# Model SVD Oscillation Shock Sensor

PATENTED

| Model List | Detection Sensitivity | | Operation Status |
|---|---|---|---|
| | 10Hz | 30Hz | |
| SVD-P32 | 0.3G | 2G | Normally open |
| SVD-P33 | | 3G | |
| SVD-P52 | 0.5G | 2G | |
| SVD-P53 | | 3G | |

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|---|---|---|---|
| | 10Hz | 30Hz | |
| SVD-P321 | 0.3G | 2G | Normally closed |
| SVD-P331 | | 3G | |
| SVD-P521 | 0.5G | 2G | |
| SVD-P531 | | 3G | |

## Application

- Monitoring of illegal operation in the game machine
- Security of mechanical instruments
- Opening and closing of the door monitoring
- Monitoring of vehicle movement and collision

## Features

- It is a sensor that integrates a shaking sensor that detects shaking and an impact sensor that detects impacts such as bumping and hitting.
- Detects vibrations on a game machine cause by inappropriate actions.
- Detects shaking and collisions when moving due to vehicle theft.
- It reduces malfunctions due to *high-frequency vibration.
  *High-frequency vibration: Vibration caused by the movement of a pachinko ball or vibration of a motor.
- Can detect instant oscillations and impacts and output them for more than 200 ms using a multivibrator circuit.

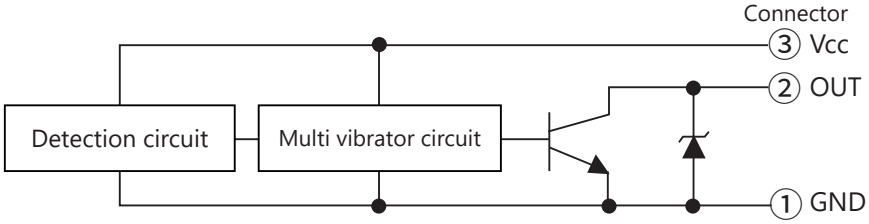
## Rating/Performance

| Model | SVD-P** | SVD-P**1 |
|---|---|---|
| Power Voltage | 12 V DC ±10 % | |
| Power Consumption | 20 mA DC or less | |
| Output | NPN transistor open collector | |
| Output Capacity | 30 V DC, 50 mA DC or less | |
| Output Residual Voltage | 1 V DC or less (Load current 50 mA DC) | |
| Operation Status | Normally open (Output ON when shock is detected) | Normally Closed (Output OFF when shock is detected) |
| Output Time | Single impact is input: 200 ms or more On<br>Continuous impact is input: continuous On | Single impact is input: 200 ms or more OFF<br>Continuous impact is input: continuous OFF |
| Detection Frequency | 10 Hz to 1 kHz | |
| Response Time | 3 ms or less | |
| Temperature Range | -10 to 60 °C (-15 to 65 °C during storage) (Without dew condensation or freezing) | |
| Humidity Range | 85 % RH or less (85 % RH or less during storage) (Without dew condensation or freezing) | |
| Breakdown Voltage | 500 V AC, 50/60 Hz for 1 min (Between live parts and the case) | |
| Insulation Resistance | 20 MΩ or more, at 500 V DC megger (Between live parts and the case) | |
| Vibration Resistance | Durability : 10 to 55 Hz, Double amplitude: 1.5 mm in X-, Y-, and Z-direction, each 2 hours (Device not powered) | |
| Shock Resistance | Durability : 500 m/s² (Approx. 50 G) in X-, Y-, and Z-direction, each 3 times (Device not powered) | |
| Ingress Protection | IP50 | |
| Case Material | ABS reinforced with glass-fiber | |
| Connector | S3B-ZR-SM2-TF (3-pin) (from J.S.T. Mfg. Co., Ltd.)<br>[Connections]Housing: ZHR-3, Contact: SZH-002T-P0.5 (from J.S.T. Mfg. Co., Ltd.) | |
| Weight | Approx. 7 g | |
| Options (Sold Separately) | Connector harness: SZH-3-300 | |

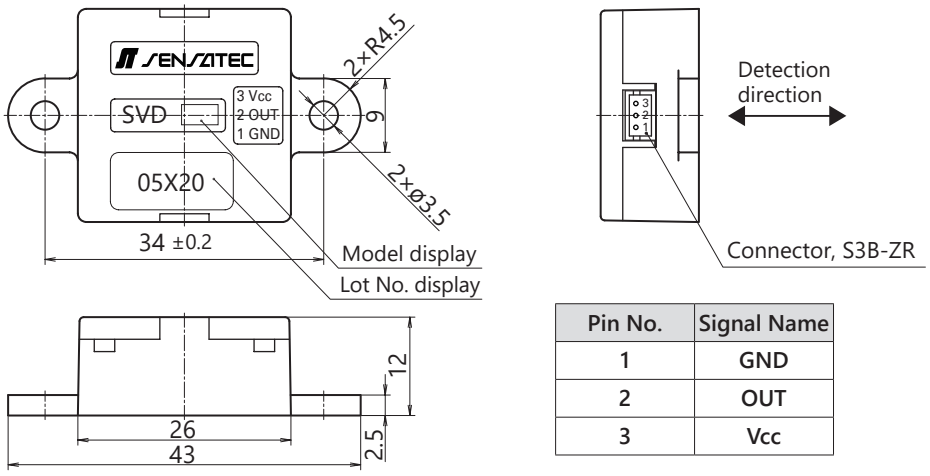
## Detection Sensitivity

| Model | Normally open | SVD-P32 | SVD-P33 | SVD-P52 | SVD-P53 |
|---|---|---|---|---|---|
| | Normally closed | SVD-P321 | SVD-P331 | SVD-P521 | SVD-P531 |
| Detection Sensitivity | 10Hz (Vibration) | 0.3G ± 20% | 0.3G ± 20% | 0.5G ± 20% | 0.5G ± 20% |
| | 30Hz ( Shock ) | 2G ± 20% | 3G ± 20% | 2G ± 20% | 3G ± 20% |

## Output Circuit

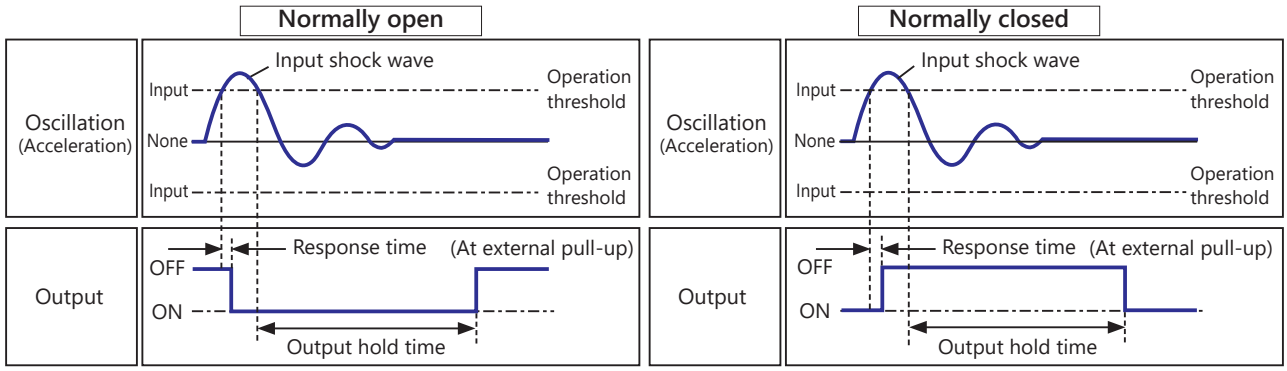


## Dimensions

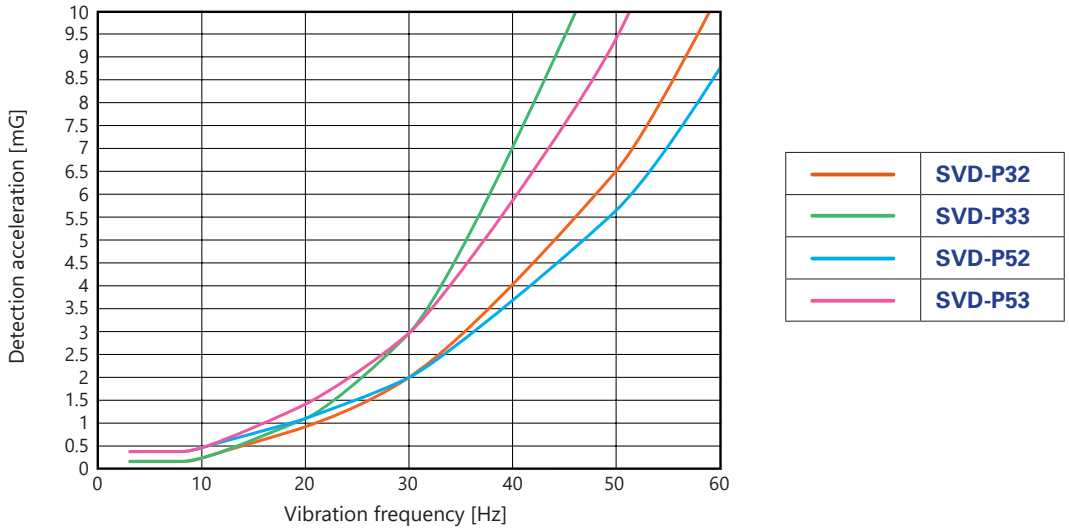



| Pin No. | Signal Name |
|---|---|
| 1 | GND |
| 2 | OUT |
| 3 | Vcc |

## Timing Chart (Single Vibration Input)




## Reference Frequency Characteristics (Typical Example)




## Precautions During Use

1. Always use plain washers to tighten the case and use a torque of 0.5 N·m or less.
2. The maximum output standby time of the product is 2.4 seconds after the power is turned on.
3. If the sensor is subject to thermal shocks, its detection sensitivity will differ for the duration of the sudden temperature change. Check the environment before using the sensor.
4. Avoid subjecting the sensor wire harness to mechanical stress while connecting to the connector or allowing vibration to transferred from impact, otherwise disconnection or malfunction may result.
5. Support the harness lead-out so that it is not subjected to excessive stress or vibration.

* For other precautions, refer to “General Precautions” for shock sensors.
* For other detailed specifications, refer to the specification sheet of the corresponding model.