KXCJK Accelerometer
3x3x0.9mm, 16-pin, Low-Power Accelerometer

FEATURES

- Small Package - 3x3x0.9mm, 16-pin LGA
- User-selectable g Range and Output Data Rate
- 8-bit, 12-bit and 14-bit Resolution
- Low Power Consumption at 10 µA operating
- User-configurable wake-up function
- Digital I^{2}C
- Lead-free Solderability
- Excellent Temperature Performance
- High Shock Survivability
- Factory Programmable Offset and Sensitivity
- Self-test Function

APPLICATIONS

- User Interface
- Active/Inactive Monitoring
- Device Orientation
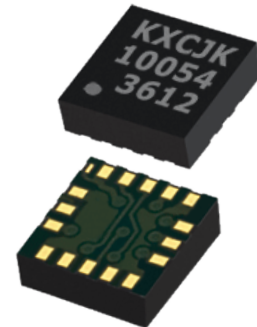- Pedometer/Activity Monitoring

FOR

- Smartphones and Mobile Devices
- Gaming and Virtual Reality
- Health and Fitness

PRODUCT OVERVIEW

The Kionix KXCJK is a low power tri-axis accelerometer with digital I^{2}C output. The KXCJK features user-selectable parameters including 8-bit, 12-bit, or 14-bit modes, g-ranges from ± 2g, 4g or 8g, and Output Data Rates from 0.781 Hz to 1600 Hz.

This part features a 16-pin package, making it pin compatible with other popular products on the market, and offers a low-power motion interrupt. The KXCJK also has internal voltage regulators that allow operation from 1.8 V to 3.6 V with an operating temperature range of -40°C to +85°C.

The performance parameters below are programmed and tested at 2.6 volts and T = 25°C. The device can accept supply voltages from 1.8V to 3.6V. Due to internal voltage regulators, there should be minimal change with supply voltage variations.

PERFORMANCE SPECIFICATIONS

PARAMETERS	UNITS	KXCJK-1013	CONDITION
Range	g	±2.0, ±4.0, ±8.0	User-selectable full-scale output range
Sensitivity[1]	counts/g	64, 32, 16	8-bit
		1024, 512, 256	12-bit
		1024 typical	14-bit[2]
0g Offset vs. Temp	mg/°C	±0.2 typical	-40°C to +85°C
Sensitivity vs. Temp	%/°C	±0.03 typical	-40°C to +85°C
Mechanical Resonance[3]	Hz	3500 (xy) 1800 (z) typical	-3dB
Output Data Rate (ODR)[4]	Hz	0.781 min; 50 typical; 1600 max	
Bandwidth (-3dB)[5]	Hz	800	RES = 0
		ODR/2	RES = 1
Non-Linearity	% of FS	0.6 typical	% of full scale output
Cross-axis Sensitivity	%	2.0 typical	
I^2C Communication Rate	MHz	3.4 max	
Power Supply	V	2.6 typical	1.8V – 3.6V
Current Consumption[6]	µA	135 typical	High resolution (RES = 1)
		10 typical	Low resolution (RES = 0)
		0.9 typical	Disabled

ENVIRONMENTAL SPECIFICATIONS

PARAMETERS	UNITS	KXCJK-1013	CONDITION
Operating Temperature	°C	-40 to 85	Powered
Storage Temperature	°C	-55 to 150	Un-powered
Mechanical Shock	g	5,000, 0.5 ms 10,000, 0.2 ms	Powered or un-powered, halversine
ESD	V	2,000	Human body model

NOTES
[1] Resolution and acceleration ranges are user selectable via I2C.
[2] 14-bit Resolution is only available for registers 0x06h – 0x0Bh in the 8g Full Power mode.
[3] Resonance as defined by the dampened mechanical sensor.
[4] User selectable through I2C.
[5] User selectable; dependent on ODR and RES.
[6] Current varies with Output Data Rate (ODR).