



FROM EDN EUROPE: Smaller components suit next-generation portable products

Akira Fukuda - May 13, 2004

Smaller and slimmer components for portable devices, such as mobile phones and digital still cameras, allow you to accommodate more functions in less space. Mitsumi Electric recently revealed an array of new components designed to support the next generation of portable devices at a dedicated showcase event in Tokyo.

In advanced stages of development at Mitsumi, a GPS-receiver module, the SPG-DF305, measures 8×9×2 mm and has a target receiver sensitivity of -150 dBm, enabling indoor use. Power-supply voltage is 3V. Among GPS antennas, the surface-mounted, 15×15×6-mm ANT-JE1 antenna attracted attention; it comes with a feed point on the sidewall of the package. So, when you mount the ANT-JE1 on a pc board, you can mount a low-noise amplifier on the same surface. Previously, with a feed point on the back of the package, the low-noise amp mounted on the back of the pc board, making it difficult to reduce the thickness of receiver units.

In the area of CMOS image-sensor modules for mobile phones, the CAM-G95 series connector increases the mounting height by only 0.3 mm over the module height. The connector is a rectangular tray, connecting by direct insertion of the module from above. The insertion force is 14.7N (1.5 kgf). Contact terminals for the image sensor are located on the internal sidewall of the connector. Leads hang perpendicularly from the contact terminals and intersect with the base at right angles to the inner wall. A mounted device can therefore occupy virtually the same height and surface area as the module itself.

For digital-still-camera applications, the C-J Series of compact transformers for dc/dc converters features a diameter of 7 mm and a height of 3 mm; these transformers require no resin board for the lead terminals and are equipped with terminals on the side. As a result, they reduce the actual surface area to 60% and the volume to 47% compared with current Mitsumi Electric products. Mitsumi schedules mass production to start in summer or fall of 2004.

Also noteworthy was the CH-DN Series of noncontact power-transmission modules, which use electromagnetic induction with a high power transfer density of 1 to 2W/cm². Power is transferred from the power-supply module equipped with a built-in primary coil to the power-receiver module housing the secondary coil without contact. The application field for these modules includes notebook PCs, chargers for digital still cameras, and mobile phones. The power-transfer efficiency is 90% when the primary coil fully aligns with the secondary coil. Mitsumi, however, has yet to disclose the technical details. The company has scheduled the unit for commercialisation during the first half of 2005.

Components, other than those for mobile equipment, that met with a positive response from visitors

included a resin-packaged optical fingerprint sensor and a fingerprint-recognition module incorporating the sensor. The fingerprint sensor has a built-in linear image sensor and light-source LED in a resin-packaged unit. Consequently, you can easily build it into other devices. Further, because the image-sensor chip is not exposed, little risk exists of damage due to static electricity.

At the exhibition, Mitsumi demonstrated opening and closing a model car's door using fingerprint registration and recognition, illustrating the principle of applying fingerprint recognition to a wider range of personal-access-control applications.

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