

Inertial sensors

Miniaturized MEMS accelerometer with excellent linearity

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TDK Corporation announces the Tronics AXO215 high-performance MEMS accelerometer that sets the benchmark in terms of miniaturization, reliability and inertial sensing performance in harsh environments. Developed by Tronics Microsystems, a TDK Group Company that designs and manufactures innovative nano and microsystems, the new closed-loop accelerometer complements the lineup of TRONICS GYPRO® sensors. The new accelerometer delivers superior acceleration sensing performance for very demanding applications, such as precision instrumentation, unmanned vehicles and avionics. The AXO215 will be manufactured, packaged and calibrated at Tronics' Crolles facility near Grenoble, France. The start of pre-production is scheduled for the second half of 2017.

The AXO215 MEMS accelerometer combines all key benefits on a single chip in terms of size, weight, power and performance. The closed-loop configuration offers excellent non-linearity that is less than 0.05 %. Additionally, the hermetic J-lead package (12 mm x 12 mm) ensures reliable performance levels in harsh environments, while decoupling the mechanical stresses from the host system. Providing an in-plane linear acceleration measurement, the AXO215 has an input range of 15 g with ultra-low noise of 15 $\mu\text{g}/\sqrt{\text{Hz}}$. The 24-bit digital output is delivered with an excellent bias instability of just 3 μg and an operating vibration resistance of 7.3 g_{rms} . The new accelerometer sets the benchmark in terms of size, with a footprint much smaller than non-MEMS devices currently used in the targeted applications. Moreover, the AXO215 offers higher performance levels than current MEMS-based solutions, especially in terms of linearity and reliability in harsh environments.

The AXO215 MEMS accelerometer is also available in an evaluation version that is specifically designed to provide users and developers with improved testing functionalities. Fully compatible with the Arduino M0 open-source electronic prototyping platform, the plug-and-play kit features a compact design and integrates proprietary evaluation software to support design engineers with various functionalities, such as output reading and recording, recalibration and digital self-tests.

The new accelerometer will be shown for the first time along with the portfolio of Tronics inertial products and testing methods at the International Paris Air Show in Paris-Le Bourget from June 19 to 25, 2017 (Hall 4 BC125) and at the Sensors Expo & Conference 2017 in San Jose, California, from June 27 to 29, 2017 (booth 416).

Main applications

- Precision instrumentation
- Unmanned vehicles
- Avionics

Main features and benefits

- Non-linearity levels of better than 0.05 percent
- Hermetic J-Lead package (12 mm x 12 mm)
- Input range of 15 g with ultra-low noise of 15 $\mu\text{g}/\sqrt{\text{Hz}}$.
- 24-bit digital output
- Bias instability of just 3 μg
- Operating vibration resistance of 7.3 g_{rms}

About TDK Corporation

TDK Corporation is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's portfolio includes passive components, such as ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, high-frequency products, and piezo and protection components, as well as sensors and sensor systems and power supplies. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK's further main product groups include magnetic application products, energy devices, and flash memory application devices. TDK focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2017, TDK posted total sales of USD 10.5 billion and employed about 100,000 people worldwide.

About Tronics Microsystems

Tronics Microsystems is a division of TDK's Temperature & Pressure Sensors Business Group and a recognized technological leader in the sector of nano- and microsystems. Addressing high-growth markets relying on increasing miniaturization of electronic devices, the company provides custom and standard products especially to the industrial, aeronautics, security, and medical markets. Founded in 1997, Tronics is located in Crolles, near Grenoble (France) and in Dallas, Texas (United States), and has around 100 employees, most of them engineers and scientists. Following a tender offer ending January 2017, EPCOS AG, a TDK Group Company, now holds 74 percent of Tronics' shares.

You can download this text and associated images from www.epcos.com/pressreleases.

Further information on the products can be found under www.tronicsgroup.com/High-Performance-MEMS.

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