PRODUCT BRIEF

XENSIV™ - TLE493D-P3I8 3D magnetic sensor

Highly accurate 3D magnetic sensor with SPI interface and ISO 26262 compliance

Infineon's XENSIV TLE493D-P3I8 magnetic 3D sensor, built on robust Hall technology, delivers accurate measurements of magnetic fields in three orthogonal dimensions, making it an ideal choice for a wide range of applications.

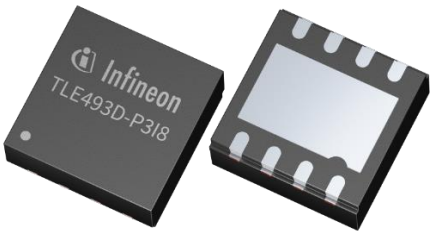
3D magnetic sensors are perfectly suited for:

- 3-dimensional movement within a magnetic field
- Linear slide movement
- 360° angle rotation (end of shaft and out of shaft)

The TLE493D-P3I8 sensor supports functional safety applications up to ASIL B, thanks to its built-in diagnostic functions and full ISO 26262 compliance. It also meets the requirements for automotive use and has been validated according to AEC-Q100 standard.

The sensor's wake-up feature enables efficient energy management, making it perfect for low power designs that require both precision and reliability. Additionally, its 2 MHz SPI interface ensures fast data read-out and efficient measurement control.

The sensor is housed in a compact, non-magnetic VSON-8-2 SMD package, with a footprint of just 3x3mm that minimizes PCB space requirements.



Key features

- Best accuracy package-size fit
- Supply voltage 3.3 V and 5 V
- ISO 26262 compliant (ASIL B)
- Magnetic field range selectable
- Wake-up feature
- Integrated temperature measurement
- Operating temperature -40°C to 150°C
- 2 MHz SPI interface

Key benefits

- Broad application range
- Small PCB footprint
- Wide supply voltage range (2.8…5.5V)
- Enables cost efficient magnetic design
- Functional safety compliance
- Low power consumption
- Demo-boards, code examples available

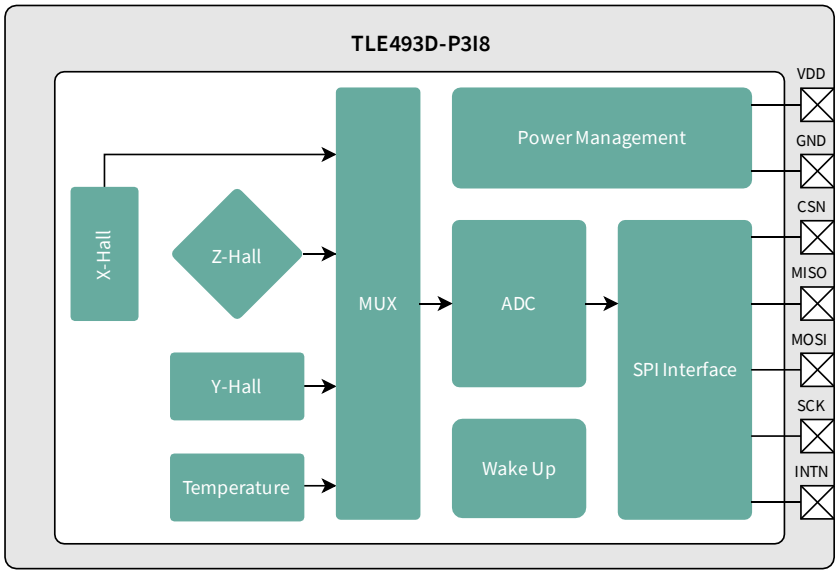
Control elements Robotics PRO SIL ISO 26262 compliant RoHS AEC Qualified

PRODUCT BRIEF

Key Applications

- Automotive control elements (infotainment, navigation, seats, air-condition, …)
- Top Column Modules (Direction indicator, wiper control, etc.)
- E-Shifter / Gear Selector
- Joysticks
- Robotics

Block diagram



Key Parameters

Type	Supply Voltage [V]	Temperature [°C]	Magnetic range (selectable) [mT]	Sensitivity [LSB_{14}/mT]	Matching drift X to Y [%]	Matching drift X/Y to Z [%]
TLE493D-P3I8	2.8 – 5.5	-40…150	±50 ±100 ±160	29.5/59/118	1.7	6.75

Published by
Infineon Technologies AG
Am Campeon 1-15, 85579 Neubiberg
Germany

© 2024 Infineon Technologies AG
All rights reserved.

Public

Version: V1.0_EN
Date: 02/2025

Scan QR code and explore offering
www.infineon.com

Please note!
This Document is for information purposes only and any information given herein shall in no event be regarded as a warranty, guarantee or description of any functionality, conditions and/or quality of our products or any suitability for a particular purpose. With regard to the technical specifications of our products, we kindly ask you to refer to the relevant product data sheets provided by us. Our customers and their technical departments are required to evaluate the suitability of our products for the intended application.

We reserve the right to change this document and/or the information given herein at any time.

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.