

Tilt Sensor Switch

Item No.	RBS253075T	Description	Ball-Contact	Version	R3.1
Page	1 of 8		Publish Date	Nov. 1, 2022	

● **FUNCTION**

45° Tilt Detecting within a 360° radius.

● **APPLICATIONS**

1. Wake up systems for power saving, such like remote controllers.
2. Anti-theft / Anti-tamper devices
3. Rotation detection for monitors
4. Alarm system
5. Earthquake detecting
6. Toys, Entertainment device



● **FEATURES**

1. Suitable for vertical PCB.
2. Switch state: SMD Normal open.
3. Gold-plated ball and terminals, low possibility of oxidization.
4. Housing made of high insulation material, free from electric conduction and rust problem.
5. Simple ON and OFF signals, easy for design.
6. RoHS compliance, an ideal substitute for mercury switch.
7. A more economical tilt detection option than IC design solution.
8. All made in Taiwan and examined before shipment.

● **PATENT**

1. Taiwan Patent No. I 712060.
2. China Patent No. ZL 20202104036.2
3. China Patent No. ZL 202010504009.1
4. US Patent No. US11309150B2

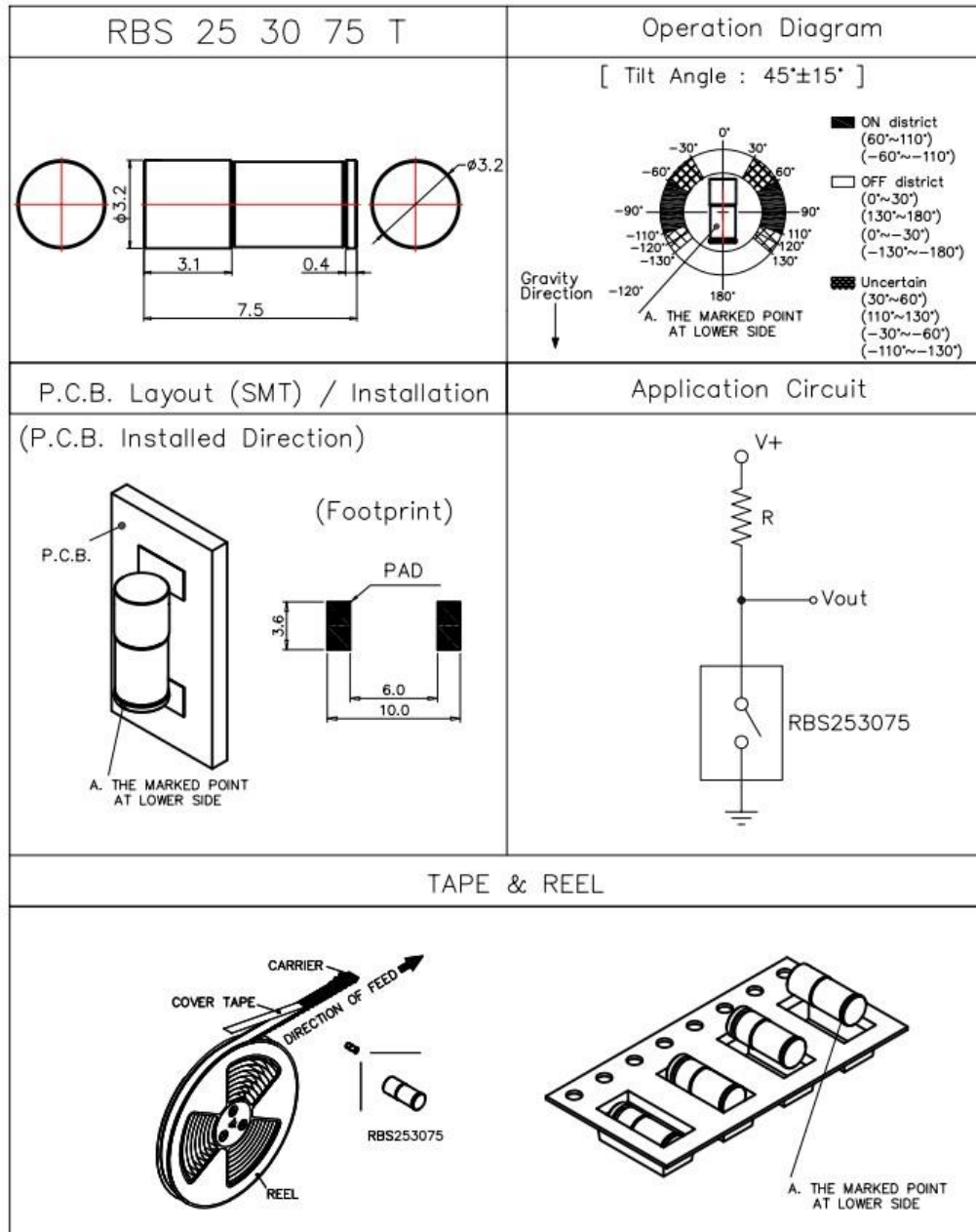


Tilt Sensor Switch

Item No.	RBS253075T	Description	Ball-Contact	Version	R3.1
Page	2 of 8		Publish Date	Nov. 1, 2022	

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

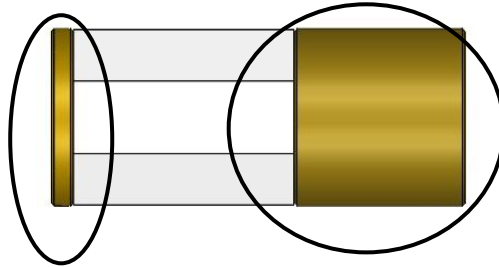
Fig. 1



Tilt Sensor Switch

Item No.	RBS253075T	Description	Ball-Contact	Version	R3.1
Page	3 of 8		Publish Date	Nov. 1, 2022	

Terminal with short side is downward



Terminal with long side is upward.

● Current/Voltage Suggested

Input Current	Operating Voltage	Condition
1.0 mA	3 V	--

● ELECTRICAL CHARACTERISTICS

1	Maximum Contact Current	10 mA
2	Contact Resistance	50 Ω max.
3	Operation Diagram	Refer to Fig. 1
4	Insulation Resistance	1000 MΩ min., 100 VDC
5	Maximum Withstand Voltage	300 VDC
6	Dielectric Strength	50 VDC min., 1 minute
7	Capacitance	5 pF max.



Tilt Sensor Switch

Item No.	RBS253075T	Description	Ball-Contact	Version	R3.1
Page	4 of 8		Publish Date	Nov. 1, 2022	

● **RELIABLILITY TEST ITEMS**

Reliability Test for RBS253075T

	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



Tilt Sensor Switch

Item No.	RBS253075T	Description	Ball-Contact	Version	R3.1
Page	5 of 8		Publish Date	Nov. 1, 2022	

< Table of classification Reflow profile >

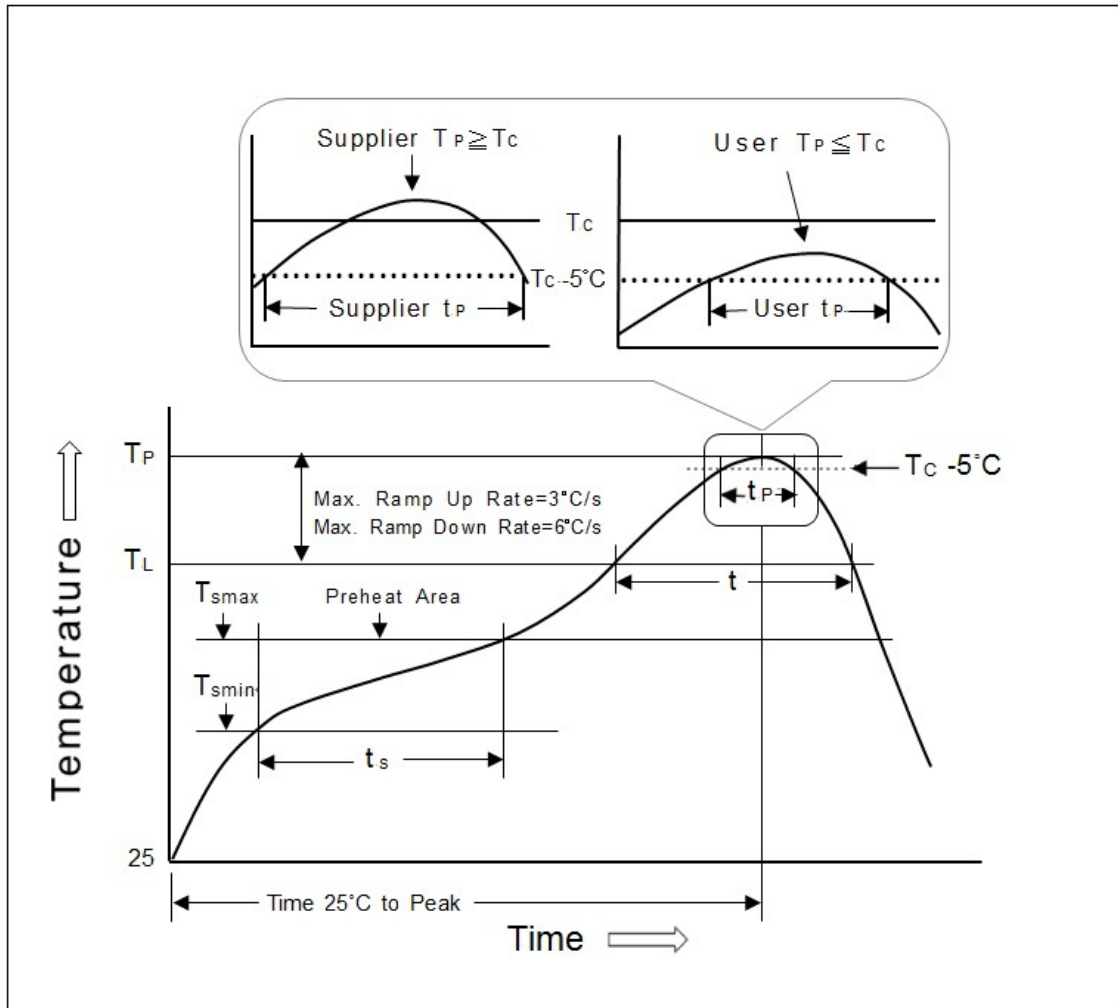
Item	Pb process	Pb free process
Pre-heat and Soak		
Temperature min.(T _{min})	100 °C	150 °C
Temperature max.(T _{max})	150 °C	200 °C
Time (T _{min} to T _{max})(t _s)	60-120 seconds	60-120 seconds
Average Rate of temperature rising up (T _{max} to T _p)	3 °C/second max.	3 °C/second max.
Liquidous Temperature (TL)	183 °C	217 °C
Time at Liquidous (tL)	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 _{max})	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_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.</p>		



Tilt Sensor Switch

Item No.	RBS253075T	Description	Ball-Contact	Version	R3.1
Page	6 of 8		Publish Date	Nov. 1, 2022	

Fig. 2



Tilt Sensor Switch

Item No.	RBS253075T	Description	Ball-Contact	Version	R3.1
Page	7 of 8		Publish Date	Nov. 1, 2022	

● PACKAGE

	Part Number	Package	Quantity	Total	Dimension (mm)
1.	RBS253075	PE bag	1,000 pcs	1,000 pcs	205L*145W
		Inner box	10PE bags	10,000 pcs	348L*191W*85H
		Carton	3 boxes	30,000 pcs	364L*278W*213H

※ Package shown as below for reference.



	Part Number	Package	Quantity	Total	Dimension (mm)
2.	RBS253075T	Tape & reel	2,500 pcs	2,500 pcs	φ330*17H
		Inner box	2 reels	5,000 pcs	355L*340W*68H
		Carton	10 boxes	50,000 pcs	703L*364W*380H

※ Package shown as below for reference.



Tilt Sensor Switch

Item No.	RBS253075T	Description	Ball-Contact	Version	R3.1
Page	8 of 8		Publish Date	Nov. 1, 2022	

● 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.

● 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.).

