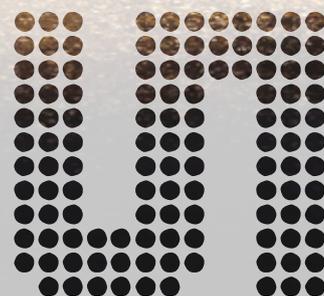


Magnetic Position Sensors with System-in-Chip technology

www.ams.com/AS5170

www.ams.com/AS5171



ams' 70-series of high-resolution rotary position sensors deliver:

- High-resolution angular position sensors for precise absolute angle measurement
- ISO26262 safety standard compliance
- Complete stray field immunity
- Lower system costs with System-in-Package (SiP) and dual die package offerings

We provide innovative analog solutions to the most challenging applications in sensor and sensor interfaces, power management, and wireless.

General Description

ams' new 70-series high-resolution angular position sensors are ideally suited for precise and absolute angle measurement. The 70-series position sensors are available with an analog output interface (AS5170A / AS5171A / AS5270A) or a digital output interface (AS5170B / AS5171B / AS5270B). Based on Hall-sensor technology, this device series measures the orthogonal component of the magnetic flux density in the Z field direction (Bz) over a full-turn rotation, and compensates for external magnetic stray fields with a robust architecture based on a 14-bit sensor array and analog front-end. A sub-range can be programmed to achieve the best resolution for the application. To measure the angle, only a simple two-pole target magnet rotating over or under the center of the package is required. The absolute angle measurement provides an instant indication of the target magnet's angular position. The 70-series position sensors operate at a supply voltage of 5V, and the supply and output pins are protected against overvoltage up to +20V. In addition, the supply pins are protected against reverse polarity up to -20V.

The AS5170A and AS5170B are available in the SOIC-8 package. The AS5270A and AS5270B are offered in stacked dual-die versions for high-reliability redundant operation. In these devices, two dies are aligned and encapsulated in the same package. Separate package pins are provided for each die in order to avoid electrical fault in the device from affecting both dies. These dual-die versions are available in MLF packages.

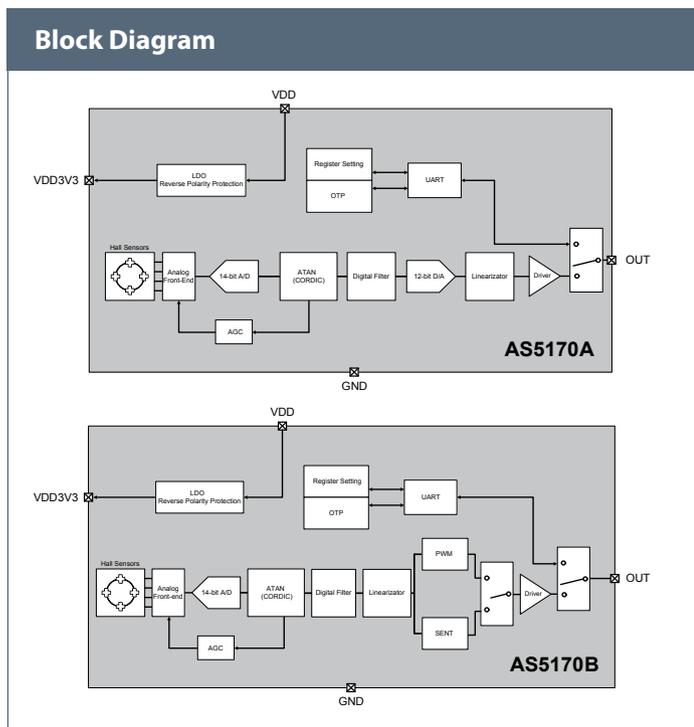
The AS5171A and AS5171B are available as SiP versions. The package integrates the AS5171 sensor die together with the decoupling capacitors to improve system level ESD/EMC performance. No additional components or PCB on the sensor side are needed, which significantly lowers the system costs. The product is defined as Safety Element out of Context (SEooC), according to the ISO26262.

Benefits

- Accurate angle measurement
- Provides high-resolution/high-accuracy measurements even with small angular excursions
- Higher durability and lower system costs (no magnetic shielding needed)
- Ideal solution for safety-critical automotive applications
- SiP Package (Integrated sensor + decoupling capacitors in a single package for improved system ESD/EMC performance and lower system costs)

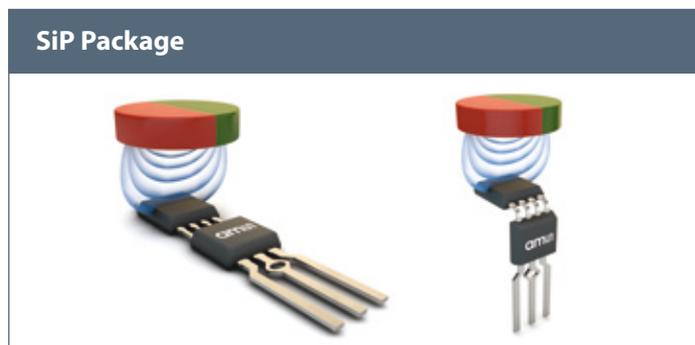
Features

- 12-bit resolution @ 90° minimum arc
- Low-output noise, low-inherent INL
- Magnetic stray field immunity
- Functional safety, diagnostics, dual-redundant chip version
- AEC-Q100 Grade 0 qualified
- System cost reduction – no PCB or additional components needed



Applications

- Brake and gas pedals
- Throttle valve and tumble flaps
- Steering angle sensors
- Chassis ride height
- EGR
- Fuel-level measurement systems
- 2/4WD Switch
- Contactless potentiometers



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