

## Product Brief

# 3D magnetic sensor

TLV493D-A1B6 for consumer and industrial markets

The 3D magnetic sensor TLV493D-A1B6 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 magnetic field components, making it ideally suited for the measurement of:

- > 3D movement
- > Linear travel
- > 360° angle rotation

By combining 3-axis measurement in a small package, with low power consumption, the TLV493D-A1B6 provides contactless position sensing to applications currently using potentiometers or optical solutions. System size can be reduced, as magnetic threshold stability over temperature provides a more accurate and robust solution for these systems.

The sensor provides a standard 2-wire digital I2C interface, which enables high speed bi-directional communication between the sensor and microcontroller.

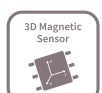
In keeping with the highest quality standards and environmental regulations, the sensor is RoHS compliant and JESD47 qualified.

### Key applications

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

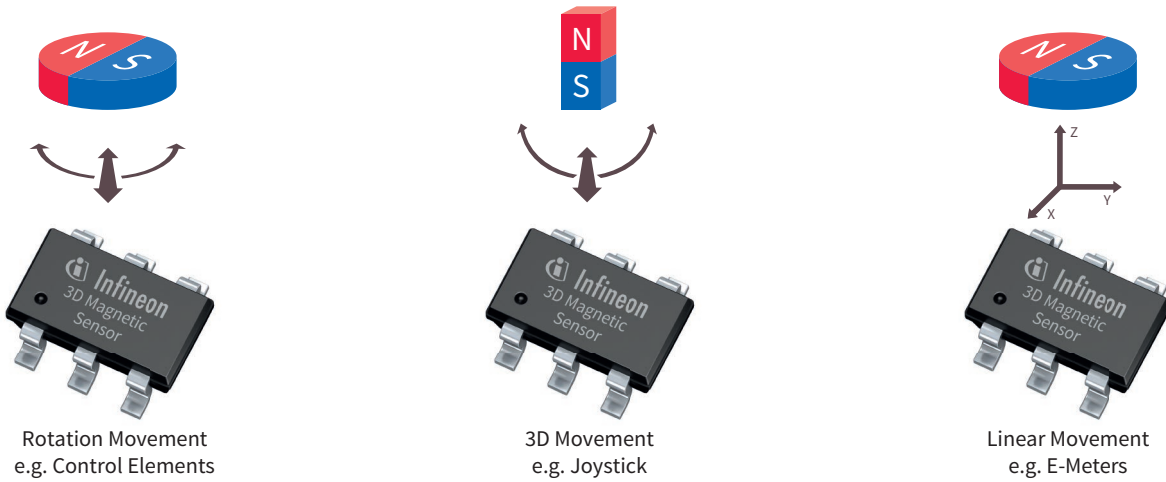
### Key features

- > 3D magnetic sensing
- > Integrated temperature sensing
- > Low current consumption
  - 0.007  $\mu$ A in power down mode
  - 10  $\mu$ A in ultra low power mode
- > 2.7 to 3.5 V operating supply voltage
- > Digital output via 2-wire standard I<sup>2</sup>C interface
- > Bx, By and Bz linear field measurement up to  $\pm$ 130 mT
- > 12-bit data resolution for each measurement direction
- > Resolution 98  $\mu$ T/LSB
- > Operating temperature range from -40 °C to 125 °C
- > TSOP6 package



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## Product summary

Parameter	Typ.	Unit
Supply voltage	2.7-3.5	V
Supply current – power down mode	7	nA
Supply current – ultra low power mode	10	µA
Supply current – power mode	100	µA
Supply current – fast mode	3.7	mA

Parameter	Typ.	Unit
Usable magnetic linear range – Bx, By and Bz	±130	mT
Magnetic offset error	±0.2	mT
X to Y static channel matching	±5	%
X/Y to Z static channel matching	±20	%

Type	Temperature range	Qualification	Package	Ordering code	Samples	Start of production
TLV493D-A1B6	-40 °C to 125 °C	JESD47	TSOP6	SP001286056	Available	In production
TLE493D-A1B6	Automotive qualified version				Available	July 2016

Published by  
Infineon Technologies AG  
85579 Neubiberg, Germany

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