

NEWS RELEASE

PR0422E

Alps Alpine Begins Mass Production of High-Precision, High-Output Magnetic Angle Sensors for Automotive Motors

Magnetic Sensor Lineup Expanded

Munich, Germany, September 29, 2022 – Alps Alpine has added two new products to its magnetic sensor lineup to support the ongoing electrification of vehicles. This builds on a track record in the automotive market in the areas of steering angle detection and electronic shifters.

Redundancy design is increasingly a requirement for automobile driving systems as the world looks to embrace driving assistance and autonomous vehicles. The use of multiple sensors was once the typical way of realizing redundancy, to ensure that systems function safely even when a fault occurs. In recent years, however, smaller systems more often mean fewer parts and therefore greater demand for angle sensors that achieve redundancy by providing two output signals from a single product.

Alps Alpine's new magnetic sensors have a built-in amp to support size reductions and fulfill redundancy design needs with single-ended high output of 3Vpp. The dual-die¹ model meets requirements for full redundancy design and can be supplied as a single product. Envisaged for use in automotive motors, the magnetic sensors can be used to create conditions resilient against outside magnetic disturbance. This is because they perform well in high-temperature environments up to 150°C while also achieving strong magnetic field resistance of 120mT through application of original thin-film technology.

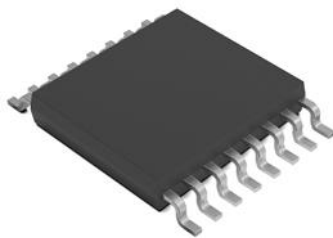
The magnetic sensors are being mass produced with applications envisaged in automotive motors and 15 million units are expected to be sold in 2030.

Alps Alpine will also further pursue development of smaller, low-cost magnetic sensors resistant to outside magnetic disturbance.

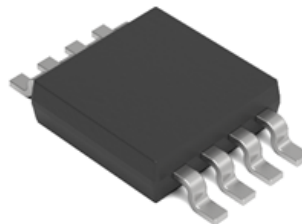
Alps Alpine develops and manufactures sensors for a wide range of applications in consumer products like smartphones through to automotive electronics. Seeking to contribute to society through our business, we will keep striving to develop products best matching the needs of customers and the market.

Product Image

HGARPS001A



HGARPS011A



Features

HGARPS001A (Dual-Die¹)

- High output achieved with a built-in amp (3Vpp single-ended @VDD=5V)
- Four analog output signals (+sin, +cos, -sin, -cos) × 2 circuits
- Operating temperature range for automotive use: -40°C to +150°C
- Meets AEC-Q100 automotive reliability standard

HGARPS011A (Single-Die)

- High output achieved with dual signal output and a built-in amp (3Vpp single-ended @VDD=5V)
- Four analog output signals (+sin, +cos, -sin, -cos)
- Operating temperature range for automotive use: -40°C to +150°C
- Meets AEC-Q100 automotive reliability standard

Principal Applications

- Electric power steering system motors
- Main motors

Schedule

Model	HGARPS001A (Dual-Die ¹)	HGARPS011A (Single-Die)
Mass production	From April 2024	From May 2022
Development	Engineering Headquarters – Nagaoka Plant (Nagaoka, Niigata Pref.)	Engineering Headquarters – Nagaoka Plant (Nagaoka, Niigata Pref.)
Production	Production Headquarters – Nagaoka Plant (Nagaoka, Niigata Pref.)	Production Headquarters – Nagaoka Plant (Nagaoka, Niigata Pref.)
Monthly output	10,000 units	30,000 units

Specifications

Model	HGARPS001A	HGARPS011A
Dimensions (W×H×D)	5.0 × 6.4 × 1.1mm	3.0 × 4.9 × 1.1mm
Operating magnetic field range	10 – 120mT	
Operating temperature range	-40°C to +150°C	
Supply voltage range	3.0 – 5.5V (typ. 5V)	
Signal output	2825mVpp single-ended	

More information about this product:

<https://tech.alpsalpine.com/e/products/category/sensor/sub/01/sensors/hgar/>

1. Dual-die: Refers to the use of two sensor chips inside a semiconductor package. A single-die package contains only one sensor chip.

Alps Alpine Co., Ltd. On January 1, 2019, Alps Electric Co., Ltd. and Alpine Electronics, Inc. integrated their businesses and started out afresh as Alps Alpine Co., Ltd with 38,471 employees. Alps Alpine will steadily bring about synergies by drawing on the two companies' advantages in core devices, system design and software development.

The new company will endeavour to create its own unique value for not only the automotive market, but also mobile devices and consumer electronics, as well as new sectors such as energy, healthcare and industry. For more information please visit www.alpsalpine.com

Alps Alpine Europe GmbH, a subsidiary of Alps Alpine Co., Ltd., was established in 1979. Since 2013 the European Head Office has been located in Munich and as such co-ordinates the Sales, Marketing and Product Engineering activities of our offices in Dusseldorf, Stuttgart, Wolfsburg, Paris, Milton Keynes, Frolunda and Milan, as well as the production activities of our manufacturing site in Dortmund. Alps Electric Europe GmbH changed its name on 01.04.2020 to Alps Alpine Europe GmbH.

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