

February 23, 2010

**Epson Toyocom Develops the World's Smallest Single Package 6-Axis Sensor**  
**AH-6100LR is engineered for precise motion tracking**

Epson Toyocom Corporation, the leader in crystal devices, today announced the development of the AH-6100LR, the world's smallest\* 6-axis sensor. This low-noise, low-power product comprises a 3-axis QMEMS<sup>\*1</sup> quartz gyro-sensor and an extremely stable 3-axis accelerometer within a single package.

Samples of the new AH-6100LR will become available in February 2010. Commercial development is scheduled for May 2010.

Epson Toyocom offers a growing line of highly accurate, stable gyro-sensors, such as the XV-3500CB, for use in a variety of applications, including high-quality camera shake correction and compact high-precision navigation systems. The AH-6100LR was developed by leveraging these technologies for high-integrity motion tracing and motion tracking applications.

Hand, person, or object motion tracing and tracking systems are being explored as core technologies for next-generation applications in a variety of fields. These systems require sensors with a wide dynamic range of control, since a wide range of motion, from low speed to high speed, needs to be detected. The AH-6100LR has a wide dynamic range of 81 to 83 dB (200 Hz output bandwidth), enabling high-precision control via accurate tracing and helping improve the certainty of motion recognition.

The high-integrity analog signal output of the AH-6100LR has the flexibility to meet the need for mixed signal processing in customer systems. Customers can thus process signals in the best way for any given application, and realize designs with low noise and broadband output.

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.

Epson Toyocom intends to continue expanding its sensor product lineup to meet the needs of the motion sensing market.

**Main Features**

- 1) Six-axis sensor (3-axis gyro-sensor + 3-axis accelerometer)
- 2) Wide dynamic range of 81 to 83 dB (200 Hz bandwidth)
- 3) Compact size (10.0 x 8.0 x 3.8t mm)
- 4) World's lowest\* current consumption (6.1 mA) for a six-axis sensor
- 5) 5,000 g shock resistance
- 6) Analog output for high-accuracy sensing

7) Built-in low-pass filter

\* Source: Epson Toyocom research as of February 23, 2010.

### Main Specifications

	Parameter	Unit	
General	Operating temperature	°C	-20 to +80
	Supply voltage	V	2.7 to 3.3
	Current consumption	mA	6.1
Gyroscope	Scale factor	mV / dps	1
	Reference output (Vr)	mV	1350
	Detection range	dps	±1000
	Noise density (@10 Hz)	dps/√Hz	0.006
Accelerometer	Sensitivity	mV / g	400
	0g output	mV	1500
	Detection range	g	±3
	Noise density (@10 Hz)	μg/√Hz	75

Epson Toyocom is making AH-6100LR test boards available. Please inquire for details.

### Glossary

(\*1) QMEMS

QMEMS are miniature, high-performance crystal devices produced in quartz material via a microfabrication process similar to that used for silicon-based MEMS (micro electro mechanical systems). The name “QMEMS” is a combination of “Quartz,” a crystalline material with excellent characteristics such as excellent frequency stability and high precision, and “MEMS”.

QMEMS is a registered trademark of Epson Toyocom.