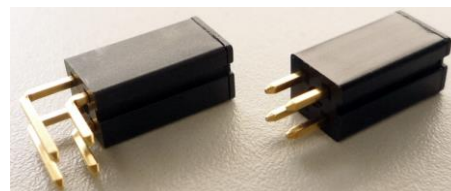


SENSOR SWITCH

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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. * Suitable for horizontal PCB: RBS040201 、 RBS040210;
* Suitable for vertical PCB: RBS040101 、 RBS040110 。
2. Switch state:
* Normal close: RBS040110 、 RBS040210;
* Normal open: RBS040101 、 RBS040201 。
3. Housing made of high insulation plastic material, free from electric conduction and rust problem.
4. Gold-plated ball and terminals, low possibility of oxidization.
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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● 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
5. CHINA PATENT NO. 201220308500.8

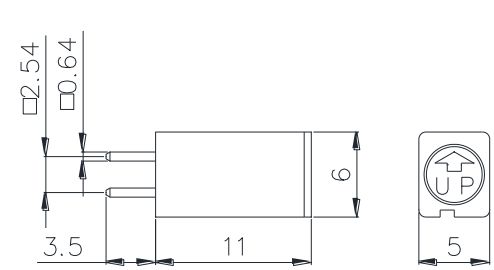
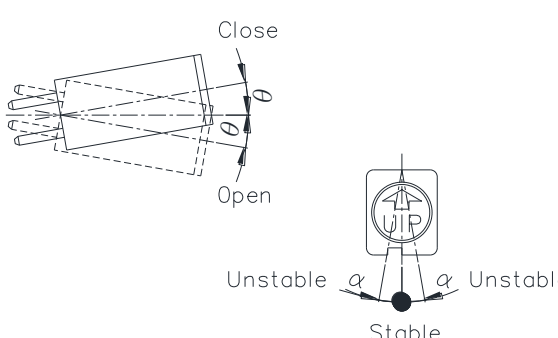
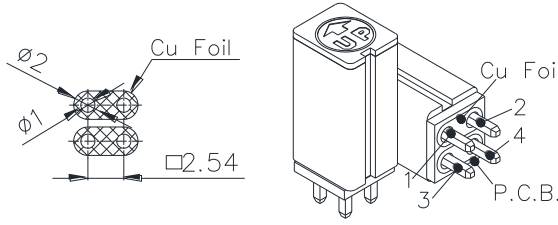
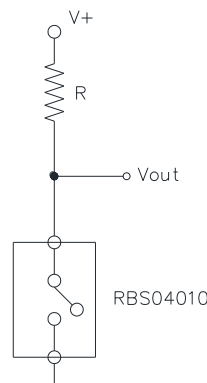


SENSOR SWITCH

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

Fig. 1

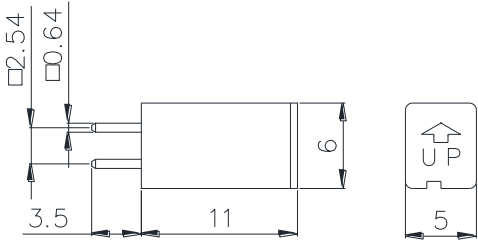
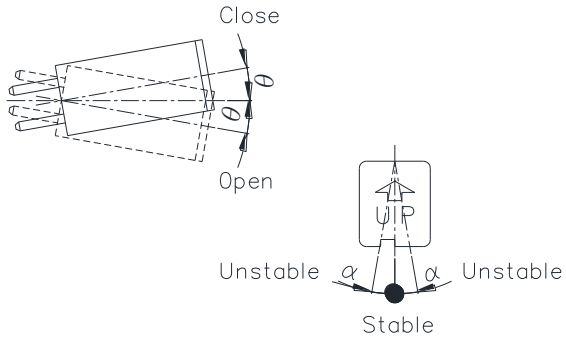
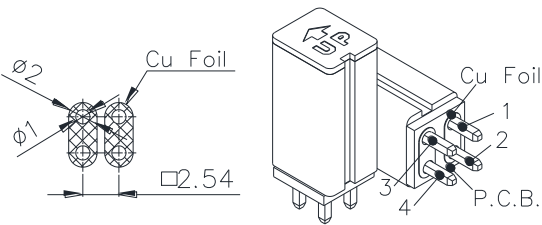
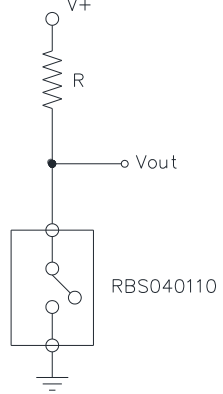
RBS 04 01 01 	Tilt Angle Range $\theta > 10^\circ; \theta < -10^\circ$ Stable Position $\alpha < 10^\circ$ 
P.C.B. Layout (DIP) / Top View 	Application Circuit 



SENSOR SWITCH

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Fig. 2

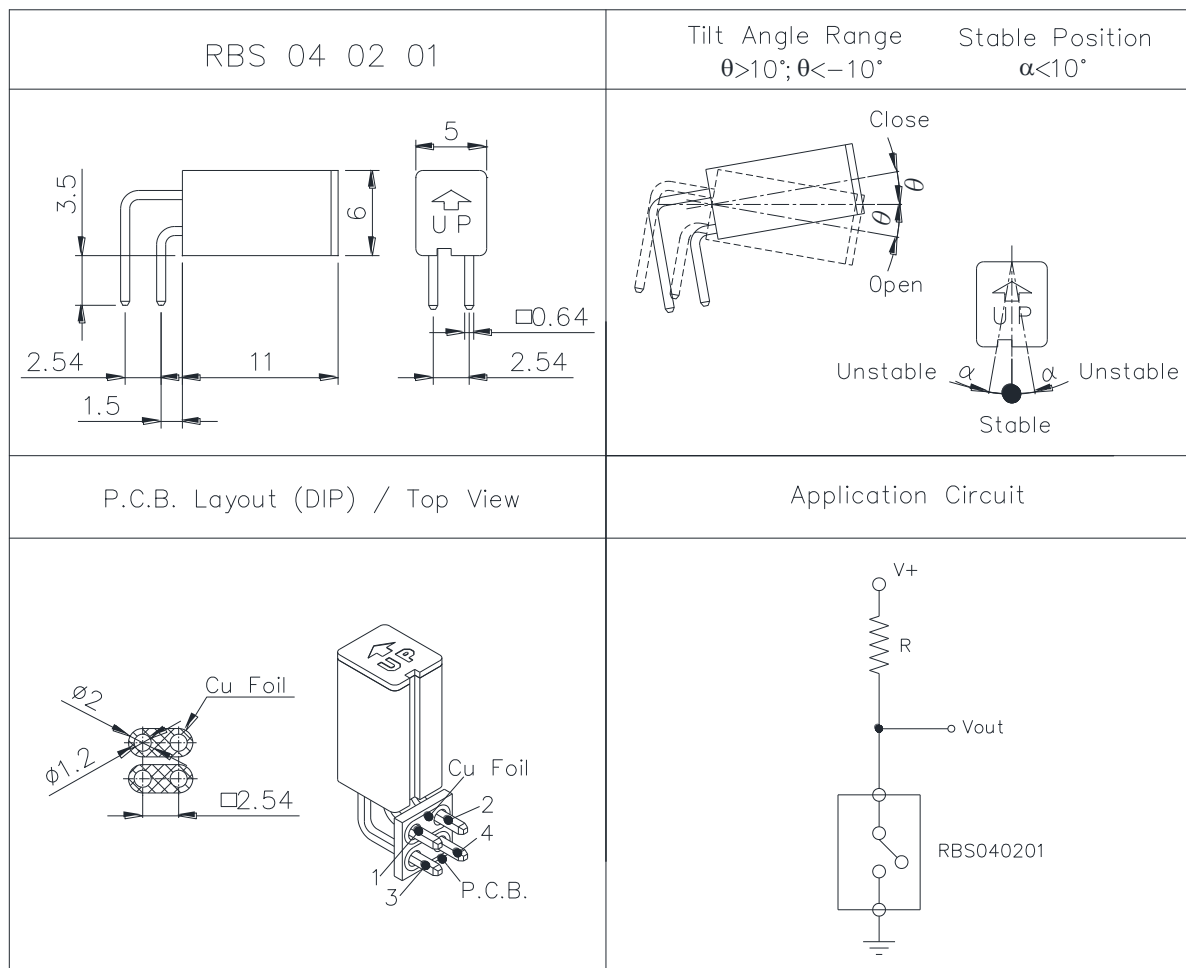
RBS 04 01 10		Tilt Angle Range $\theta > 10^\circ; \theta < -10^\circ$	Stable Position $\alpha < 10^\circ$
			
P.C.B. Layout (DIP) / Top View		Application Circuit	
			



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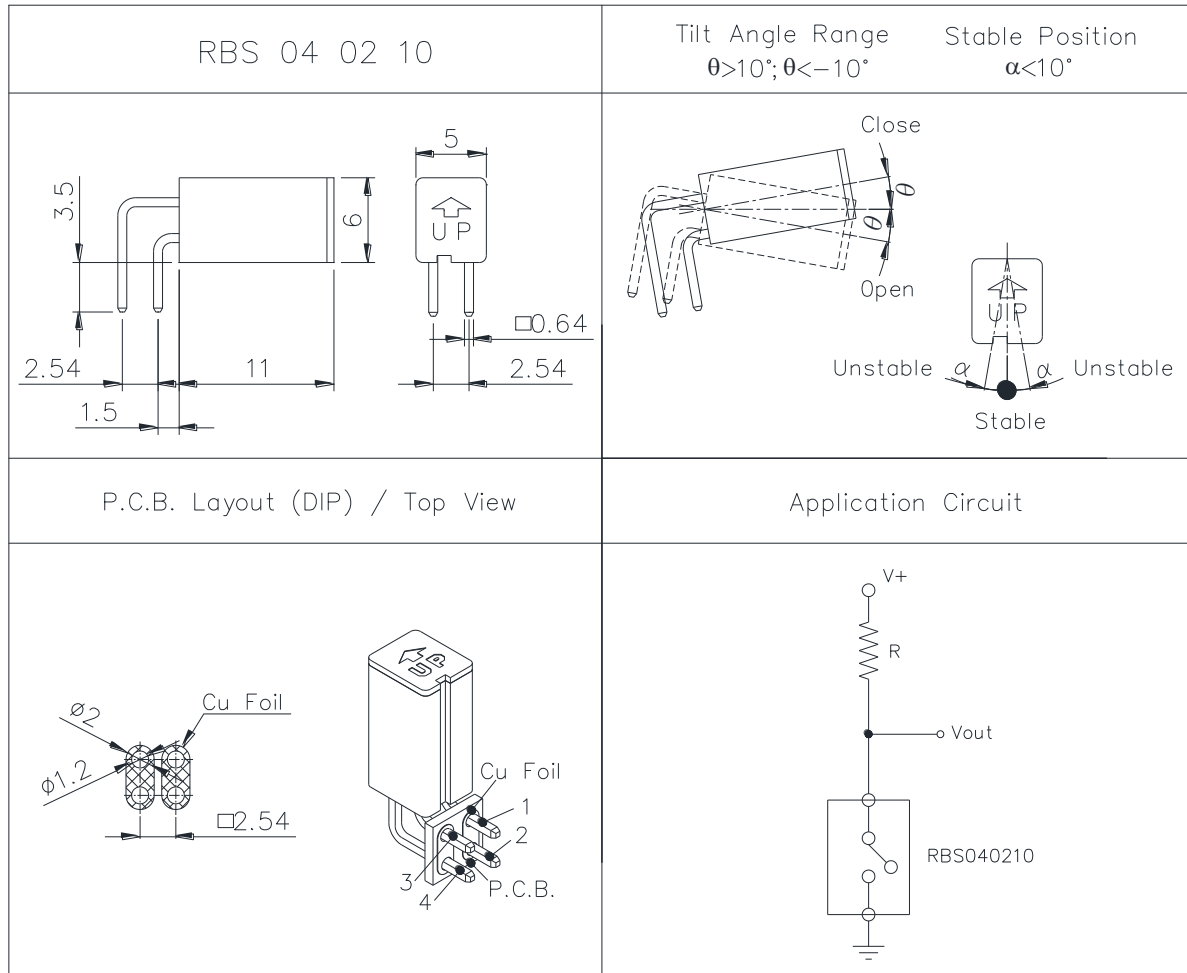
Fig. 3



SENSOR SWITCH

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Fig. 4



SENSOR SWITCH

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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. 4
4.	Insulation Resistance	1000 M Ω min. $\cdot$ 100 VDC
5.	Dielectric Strength	500 VDC min. $\cdot$ 1 minute
6.	Capacitance	5 pF max.
7.	Conductive Rate	90% min.



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● RELIABLE TEST ITEMS

Reliable Test for RBS04 Series

Test Item	Standard	Contents
IR Reflow	--	--
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. 5		-	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



SENSOR SWITCH

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< Table of classification Reflow profile >

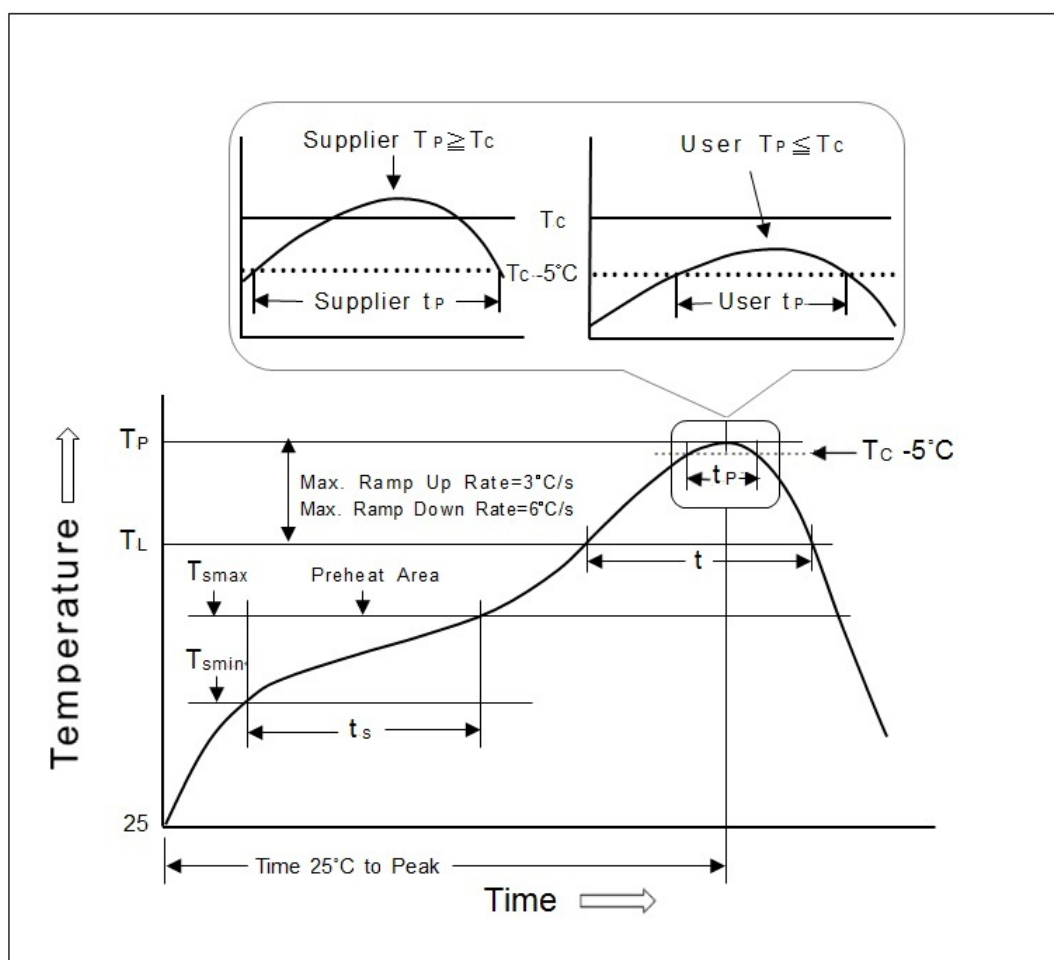
Item	Pb process	Pb free process
Pre-heat and Soak		
Temperature min.(T _{min})	100 °C	150 °C
Temperature max.(T _{max})	150 °C	200 °C
Time (T _{min} to T _{max})(t _s)	60-120 seconds	60-120 seconds
Average Rate of temperature rising up (T _{max} to T _p)	3 °C/second max.	3 °C/second max.
Liquidous Temperature (TL) Time at Liquidous (t _L)	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(t _p)** 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 (t _p) is defined as a supplier minimum and a user maximum.		



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Fig. 5



SENSOR SWITCH

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● 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.



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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. If soldering temperature exceeds our specification, sensor switch could get apart.
4. Use water-soluble flux may damage the switch.
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: relays, transformers, etc.).

