



# LIS331DL

## MEMS motion sensor 3-axis - $\pm 2g/\pm 8g$ smart digital output “nano” accelerometer

### Features

- 2.16 V to 3.6 V supply voltage
- 1.8 V compatible IOs
- <1 mW power consumption
- $\pm 2g / \pm 8g$  dynamically selectable full-scale
- I<sup>2</sup>C/SPI digital output interface
- Programmable interrupt generator
- Embedded click and double click recognition
- Embedded free-fall and motion detection
- Embedded high pass filter
- Embedded self test
- 10000 g high shock survivability
- ECOPACK<sup>®</sup> RoHS and “Green” compliant (see [Section 9](#))

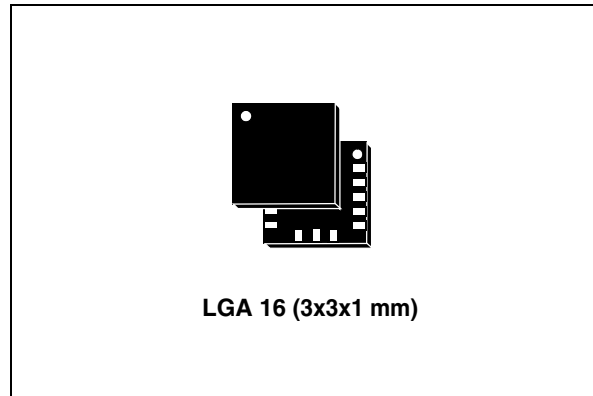
### Applications

- Free-Fall detection
- Motion activated functions
- Gaming and virtual reality input devices
- Vibration monitoring and compensation

### Description

The LIS331DL, belonging to the “nano” family of ST motion sensors, is the smallest consumer low-power three axes linear accelerometer. The device features digital I<sup>2</sup>C/SPI serial interface standard output and smart embedded functions.

The sensing element, capable of detecting the acceleration, is manufactured using a dedicated



process developed by ST to produce inertial sensors and actuators in silicon.

The IC interface is manufactured using a CMOS process that allows to design a dedicated circuit which is trimmed to better match the sensing element characteristics.

The LIS331DL has dynamically user selectable full scales of  $\pm 2g/\pm 8g$  and it is capable of measuring accelerations with an output data rate of 100 Hz or 400 Hz.

A self-test capability allows the user to check the functioning of the sensor in the final application.

The device may be configured to generate inertial wake-up/free-fall interrupt signals when a programmable acceleration threshold is crossed at least in one of the three axes. Thresholds and timing of interrupt generators are programmable by the end user on the fly.

The LIS331DL is available in plastic Land Grid Array package (LGA) and it is guaranteed to operate over an extended temperature range from -40 °C to +85 °C.

**Table 1. Device summary**

Order code	Temp range [°C]	Package	Packing
LIS331DL	-40 to +85	LGA	Tray
LIS331DLTR	-40 to +85	LGA	Tape and reel