dva290

Intelligent, triaxial acceleration sensor

GENERAL DESCRIPTION

The dva290 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.

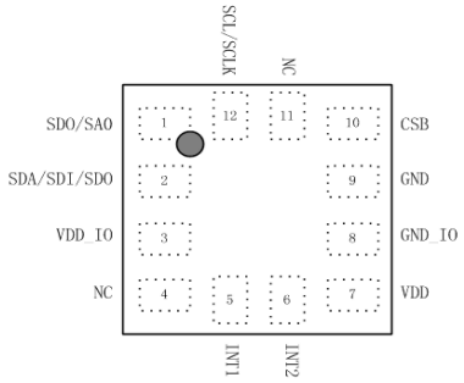
The dva290 featuring 14-bit digital resolution. The chip has passed AEC-Q100 Grade3 verification.

TARGET APPLICATIONS

- Telematics and tolling systems
- Navigation (dead reckoning) and eCall services
- Vehicle dynamics data logging
- Car key module and car alarm

KEY FEATURES

dva290 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/0 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 dva290 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 μA @ ODR = 125Hz

Suspend mode

1μA

- **Embedded intelligence**

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

SYSTEM COMPATIBILITY

The dva290 has been designed for non-safety related applications. Such as cabin comfort system and motion control in passenger compartment.

Besides the very low height and lowest power consumption, the dva290 has very wide ranges for VDD and VDDIO supply voltages. The dva290 features I2C and SPI (3-wire/4-wire) digital, serial interfaces.