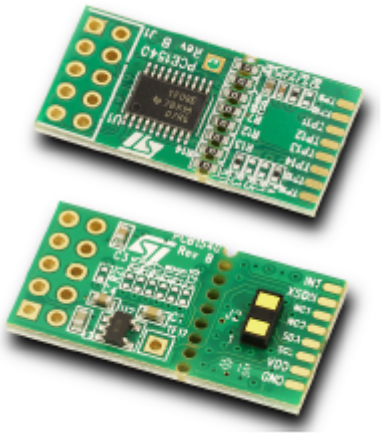
VL53L1-SATEL

Data brief

Breakout boards based on the VL53L1 Time-of-Flight ranging sensor with multi object detection and field of view programming



Features

- Two breakout boards, integrating:
  - VL53L1 ranging Time-of-Flight (ToF) sensor
  - Regulator: 5 to 2.8 V range input voltage (output voltage: 2.8 V)
- True distance measurement independent of target size and reflectance
- Divisible board enabling use as mini PCB breakout board, easy to integrate in customer device

Description

The VL53L1-SATEL breakout boards can be used for easy integration into customer devices.

Thanks to the voltage regulator and level shifters, the VL53L1 breakout boards can be used in any application with a 2.8 V to 5 V supply.

The PCB section supporting the VL53L1 module is perforated so that developers can break off the mini PCB for use in a 2.8 V supply application using flying leads. This makes it easier to integrate the VL53L1-SATEL breakout boards into development and evaluation devices due to their small size.

Product status link
VL53L1-SATEL

1 VL53L1 overview

The VL53L1 is a state-of-the-art, ToF, laser-ranging, miniature sensor enhancing STMicroelectronics' FlightSense product family. Housed in a miniature and reflowable package, it integrates a SPAD (single photon avalanche diode) array, physical IR filters, and optics to achieve the best ranging performance in various ambient lighting conditions, with a wide range of cover windows.

Unlike conventional IR sensors, the VL53L1 uses ST's latest ToF technology which allows absolute distance measurement whatever the target color and reflectance. It provides accurate ranging above 4 m and can work at fast speeds (60 Hz), which makes it the fastest miniature ToF sensor on the market.

With patented algorithms and ingenious module construction, the VL53L1 is also able to detect different objects within the FoV (field of view) with depth understanding at 60 Hz.

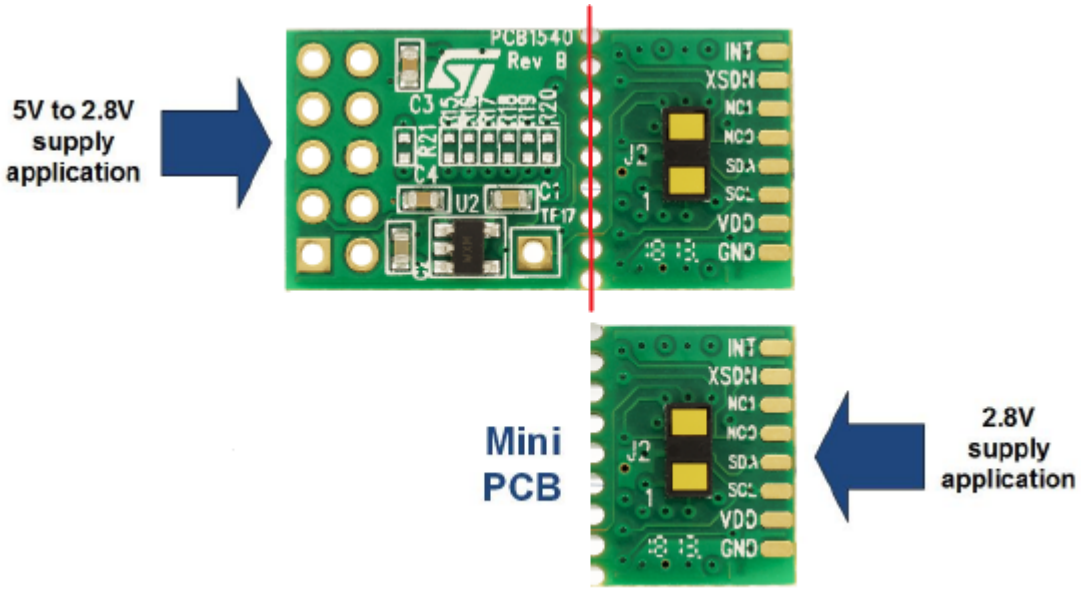
Scene browsing and multi zone detection is now possible with the VL53L1, thanks to a software customizable detection array for quicker "touch-to-focus" or mini depth map use cases.

Note: The VL53L1 is delivered with a liner, to prevent potential foreign material penetrating the module holes during the assembly process. The liner must be removed at the latest possible step during final assembly and before module calibration.

2 Breakable board

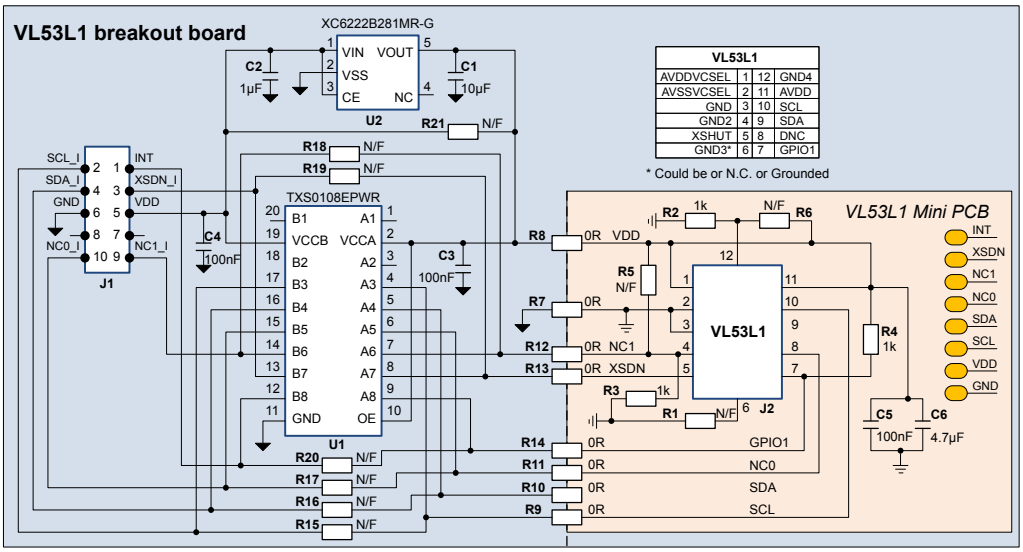
For 2.8 V supply applications, the breakout boards can be broken along the red dotted line as shown in the figure below, to use the “mini PCB”. This set up is easier to integrate into a customer device due to its small size.

Figure 1. Breakout board layout



3 Schematic and list of materials

Figure 2. **Satellite schematic and list of materials**



4 Ordering information

Table 1. **Ordering information**

Order code	Description
VL53L1-SATEL	Two VL53L1 breakout boards

Revision history

Table 2. **Document revision history**

Date	Version	Changes
23-Jul-2020	1	Initial release