OncQue™

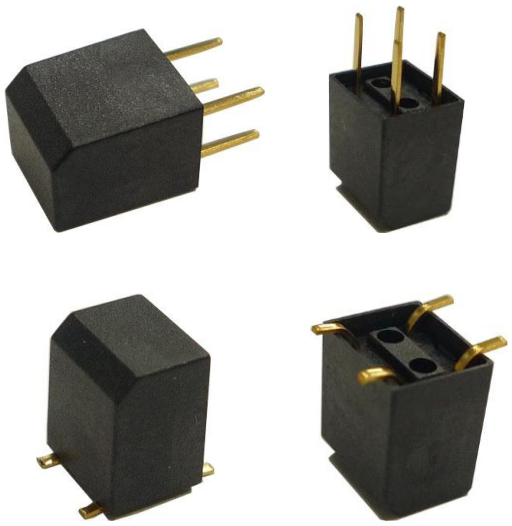
OncQue Corporation
大日科技股份有限公司

SENSOR SWITCH

Item.#	VBS06 Series	Description	TILT SWITCH	Version	V101.2
Page	1 of 9		Date	July 30, 2012	

● FUNCTIONS

Omni-directional Vibration Detecting



● APPLICATIONS

1. Wake up systems for power saving, Such like remote controllers.
2. GPS starting system
3. Alarm system
4. Anti-theft、Anti-tampered devices.
5. Automatically flashing for bike lamp
6. Subsidiary night lamp flashing for car
7. RFID
8. Outsole of sporting shoes flashing
9. Toys

● 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 vibration detection option than IC design solution.
8. All made in Taiwan and examined before shipment.

No. 278, 4 Sec., Tzuyu Rd.,
E. Dist., Taichung 40147, Taiwan
http://www.oncque.com

Tel: 886-4-22122715
Fax: 886-4-22122717
E-mail: oncque@oncque.com.tw

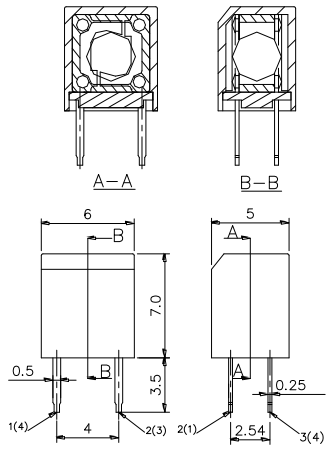
Item.#	VBS06 Series	Description	TILT SWITCH	Version	V101.2
Page	2 of 9		Date	July 30, 2012	

● PATENTS

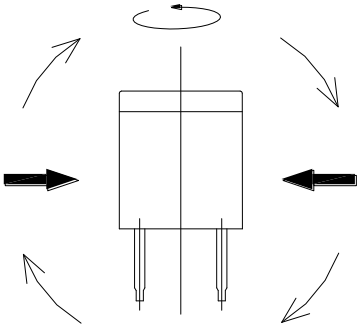
1. USA PATENT NO. US 7,176,396 B1
2. TAIWAN PATENT NO. I 297161
3. CHINA PATENT NO. ZL 200610072563.7

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

VBS 06 11 00

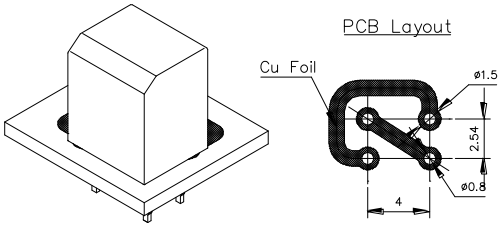


Operation Angle

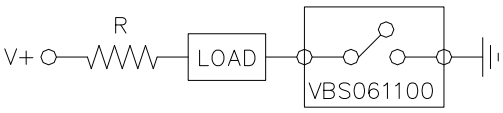


Remark 1:
1.Flashily Opened "ON".
When Be Vibrated From Any Postion

P.C.B. Layout(DIP)/Top View



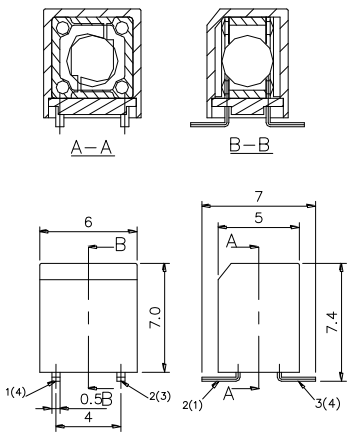
Application Circuit



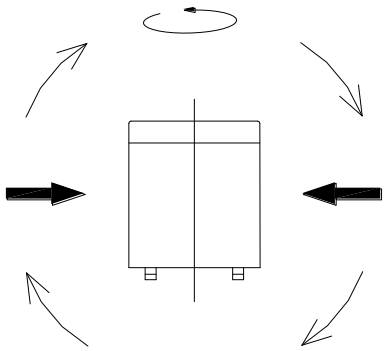
SENSOR SWITCH

Item.#	VBS06 Series	Description	TILT SWITCH	Version	V101.2
Page	3 of 9		Date	July 30, 2012	

VBS 06 21 00

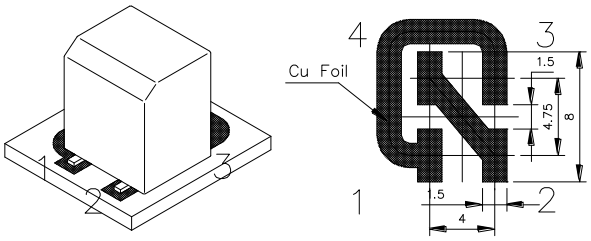


Operation Angle

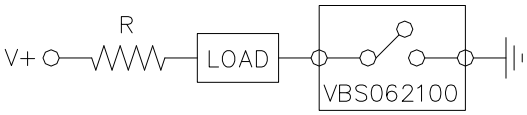


Remark 1:
1.Flashily Opened "ON".
When Be Vibrated From Any Postion

P.C.B. Layout(SMT)/Top View



Application Circuit



No. 278, 4 Sec., Tzuyu Rd.,
E. Dist., Taichung 40147, Taiwan
http://www.oncque.com

Tel: 886-4-22122715
Fax: 886-4-22122717
E-mail: oncque@oncque.com.tw

● ELECTRICAL CHARACTERISTICS

1.	Contact Rating	10mA, 5VDC
2.	Contact Resistance	10Ω max.
3.	Differential Angle	Refer to the drawing
4.	Switching Type	Please refer to cross and section drawing
5.	Insulation Resistance	1,000MΩ min. at 100VDC
6.	Dielectric Strength	500VDC min. for 1 minute
7.	Capacitance	5pF max.

● RELIABLE TEST ITEMS

Reliable Test

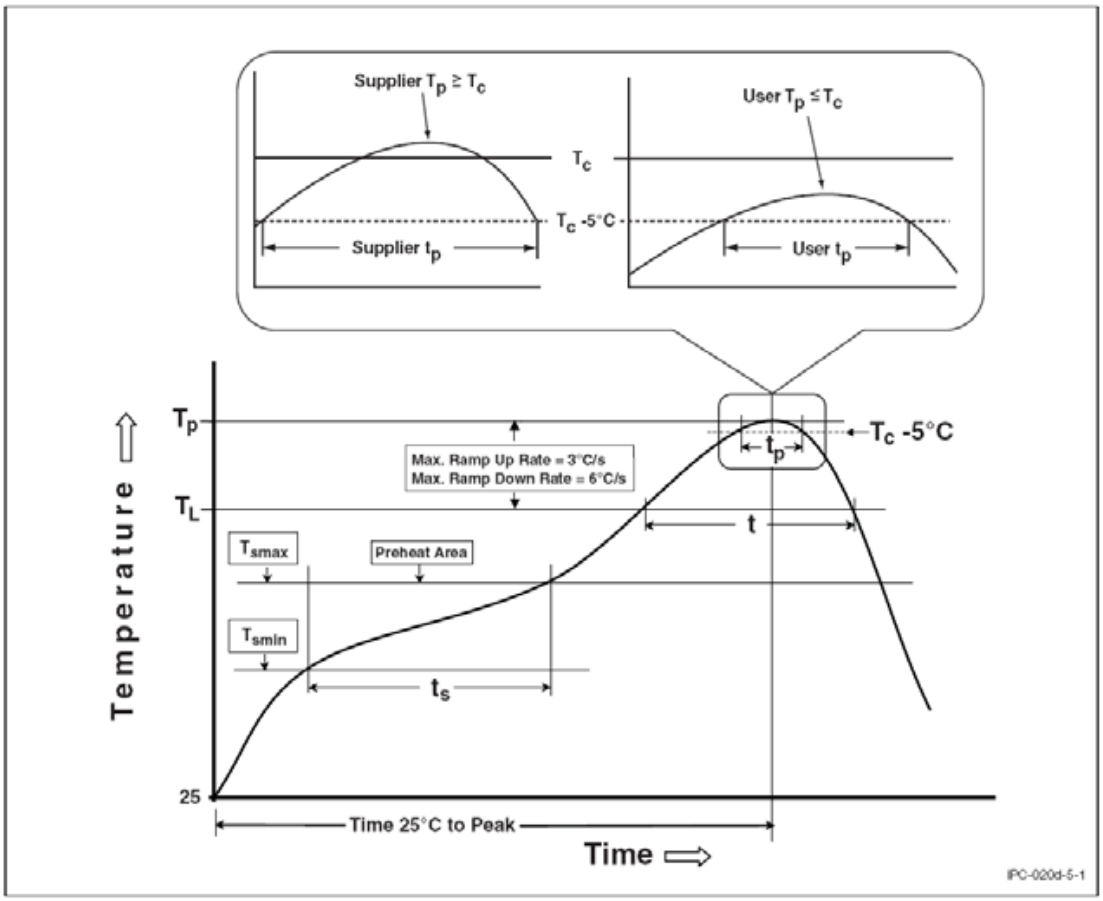
Test Item	Standard	Contents
Storage Temperature	MIL-STD-202G, TEST METHOD 107G, TEST A	-40℃~85℃
IR Reflow	MIL-STD-202G, TEST METHOD 210F、 IPC/JEDEC J-STD-020D	Peak temp.=255~260℃*3times
Humidity	MIL-STD-202G, TEST METHOD 103B	40℃/95%RH
Operating Temperature	MIL-STD-202G, TEST METHOD 107G, TEST A	-25℃~85℃
Mechanical Life	--	2Hz Horizontal
Electrical Life	--	10mA, 5V, 100,000 times

No. 278, 4 Sec., Tzuyu Rd.,
E. Dist., Taichung 40147, Taiwan
http://www.oncque.com

Tel: 886-4-22122715
Fax: 886-4-22122717
E-mail: oncque@oncque.com.tw

● SOLDERING TEMPERATURE AND DURATION

This information is applied to SMT type.
Following profile is for reference only. Please use solder paste that solder paste manufacturer recommends.



< Table of classification Reflow profile>

Item	Pb process	Pb free process
Pre-heat and Soak Temperature min.(Tsmin) Temperature max.(Tsmax) Time (Tsmin to Tsmax)(ts)	 100 °C 150 °C 60-120 seconds	 150 °C 200 °C 60-120 seconds
Average ram-up Rate (Tsmax to Tp)	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 (Tp)*	230 °C ~235 °C *	255 °C ~260 °C *
Classification temperature(Tc)	235 °C	260 °C
Time(tp)** within 5 °C of the specified classification temperature (Tc)	20** seconds	30** seconds
Average ram-down Rate (Tp toTsmax)	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 (Tp) 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.		

No. 278, 4 Sec., Tzuyu Rd.,
E. Dist., Taichung 40147, Taiwan
http://www.oncque.com

Tel: 886-4-22122715
Fax: 886-4-22122717
E-mail: oncque@oncque.com.tw

Item.#	VBS06 Series	Description	TILT SWITCH	Version	V101.2
Page	7 of 9		Date	July 30, 2012	

Applicable to DIP Type

- Soldering Temperature and time

Condition / Operation Method	Soldering Temperature	Soldering Time
Iron Soldering	260±5℃	<5 sec. Max
Wave Soldering	260±5℃	<3 sec. Max

- PACKAGE

	Part Number	Package	Quantity	Total	Size(mm)
1.	VBS061100	IC tube	84 pcs	84 pcs	525L*7W*13.5H
		Inner box	162 tubes	13,608 pcs	539L*130W*130H
		Carton	4 boxes	54,432 pcs	551L*285W*288H

※ Package shown as below for reference.

IC tube　　Inner box　　Carton

No. 278, 4 Sec., Tzuyu Rd.,
E. Dist., Taichung 40147, Taiwan
http://www.oncque.com

Tel: 886-4-22122715
Fax: 886-4-22122717
E-mail: oncque@oncque.com.tw

SENSOR SWITCH

Item.#	VBS06 Series	Description	TILT SWITCH	Version	V101.2
Page	8 of 9		Date	July 30, 2012	

	Part Number	Package	Quantity	Total	Size(mm)
1.	VBS062100T	Tape & Reel	700 pcs	700 pcs	φ330*17H
		Inner box	2 Reels	1,400 pcs	355L*340W*68H
		Carton	10 Boxes	14,000 pcs	705L*365W*375H

※ Package shown as below for reference.

Tape & Reel　　Inner box　　Carton

No. 278, 4 Sec., Tzuyu Rd.,
E. Dist., Taichung 40147, Taiwan
http://www.oncque.com

Tel: 886-4-22122715
Fax: 886-4-22122717
E-mail: oncque@oncque.com.tw

SENSOR SWITCH

Item.#	VBS06 Series	Description	TILT SWITCH	Version	V101.2
Page	9 of 9		Date	July 30, 2012	

● 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. 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: relays, transformers, etc.).

No. 278, 4 Sec., Tzuyu Rd.,
E. Dist., Taichung 40147, Taiwan
http://www.oncque.com

Tel: 886-4-22122715
Fax: 886-4-22122717
E-mail: oncque@oncque.com.tw