



## Get Smart with Ultra-thin MEMS Accelerometers

You couldn't get much smarter than the Kionix tri-axis, **ultra-thin KXCJB-1041** MEMS Accelerometer from Willow Technologies Ltd. ([www.willow.co.uk](http://www.willow.co.uk)). At just 0.45mm thick and in an LGA package, it is a feature rich gem, a popular choice for designers of Smart Cards, SIM Cards, ID & Badge Cards, plus wearable devices, tags and beacons.

Operating with an energy saving low current consumption of 10µA in low resolution mode and 135µA in high resolution mode (<1µA in standby), this MEMS Accelerometer runs on a supply voltage of 1.8 to 3.6V. It has an I<sup>2</sup>C communications interface running up to 3.4MHz for digital configuration of the part and monitoring outputs, allowing for easy system integration by eliminating analogue to digital converter requirements and also by providing direct communication with system micro controllers. It offers 8-bit, 12-bit and 14-bit resolution for greater precision and has user-selectable ranges ±2g, 4g & 8g. Output Data Rates range from 0.781Hz up to 400Hz.



Bhupinder Randhawa, Senior Sales Engineer at Willow, commented, "I believe the **KXCJB is the thinnest tri-axis accelerometer available on the market today**. It is pin for pin compatible with Kionix's XXTI9 and KXCJ9 and features the Kionix XAC sense element, which is a highly advanced element ensuring outstanding stability over temperature, shock and post re-flow performance."

The embedded algorithm features of the 3 x 3 x 0.45mm device include a user-configurable, low power motion wake-up function, a programmable interrupt engine to report when qualified changes in acceleration occur and a self test function.

"Within the embedded algorithm functioning of the **KXCJB**, Kionix have given the user the freedom to enable or disable specific axes, specific directions and to specify the delay time. This will be an advantage for anyone wishing to detect motion on any axis, to signal an event and wake the accelerometer or other devices. It is achieved by configuring the engine to detect when acceleration on any axis exceeds the user-defined threshold for a user defined time period" Continued Randhawa.

The sense element of the KXCJB-1041 is fabricated using Kionix's proprietary plasma micro machining process technology. Acceleration sensing is based on the principle of a differential capacitance arising from acceleration-induced motion of the sense element, which further utilizes common mode cancellation to decrease errors from process variation, temperature, and environmental stress. The sense element is hermetically sealed at wafer level by bonding a second silicon lid wafer to the device using a glass frit. A separate ASIC device packaged with the sense element provides signal conditioning and digital communications.

"Kionix continue to develop smaller and better devices. They are in the process of developing a MEMS accelerometer that is just 0.425mm thick and will be available from Willow in the near future. Meantime - **Get smart** and see for yourself just how outstanding this device is!"

[Click here to view datasheet](#) 

### About Willow Technologies Limited

Founded in 1989, Willow Technologies is located in Copthorne, West Sussex in the UK. We provide electronic solutions to customers by designing, manufacturing and supplying components and systems globally to the electrical and electronic marketplace. Specialists in switching, sensing, resistive and hermetic seal solutions we have a wide portfolio of sensing technologies and over 60 years of application experience. Our in-house engineering capability and rapid prototyping facility for custom parts enable us to develop products to match specific application requirements. Willow is ISO9001:2000 registered.

### For further information please contact:

[reply@willow.co.uk](mailto:reply@willow.co.uk), Tel +44 (0) 1342 717102



**Willow Technologies Limited**, Unit 3 Borers Yard, Borers Arms Road, Copthorne, West Sussex, RH10 3LH, UK

 [www.willow.co.uk](http://www.willow.co.uk)

 +44 (0) 1342 717102

 +44 (0) 1342 717014

 [reply@willow.co.uk](mailto:reply@willow.co.uk)