



B&B Leiterplattenservice GmbH
Leipziger Strasse 40
09648 Mittweida
Germany

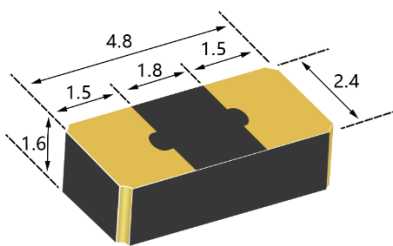
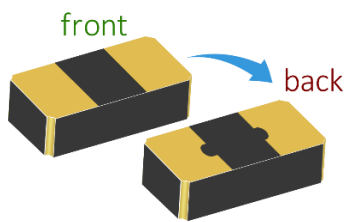
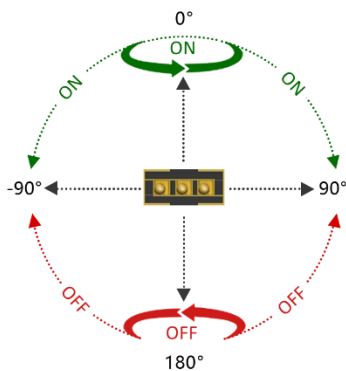
Phone ++49 3727 6297 0
Fax ++49 3727 6297 24
info@bb-gruppe.de
www.bb-gruppe.de

DATASHEET

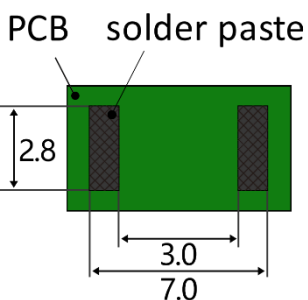
Tilt Sensor
TVS1024.90

Product Data Sheet			
Product	Tilt sensor	Type	TVS1024.90
Operating Voltage	0.5 – 24 VDC	Operating Current	0.2 μA – 10 mA
Contact Resistance	< 30 Ω (in closed state)	Insulation Resistance	> 10 MΩ
Switch Angle	90° ± 5°	Operating Temperature	-20°C – 85°C

Functional Schematic



unit: mm
tolerance: ±0.1 mm



Basic Function

MVS1024.90 is a highly reliable tilt sensor, using 3 micro balls in a double pad design. When the front side is facing upwards in the range of 0° ± 90°, the switch is in a stable closed state (ON). When the switch is tilted to any direction more than 90° the circuit is disconnected (OFF).

Product Characteristics

- Three sets of switches are integrated in parallel to offer excellent reliability in the ON-state (0° ± 90°).
- Thanks to the integrated design and vacuum encapsulation the switch is waterproof and protected from oxidation
- Inner core beads and contact surfaces are gold plated, offering ver low contact resistance and long-term service life
- Fully automated production and multi-angle full inspection performed by a rotation tester

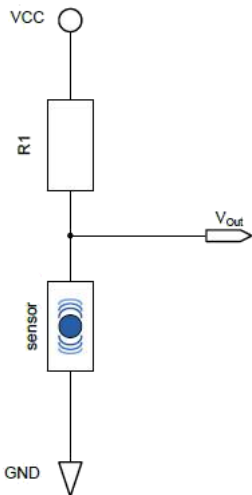
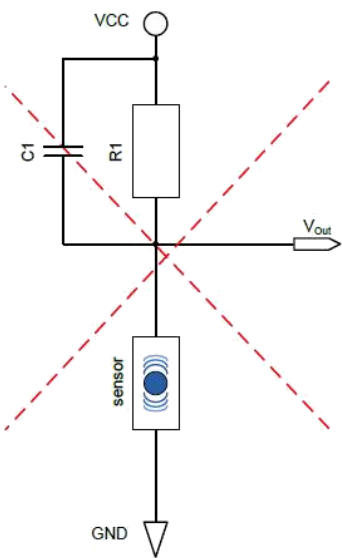
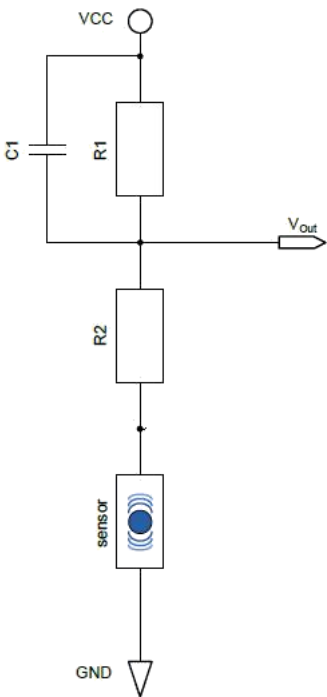
Application Scenarios

This switch can be used for tilt and flip detection, for example to safely power off home appliances like heaters, humidifier, clothes dryers, irons, electric fans, air fryers, juicers or to detect open lids for disinfection products.

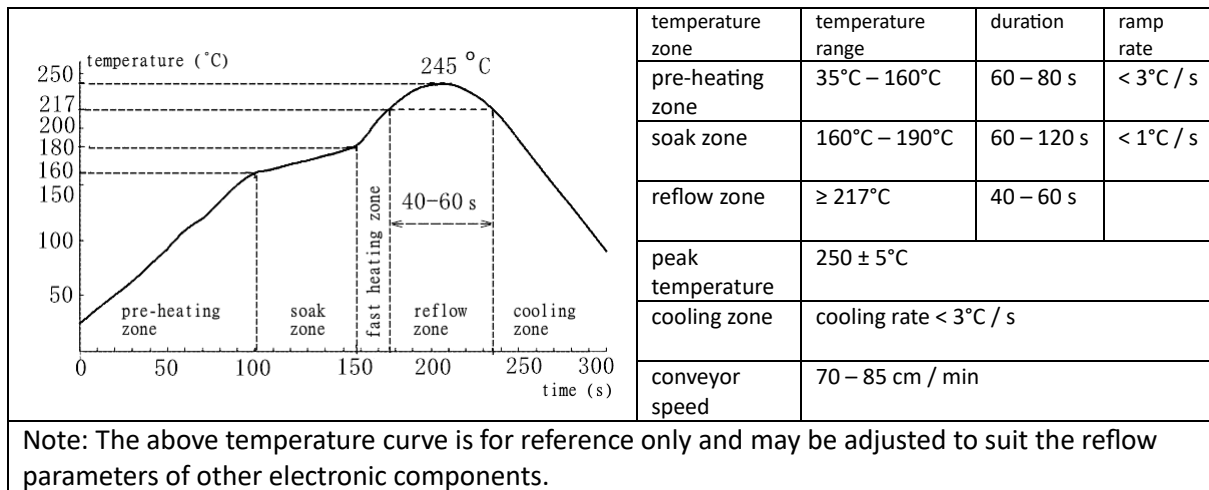
Product Description

material description	<ul style="list-style-type: none"> - Built-in micro spheres: brass, gold-plated - Body: IC substrate - Contacts: copper, gold-plated <p>All materials meet the environmental protection requirements of ROHS and REACH and are halogen-free.</p>
soldering instructions	<ul style="list-style-type: none"> - manual soldering: peak temperature 350°C, duration 2-3 seconds - reflow soldering: peak temperature 250 ± 5°C <p>(Note: the soldering conditions of this sensor are designed according to common soldering parameters and should be verified by the customer in advance.)</p>
lifetime	<p>The built-in micro spheres, inner- and outer contact surfaces are gold-plated. Reliable sealing makes the sensor waterproof and prevents oxidation and contamination within the bead chambers. This results in exceptional service life. Mechanical lifetime: 1 million tilts (one tilt is the movement from flat state to 90° angle). Special requirements can be catered for.</p>
conductivity	<p>In the normal position ("ON") the sensors are electrically closed in 99.9% of the time.</p>
high-temperature and -humidity test	<p>Sensors were conditioned at 70°C, 90% RH for 30 days. Afterwards the sensors were tested at room temperature for 2 hours. The sensors provided a contact resistance of <30 Ω when closed and met the electrical performance criteria.</p>
packaging	<p>Standard reel: 2,500 pcs / reel</p> <p>The orientation of the parts inside the reel can be specified by the customer.</p>

Reference circuit

		
basic circuit	not recommended	filter circuit (capacitor C1 value less than 104)

Reflow Temperature Profile



Application Notes

1. Do not flush the sensor with solvent or clean water after the soldering process is completed.
2. Do not leave the products in a high temperature and humidity environment for long periods and seal the remaining products in time to avoid poor solderability.
3. Ensure that the sensor surface is not covered in condensation or immersed in water, otherwise the sensor will stay in contacting state (closed state), which will affect the use.
4. The working environment of this product should avoid strong magnetic fields as much as possible, otherwise it may cause abnormal operation. If a strong magnetic environment is unavoidable, please consult our technical staff in advance.
5. When this product is applied to equipment related to life safety and high reliability and durability, consult our technical staff in advance.

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Mailing Address:

B&B Leiterplattenservice GmbH, Leipziger Str. 40, 09648 Mittweida, Germany