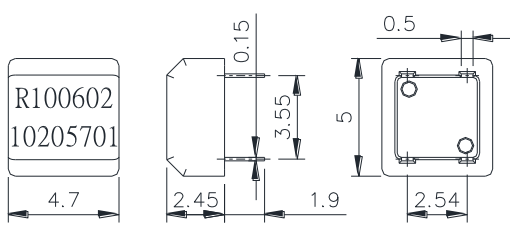
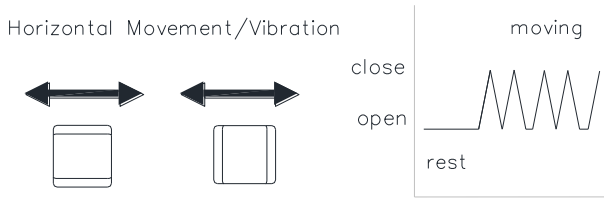
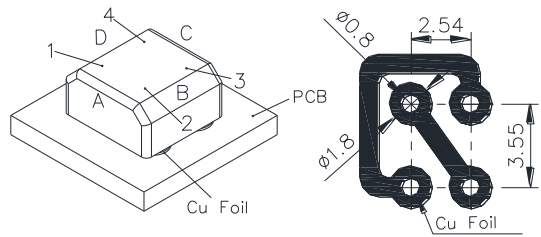
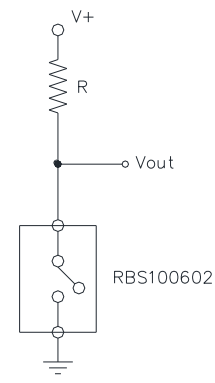
Fig. 4



## SENSOR SWITCH

|          |                |             |             |               |    |
|----------|----------------|-------------|-------------|---------------|----|
| Item No. | RBS1006 Series | Description | TILT SWITCH | Version       | 11 |
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Fig. 5

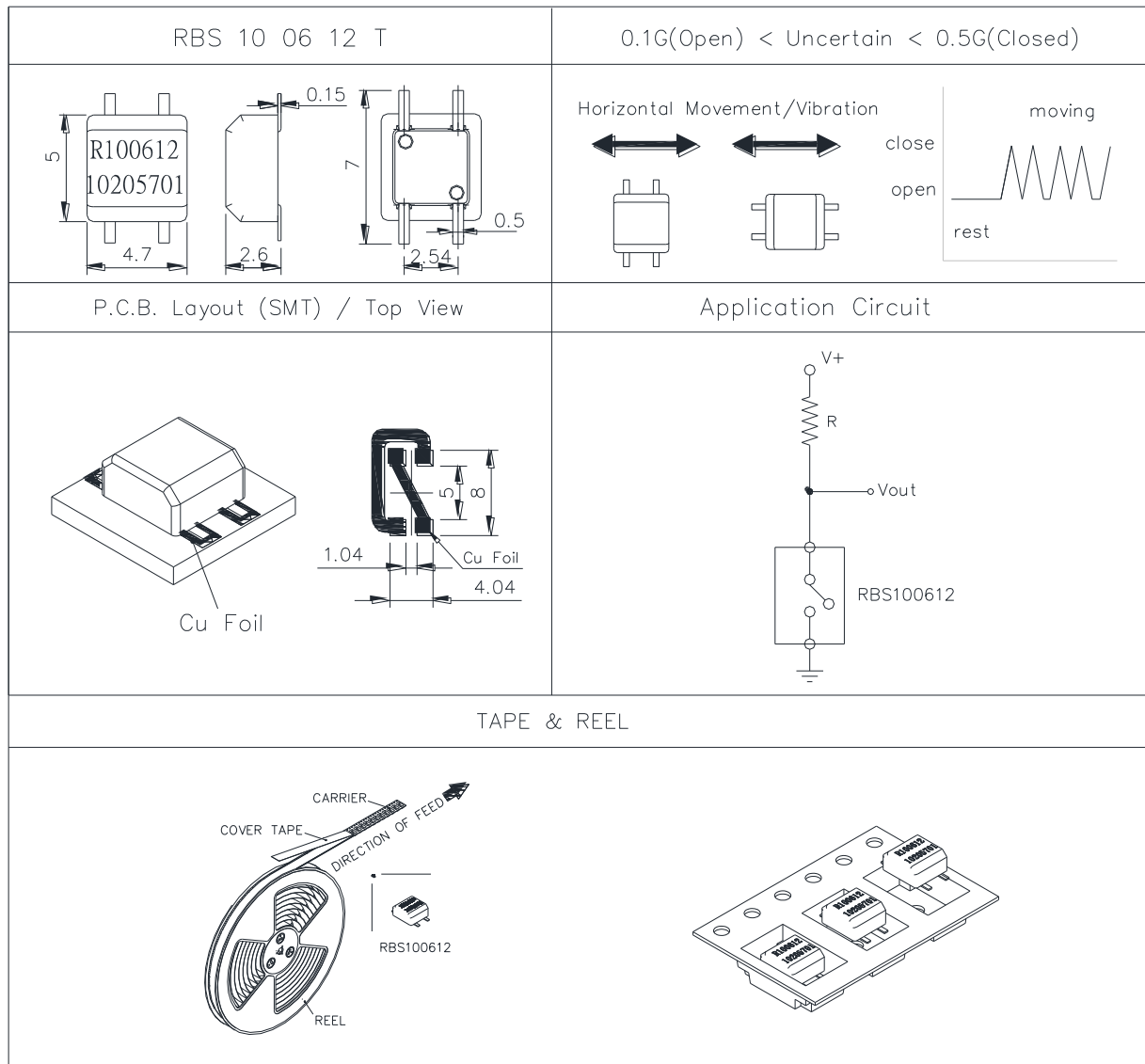
|                                                                                     |  |                                                                                      |  |
|-------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|--|
| RBS 10 06 02                                                                        |  | 0.1G(Open) < Uncertain < 0.5G(Closed)                                                |  |
|    |  |    |  |
| P.C.B. Layout (DIP) / Top View                                                      |  | Application Circuit                                                                  |  |
|  |  |  |  |



## SENSOR SWITCH

|          |                |             |             |               |    |
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Fig. 6



## SENSOR SWITCH

|          |                |             |             |               |    |
|----------|----------------|-------------|-------------|---------------|----|
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● Current/Voltage Suggested

| Input Current (mA) | Operating Voltage (V) | Condition |
|--------------------|-----------------------|-----------|
| 10                 | 5                     | --        |

● ELECTRICAL CHARACTERISTICS

|    |                                                                    |                               |
|----|--------------------------------------------------------------------|-------------------------------|
| 1. | Contact Resistance<br>(RBS100600、RBS100601<br>RBS100610、RBS100611) | 50 $\Omega$ max.              |
| 2. | Contact Rating                                                     | 10 mA、5VDC                    |
| 3. | Differential Angle                                                 | Refer to Fig. 1 ~ Fig. 4      |
| 4. | Insulation Resistance                                              | 50 M $\Omega$ min. At 100 VDC |
| 5. | Dielectric Strength                                                | 50 VDC min. for 1 minute      |
| 6. | Capacitance                                                        | 5pF max                       |
| 7. | Conductive Rate                                                    | 85% min.                      |



## SENSOR SWITCH

|          |                |             |             |               |    |
|----------|----------------|-------------|-------------|---------------|----|
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## ● RELIABLE TEST ITEMS

## Reliable Test for RBS1006 Series

| Test Item                                           | Standard                                                   | Contents                           |
|-----------------------------------------------------|------------------------------------------------------------|------------------------------------|
| IR Reflow<br>(RBS100610T、<br>RBS100611T、RBS100612T) | MIL-STD-202G,<br>TEST METHOD 210F、<br>IPC/JEDEC J-STD-020D | Peak temp.=255~260°C*3times        |
| Operating Temperature                               | MIL-STD-202G,<br>TEST METHOD 107G,<br>TEST A               | -25°C~85°C                         |
| Storage Temperature                                 | MIL-STD-202G,<br>TEST METHOD 107G,<br>TEST A               | -40°C~85°C                         |
| Mechanical Life                                     | --                                                         | 2 Hz horizontal<br>1,000,000 times |
| Electrical Life                                     | --                                                         | 100,000 times                      |
| Humidity                                            | --                                                         | --                                 |



## SENSOR SWITCH

|          |                |             |             |               |    |
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● SOLDERING CONDITION

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

| Condition<br>Operation Method | Soldering Temperature                                                           | Soldering Time   | Wattage of Manual Soldering                    | Suitable Production Process |
|-------------------------------|---------------------------------------------------------------------------------|------------------|------------------------------------------------|-----------------------------|
| IR Reflow                     | Please refer to following < Table of classification Reflow profile > and Fig. 7 |                  | -                                              | SMT                         |
| Wave Soldering                | 260±5℃                                                                          | < 5 seconds max. | -                                              | DIP                         |
| Manual Soldering              | 260±5℃                                                                          | < 5 seconds max. | 20W or Temperature-controlled manual soldering | DIP 、 SMT                   |



## SENSOR SWITCH

|          |                |             |             |               |    |
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&lt; Table of classification Reflow profile &gt;

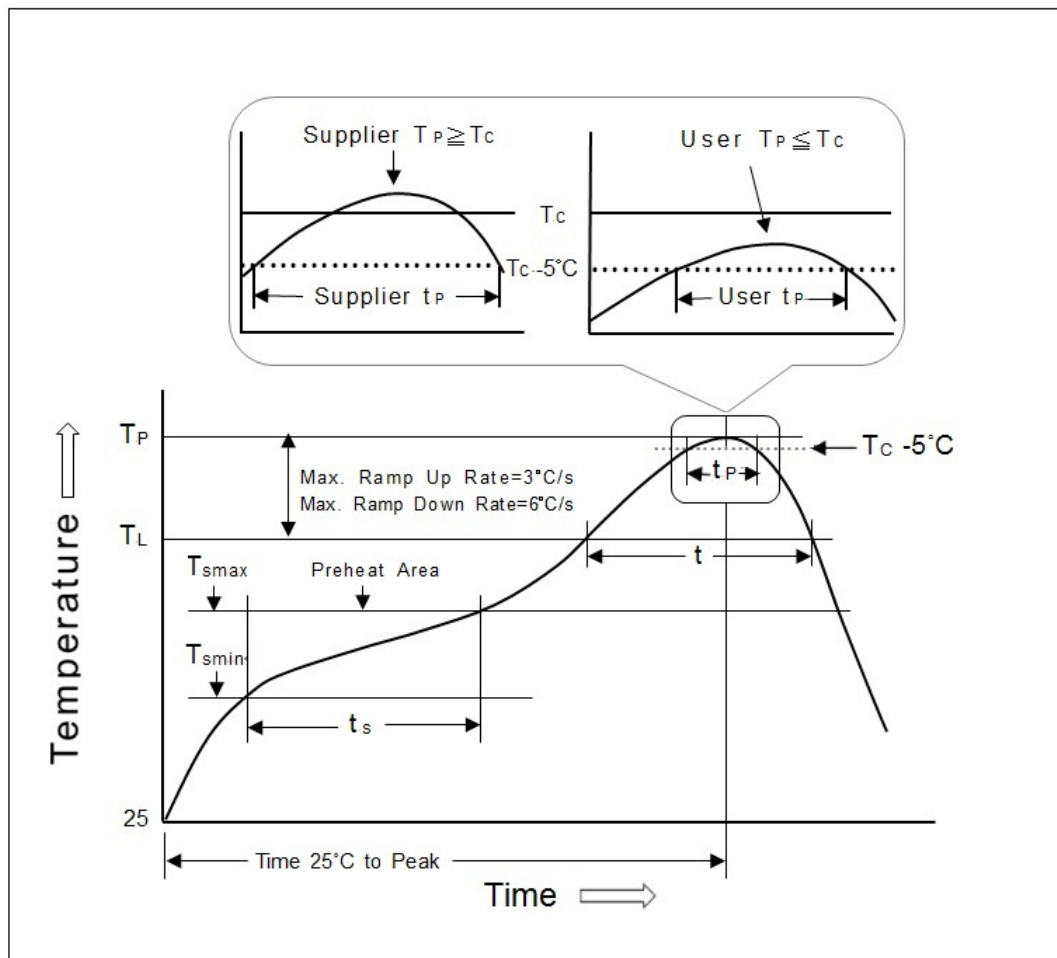
| Item                                                                                                                                                                                                                           | Pb process                         | Pb free process                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------|
| Pre-heat and Soak<br>Temperature min.(T <sub>smin</sub> )<br>Temperature max.(T <sub>smax</sub> )<br>Time (T <sub>smin</sub> to T <sub>smax</sub> )(t <sub>s</sub> )                                                           | 100 °C<br>150 °C<br>60-120 seconds | 150 °C<br>200 °C<br>60-120 seconds |
| Average Rate of temperature rising up<br>(T <sub>smax</sub> to T <sub>p</sub> )                                                                                                                                                | 3 °C/second max.                   | 3 °C/second max.                   |
| Liquidous Temperature (TL)<br>Time at Liquidous (tL)                                                                                                                                                                           | 183 °C<br>60-150 seconds           | 217 °C<br>60-150 seconds           |
| Peak package body Temperature<br>(T <sub>p</sub> )*                                                                                                                                                                            | 230 °C ~235 °C *                   | 255 °C ~260 °C *                   |
| Classification temperature(T <sub>c</sub> )                                                                                                                                                                                    | 235 °C                             | 260 °C                             |
| Time(tp)** within 5 °C of the<br>specified classification temperature<br>(T <sub>c</sub> )                                                                                                                                     | 20** seconds                       | 30** seconds                       |
| Average ram-down Rate<br>(T <sub>p</sub> to T <sub>smax</sub> )                                                                                                                                                                | 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 (T <sub>p</sub> ) is defined as a supplier minimum and a user maximum.<br>** Tolerance for time at peak profile temperature (tp) is defined as a supplier minimum and a user maximum. |                                    |                                    |



## SENSOR SWITCH

|          |                |             |             |               |    |
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Fig. 7



## SENSOR SWITCH

|          |                |             |             |               |    |
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## ● PACKAGE

|    | Parts No. | Package   | Quantity  | Total Quantity | Dimension(mm)  |
|----|-----------|-----------|-----------|----------------|----------------|
| 1. | RBS100600 | PE bag    | 1,000 pcs | 1,000 pcs      | 205L*145W      |
|    |           | Inner box | 10 PE bag | 10,000 pcs     | 348L*191W*85H  |
|    |           | Carton    | 3 Boxes   | 30,000 pcs     | 364L*278W*213H |
| 2  | RBS100601 | PE bag    | 1,000 pcs | 1,000 pcs      | 205L*145W      |
|    |           | Inner box | 10 PE bag | 10,000 pcs     | 348L*191W*85H  |
|    |           | Carton    | 3 Boxes   | 30,000 pcs     | 364L*278W*213H |
| 3  | RBS100602 | PE bag    | 1,000 pcs | 1,000 pcs      | 205L*145W      |
|    |           | Inner box | 10 PE bag | 10,000 pcs     | 348L*191W*85H  |
|    |           | Carton    | 3 Boxes   | 30,000 pcs     | 364L*278W*213H |

※ Package shown as below for reference.



PE Bag



Inner Box



Carton



## SENSOR SWITCH

|          |                |             |             |               |    |
|----------|----------------|-------------|-------------|---------------|----|
| Item No. | RBS1006 Series | Description | TILT SWITCH | Version       | 11 |
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|    | Parts No.  | Package     | Quantity  | Total Quantity | Dimension(mm)  |
|----|------------|-------------|-----------|----------------|----------------|
| 1. | RBS100610T | Tape & Reel | 2,500 pcs | 2,500 pcs      | φ330*12.5H     |
|    |            | Inner box   | 2 Reels   | 5,000 pcs      | 355L*340W*68H  |
|    |            | Carton      | 4 Boxes   | 20,000pcs      | 373L*358W*309H |
| 2. | RBS100611T | Tape & Reel | 2,500 pcs | 2,500 pcs      | φ330*12.5H     |
|    |            | Inner box   | 2 Reels   | 5,000 pcs      | 355L*340W*68H  |
|    |            | Carton      | 4 Boxes   | 20,000pcs      | 373L*358W*309H |
| 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   | 20,000pcs      | 373L*358W*309H |

※ Package shown as below for reference.



Tape &amp; Reel

Inner Box

Carton



## SENSOR SWITCH

|          |                |             |             |               |    |
|----------|----------------|-------------|-------------|---------------|----|
| Item No. | RBS1006 Series | Description | TILT SWITCH | Version       | 11 |
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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 is 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. If soldering temperature exceeds our specification, sensor switch could get apart.
5. Do not use switch in the environment of high humidity , because such an environment may cause the leakage current between the terminals.
6. More than the rated load may cause fire, so do not use more than the load.
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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Электрон  
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