da6618

MiraMEMS 明皞传感

Intelligent, triaxial acceleration sensor

GENERAL DESCRIPTION

The da6618 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 da6618 featuring 16-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

da6618 Technical data	
Digital resolution	16-bit
Measurement ranges	±2g,±4g,±8g,±16g
Sensitivity	±2g: 16384LSB/g
	±4g: 8192LSB/g
	±8g: 4096LSB/g
	±16g: 1024LSB/g
Zero-g offset	±10mg(chip level)
	±30mg(board level)
Output data rate	1Hz to 1600Hz
Digital inputs/outputs	I2C/SPI interface
	2 interrupt pins
Supply voltage (VDD)	1.62V to 3.6V
I/0 supply voltage (VDDIO)	1.62V to 3.6V
Temperature range	-40°C to +85°C
LGA package	2x2x0.98mm LGA-12 package
Shock resistance	10000g×200us

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Top View
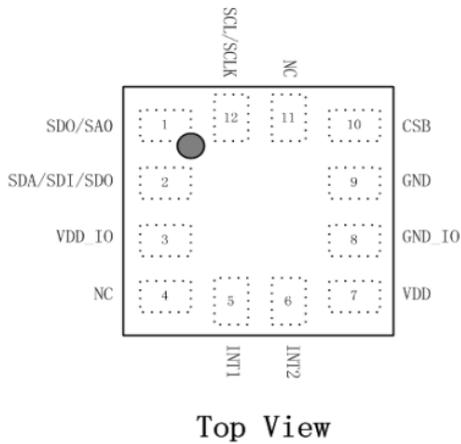
Pin configuration

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 pin1
6	INT2	Interrupt pin2
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 da6618 embeds 32-level of 16-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**

  Performance mode
  180 µA @ ODR = 1600Hz
  Low power mode
  12 µA @ ODR = 100Hz
  Suspend mode
  0.6µA

- **Embedded intelligence**

  Step detector / Step counting
  Active interrupt
  Freefall interrupt
  Single/double tap interrupt
  Orientation interrupt
  Significant motion interrupt

SYSTEM COMPATIBILITY

The da6618 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 da6618 has very wide ranges for VDD and VDDIO supply voltages. The da6618 features I2C and SPI (3-wire/4-wire) digital, serial interfaces.