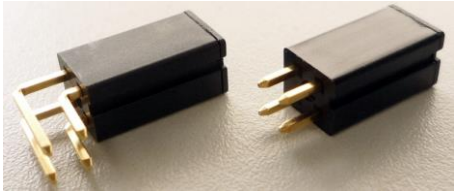
# SENSOR SWITCH

| Item No. | RBS04 Series | Description | TILT SWITCH | Version | 7 |
|---|---|---|---|---|---|
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## ● FUNCTIONS



1. Horizontal Tilt Detecting
2. Vertical Up-Side Down Detecting

## ● APPLICATIONS

1. Position Detection for Iron
2. Lighting system for night time while car hold being opened
3. Toys、Entertainment Device

## ● FEATURES

1. ＊Suitable for horizontal PCB：RBS040201、RBS040210；
   ＊ Suitable for vertical PCB：RBS040101、RBS040110。
2. Switch state：
   ＊ Normal close：RBS040110、RBS040210；
   ＊ Normal open：RBS040101、RBS040201。
3. Housing made of high insulation plastic material, free from electric conduction and rust problem.
4. Gold-plated ball and terminals, low possibility of oxidization.
5. All plastic materials subject to industrial purpose, resist high temperature and meet fireproof function.
6. Simple ON and OFF signals, easy for design.
7. RoHS compliance, an ideal substitute for mercury switch.
8. A more economical tilt and rotation detection option than IC design solution.
9. All made in Taiwan and examined before shipment.

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- PATENTS

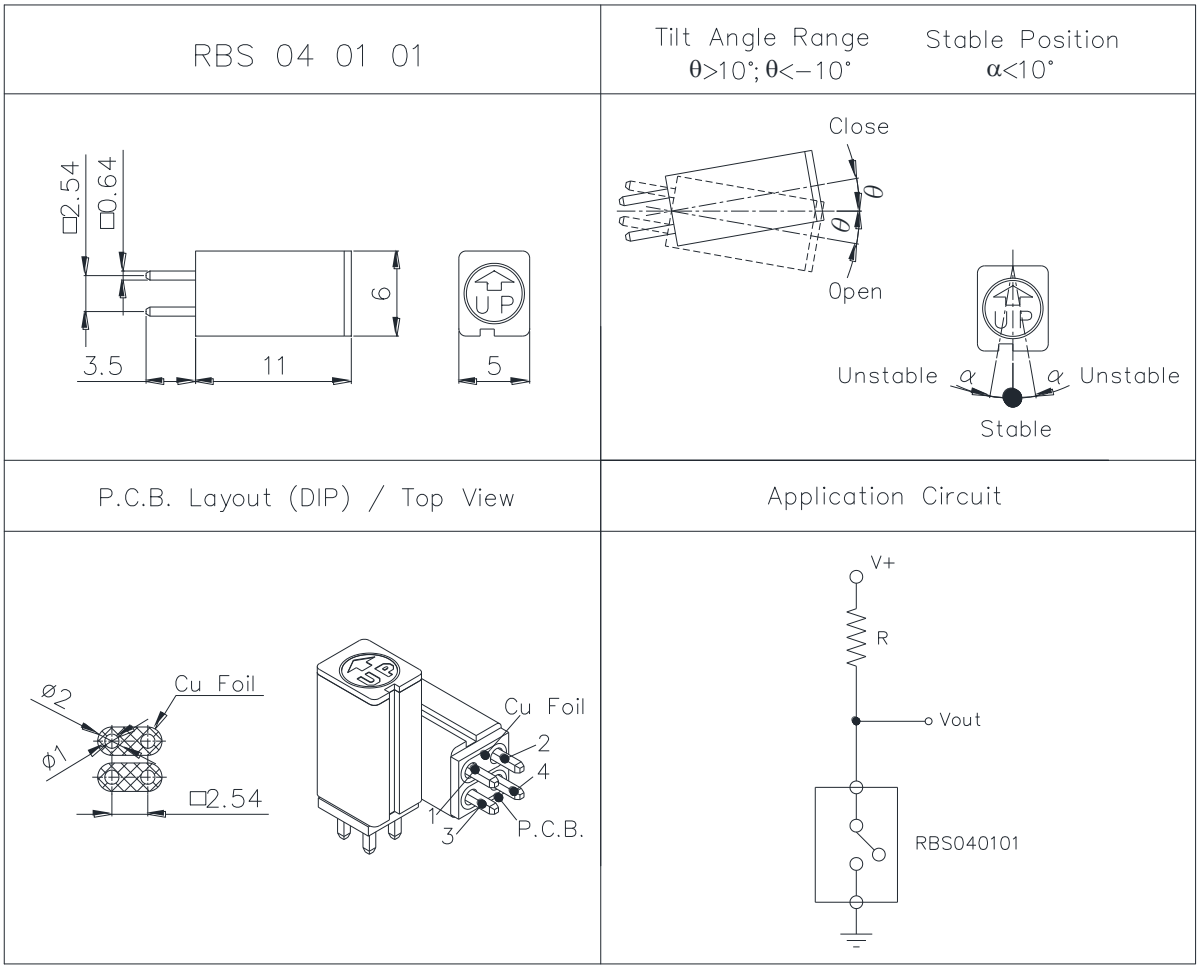
1. TAIWAN NO. 155965
2. U.S.A. PATENT NO. US 6,198,059 B1
3. U.S.A. PATENT NO. US 7,256,360 B1
4. U.S.A. PATENT NO. US 7,446,272 B2
5. CHINA PATENT NO. 201220308500.8

# SENSOR SWITCH

| Item No. | RBS04 Series | Description | TILT SWITCH | Version | 7 |
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● DIMENSIONS / OPERATION / P.C.B. LAYOUT (Unit: mm, Tolerance: ±0.25mm)

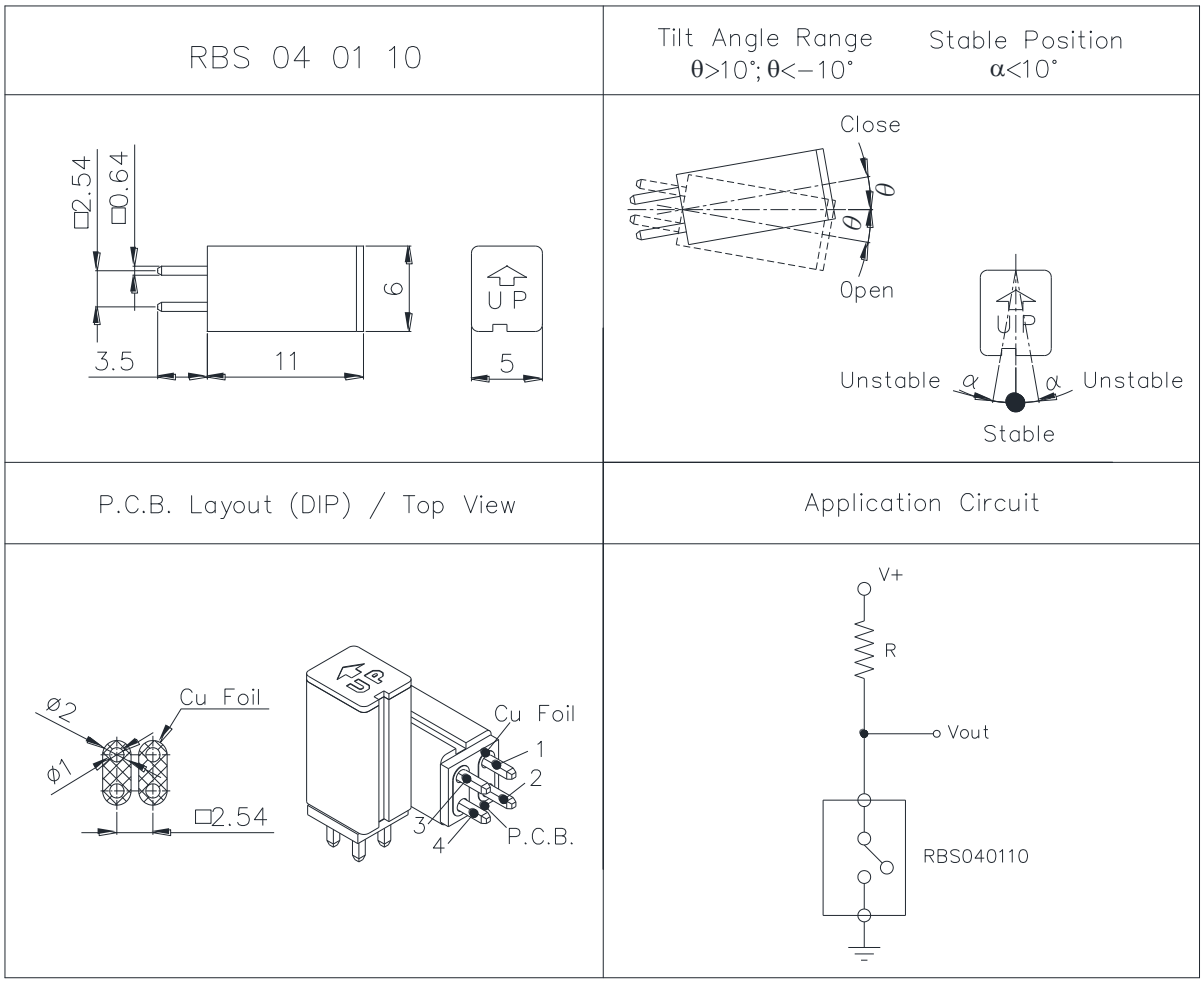
Fig. 1



# SENSOR SWITCH

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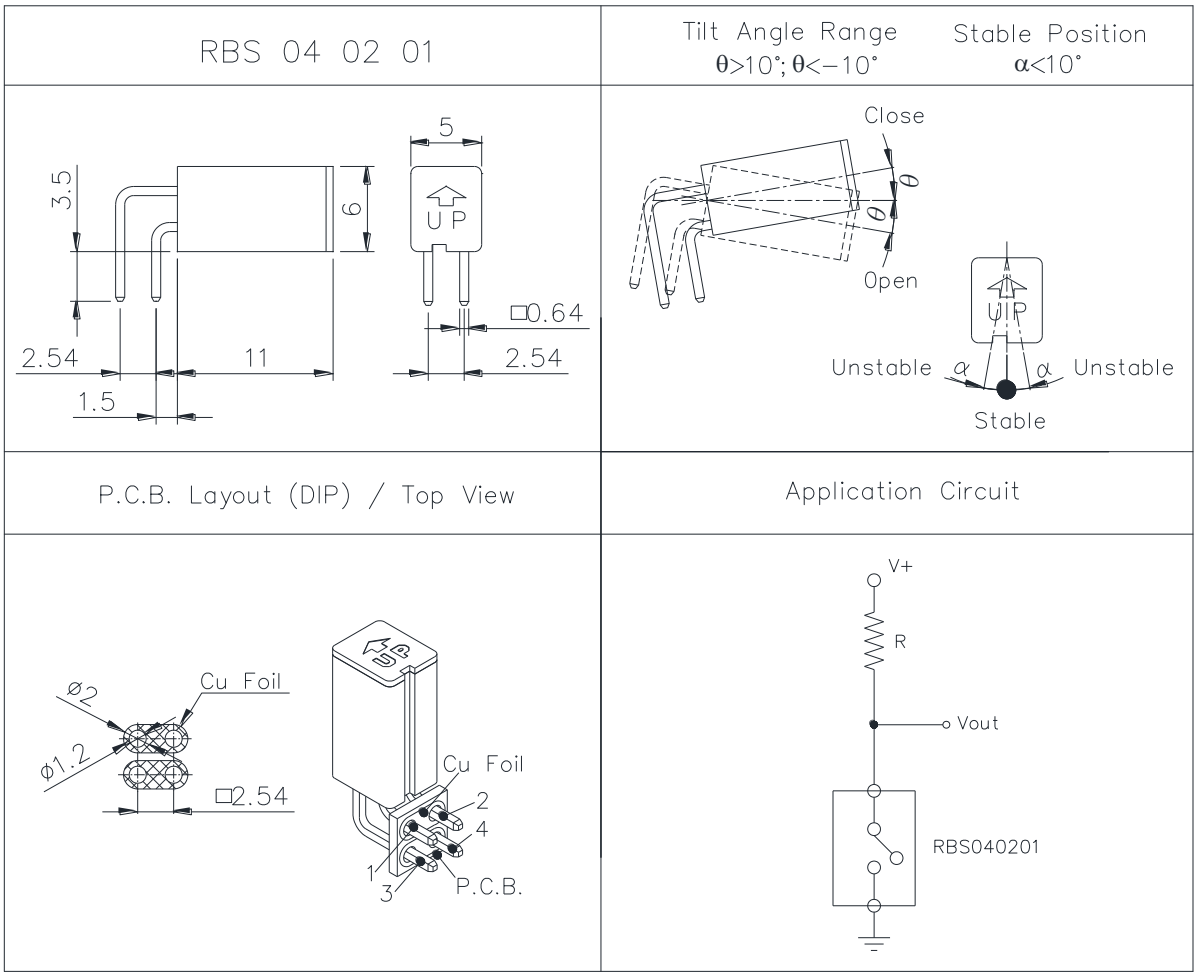
Fig. 2



# SENSOR SWITCH

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Fig. 3



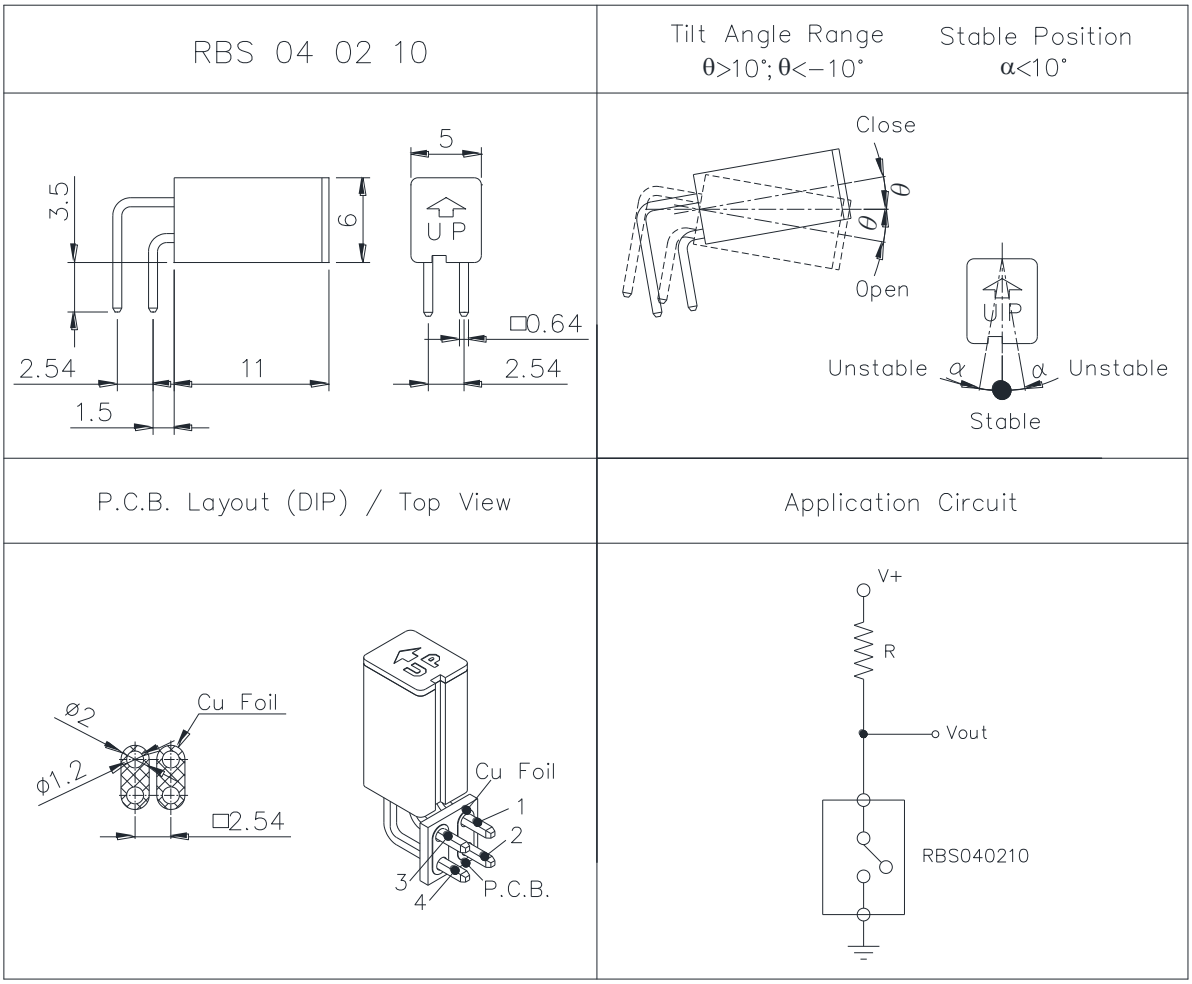

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# SENSOR SWITCH

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Fig. 4




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# SENSOR SWITCH

| Item No. | RBS04 Series | Description | TILT SWITCH | Version | 7 |
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● Current/Voltage Suggested

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

● ELECTRICAL CHARACTERISTICS

| | | |
|---|---|---|
| 1. | Contact Rating | 10 mA, 5VDC |
| 2. | Contact Resistance | 10 Ω max. |
| 3. | Differential Angle | Refer to Fig. 1~ Fig. 4 |
| 4. | Insulation Resistance | 1000 MΩ min. · 100 VDC |
| 5. | Dielectric Strength | 500 VDC min. · 1 minute |
| 6. | Capacitance | 5 pF max. |
| 7. | Conductive Rate | 90% min. |

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# SENSOR SWITCH

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● RELIABLE TEST ITEMS

Reliable Test for RBS04 Series

| Test Item | Standard | Contents |
|---|---|---|
| IR Reflow | -- | -- |
| Operating Temperature | MIL-STD-202G,<br>TEST METHOD 107G, TEST A | -25℃~85℃ |
| Storage Temperature | MIL-STD-202G,<br>TEST METHOD 107G, TEST A | -40℃~85℃ |
| Humidity | MIL-STD-202G,<br>TEST METHOD 103B | 40℃/95%RH |
| Mechanical Life | -- | 2 Hz horizontal<br>1,000,000 times |
| 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 / 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. 5 | | - | 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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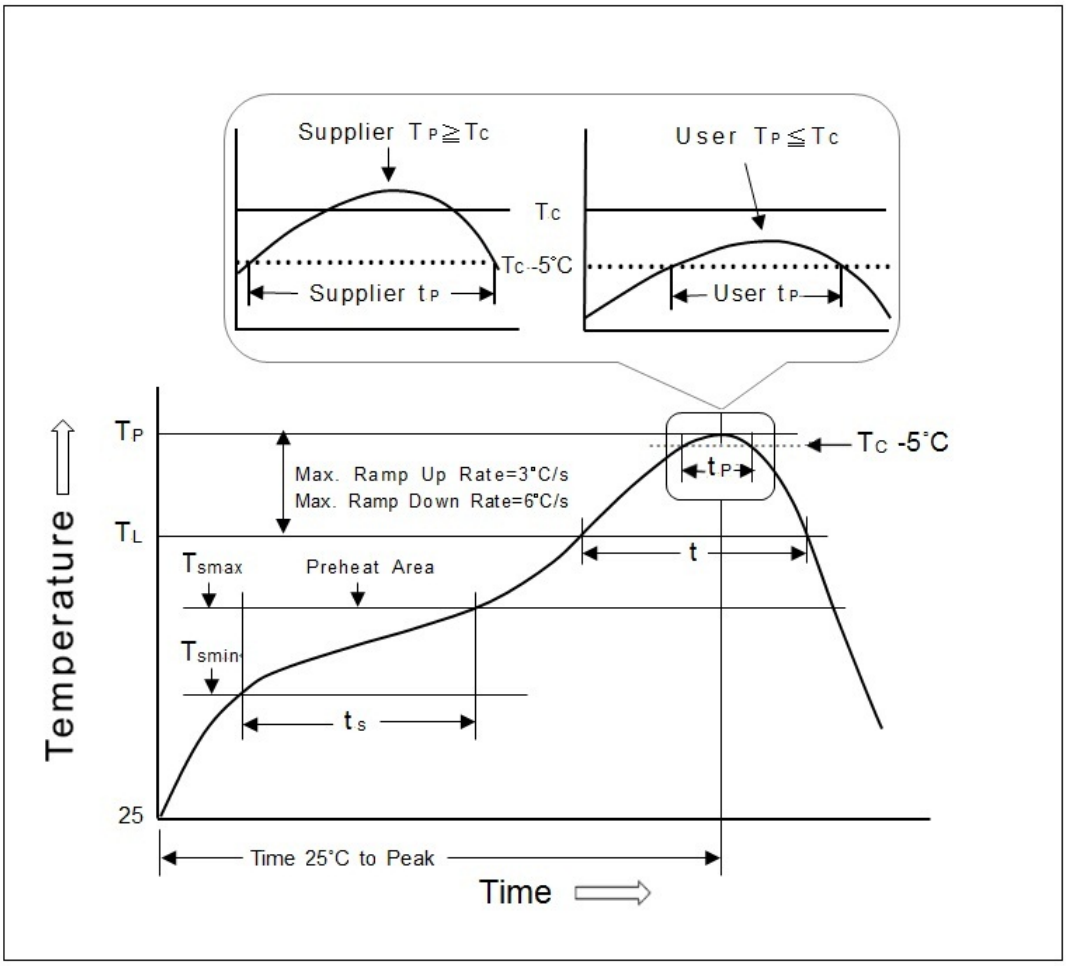
< Table of classification Reflow profile >

| Item | Pb process | Pb free process |
|---|---|---|
| Pre-heat and Soak<br>Temperature min.(Tsmin)<br>Temperature max.(Tsmax)<br>Time (Tsmin to Tsmax)(ts) | <br>100 °C<br>150 °C<br>60-120 seconds | <br>150 °C<br>200 °C<br>60-120 seconds |
| Average Rate of temperature rising up (Tsmax to Tp) | 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 (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 toTsmax) | 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.<br>** Tolerance for time at peak profile temperature (tp) is defined as a supplier minimum and a user maximum. | | |

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Fig. 5


Supplier TP≧TC
User TP≦TC
TC
TC -5°C
Supplier tP
User tP
TP
TL
Tsmax
Tsmin
Preheat Area
Max. Ramp Up Rate=3°C/s
Max. Ramp Down Rate=6°C/s
tP
t
ts
TC -5°C
25
Temperature
Time 25°C to Peak
Time

# SENSOR SWITCH

| Item No. | RBS04 Series | Description | TILT SWITCH | Version | 7 |
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● PACKAGE

| | Part Number | Package | Quantity | Total | Size (mm) |
|---|---|---|---|---|---|
| 1. | RBS040101<br>RBS040110<br>RBS040201<br>RBS040210 | PE Bag | 500 pcs | 500 pcs | 205L*145W |
| | | Inner Box | 10 PE Bag | 5,000 pcs | 348L*191W*85H |
| | | Carton | 3 Boxes | 15,000 pcs | 364L*278W*213H |

※ **Package shown as below for reference.**



PE Bag　　Inner Box　　Carton

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# SENSOR SWITCH

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## ● NOTE

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. Do not try to clean the switch with a solvent or similar substance after the soldering process.
3. If soldering temperature exceeds our specification, sensor switch could get apart.
4. Use water-soluble flux may damage the switch.
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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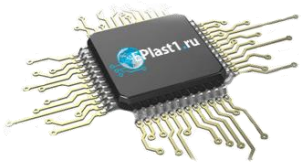
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**Как с нами связаться**

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