Epson Toyocom branches out into motion sensor market with highly accurate devices

Medical Design Technology

The AH-6100LR, specialized for precise motion tracking, comprises a 3-axis QMEMS quartz gyro-sensor, and an extremely stable 3-axis accelerometer within a single package.

Takeshi Miyazawa, general manager of Epson Toyocom, remarked that the company in 2004 launched its XV-3500CB angular velocity gyro-sensor that has been applied largely to digital cameras, handsets and in-car navigation systems. The AH-6100LR was developed by leveraging these technologies for high-integrity motion tracing and motion tracking applications.

The new 6-axis sensor packs critical application performance features into a small package (10.0 x 8.0 x 3.8t mm). Among these features are 5,000 g of shock resistance and current consumption of just 6.1 mA, a more than sufficiently low power draw to meet the requirements of low power systems.

Compared with other materials, quartz shows a high degree of stability while consuming very low power. In addition to angular rate sensors and accelerometers, Epson Toyocom continues to make better use of the characteristics of quartz material by introducing an absolute pressure sensor, the XP-6000CA.

The XP-6000CA employs an innovative new QMEMS pressure-sensing structure that allows it to squeeze into a tiny 7.0 x 5.0 x 2.0t mm package yet still provides excellent total pressure accuracy (±30 Pa) and high resolution (0.3 Pa).

Both the AH-6100LR and XP-6000CA have been applied to a wide variety of applications. When built into bicycles, cyclists are able to access different information as they ride such as time, speed, distance, energy consuming, route tracking, and so on. Cyclists are allowed to monitor their physical conditions during their training, and work out better solutions to avoid the impact of other external factors and reduce accident risks. Epson Toyocom will continue its dedication to developing a variety of highly accurate motion sensors that satisfy the needs of customers.

The portable Seiko Crystal Chronometer QC-951, developed as a backup timer for marathon events in the 1964 Tokyo Olympic Summer Games, influenced the later development of quartz crystals and devices used for measurement and sensing. Quartz device is increasingly regarded as an essential component in electronic products where precise frequency control is necessary.

Epson Toyocom Corporation was formed by integrating the operations of the Quartz Device Operations Division of Seiko Epson Corporation and Toyo Communication

Equipment Co.,Ltd. in October 2005. The merged entity stays to strengthen on development of quartz components for consumer and industrial electronics applications, with products that include timing devices, sensing devices and optical devices.

Manufacturing of electronics products toward weight-reduction, thin-wall and minified-size is now an inescapable trend, and constituent components need to fit in with their miniaturized designs. Therefore, the need for compact and high-precision quartz devices is increasing, and Epson Toyocom has responded to this trend with its QMEMS technology.

QMEMS is a combination of "Quartz," a crystalline material with excellent characteristics such as high stability and high precision, and "MEMS" (micro electro mechanical system). QMEMS quartz devices are created using quartz material instead of the semiconductors used by MEMS. We perform precision microfabrication on the quartz material to offer high performance in a compact package.

QMEMS is a registered trademark of Epson Toyocom.

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