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**World smallest Time-of-Flight (ToF) laser ranging sensor**

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Data brief

**Features**

- **Fully integrated miniature module**
  - 940nm Laser VCSEL
  - VCSEL driver
  - Ranging sensor with advanced embedded microcontroller
  - 4.4 x 2.4 x 1.0mm
- **Fast, accurate distance ranging**
  - Measures absolute range beyond 2m
  - Reported range is independent of the target reflectance
  - Operates in high IR ambient light levels
  - Advanced embedded optical cross-talk compensation to simplify cover glass selection
- **Eye safe**
  - Class 1 laser device compliant with latest standard IEC 60825-1:2014 - 3<sup>rd</sup> edition
- **Easy integration**
  - Single reflowable component
  - No additional optics
  - Single power supply
  - I2C interface for device control and data transfer
  - Xshutdown (Reset) and interrupt GPIO

**Description**

VL53L0X is a new generation Time-of-Flight laser-ranging module housed in the smallest package on the market today setting a new benchmark in ranging performance levels.

VL53L0X can measure absolute distances, beyond 2m, independent of target reflectance in less than 30ms. The VL53L0X is based on Time-of-Flight principle coupled with a leading-edge SPAD (Single Photon Avalanche Diodes) array and implementing ST's second generation FlightSense™ patented technology.

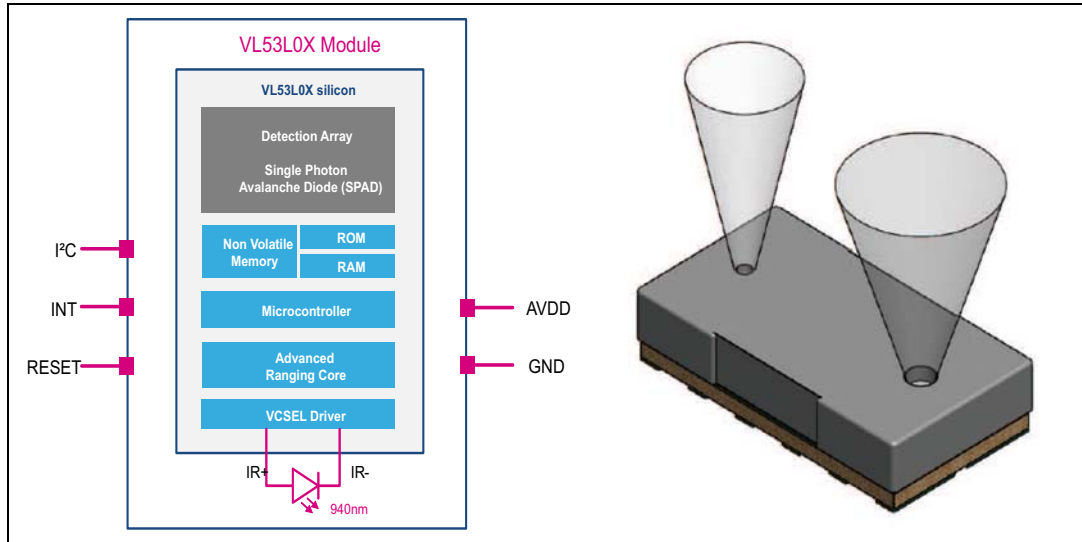
The VL53L0X's 940nm VCSEL emitter (Vertical Cavity Surface-Emitting Laser), is totally invisible to the human eye and when coupled with physical Infrared filters enables longer ranging distance, higher immunity to ambient light and better robustness to cover-glass optical cross-talk.

**Applications**

- Laser assisted Auto-Focus. Enhances and speeds-up camera AF system performance, especially in difficult scenes (low light levels, low contrast) or fast moving video mode.
- Smart-phones Advanced Proximity sensor (distance in mm)
- User detection for Personal Computers/ Laptops and IoT (Energy saving)
- Security (autonomous low power mode)
- 1D gesture recognition
- Robotics (obstacle detection).

# Technical specification

Figure 1. VL53L0X block diagram and drawing



## Ordering information

VL53L0X is currently available in the following format. More detailed information is available on request.

Table 1. Delivery format

Order code	Description
VL53L0CXV0DH/1	Tape and reel

## EcoPack

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK<sup>®</sup> is an ST trademark.

## Revision history

Table 2. Document revision history

Date	Revision	Changes
15 Feb 2016	1	Initial release.

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