

VL53L3CX breakout board Time-of-Flight ranging sensor with multi target detection



Features

- VL53L3CX Time-of-Flight (ToF) ranging sensor with multi target detection
- Regulator: 5 to 2.8 V range input voltage (output voltage: 2.8 V)
- VL53L3CX signal interface level shifter
- 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 VL53L3CX-SATEL breakout boards can be used for easy integration into customer devices.

Thanks to the voltage regulator and level shifters, the VL53L3CX breakout boards can be used in any application with a 2.8 V to 5 V supply.

The PCB section supporting the VL53L3CX 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 VL53L3CX-SATEL breakout boards into development and evaluation devices due to their small form factor.

Table 1. Device summary

Order code	Description
VL53L3CX-SATEL	Two VL53L3CX breakout boards

1 VL53L3CX overview

The VL53L3CX is the latest ToF product from STMicroelectronics and embeds ST's third generation FlightSense patented technology. It combines a high performance proximity and ranging sensor, with multi target distance measurements and automatic smudge correction. The miniature reflowable package integrates a single photon avalanche diode (SPAD) array and physical infrared filters to achieve the best ranging performance in various ambient lighting conditions, with a wide range of cover glass windows.

The VL53L3CX combines the benefits of a high-performance proximity sensor, with excellent short distance linearity, together with ranging capability up to 3 m whatever the target color and reflectance.

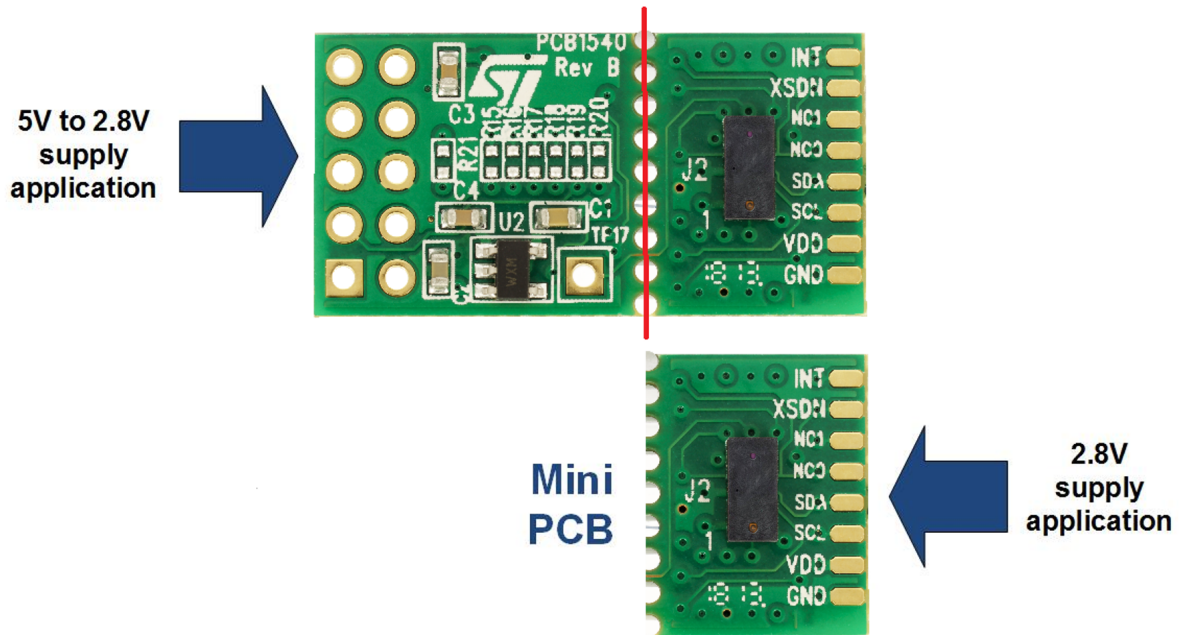
With patented algorithms and ingenious module construction, the VL53L3CX is also able to detect different objects within the field of view (FoV) with depth understanding. The ST histogram algorithms allow cover glass crosstalk immunity beyond 80 cm, and dynamic smudge compensation below 80 cm.

Note: The VL53L3CX is delivered with a liner, to prevent potential foreign material penetrating inside 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

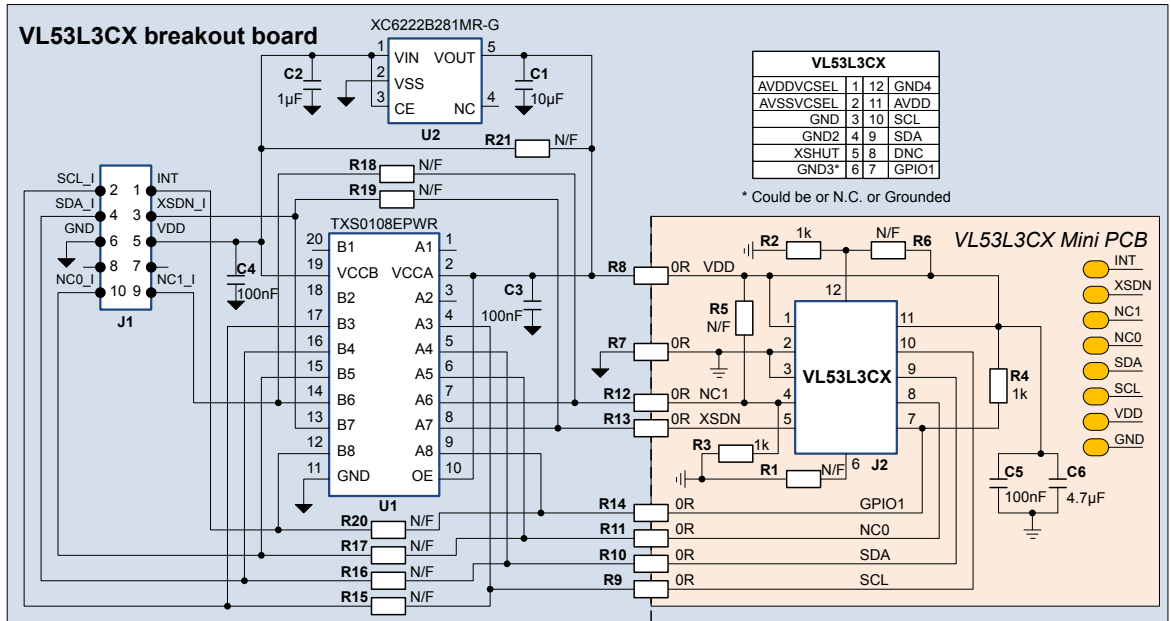
For 2.8 V supply applications, the breakout boards can be broken along the red dotted line as shown in the figure below, to use the “mini PCB”. This set up is easier to integrate into a customer device due to its small form factor.

Figure 1. Breakout board layout



3 Schematic and list of materials

Figure 2. Breakout board schematic and list of materials



Revision history

Table 2. Document revision history

Date	Version	Changes
06-Apr-2020	1	Initial release