



SENSOR SWITCH

Item #	VBS07	Description	VIBRATION SWITCH	Version	V99.0
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● FUNCTIONS

Omni-directional Vibration Detecting

● APPLICATIONS

1. Earthquake detecting system
2. Alarm systems
3. Toys
4. Sporting devices
5. Automotive devices
6. Visual devices
7. Home electrical appliances
8. Information devices
9. Communication devices



● FEATURES

1. Tiny size, suitable for small space.
2. Housing made of high insulation plastic material, free from electric conduction and rust problem.
3. Detecting with photo transistors, generating highly reliable and stable signals.
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.

● PATENTS

1. TAIWAN Patent NO. I 226467
2. U.S.A. Patent NO. US 6,740,867 B2
3. CHINA Patent NO. ZL 02 1 46662.9



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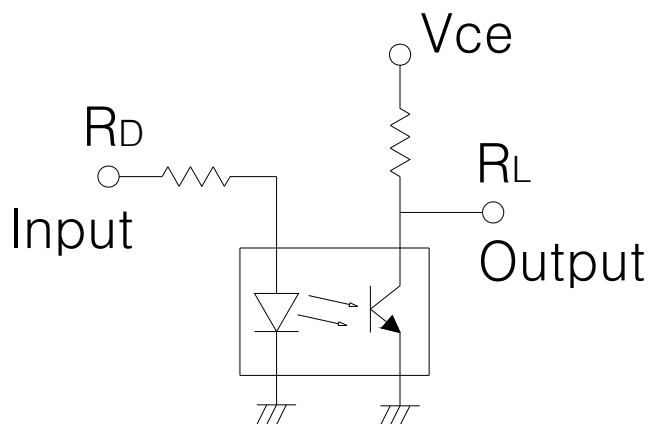
● DIMENSIONS / OPERATION / P.C.B. LAYOUT (Unit: mm, Tolerance: ±0.25mm)

VBS 07 01 00	Activate When Being Vibrated From Any Position	P.C.B. Layout (SMT)/Top View

● Device Selection Guide

Input Current (mA)	Operating Voltage (V)
5	3.3

Application Circuit



1. Vce=3.3V
2. RD=430ohn
3. RL=33Kohn



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● Absolute Maximum Rating (Ta=25°C)

	Item	Symbol	Rating	Unit
Input	Power Dissipation	Pd	80	mW
	Reverse Voltage	Vr	5	V
	Forward Current	I _F	50	mA
	Peak Forward Current (*1)	I _{FM}	130	mA
Output	Collector Power Dissipation	Pc	150	mW
	C-E Voltage	V _{CEO}	20	V
	E-C Voltage	V _{ECO}	5	V
Operating Temperature		Topr	-25~+85	°C
Storage Temperature		Tstg	-40~+100	°C
Soldering Temperature (*2)		Tsol	260	°C

(*1) Duty Ratio=1/10, Pulse Width=0.1ms

(*2) t=5 Sec

● MECHANICAL CHARACTERISTICS

1.	Temperature Range	Operating: -25°C to +85°C Storage: -40°C to +85°C
2.	Pull Force of Terminal	500 gf for 1 minute
3.	Operation Life	30,000 hrs.
4.	Humidity	95% RH, 40°C for 96 hrs.
5.	Solder Ability	After flux 260±5°C for 5±0.5 seconds 95% coverage



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● Electrical Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F=20mA$	—	1.21	1.40	V
Reverse Current	I_R	$V_R=5V$	—	—	10	μA
Peak Wavelength	λ_p	$I_F=20mA$		940		nm
Collector Current (Saturation)	I_c	$V_{CE}=20V$ $E_e=0.5mw/cm$	0.2	—	0.5	mA
Collector Dark Current	I_{ceo}	$V_{CE}=20V$ $E_e=0.5mw/cm$	—	—	100	nA
C-E Saturation Voltage	$V_{CE(sat)}$	$I_c=0.5mA$ $I_b=100\mu A$	—	—	0.4	V
Rise Time	T_r	$I_c=01mA$ $V_{ce}=5V$	—	15	—	μsec
Fall Time	T_f	$R_L=1K\Omega$	—	20	—	μsec

● BILL OF MATERIAL

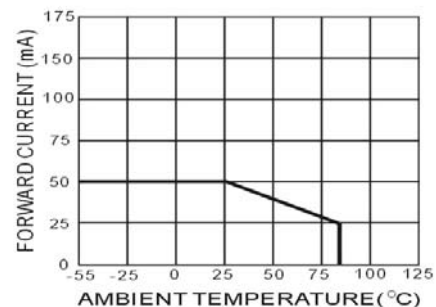
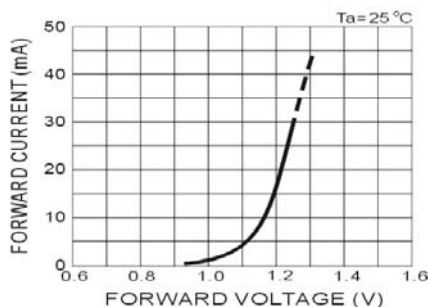
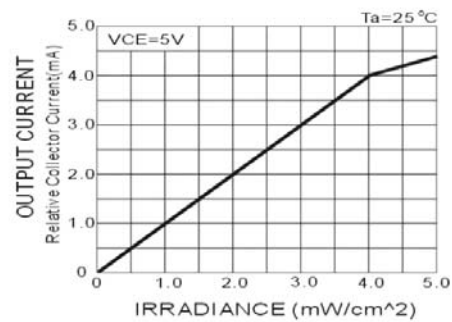
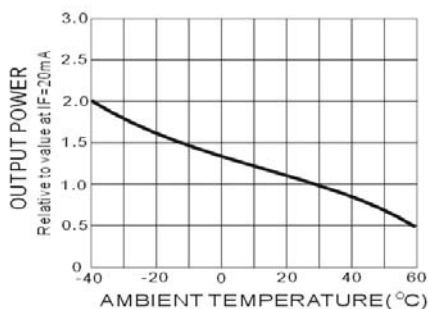
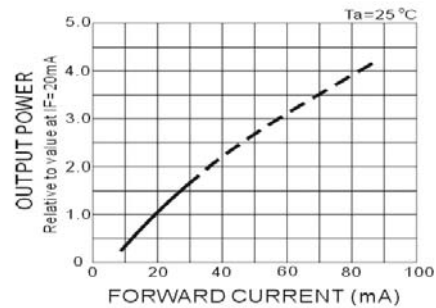
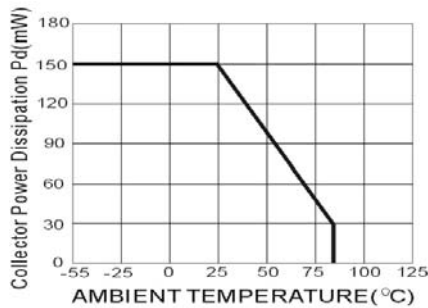
1.	Housing	Polyamide + Glass-Fiber
2.	Base	Copper Alloy, Nickel Plated
3.	Ball	Glass
4.	Infrared Emitting Diodes	
5.	Silicon Photo Transistors	
6.	Epoxy	



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● Typical Electrical / Optical Characteristics Curves (Ta=25°C)



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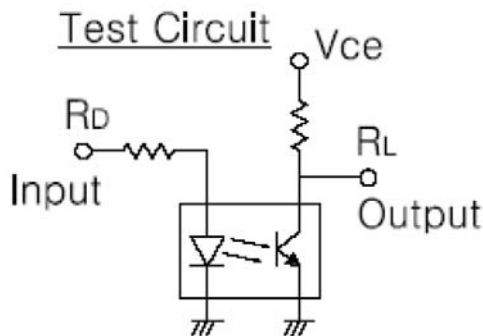
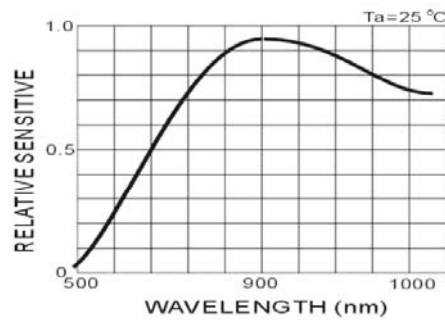
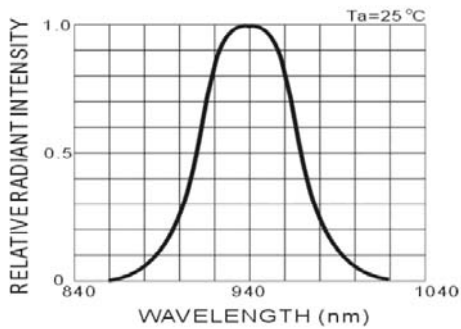
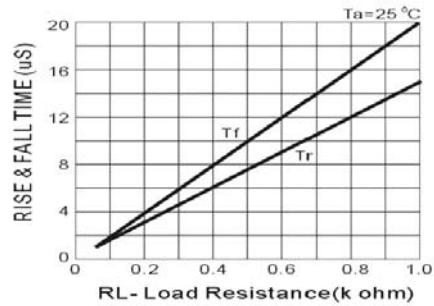
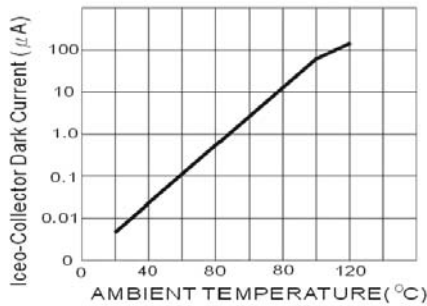
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● PACKAGE

	Part Number	Package	Quantity	Total	Size
1.	VBS070100	Reel	4,000pcs	4,000 pcs	Diameter =30; Width =2.1 (cm)
		Inner Box	3 Reels	12,000 pcs	36 x 34 x 7 (cm)
		Carton	4 Boxes	48,000 pcs	37 x 36 x 31 (cm)

* Minimum Order Quantity: One Reel

● NOTE

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 equipments requiring higher safety and reliability such as life support system, space and aviations devices, disaster and safety system, it's necessary to make verification of conformity or contact us for the details before using.
2. Don't try to clean the switch with a solvent or similar substance after the soldering process.
3. The switch might be damaged if using the water-soluble flux.
4. Don't use the switch in the environment with high humidity or other bedewing possibility, as it may cause leaking among the terminals.