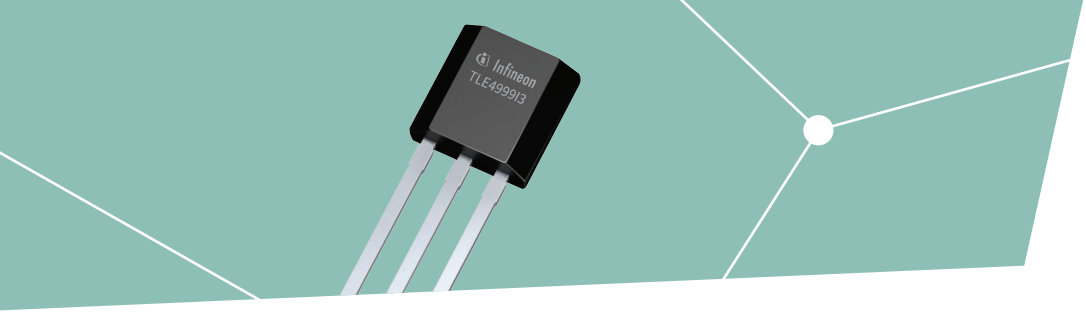


Product brief

TLE4999I3

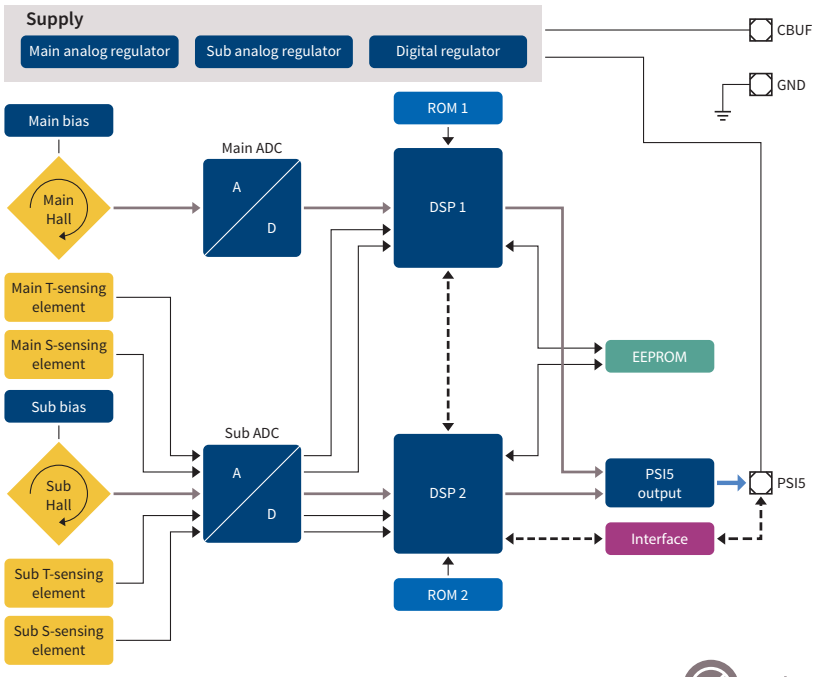
XENSIV™ magnetic position sensors – world's first fully ISO 26262 compliant linear Hall sensor for high precision applications

Infineon's new TLE4999I3 is a dual channel linear Hall sensor designed to meet the requirements of safety critical automotive and industrial applications.
It is developed in full compliance with ISO 26262 by means of two sensor elements included within one monolithic silicon design. In order to ensure diversity, the sensor cells are designed in a complementary way. Their signals follow two independent analog paths. Each signal path has its own digital signal processing unit to ensure maximum independency – redundancy, respectively.

Our XENSIV™ TLE4999I3 provides all measures that are necessary to fulfill the state-of-the-art safety requirements on system level and furthermore enables for ASIL-D system developments

- Separate analog supply domains controlled by two regulators feed independent biasing units for the main and sub Hall sensor elements
- Two analog-digital converters ensure the separation of the sensor signals
- The integrated digital signal processors use dedicated temperature and stress parameters-stored in separated EEPROM areas – for compensation of their assigned Hall sensor signals to minimize these effects
- The digital protocol contains a common 7-bit checksum ensuring error-free data transmission

Simplified block diagram TLE4999I3



Key features

- Fully ISO 26262 compliant, supports ASIL-D systems
- < 2 % sensitivity drift, < 100 µT offset drift over temperature and life time specification
- Integrated digital temperature- and stress-compensation
- Fast communication protocol complies with PSI5 v2.1 with a bit rate of 189 kbps

Key benefits

- High diagnostic coverage, ISO 26262-compliancy and dual sensor cell integration enable for ASIL-D system development
- PSI5 interface saves wiring and improves EMC behavior
- SSO-3 package enables for flexible adaptation outside printed circuit boards

Key applications

- Automotive safety critical applications
- Linear movement position sensing
  - Electric Power Steering (EPS)
  - Pedal position
  - Electrical throttle control
- Industrial safety applications

AEC Qualified

Linear Hall

Halogen-Free

Lead-Free

ISO 26262

www.infineon.com/linear-hall

TLE4999I3

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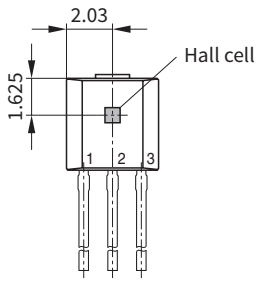
Infineon ISO S26262 dual channel linear Hall product portfolio

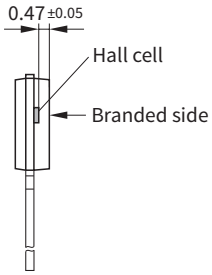
Sales name	Technology	Interface	Magnetic linear range [mT]	Sensitivity	Sensitivity drift [1] [%]	Gain	Magnetic offset drift [1] [µT]	Supply voltage (extended range)	ISO 26262	Ordering code	Package
TLE4997A8D	Hall	Analog ratiometric	50 100 200	±60 mV/mT default for 100 mT range, with gain 1.5	±3	±4	< ±400	5 V ±10% (7 V)	ISO 26262 ready	SP000902760	TDSO-8
TLE4998P8D	Hall	Digital Interface PWM	50 100 200	±48 LSB12/mT default for 100 mT range, with gain 1.5	±2	±4	< ±400	5 V ±10% (16 V)	ISO 26262 ready	SP000902776	TDSO-8
TLE4998S8D	Hall	Digital Interface SENT								SP000902784	
TLE4998C8D	Hall	Digital Interface SPC								SP000902768	
TLE4999I3	Hall	Digital Interface PSI5	12.5 25	±147.5 LSB13/mT default for 25 mT range with gain 1	±2	±5	< ±100 / < ±200 [2]	5.5-7.0 V ±10% (16.5 V)	ISO 26262 compliant	SP001689862	SSO-3-12

1) Maximum over drift over temperature and life time
2) Main channel/sub channel

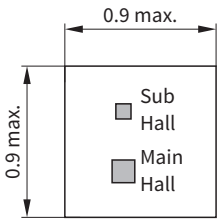
Package drawings explaining the benefit of Infineon's monolithic solution, versus dual die approach, enabling for space saving leaded option



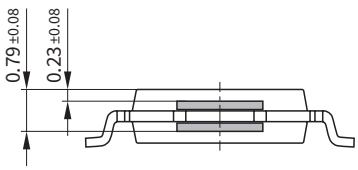
Hall cell placement
Monolithic TLE4999I



Hall cell



Dual sensor cell
Dual die TLE4997A8D, TLE4998x8D



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