

SENSOR SWITCH

Item No.	RBS17 Series	Description	TILT SWITCH	Version	9
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● **FUNCTIONS**

One Way 15° Tilt Detecting in horizontal mode.



● **APPLICATIONS**

1. Wake up systems for power saving, such like remote controllers
2. Solar underground light
3. Single Axis tilt detecting under PCB



● **FEATURES**

1. Suitable for horizontal PCB.
2. Switch state : Normal Open.
3. Gold-plated ball and terminals, low possibility of oxidization.
4. Housing made of high insulation plastic material, free from electric conduction and rust problem.
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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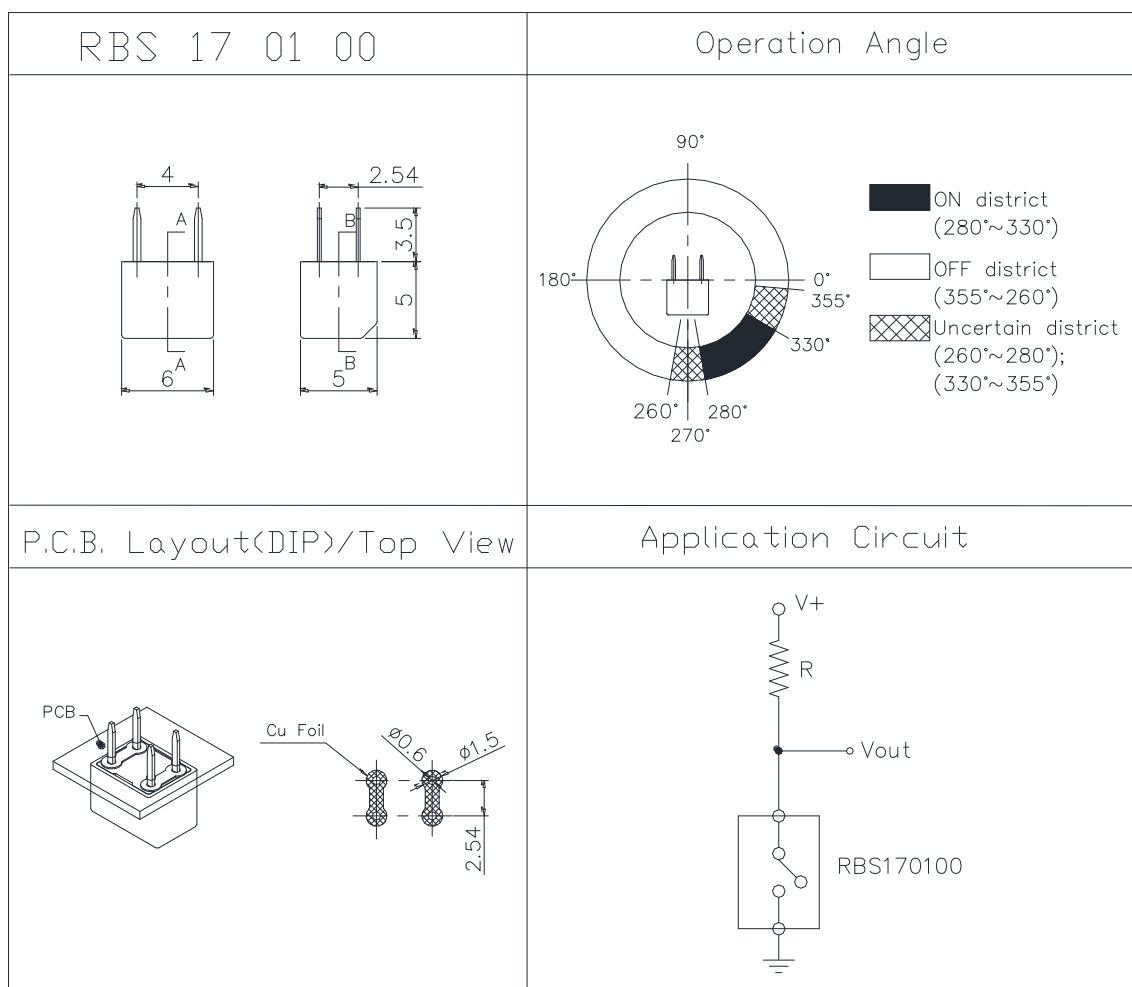
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● PATENTS

1. USA PATENT NO. US 7,323,649 B2
2. TAIWAN PATENT NO. I 297160
3. CHINA PATENT NO. ZL 200610072317.1

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

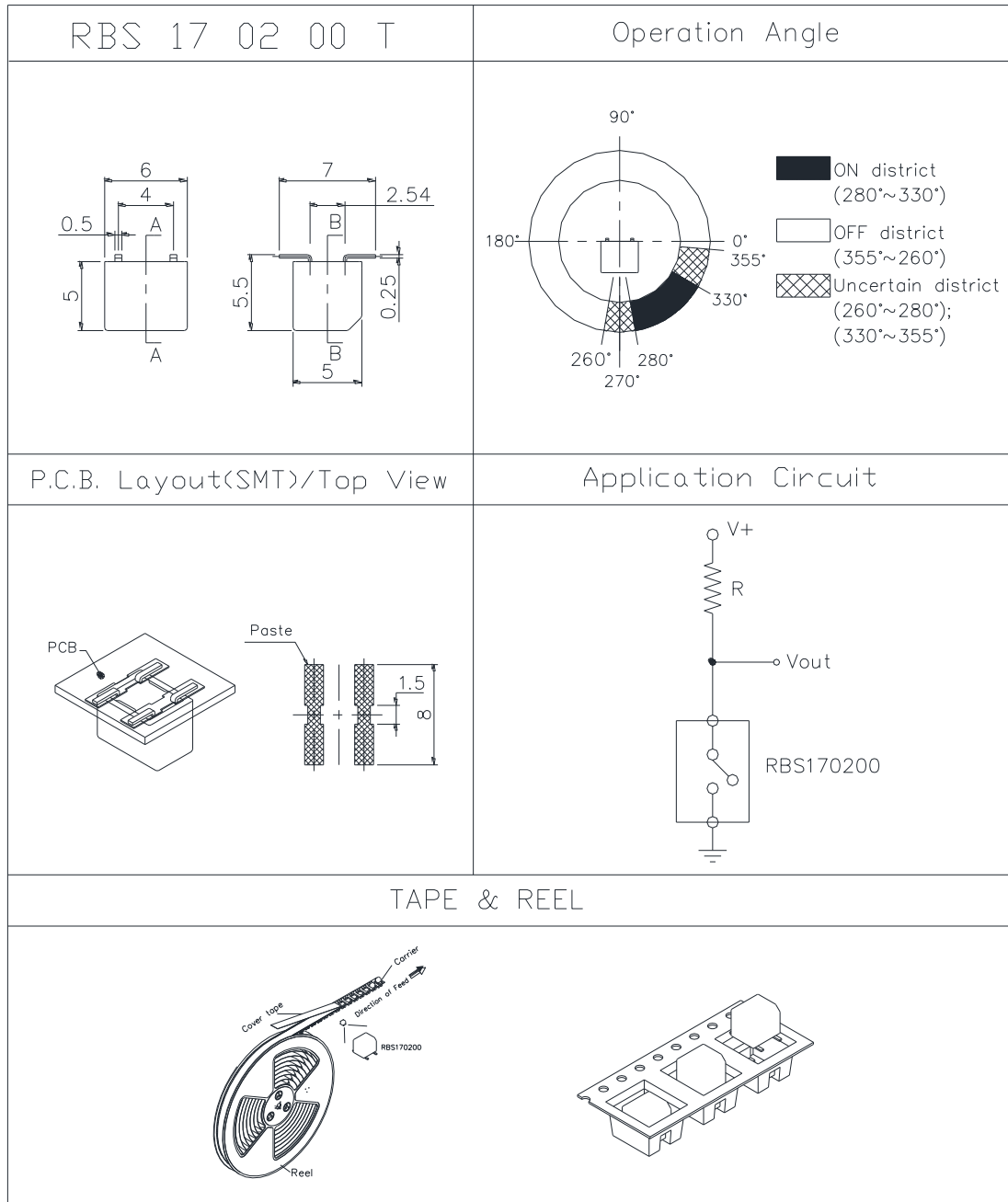
Fig. 1



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Fig. 2



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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. 2
4.	Insulation Resistance	100 MΩ min. at 100VDC
5.	Dielectric Strength	100 VDC min. for 1 minute
6.	Capacitance	5pF max.
7.	Conductive Rate	90% min.



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● RELIABLE TEST ITEMS

Reliable Test for RBS17 Series

Test Item	Standard	Contents
IR Reflow (RBS170200T)	MIL-STD-202G, TEST METHOD 210F、 IPC/JEDEC J-STD-020D	Peak temp.=255~260°C*3 times
Operating Temperature	MIL-STD-202G, TEST METHOD 107G, TEST A	-25°C~85°C
Storage Temperature	MIL-STD-202G, TEST METHOD 107G, TEST A	-40°C~85°C
Humidity	MIL-STD-202G, TEST METHOD 103B	40°C/95%RH
Mechanical Life	--	2 Hz horizontal 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. 3		-	SMT
Wave Soldering	260±5°C	< 5 seconds max.	-	DIP
Manual Soldering	260±5°C	< 5 seconds max.	20W or Temperature-controlled manual soldering	DIP、SMT



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< Table of classification Reflow profile >

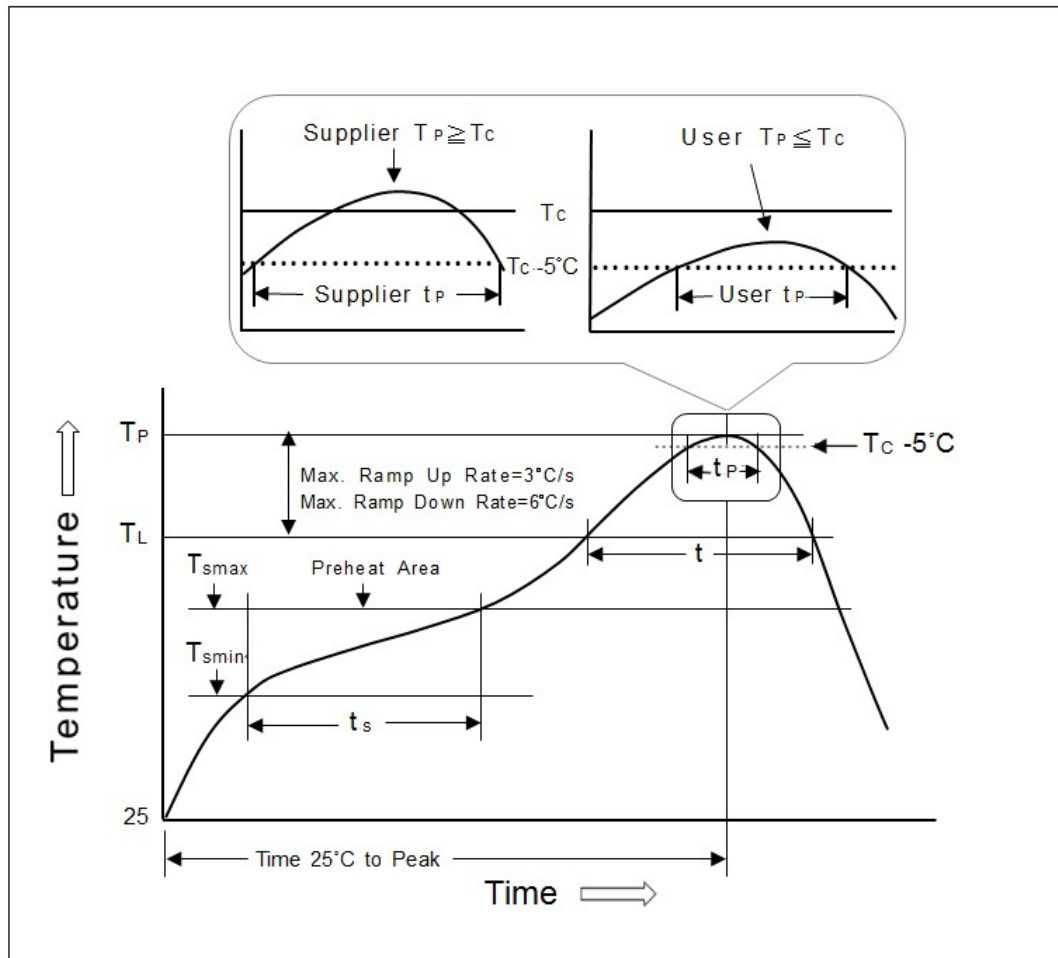
Item	Pb process	Pb free process
Pre-heat and Soak		
Temperature min.(T _{smin})	100 °C	150 °C
Temperature max.(T _{smax})	150 °C	200 °C
Time (T _{smin} to T _{smax})(t _s)	60-120 seconds	60-120 seconds
Average Rate of temperature rising up (T _{smax} to T _p)	3 °C/second max.	3 °C/second max.
Liquidous Temperature (TL)	183 °C	217 °C
Time at Liquidous (t _L)	60-150 seconds	60-150 seconds
Peak package body Temperature (T _p)*	230 °C ~235 °C *	255 °C ~260 °C *
Classification temperature(T _c)	235 °C	260 °C
Time(tp)** within 5 °C of the specified classification temperature (T _c)	20** seconds	30** seconds
Average ram-down Rate (T _p to T _{smax})	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 _p) 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. 3



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● PACKAGE

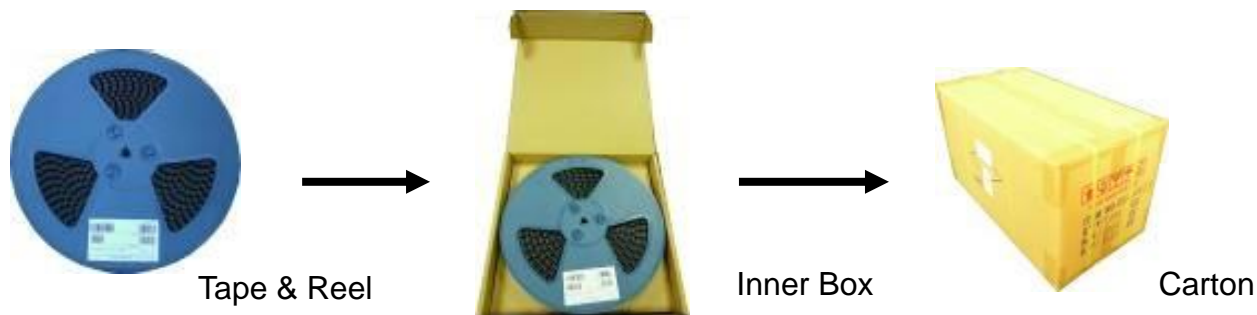
	Part Number	Package	Quantity	Total	Size(mm)
1.	RBS170100	IC Tube	84 pcs	84 pcs	525L*7W*13.5H
		Inner Box	198 Tubes	16,632 pcs	539L*130W*130H
		Carton	4 Boxes	66,528 pcs	551L*285W*288H

※ Package shown as below for reference.



	Part Number	Package	Quantity	Total	Size(mm)
1.	RBS170200T	Tape & Reel	1000 pcs	1000 pcs	φ 330*17H
		Inner Box	2 Reels	2,000 pcs	355L*340W*68H
		Carton	10 Boxes	20,000 pcs	705L*365W*375H

※ Package shown as below for reference.



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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 product 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. 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: relay, transformers, etc.).

