



TLE4997

Programmable Linear Hall Sensor

OUR TLE4997 is a new high precision 12-bit linear Hall sensor with outstanding programmable functions.

Applications

- Linear and angular position sensing
 - Pedal & throttle position
 - Suspension control
 - Steering angle
 - Headlight leveling
 - Seat position or occupation detection
- High current sensing
 - Battery management
 - Motor control
 - Electronic fuse

Features

- Fully digital signal processing up to 20 bit
- 12-bit overall resolution at wide output range
- Low ratio-metric error, low integral & excellent differential nonlinearity
- 3 magnetic ranges: $\pm 50/100/200$ mT
- Fully digital and deterministic second order temperature compensation
- Wide temperature range -40°C to 150°C
- Low zero field offset and exceptional low offset drift
- On board diagnostics for pull-up and pull-down loads, over/under voltage detection
- Mechanical robustness
- EMC, micro-break, reverse polarity and short circuit robustness on all pins
- Ultra low noise measurement
- Parameter EEPROM with single bit error correction

PG-SSO-3-10



Benefits

- Allows stable reproduce able operation and precise deterministic parameter setting
- Wider usable output voltage range near supply and/or ground level
- True and reliable 12-bit performance on the analog output
- Flexible adaptation to various magnetic configurations
- Allows the thermal compensation of complex magnetic circuits with high accuracy without any setup loops
- Full automotive operation range
- Provides an accurate calibration setup and constant acquisition accuracy over temperature, stress and lifetime
- Allows wire breakage, sensor supply regulator failures and short circuit detection for a large amount of application circuits
- Very low drifts due to mechanical stress
- Robust for automotive environments, survives voltage drops without losing the output value
- Allows acquisition at higher bandwidth for shorter signal delays
- Simple and reliable calibration, high data retention - additionally protected by an internal forward error correction

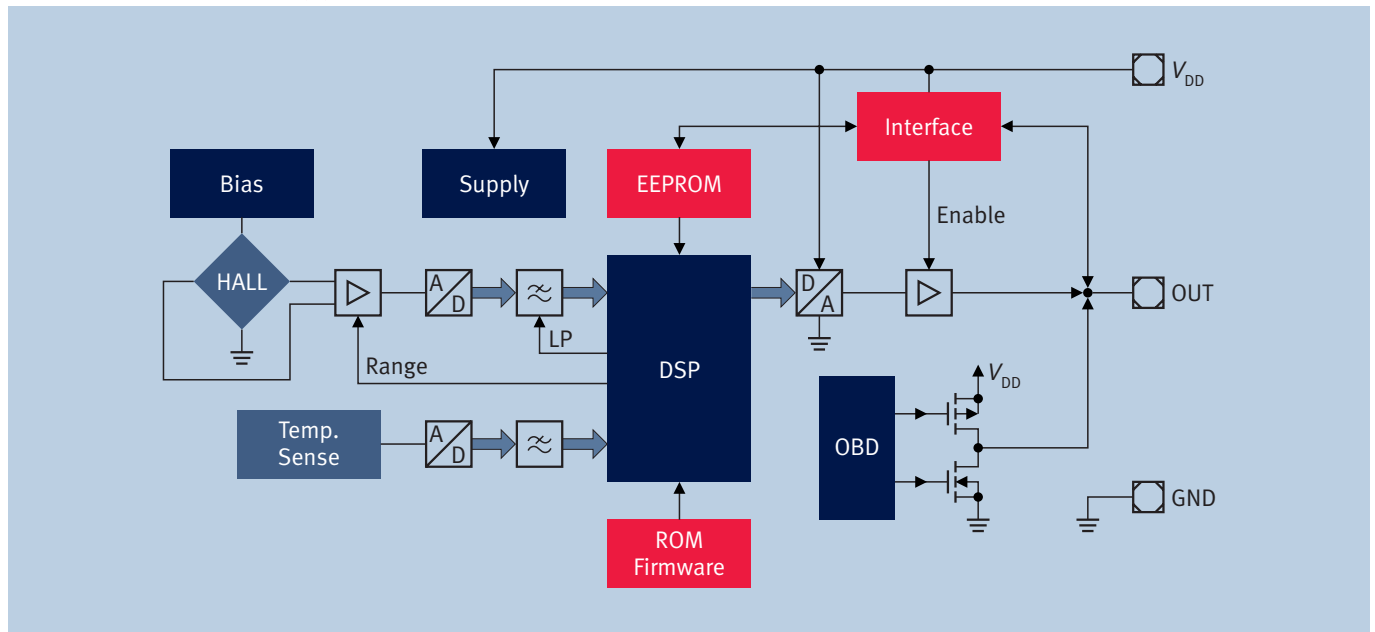
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Sensors



Never stop thinking

Block Diagram TLE4997



Circuit Description

The linear Hall IC TLE4997 has been designed specifically to meet the demands of highly accurate rotation and position detection, as well as for current measurement applications.

The sensor provides a ratiometric analog output voltage which is ideally suited for A/D conversion with the supply voltage as a reference.

The IC is produced in BiCMOS technology with high voltage capability and also providing reverse polarity protection.

Digital signal processing using a 16-bit DSP architecture and fully predictable, digital temperature compensation guarantee an excellent long-time stability without any drifts compared to analog systems.

The minimum overall resolution is 12 bits. Nevertheless some internal stages work with resolutions up to 20 bits.

Ordering Information

Type	Ordering Code	Package
TLE4997	Q627005-K771	PG-SSO-3-10

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