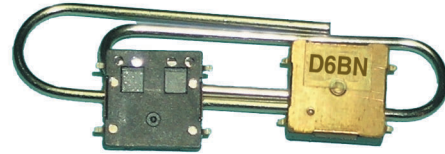


Micro Tilt Sensor D6BN

Surface Mounting Tilt Sensor Fits Space-Confined Installations

- Low profile 2mm
- Detect tilting over a range of 40 to 80 degrees in right-and-left inclination
- Gull wing surface mount terminals
- Wide operating temperature range: -10° to 60°C
- Ideal for PDAs, cell phones and test equipment; digital cameras and video cameras to change aspect ratio automatically; also replaces mercury switches in portable space heaters and gaming machines, such as pinball games, and slot machines
- RoHS Compliant



Ordering Information

Operation angle	Return angle	Output rating	Operating voltage	Model
40° to 80°	50° to 10°	0.4 VDC	2.4 to 3.6 VDC	D6BN-1P

Specifications

■ Absolute Maximum Ratings

Supply voltage range (V_{dd})	-0.1 to 5.0 VDC
Output current (I_{out})	±1 mA
Operating temperature range	-10° to 60°C with no icing
Storage temperature range	-25° to 70°C
Operating/storage humidity range	25% to 85% RH with no icing or condensation

■ Electrical Characteristics

Power supply voltage range	2.4 to 3.6 VDC
Output high voltage	$V_{dd} - 0.4$ V min.
Output low voltage	0.4 V max.
Current consumption	10 μ A max.; 10 μ A typical ($V_{dd} = 3$)

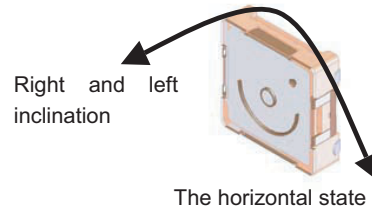
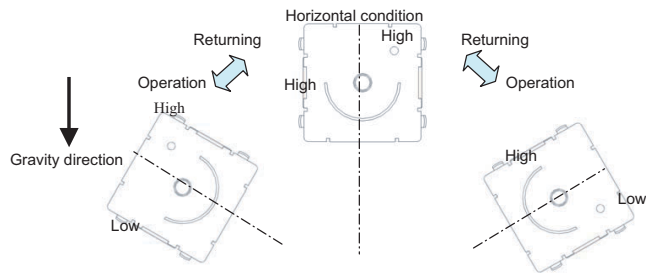
Note: Measured under standard conditions of ambient temperature $\approx 5^{\circ}\text{C}$ to 35°C .

■ Performance

Refer to the drawing on the following page for an operational diagram showing operation and return angles.

Operation angle	40° to 80° (when output goes from High to Low)
Return angle	50° to 10° (when output goes from Low to High)
Vibration resistance	Malfunction: 10-55-10 Hz 1.5 mm single amplitude (3.0 mm double amplitude) for 2 hours, 3-Axis
Shock resistance	Malfunction: 735 m/s ² (approx. 75G)
Electrical life expectancy	100,000 operations min. (15-20 operations/minute)

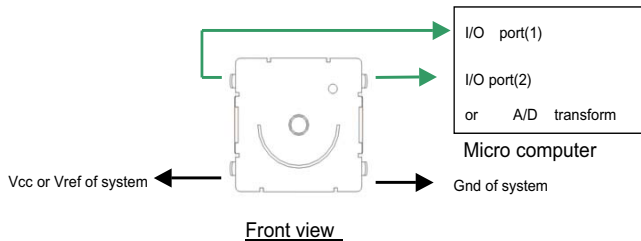
Operation



- Note:**
1. Operation angle: Output goes from High to Low.
 2. Return angle: Output goes from Low to High.
 3. Characteristic values are provided on condition that there is no tilt back and forth while the operation speed is 10° per second.

Installation

Terminal Arrangement



Solder Conditions

In the case of Sn-Pb eutectic solder

	Temperature [°C]	Time[s]
Preheat area	140	90±30
Reflow area	230±5	≤20
Peak temperature	max. 240	≤5

In the case of Pb-free solder

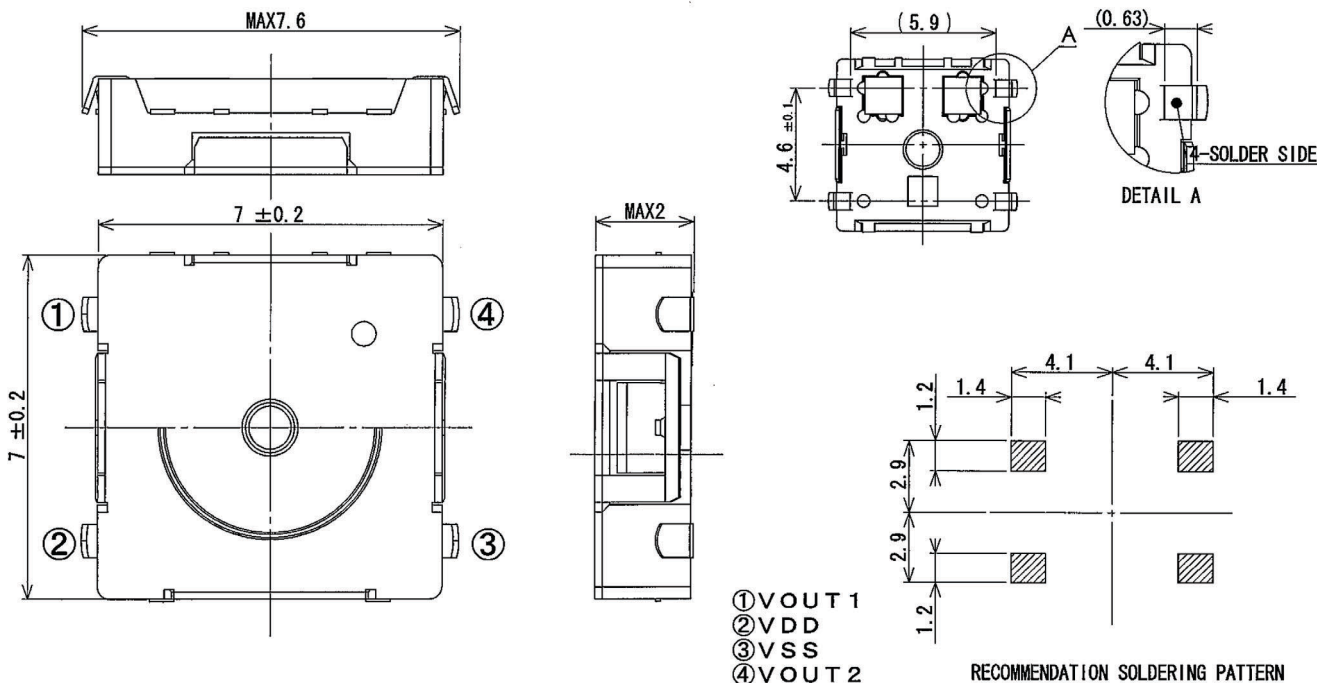
	Temperature [°C]	Time[s]
Preheat area	160 ~ 180	90±30
Reflow area	230±5	≤40
Peak temperature	max. 250	≤10

Reflow times: 2 times max.

Desoldering Conditions with Blower Employed

Desolder the Sensor at a temperature of 240°C within five seconds.
 If a soldering iron is applied manually, desolder the Sensor within 10 seconds at an iron tip temperature of 260°C or within three seconds at an iron tip temperature of 350°C.

Dimensions



Precautions

- The Sensor does not use any materials detrimental to the ozone layer.
- Specifications other than the electrical or mechanical characteristics, external dimensions, or mounting dimensions of the Sensor are subject to change without notice.

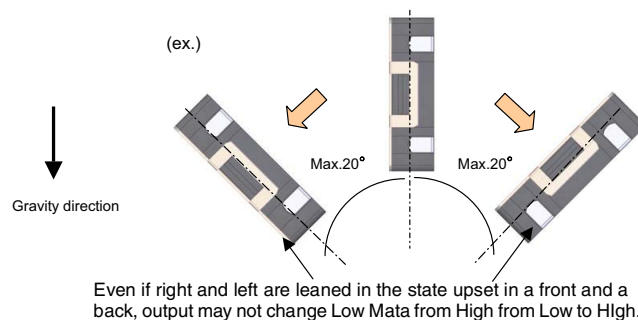
■ Handling Precautions

Operating Environment

- The Sensor consists of a Hall IC and a magnet. Check that the Sensor in operation will not be influenced by any external magnetic fields.
- Do not install any magnetic materials within 2 mm of the Sensor, else the performance characteristics of the Sensor may not be guaranteeable. If there are any objects (e.g. motors and solenoids) generating magnetic fields near the Sensor, operate and test the Sensor before the Sensor comes into actual use.
- Do not apply any voltage exceeding 5V to the Sensor, else the IC may be damaged.
- Do not wash the Sensor after the Sensor is soldered.
- Do not mount or dismount the Sensor while power is flowing to the Sensor.
- The Sensor may generate error signals if impacted at a minimum acceleration of 294 m/s².
- The Sensor may generate error signals if a vibration at a minimum frequency of 15 Hz and a minimum acceleration of 15m/s² is applied to the Sensor.
- Confirm that no static electricity at a maximum voltage of 5kV is applied to the pins, else the IC may be damaged.

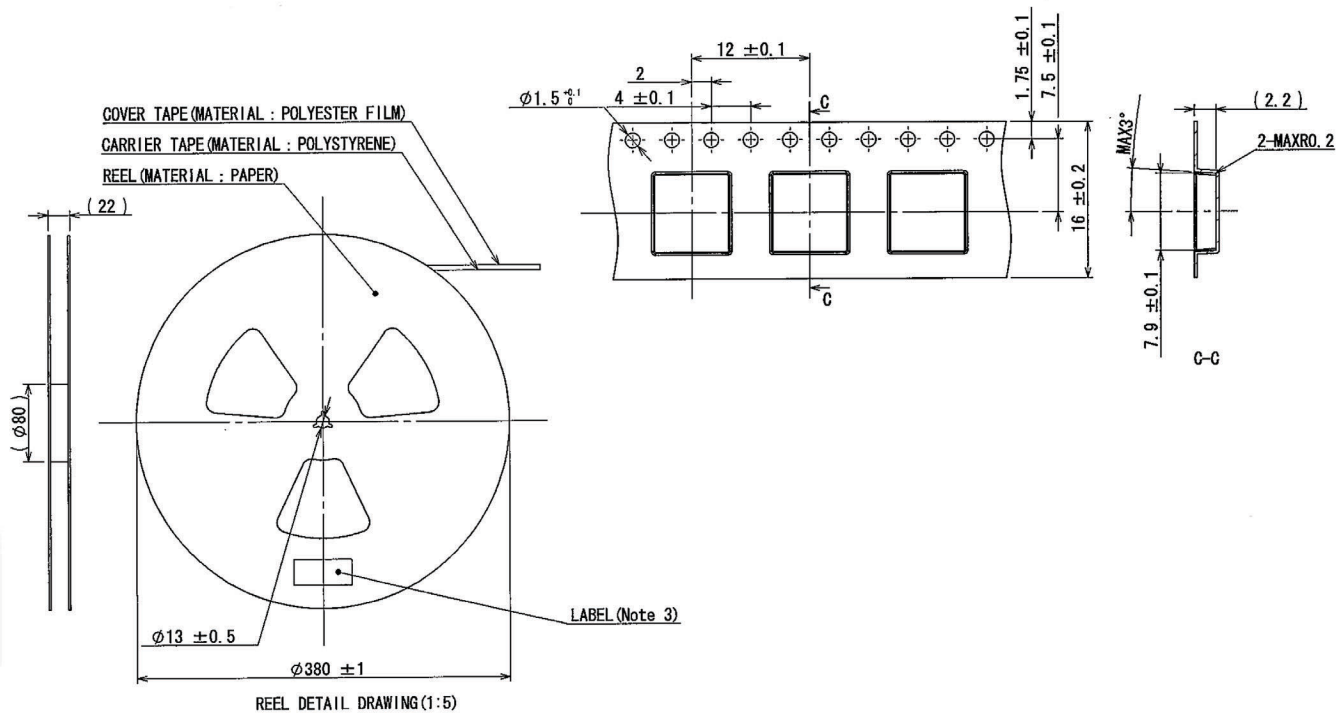
Operating Characteristics

The present output may stay unchanged if the inclination of the Sensor back and forth is 20° or more. Under that condition, the output might not change even when the Sensor is leaned left or right.



Tape Packing

■ Reel Dimensions



- Note:**
1. This Packing conforms EIAJ standard.
 2. This Packing packs up D6BN-□ 2,500 pieces.
 3. Expression of label as follows;
 - TYPE NAME
 - LOT No.
 - NAME OF A COMPANY
 - THE COUNTRY OF ORIGIN

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1. **Definitions:** The words used herein are defined as follows.
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 - (c) **Buyer:** The buyer of Products, including any end user in section III through VI
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 - (b) Delivery and shipping dates are estimates only; and
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01/07

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