Product brief

3D magnetic sensor family

TLE/TLI/TLV493D family for consumer, industrial and automotive applications

Infineon’s new 3D magnetic sensor family TLE/TLI/TLV493D offers accurate three-dimensional sensing with extremely low-power consumption. Within its small 6-pin package the sensor provides direct measurement of the x-, y-, and z components of a magnetic field.

Thus the sensor family is ideally suited for the measurement of:
› 3 dimensional movement within a magnetic field
› Linear slide movement
› 360° angle rotation

By combining 3-axis measurement in a small package, with low power consumption, the TLE/TLI/TLV493D sensors provide a contactless position sensing alternative to applications which traditionally use mechanical or optical solutions. The system size for these applications can be reduced as magnetic threshold stability over temperature provides a highly accurate and more robust solution for those systems.

Infineon’s sensor provides a standard 2-wire digital I²C communication interface, which enables a bi-directional communication between the sensor and microcontroller.

In keeping with the highest quality standards and environmental regulations, the sensor is RoHs compliant, JESD47 or AEC-Q100 qualified and supports system according functional safety standard ISO 26262.

Key features

› 3-dimensional magnetic field sensing (Bx, By and Bz)
› Integrated temperature sensing
› Low-current consumption
  – 7 nA in power down mode
  – 10 μA in low power operation at 50 Hz
› 2.8 to 3.5 V operating supply voltage
› Digital output via 2-wire standard I²C interface
› Bx, By and Bz linear field measurement up to ±160 mT
› 12-bit data resolution for each measurement direction
› Resolution 130 μT/LSB (optional 65 μT/LSB)
› Sample rate 0.04 … 8.4 KHz
› TSOP6 package
› Operating temperature range from -40°C to 125°C

Key applications

Consumer and industry
› Joystick e.g. finger, thumb and gaming paddles
› E-meters e.g. anti-tampering
› Control elements e.g. white goods, multifunction knob

Automotive
› Control elements for infotainment/navigation systems, air conditions, multifunctional steering wheels or light switches
› Top column module, e.g. direction indicator, wiper control
› Gear stick position sensing

www.infineon.com/3Dmagnetic
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Please note:

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Additional information

For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings

Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by us in a written document signed by authorized representatives of Infineon Technologies, our products may not be used in any life-endangering applications, including but not limited to medical, nuclear, military, life-critical or any other applications where a failure of the product or any consequences of the use thereof can result in personal injury.

Product summary

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<td>Supply voltage</td>
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<td>Typ. supply current – power down mode</td>
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<td>Minimum usable magnetic linear range</td>
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<td>Maximum magnetic resolution</td>
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1) TLV493D-A2B6 same parameters

Type | ISO 26262 support | Additional features | AECQ100/JESD47 | Ordering code |
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