

Product Specifications

Item No.	RBS240200(T)	Description	Ball-Contact Tilt Sensor Switch	Version	R0.3
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● 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



2024/03/05(RDF1-070)

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● 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



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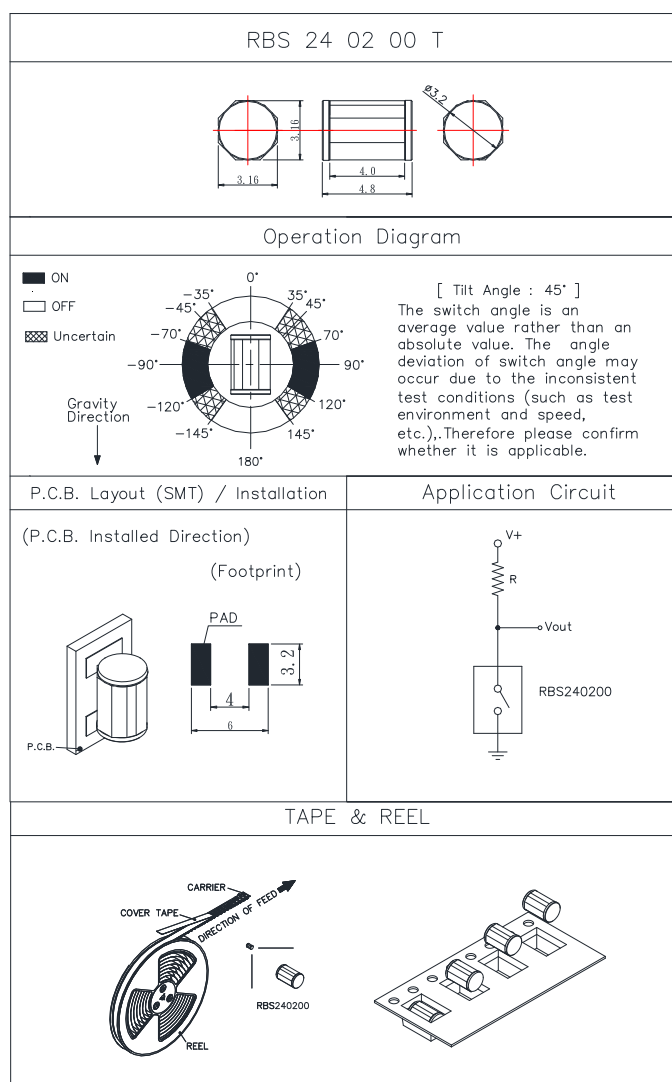
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● DIMENSIONS / OPERATION / P.C.B. LAYOUT (Unit: mm, Tolerance: $\pm 0.25\text{mm}$)

Fig. 1



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● CURRENT/VOLTAGE SUGGESTED

Input Current (mA)	Operating Voltage (V)	Condition
1.0	3	--

● ELECTRICAL CHARACTERISTICS

1	Contact Resistance	50 Ω max.
2	Maximum Contact Current	10 mA
3	Operation Diagram	Refer to Fig .1
4	Insulation Resistance	50 M Ω min.

● RELIABILITY TEST ITEMS

Reliability Test for RBS240200T

	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



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

Condition Suitable Production Process	Soldering Temperature	Soldering Time	Wattage of Manual Soldering	Type
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 _{min}) Temperature max.(T _{max}) Time (T _{min} to T _{max})(t _s)	100 °C 150 °C 60-120 seconds	150 °C 200 °C 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) Time at Liquidous (tL)	183 °C 60-150 seconds	217 °C 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.
* 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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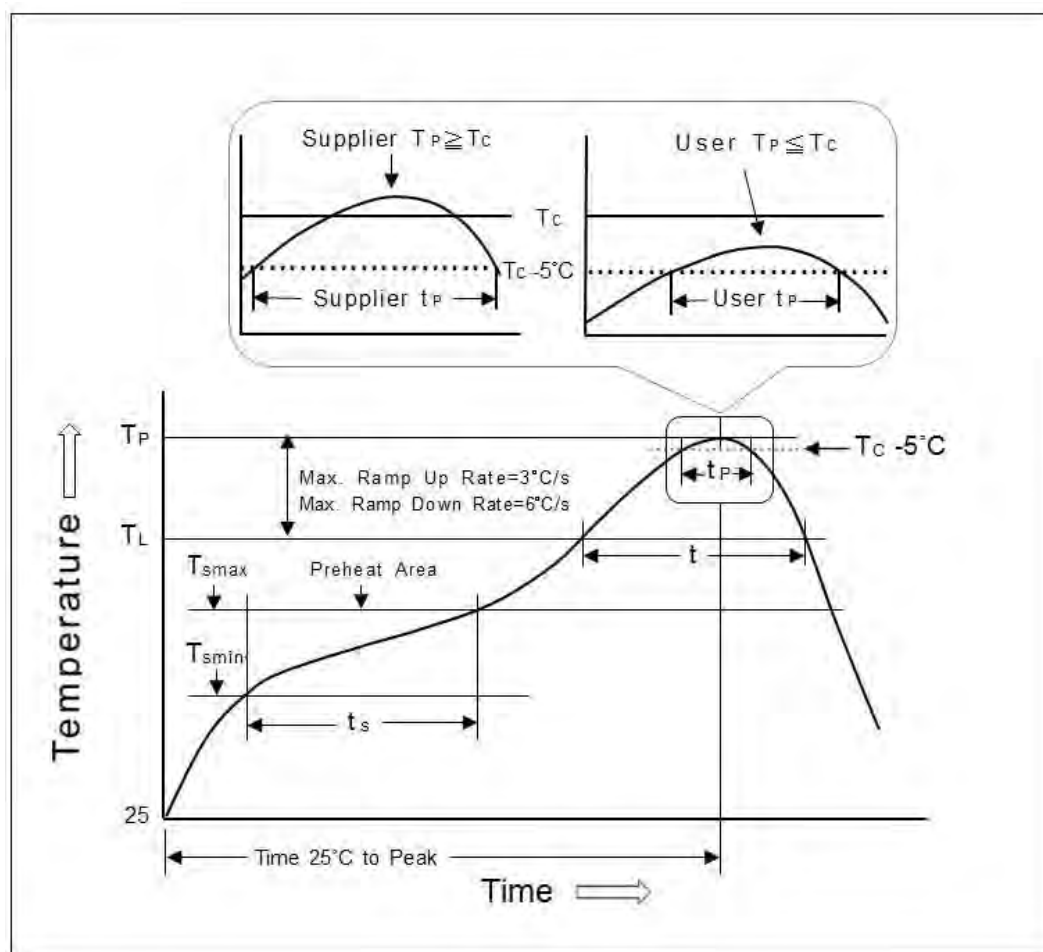
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Fig. 2



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● PACKAGE

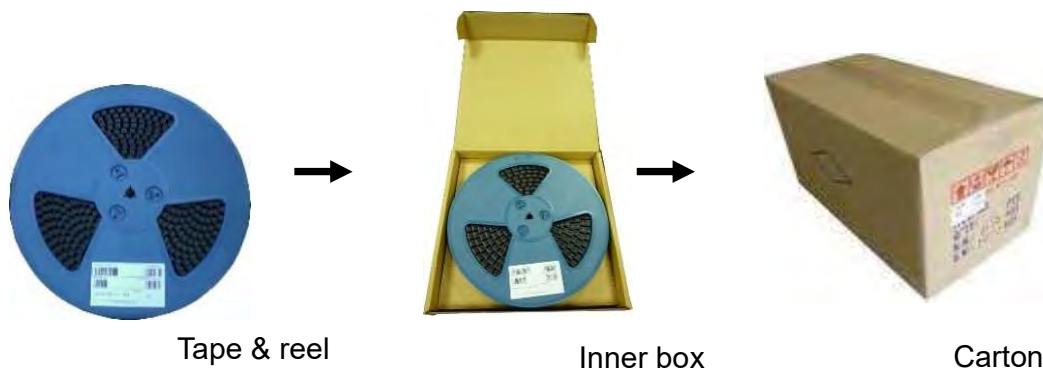
	Part Number	Package	Quantity	Total	Dimension(mm)
1.	RBS240200	PE Bag	1,000 pcs	1,000 pcs	205L*145W
		Inner Box	10 PE Bags	10,000 pcs	348L*191W*85H
		Carton	3 Boxes	30,000 pcs	364L*278W*213H

※ 包裝流程如下：產品圖片僅供參考！



	Part Number	Package	Quantity	Total	Dimension (mm)
2.	RBS240200T	Tape & reel	2,000 pcs	2,000 pcs	φ330*17H
		Inner box	2 reels	4,000 pcs	355L*340W*68H
		Carton	10 boxes	40,000 pcs	703L*364W*380H

※ 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.
4. The product conduction time may be affected by external environmental conditions or vibration, resulting in discontinuous conduction ;
It is recommended to use a microcontroller to design the trigger signal during the transition angle.

● 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.).



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