

## Intelligent, triaxial acceleration sensor



### GENERAL DESCRIPTION

The da213 acceleration sensor is an ultra-low power high performance capacitive three-axis linear accelerometer developed by micro-machined technology. The sensor element is fabricated by single crystal silicon with DRIE process and is protected by hermetically sealed silicon cap from the environment.

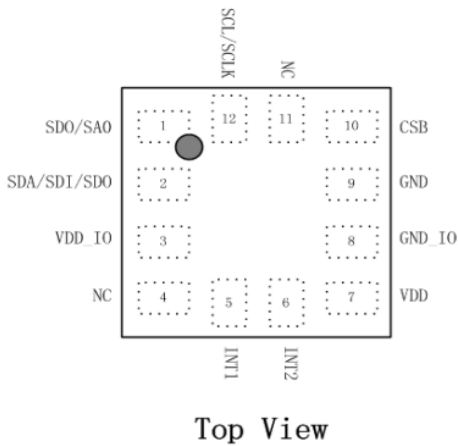
The da213 featuring 14-bit digital resolution. The device features user selectable full scale of  $\pm 2g$ / $\pm 4g$ / $\pm 8g$ / $\pm 16g$  measurement range with data output rate from 1Hz to 1000Hz with signal condition, motion detection embedded.

### TARGET APPLICATIONS

- ◆ User interface for mobile phone and PMP
- ◆ Display orientation
- ◆ Gesture recognition
- ◆ Active monitoring
- ◆ Free-fall detection
- ◆ Single/double Click recognition
- ◆ Power management
- ◆ Vibration monitoring

### KEY FEATURES

da213 Technical data	
Digital resolution	14-bit
Measurement ranges	$\pm 2g, \pm 4g, \pm 8g, \pm 16g$
Sensitivity	$\pm 2g$ : 4096LSB/g $\pm 4g$ : 2048LSB/g $\pm 8g$ : 1024LSB/g $\pm 16g$ : 512LSB/g
Zero-g offset	$\pm 70mg$
Output data rate	1Hz to 1000Hz
Digital inputs/outputs	I2C/SPI interface 2 interrupt pins
Supply voltage (VDD)	1.62V to 3.6V
I/O supply voltage (VDDIO)	1.62V to 3.6V
Temperature range	$-40^{\circ}C$ to $+85^{\circ}C$
LGA package	2x2x1.1mm LGA-12 package
Shock resistance	10000g $\times$ 200us



Pin configuration

## SENSOR FEATURES

- **Power consumption**

**Normal mode**

180  $\mu$ A @ ODR = 125Hz

**Low power mode**

40 $\mu$ A @ ODR = 62.5Hz & BW = 500Hz

**Suspend mode**

0.7 $\mu$ A

- **Embedded intelligence**

New data interrupt

Active interrupt

Freefall interrupt

Single/double tap interrupt

Orientation interrupt

## TECHNICAL SPECIFICATIONS

Pin	Name	Description
1	SDO/SA0	SPI: serial data out I2C: I2C address select
2	SDA/SDI/SDO	Serial data I/O
3	VDD_IO	Power supply
4	NC	NO internal connection
5	INT1	Interrupt pin
6	INT2	Interrupt pin
7	VDD	Power supply
8	GND_IO	Ground
9	GND	Ground
10	CSB	Chip select for SPI
11	NC	NO internal connection
12	SCL/SCLK	Digital clock

## SYSTEM COMPATIBILITY

The da213 has been designed for best possible fit into modern mobile consumer electronics and IOT devices.

Besides the very low height and lowest power consumption, the da213 has very wide ranges for VDD and VDDIO supply voltages.

The da213 has a power-down mode that makes it good for handset power management. Two independent and flexible interrupts provided greatly simplify the algorithm for various motion status detections. Standard I2C and SPI interfaces are used to communicate