![ALPS ALPINE - Perfecting the Art of Electronics]

PRESS RELEASE

Applicable to a Wide Range of Applications Including Touchless Operation, Automotive Touch Panels, and Liquid Level Sensors

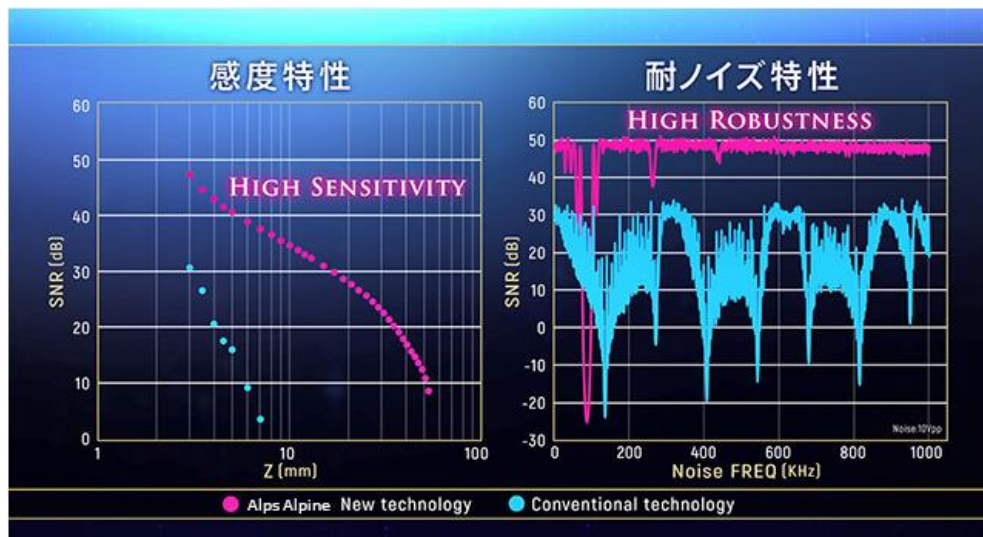# Alps Alpine Commences External Sales of ICs, Starting from a High-Sensitivity Capacitive Sensor IC

Alps Alpine Co., Ltd. (TSE: 6770; President & CEO: Hideo Izumi; Headquarters: Ota Ward, Tokyo; hereinafter referred to as "Alps Alpine") announced today the commencement of external sales of ICs, which were formerly designed and developed only for internal use in in-house manufactured products, under the Alps Alpine brand. As a first step, Alps Alpine has developed the HSLCMB series ICs that incorporate a capacitance measurement circuit and 32-bit CPU to enable capacitive sensing with higher sensitivity and noise robustness than their conventional products, and has commenced domestic and international promotions. The HSLCMB series is applicable to a wide range of applications, including touchless operation, automotive touch panels, and liquid level sensors.

Background

Alps Alpine's semiconductor business began in 2005 with the establishment of the IC Design Department. In nearly 20 years since then, Alps Alpine has designed and developed a wide variety of sensor ICs for automotive and consumer electronics markets, including magnetic, geomagnetic, humidity, barometric, millimeter-wave, and capacitive sensors. Alps Alpine's ICs are packed with a wealth of expertise in not only low-noise analog front-ends, but also mixed signal IP-based sophisticated signal processing algorithms, space-saving design, and functional safety support.

Until now, stand-alone ICs have been designed and developed only for internal demand, whereas modules in which sensor electrodes and ICs are integrated have been supplied to customers. Many of them, however, have asked for providing sensor ICs on a stand-alone basis. As a first step to meet these needs, Alps Alpine has started external sales of the HSLCMB series high-sensitivity capacitive sensor ICs.

Advantages of Alps Alpine's capacitive sensing

High sensitivity

The signal-to-noise ratio is higher than conventional products, allowing for sensing distant objects. The same distance can be covered by smaller sensor electrodes.

High noise robustness

Even under a noisy environment due to surrounding devices, the signal-to-noise ratio is maintained higher than that of conventional products. Automotive specifications can be satisfied even in the vehicle cabin full of signals, such as road noise, engine noise, and radio waves.

Absolute self-capacitance sensing

The IC properly controls the guard electrodes provided for shielding the parasitic capacitance of the sensor electrodes so that only the capacitance of the target can be sensed.

QFN 48pin
□6mm , t=0.9mm

■ Product information

The HSLCMB series IC incorporates a capacitance measurement circuit and 32-bit CPU.

Item	Specification
Operating voltage range	4.75-5.5V
Operating current	14.5mA typ.
Package	QFN 48pin (□6mm, t=0.9mm)
Interface	SPI, EUART
CPU	32bit RISC CPU (SYNOPSYS ARC EM4TM 21MHz max.)
Number of sensor electrodes	16 ports
Reliability	AEC-Q100 grade2 (-40～105℃)
Functional safety	ASIL-B compatible

■ Example applications

Touchless operation

Alps Alpine's sensor ICs that enable new input methods, such as proximity sensing and spatial gesture operation, can fulfill the needs of "contact-less operation" in medical practice areas, public institutions, and manufacturing sites.

Automotive touch panel

Taking the advantage of the high noise robustness and sensitivity, the HSLCMB series IC enables a user interface with touchless inputs in the vehicle cabin that is full of noise sources such as radio waves and motors.

Liquid level sensor

The achieved high sensitivity and noise robustness enable contactless measurement from outside a plastic tank. This requires no mechanical parts inside the tank, contributing to enhanced flexibility in tank shape.

■ Capability of Alps Alpine's semiconductor development and upcoming plans

In semiconductor development, Alps Alpine, as a fabless manufacturer outsourcing manufacturing only, has an integrated development system from product planning to system design, analog design, digital design, testing, start up of mass production, mass production support, and prompt quality issue support. Alps Alpine will further expand the product lineup, focusing on custom design activities in addition to sales expansion of existing semiconductor products (standard products), to realize the technological evolution of customers and Alps Alpine and improve the competitiveness of the products.

・**Product details**
Please refer to the product information section in Alps Alpine webpage.
https://tech.alpsalpine.com/e/products/category/semiconductor/sub/01/

<Inquiries>
IR Section, Corporate Communication Department
Phone: +81-50-3311-0617
E-mail alpsalpine-pr@alpsalpine.com