PRODUCT BRIEF

XENSIV™ TLV55624-1O magnetic switch

TMR-based magnetic switch with ultra-low power consumption in a tiny XQFN package

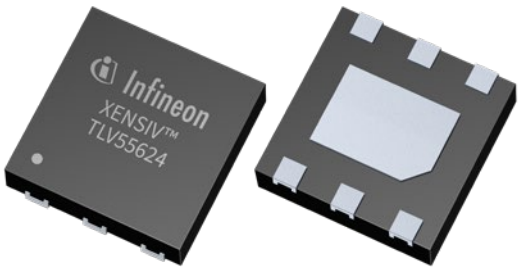
The XENSIV™ TLV55624-1O is a TMR-based ultra-low-power magnetic switch, specifically designed for space- and energy-constrained applications such as wearables, medical disposables, smart home and other IoT devices. With a low power consumption of just 7 nA, it significantly extends the operating time and shelf life of battery-powered systems, making it ideal for power-sensitive designs.

Operating from a 1.1 V to 3.6 V supply, this switch is compatible with modern low-voltage architectures and supports the use of cost-effective battery cells. Its robust output stage can deliver up to 50 mA continuous current, eliminating the need for external transistors. This streamlines the bill of materials (BOM) and helps save board space. Additional dedicated pins allow designers to lock the output state or force the device into deep sleep mode for additional flexibility in storage, production and operation.

Engineered for ease of use, the TLV55624-1O features an omni-polar sensing capability allowing response to both north and south magnetic poles, simplifying magnet selection and assembly. The sensor also supports horizontal sensing for in-plane magnetic field detection, making it ideal for designs with sliding, folding, or rotating elements overcoming any design constraints.

Housed in a tiny PG-XQFN-7-1 package (1.50 x 1.50 x 0.38 mm^3), it enables exceptionally dense layouts and slim designs, ideal for applications such as eyewear temples, wearable patches or compact sensor modules. The small footprint improves magnetic coupling, facilitating the use of smaller, more cost-effective magnets. Its low z-height supports ultra-thin assemblies, while the wide -40°C to +85°C operating temperature range ensures high reliability.

The XENSIV™ TLV55624-1O magnetic switch empowers engineers to overcome traditional trade-offs between size, power, and complexity. By integrating both sensing and drive functions in a single component, it is the perfect choice for advanced battery-powered applications, including hearing aids, medical disposables, AR/VR devices, and other space-constrained designs.



Key features

- Ultra-low power consumption: ~7 nA
- Continuous output current up to 50 mA
- Supply voltage range: 1.1 V to 3.6 V
- Dedicated pins for extended functionalities:
  - Lock output state
  - Force sensor to sleep mode
- Tiny PG-XQFN-7-1 package (1.50 x 1.50 x 0.38 mm^3)
- Omnipolar magnetic switch
- Wide operating temperature range: -40°C to +85°C

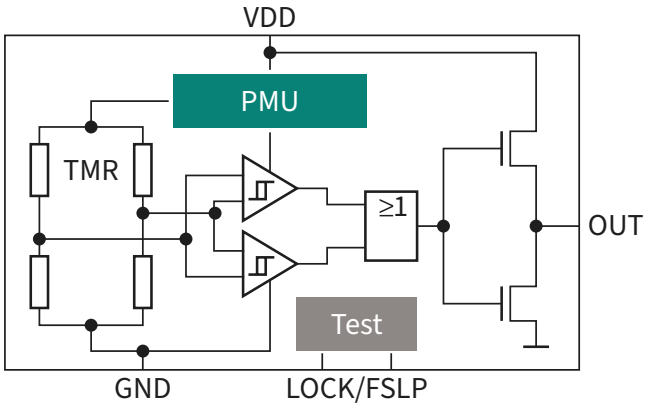
Key benefits

- Significantly extended operation time / shelf-life, which is especially important for battery-powered applications
- High output current to drive loads directly, eliminating the need for external transistors on system level
- Supply voltages down to 1.1 V enable cost-efficient battery cells
- Space savings on the PCB and ideal for extremely small form factors

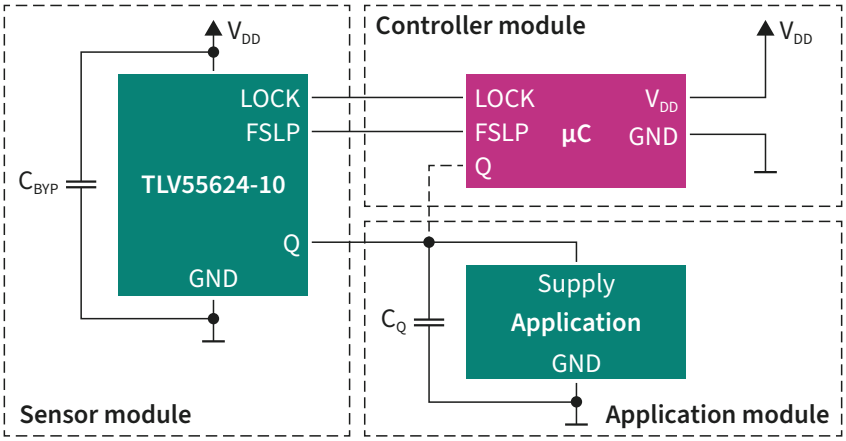
Continuous glucose monitor | Smart glasses | Smart home | IoT

www.infineon.com/magnetic-switches

Block diagram



Example application diagram



Ordering information

Product Name	Ordering Code	Supply voltage [V]	B_{OP} [mT]	B_{RP} [mT]	Consumer	Package
TLV55624-1O	SP006114849	1.1 – 3.6	±1	±4.5	✓	PG-XQFN-7-1

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