

Product Brief

TLE496x-xM

High Precision Automotive Hall Effect Sensor for 5V Applications

TLE496x-xM is an integrated Hall effect sensor specially designed for highly accurate applications. The sensor provides an easy-to-use and cost effective solution for position sensing applications, requiring high temperature stability of the magnetic threshold.

Target applications for the TLE496x-xM Hall switch family are all applications, requesting a precision Hall latch or Hall switch with an operating temperature from -40 °C to 170 °C. By offering an excellent magnetic behavior Infineon's switches are ideally suited for:

- Index counting applications with a pole wheel
- Rotor position detection (BLDC motors)
- Open/close detection

Responding to the market requirements of automotive applications the TLE496x-xM provides a cost optimized solution with very low current consumption (1.4 mA) and superior ESD protection (up to 4 kV HBM). The sensor family enables the design of highly power efficient and robust systems in line with a very low failure rate in production.

Furthermore it supports applications requiring operating supply voltage from 3.0 V to 5.5 V. The extremely small SOT23 SMD package (just 2.9 x 1.3 x 1.0 mm) is dedicated for the design of very small and compact application circuits.

To enable our customers' systems fulfilling the highest quality standards and various environmental regulations: the SOT23 package is halogen free, RoHS compliant and AEC-Q100 qualified.

Applications

- Brushless DC motor commutation
- Power closing in automotive automation, e.g. window lifter, sunroofs
- Position detection, e.g. switch position, gearstick position

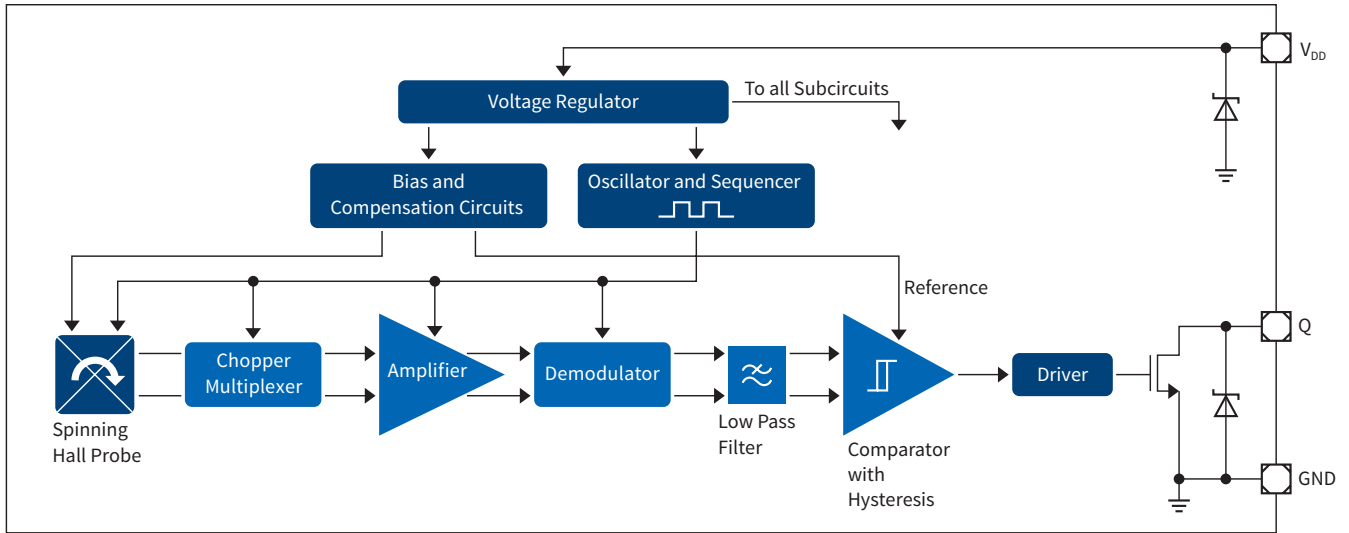
Key Features

- 3.0 V to 5.5 V operating supply voltage
- Low current consumption 1.4 mA
- ESD protection 4 kV HBM
- Active error compensation (chopped)
- High stability of magnetic thresholds
- Low jitter (typ. 0.35 μs)
- Operating temperature range from -40 °C to 170 °C
- Small SMD package SOT23
- AEC-Q100 qualified

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Block Diagram TLE496x-xM



Infinion’s latest TLE496x-xM products are dedicated for automotive applications requiring an operating supply voltage from 3.0 V to 5.5 V. The family comprises integrated Hall effect sensors, with a latch or Hall switch characteristic and highly accurate switching thresholds for operating temperature up to 170 °C. The chopped Hall IC switch comprises a Hall probe, bias generator, compensation circuits, oscillator and output transistor. The bias generator provides currents for the Hall probe and the active circuits.

The temperature behavior is stabilized by compensation circuits. The active error compensation (chopping technique) rejects offsets in the signal path and minimizes the influence of mechanical stress to the Hall probe caused by molding and soldering processes or other thermal stress in the package. The chopped measurement principle together with the threshold generator (comparator with hysteresis), and the comparator ensures highly accurate and temperature stable magnetic thresholds.

Product Summary

Type	Description	Package	Packing	Ordering Code
TLE4963-1M	2.0 mT latch	SOT23-3-15	Blister	SP000930182
TLE4963-2M	5.0 mT latch	SOT23-3-15	Blister	SP000978614
TLE4965-5M	7.5/5.0 mT unipolar switch	SOT23-3-15	Blister	SP000978610

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