

## Tilt Sensor Switch

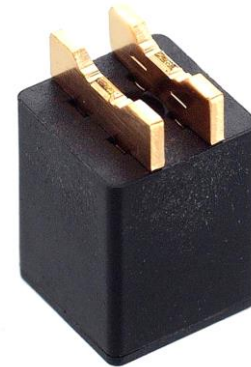
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### ● FUNCTIONS

1. 45° Tilt Detecting within a 360° radius
2. Up-Side Down Detecting

### ● APPLICATIONS

1. Automatically shut off for home appliances
2. Wake up systems for power saving, such like remote controllers
3. Anti-theft / Anti-tamper devices
4. Rotation Detection for monitor
5. Alarm system
6. Earthquake detecting
7. Automatically shut off for Sporting equipment
8. Entertainment device: video game consoles, toys



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● FEATURES

1. Both suitable for horizontal and vertical PCB.
2. Switch state: SMD Normal close.
3. RBS070500T are resistant to magnetization.
4. Housing made of high insulation plastic material, free from electric conduction and rust problem.
5. Gold-plated ball and terminals, low possibility of oxidization.
6. All plastic materials subject to industrial purpose, resist high temperature and meet fireproof function.
7. Simple ON and OFF signals, easy for design.
8. RoHS compliance, an ideal substitute for mercury switch.
9. A more economical tilt and rotation detection option than IC design solution.
10. All made in Taiwan and examined before shipment.

● PATENTS

1. Taiwan Patent No. M 437246
2. Taiwan Patent No. I 476797
3. Taiwan Patent No. I 510356
4. Taiwan Patent No. I310951(RBS0705/0706)
5. U.S.A. Patent No. US 6,518,523 B1
6. U.S.A. Patent No. US 7,256,360 B1
7. U.S.A. Patent No. US 9,058,945 B2
8. U.S.A. Patent No. US 7,446,272 B2
9. China Patent No. 201220308500.8
10. China Patent No. 201220079187.5
11. China Patent No. 20120218323.9
12. China Patent No. 200610091095.8(RBS0705/0706)

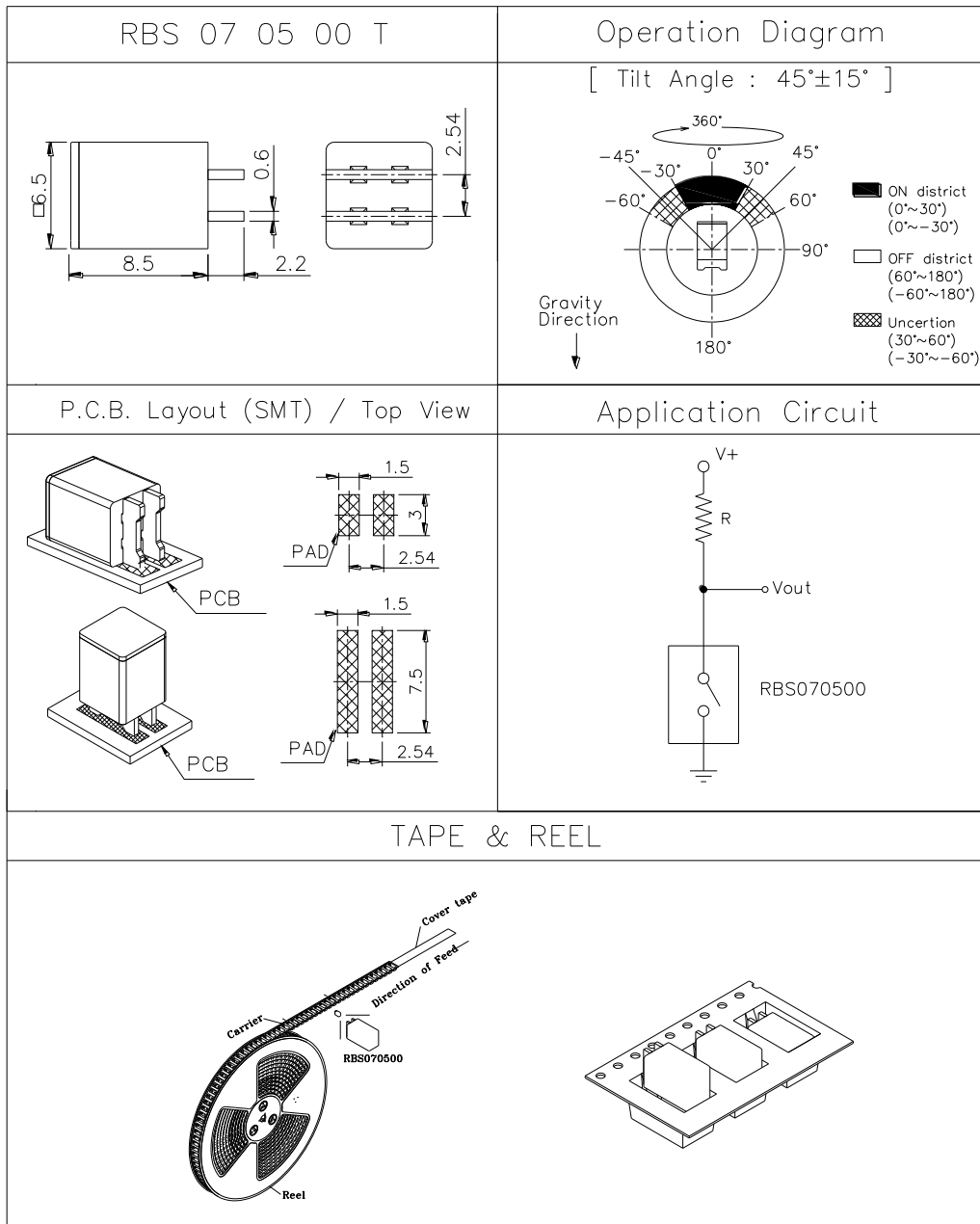


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● DIMENSIONS / OPERATION / P.C.B. LAYOUT (Unit: mm, Tolerance: ±0.25mm)

Fig. 1



**Tilt Sensor Switch**

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● Current/Voltage Suggested

Input Current (mA)	Operating Voltage (V)	Condition
1.0	5	--

● ELECTRICAL CHARACTERISTICS

1.	Contact Rating	10 mA, 5VDC
2.	Contact Resistance	10 Ω max.
3.	Operation Diagram	Refer to Fig. 1
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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● RELIABLE TEST ITEMS

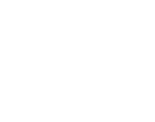
Reliable Test for RBS070500T

	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

● SOLDERING CONDITION

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

Condition	Soldering Temperature	Soldering Time	Wattage of Manual Soldering	Type
Suitable Production Process				
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 >

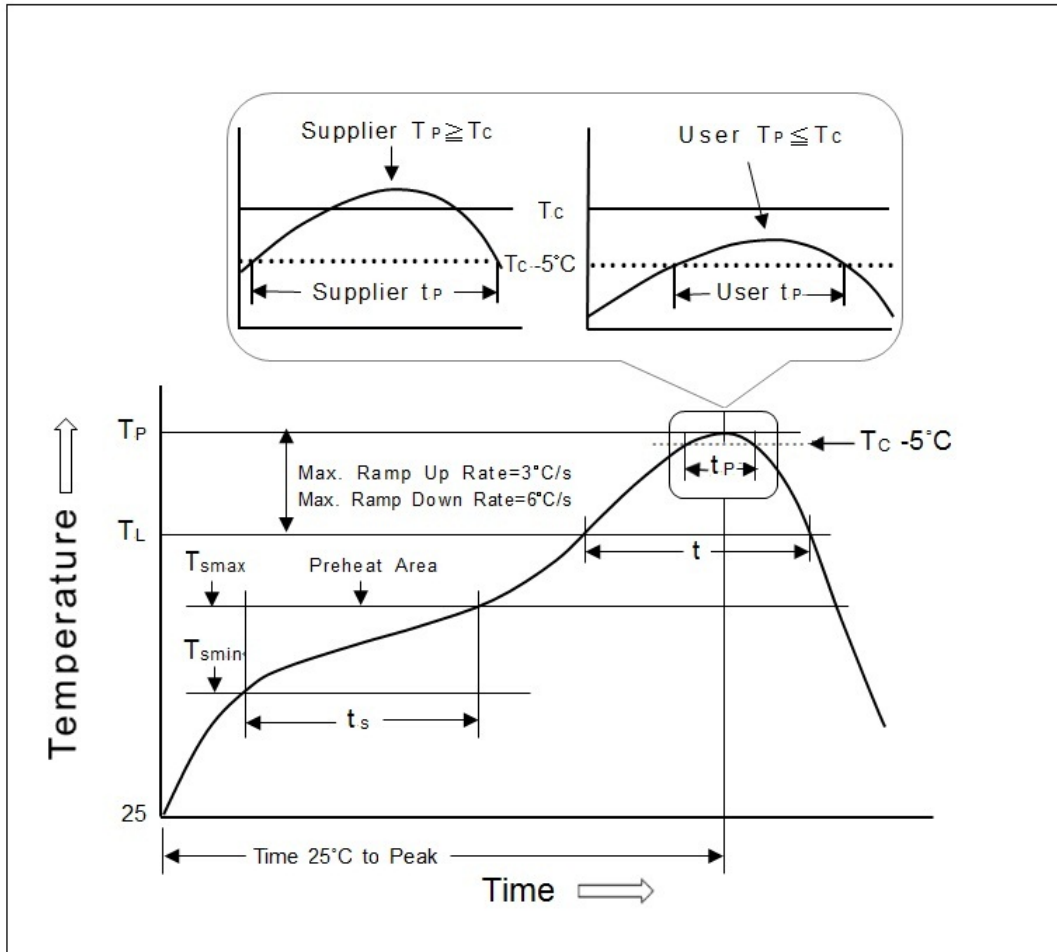
Item	Pb process	Pb free process
Pre-heat and Soak Temperature min.(T <sub>min</sub> ) Temperature max.(T <sub>max</sub> ) Time (T <sub>min</sub> to T <sub>max</sub> )(t <sub>s</sub> )	100 °C 150 °C 60-120 seconds	150 °C 200 °C 60-120 seconds
Average Rate of temperature rising up (T <sub>max</sub> to T <sub>p</sub> )	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 (T <sub>p</sub> )*	230 °C ~235 °C *	255 °C ~260 °C *
Classification temperature(T <sub>c</sub> )	235 °C	260 °C
Time(t <sub>p</sub> )** within 5 °C of the specified classification temperature (T <sub>c</sub> )	20** seconds	30** seconds
Average ram-down Rate (T <sub>p</sub> to T <sub>max</sub> )	6 °C/second max.	6 °C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.
<p>* Tolerance for peak profile temperature (T<sub>p</sub>) is defined as a supplier minimum and a user maximum.                      ** Tolerance for time at peak profile temperature (t<sub>p</sub>) is defined as a supplier minimum and a user maximum.</p>		



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Fig. 2



**Tilt Sensor Switch**

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● PACKAGE

	Part Number	Package	Quantity	Total	Dimension(mm)
1.	RBS070500	PE Bag	500 pcs	500 pcs	205L*145W
		Inner Box	8 PE Bags	4,000 pcs	348L*191W*85H
		Carton	3 Boxes	12,000 pcs	364L*278W*213H

※ Package shown as below for reference.



PE Bag

Inner box

Carton

	Part Number	Package	Quantity	Total	Dimension(mm)
2.	RBS070500T	Tape & reel	800 pcs	800 pcs	φ330*25H
		Inner box	2 Reels	1,600 pcs	355L*340W*68H
		Carton	10 boxes	16,000 pcs	703L*364W*380H

※ Package shown as below for reference.



Tape & reel

Inner box

Carton





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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. 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.).

