

ATS673 and ATS674

Self-calibrating gear-tooth sensors feature true power-on state recognition
- speed sensing solution is optimised for automotive cam sensing applications -

The new ATS673 and ATS674 gear-tooth sensors from Allegro MicroSystems Europe are designed to operate with true power-on state (TPOS) recognition, and include a self-calibrating feature in running mode that improves accuracy performance over a wide temperature and air-gap range.

The new sensors are based on a packaging concept that integrates the magnet, Hall sensor and a monolithic silicon IC in a configuration designed to provide optimal performance in automotive applications such as camshaft speed sensing, zero-speed gear-tooth sensing, and proximity sensing.

Each sensor incorporates signal-processing circuitry that switches in response to changing magnetic signals created by rotating ferrous targets. The TPOS feature of the sensor provides an accurate reading of the sensor's position in relation to the target when the sensor is powered up. Digital tracking of the analogue signal is used to set the switching threshold of the device. The resulting switchpoints are independent of the airgap, greatly improving output accuracy and duty cycle.

The devices also use an updated algorithm to fine-tune the switchpoints in running mode, maintaining the device specifications even with large changes in airgap. Robust input and output EMC structures provide excellent immunity against the transients and ESD pulses seen in typical automotive applications.

The sensors are supplied in the 'SE' package, which uses a single-step overmoulding process to house a samarium-cobalt magnet and the Hall-effect IC.

This package provides an optimised magnetic solution for digital gear-tooth sensing applications and eliminates the presence of air voids that can be problematic with other multi-step package configurations. The close proximity of the magnet to the IC provides excellent heat sinking, permitting higher operating temperatures within the compact, easy-to-mount package.

The only difference between the ATS673 and ATS674 is the choice of switching thresholds, which allows the user to selecting the optimum characteristics a particular applications.
