Subminiature PCB Mounting Tilt Sensor Discriminating Left or Right Tilt

- Detects the inclination of the Sensor within an activated angle range between 40° and 80° (left and right) and a reset angle range between 50° and 10°
- A subminiature SMD PCB mounting model
- A highly reliable solid-state type by Hall IC
- A surprisingly low power consumption with a maximum of 10μA
- Lead-free

Application Examples

Vertical or horizontal discrimination of digital cameras, PDAs, and cellular phones. Picture viewer, general orientation detection.

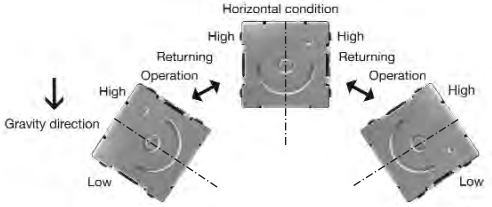
Left and right tilt

Horizontal state

Ordering Information

Output configuration	Model
ON/OFF	D6BN-1

Characteristics

Activated Angle	40° to 80° (left and right)
Reset Angle	50° to 10° (left and right)
	Note: Characteristic values are provided, on condition that there is no tilt back and forth while the operation speed is 10° per second. 
Horizontal State	High-voltage signal output from the terminals on both sides.
Inclined Left or Right	Low-voltage signal output only from the terminals on the side of the moving direction.
Structural Protection	IP40
Operating Temperature	-10°C to 60°C
Storage Temperature	-25°C to 70°C
Operating/Storage Humidity	25% to 85% RH (with no icing/condensation)
Electrical Operations	100,000min (15-20 times/minute)

Electrical Performance

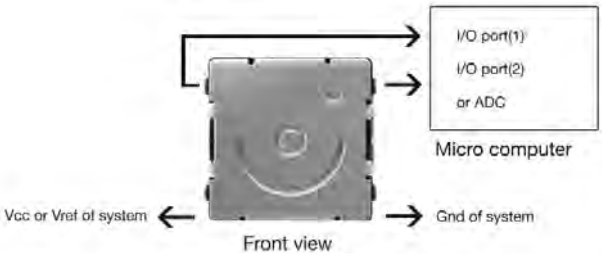
Power Supply Voltage	2.4 to 3.6 VDC
Output Voltage (high, min)	Vdd-0.4V
Output Voltage (low, max)	0.5V
Current Consumption	10 µA max.

Note: Ta = 25˚ and Vdd = 3VDC

Absolute Maximum Ratings

Power Supply Voltage (Vdd)	-0.1 to 5.0 V
Output Current	± 1mA

Electrical Connections



Soldering Condition

1. Recommendation reflow solder condition (infrared rays method). Please set a thermo-couple on either side of the terminals and set the reflow profile as follows.

***In the case of Sn-Pb eutectic solder**

	Temperature °C	Time/sec
Preheat Area	140	90±30
Reflow Area	230±5	≦20
Peak Temperature	max. 240	≦5

***In the case of Pb-free solder process**

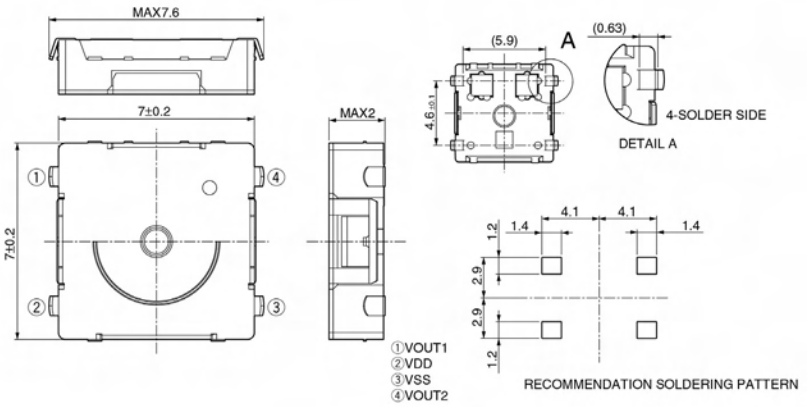
	Temperature °C	Time/sec
Preheat Area	160 – 180	90±30
Reflow Area	230±5	≦40
Peak Temperature	max. 250	≦10

*Reflow times: Less than 2 times

2. Hot air re-work system ≦240°C for ≦5 seconds.

3. Manual Soldering ≦260°C for ≦10 seconds or ≦350°C for ≦3 seconds.

Dimensions



Cautions

- 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

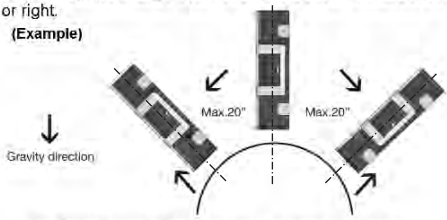
Operating Environment

- 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, as the Sensor may be damaged by fire.
- Do not wash the Sensor after the Sensor is soldered. Solvents may damage the sensor as it is not fully sealed.
- 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/s^2.
- The Sensor may generate error signals if a vibration at a minimum frequency of 15 Hz and a minimum acceleration of 15m/s^2 is applied to the Sensor.
- Confirm that no static electricity at a maximum voltage of 5kV is applied to the pins, else the Sensor may break.

Operating Characteristics

The present output may be kept if the inclination of the Sensor back and forth is 20 º or over. Under that condition, the output may not change even when the Sensor is leaned left or right.

(Example)



If the Sensor is kept inclined back or forth as shown in the above illustration, the level of output may not change from high to low or low to high when the Sensor inclines left or right.

Change in specifications - Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your Omron representative at any time to confirm actual specifications of puchased product.
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ALL DIMENSIONS SHOWN ARE IN MILLIMETRES.
To convert millimetres into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

CAT. No. F063-E2-01