

NEWS RELEASE

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ALPS Develops New FM Transmitter Modules

Dimensions below 6 mm make ALPS' TSM 1-6 series the industry's smallest

Duesseldorf, Germany, March 20, 2006 – ALPS has completed development of its TSM 1-6 series of FM transmitter modules for use with mobile phones and other small portable devices.

In recent years we have witnessed some remarkable advances: The manufacturers of mobile telephones, personal audio players and other portable devices are packing more and more functions into ever-smaller devices. Those who use these handheld devices are able to store their own music or data for use on the go. Flexible playback capabilities now enable listening enjoyment on all kinds of platforms and in all kinds of places. This gives manufacturers the opportunity to boost product value by adding functions that employ these features to offer users greater convenience.

With its eyes firmly fixed on the need for miniaturization and high functionality, Alps has developed the industry's smallest FM transmitter module. Electronic components that are equipped with an FM transmitter can use FM broadcast waves to transmit audio data. For example, an MP3 player equipped with this new module can transmit recorded music via FM waves to an FM car stereo, thus enabling passengers to play back and enjoy the music.

Development of this module, which fits on a human fingertip, was made possible by Alps' long-held lead in high-frequency wave design technology and high-density mounting technology. Know-how in each of these areas was essential for meeting the increasing demand for miniaturization and multi-functionality. In addition, thermal resistance simulations were conducted during

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reflow mounting tests to ensure a high level of reliability that is fully compatible with miniaturization efforts. By guaranteeing module performance, it is possible to minimize performance testing and delivery inspections of the manufactured product. This simplifies product engineering and helps shorten the production process.

This exceptional module also incorporates an integral radio data system (RDS) function. Audio data that is sent to a compatible tuner can be superimposed with the name of the song, the artist's name, or other textual information.

Furthermore, in order to comply with the international regulations that govern radio transmission and ensure electromagnetic compatibility (EMC), the antenna reduces unnecessary emissions that might otherwise disrupt wireless communication. The product is available with antennas for four output control levels that vary according to the configurations and properties of the components. This greatly enhances the product design process.

Features

Industry's smallest FM tuner transmitter module:

1. Tiny overall size (internal area: 0.049 ml, total surface: 34.81 mm²)
2. Modularized construction, which helps to accelerate design and production
3. Integral RDS function
4. Radio-law compliant; suppresses unnecessary radiation and allows 4 levels of antenna output

Principal Applications

Mobile telephones, all types of mobile information terminals, digital audio players and personal audio equipment

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Specifications

Product name	TSM 1-6 series
Dimensions (W x D x H)	5.9 mm x 5.9 mm x 1.4 mm
Output frequency range (FM band)	76.0 to 108.0 MHz
Supply voltage	3.0 V
Maximum rating (resistance load)	14 mA
Signal noise	60 dB
Stereo signal separation ratio	35 dB
Antenna output level	0.25, 0.5, 1.0, 2.0 (mW)

This news release and a press photo are available electronically at <http://www.presseagentur.com/alps/en/>



ALPS Electric Co., Ltd.

Since its establishment in 1948 ALPS has grown as a comprehensive manufacturer of electronic components. At present ALPS is creating innovative high-value-added products in its main business segments – Components, Magnetic Devices, Communications, Peripheral Products, and Automotive Electronics – which are contributing to the advance of a digital society. ALPS is a global company that carries out its operations with 23 production bases in 8 countries as well as 61 sales bases in 14 countries. Consolidated net sales in the year ended March 31, 2004 amounted to YEN 643 billion.

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ALPS ELECTRIC EUROPA GmbH, a subsidiary of ALPS Electric Co., Ltd., was established in 1979. Since 1989, the European Head Office has been located in Düsseldorf, where a team of specialists works in Sales, Marketing, and Product Engineering. The activities of our branch offices in Munich, Paris and Milton Keynes, our sales office in Milan and our European distribution work are co-ordinated from Düsseldorf. ALPS Nordic AB, a 100 percent subsidiary of ALPS ELECTRIC EUROPA GmbH, is based in Sweden and services the Scandinavian market.

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