Product Brief

TLE4922

Highly robust, easy-to-use mono-Hall speed sensor with Twist Independent Mounting (TIM) mounting for 2-wheeler, automotive vehicle speed and industrial application

TLE4922 is a mono-Hall sensor which detects motion and position of ferromagnetic magnet structures by measuring the change of the magnetic field induced by this structure. The ferromagnetic structure can be a magnetic encoder wheel, ferromagnetic gear wheel or any similar structure.

The sensor is specially designed to provide an easy-to-use, robust and cost effective solution for vehicle or industrial speed sensing applications. As thus TLE4922 can be back biased, using a simple, low-cost bulk magnet while providing good air gap performance and switching accuracy. It is resistant against vibration during startup calibration. Its hidden adaptive hysteresis algorithm ensures a good accuracy over airgap jumps, vibrations, run-out events, and more.

With the use of a mono-cell design, the TLE4922 is the perfect choice for applications requiring Twist Independent Mounting (TIM). As a result, the TLE4922 is well suited for replacing passive sensors like variable reluctance (VR) sensors, in automotive and 2-wheeler applications by providing the user with higher accuracy and better jitter performance. In most vehicle speed applications accuracy and jitter performance are especially critical at lower speed/rotation frequency, here the TLE4922 provides all its advantages over passive solutions.

Furthermore special care has been taken to equip the sensor with sophisticated protection technologies, improved EMC, ESD and temperature robustness, well suited for usage in harsh environmental conditions prevalent in automotive or dedicated industrial applications. The TLE4922 is delivered in a thin 4-pin SSO-4-1 package using a standard 3-wire voltage interface.

Features

- Large operating air gap capability
- Twist independent mounting
- Hidden adaptive hysteresis
- Resistant against vibration during startup calibration
- Low current consumption
- Reverse magnetic polarity capability
- Sophisticated protection technology
  - Reverse voltage protection at V_S-pin
  - Short circuit protection
  - Overtemperature protection
- Wide operating temperature ranges of \(-40°C \leq T_j \leq +150°C\)
- High ESD robustness up to \(\pm 4\) kV HBM
- 3-wire PWM voltage interface

TLE4922: Typical sensor setup for gear wheel application with back bias magnet and magnetic encoder wheel application

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TLE4922 block diagram

TLE4922 in a 2-wheeler application

Product summary

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<td>TLE4922 mono-Hall speed sensor</td>
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