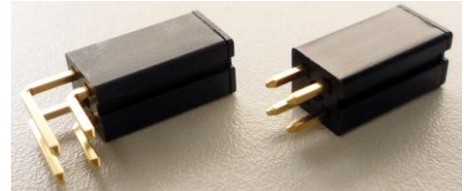


## SENSOR SWITCH

Item #	RBS04 Series	Description	TILT SWITCH	Version	V101.3
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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. No electricity consumption during detection status.
2. Housing made of high insulation plastic material, free from electric conduction and rust problem.
3. Gold-plated ball and terminals, low possibility of oxidization.
4. All plastic materials subject to industrial purpose, resist high temperature and meet fireproof function.
5. Simple ON and OFF signals, easy for design.
6. RoHS compliance, an ideal substitute for mercury switch.
7. A more economical tilt and rotation detection option than IC design solution.
8. All made in Taiwan and examined before shipment.
9. Switch state : Normal close



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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

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

<p>RBS 04 01 01</p>	<p>Tilt Angle Range <math>\theta &gt; 10^\circ; \theta &lt; -10^\circ</math></p> <p>Stable Position <math>\alpha &lt; 10^\circ</math></p>
<p>P.C.B. Layout (DIP) / Top View</p>	<p>Application Circuit</p>



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<p>RBS 04 01 10</p>	<p>Tilt Angle Range <math>\theta &gt; 10^\circ; \theta &lt; -10^\circ</math></p> <p>Stable Position <math>\alpha &lt; 10^\circ</math></p>
<p>P.C.B. Layout (DIP) / Top View</p>	<p>Application Circuit</p>



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<p>RBS 04 02 01</p>	<p>Tilt Angle Range <math>\theta &gt; 10^\circ; \theta &lt; -10^\circ</math>      Stable Position <math>\alpha &lt; 10^\circ</math></p>
<p>P.C.B. Layout (DIP) / Top View</p>	<p>Application Circuit</p>



SENSOR SWITCH

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RBS 04 02 10	Tilt Angle Range $\theta > 10^\circ; \theta < -10^\circ$	Stable Position $\alpha < 10^\circ$
P.C.B. Layout (DIP) / Top View	Application Circuit	

● Current/Voltage Suggested

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



## SENSOR SWITCH

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### ● ELECTRICAL CHARACTERISTICS

1.	Contact Rating	10mA, 5VDC
2.	Contact Resistance	10Ω max.
3.	Differential Angle	Refer to the above illustration
4.	Insulation Resistance	50 MΩ min. · 100 VDC
5.	Dielectric Strength	50 VDC min. · 1 minute
6.	Capacitance	5pF max.

### ● RELIABLE TEST ITEMS

Test Item	Standard	Contents
Storage Temperature	MIL-STD-202G, TEST METHOD 107G, TEST A	-40°C~85°C
IR Reflow	MIL-STD-202G, TEST METHOD 210F · IPC/JEDEC J-STD-020D	Peak temp.=255~260°C *3times
Humidity	MIL-STD-202G, TEST METHOD 103B	40°C/95%RH
Operating Temperature	MIL-STD-202G, TEST METHOD 107G, TEST A	-25°C~85°C
Mechanical Life	--	2 Hz horizontal 1,000,000 times
Electrical Life	--	100,000 times
Pull Force of Terminals	--	500 GF · 1 minutes



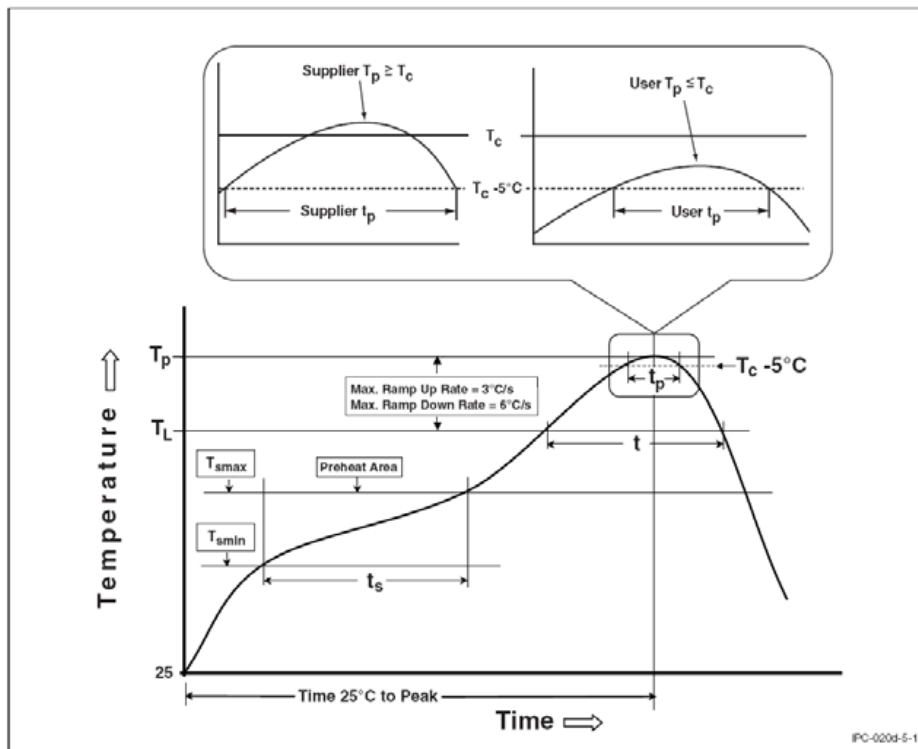
SENSOR SWITCH

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● SOLDERING CONDITION

This information is applied to SMT type.

Following profile is for reference only. Please use solder paste that solder paste manufacturer recommends.



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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> )(ts)	100 °C 150 °C 60-120 seconds	150 °C 200 °C 60-120 seconds
Average ram-up Rate (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(tp)** 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.
* 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 (tp) is defined as a supplier minimum and a user maximum.		





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Applicable to DIP Type

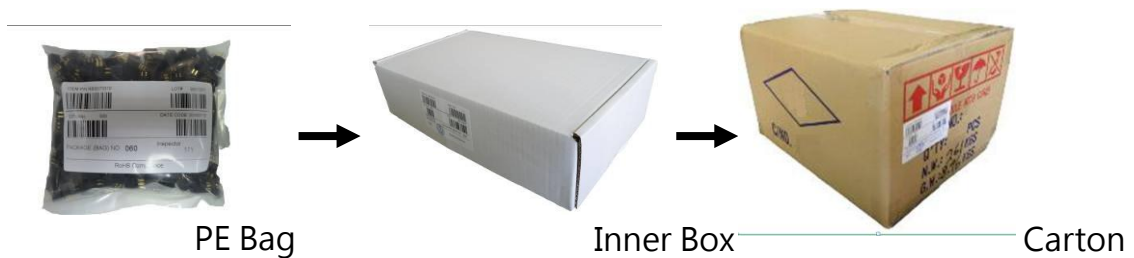
● Soldering Temperature and time

Condition / Operation Method	Soldering Temperature	Soldering Time
Wave Soldering	260±5°C	<5 seconds Max
Manual Soldering	260±5°C	<5 seconds Max

● PACKAGE

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

※ Package shown as below for reference.



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. Use water-soluble flux may damage the switch.
4. Do not use switch in the environment of high humidity · because such an environment may cause the leakage current between the terminals.
5. More than the rated load may cause fire, so do not use more than the load.
6. In the circuit · switch should not be near or directly connected with the magnetic component solder joints (for example: relays, transformers, etc.).

