

## Time-of-Flight high accuracy proximity sensor



### Features

#### High accuracy proximity ranging

- High performance proximity sensor
- From 0 to 1200 mm with full field of view (FoV)
- Short distance linearity down to 1 mm
- Diagonal FoV of 18 °
- Autonomous low power mode with interrupt programmable threshold to wake up the host
- Fast ranging frequency up to 100 Hz

#### Fully integrated miniature module

- 940 nm invisible laser emitter (VCSEL) and analog driver
- Low power microcontroller running advanced digital Firmware
- 4.4 x 2.4 x 1 mm size
- Pin-to-pin compatible with VL53L0X, VL53L1X, VL53L1CB, VL53L3CX and VL53L4CX

#### Easy integration

- Reflowable component
- Single power supply 2v8
- Can be hidden behind cover glass
- I<sup>2</sup>C interface (up to 1 MHz)
- Full set of C software drivers (Linux compatible) for turnkey ranging
- Embedded processing for very low memory footprint

Product status link

[VL53L4CD](#)

### Applications

- Proximity ranging applications such as:
  - Wall tracking and cliff detection for robotics
  - System activation and presence detection
  - Touchless switch
- Very low power consumption for battery powered devices including:
  - Access control
  - Sanitary (faucets, dispensers, etc.)
  - Home appliances (thermostats, lighting control, etc.)
- Fast ranging
  - Bar code readers
  - Biometric distance applications
  - Virtual fences

## Description

Specifically designed for proximity and short-range measurements, the VL53L4CD provides very accurate distance measurements from only 1 mm up to 1200 mm. A new generation laser emitter with 18 ° FoV improves performances under ambient light, with ranging speed up to 100 Hz.

With very low power consumption thanks to an Autonomous mode with programmable distance threshold, the VL53L4CD is ideal for use in battery powered devices. Its fully embedded on-chip processing helps to reduce design complexity as well as BOM cost since less powerful and less expensive microcontrollers can be used.

Like all Time-of-Flight (ToF) sensors based on ST's FlightSense technology, the VL53L4CD records an absolute distance measurement regardless of the target color and reflectance.

Housed in a miniature reflowable package which integrates a SPAD (single photon avalanche diode) array, the VL53L4CD achieves the best ranging performance in various ambient lighting conditions and for a wide range of cover glass materials.

All of ST's ToF sensors integrate a VCSEL (vertical cavity surface emitting laser) which emits a fully invisible 940 nm IR light which is totally safe for eyes (Class 1 certification).

## Revision history

**Table 1. Document revision history**

Date	Version	Changes
02-Sep-2021	1	Initial release

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