

Intelligent, triaxial acceleration sensor



GENERAL DESCRIPTION

The da217 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.

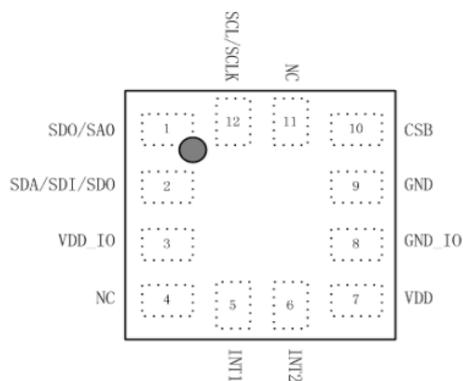
The da217 featuring 14-bit digital resolution. The device features temperature compensation, motion detection, step counter and step detection along with significant motion detection embedded.

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
- ◆ Step counter

KEY FEATURES

da217 Technical data	
Digital resolution	14-bit
Measurement ranges	±2g, ±4g, ±8g, ±16g
Sensitivity	±2g: 4096LSB/g ±4g: 2048LSB/g ±8g: 1024LSB/g ±16g: 512LSB/g
Zero-g offset	±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°C to +85°C
LGA package	2x2x0.9mm LGA-12 package
Shock resistance	10000g×200us



Top View

Pin configuration

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

SENSOR FEATURES

- **FIFO**

The da217 embeds 32-level of 12-bit data FIFO for each of the three output channels, X, Y and Z of the acceleration module that can be used to minimize host processor burden.

This buffer has four modes: bypass, FIFO, stream, and trigger mode.

- **Power consumption**

Normal mode

95 μ A @ ODR = 125Hz

Suspend mode

1 μ A

- **Embedded intelligence**

Step detector / Step counting

Active interrupt

Freefall interrupt

Single/double tap interrupt

Orientation interrupt

Significant motion interrupt

SYSTEM COMPATIBILITY

The da217 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 da217 has very wide ranges for VDD and VDDIO supply voltages. The da217 features I2C and SPI (3-wire/4-wire) digital, serial interfaces.