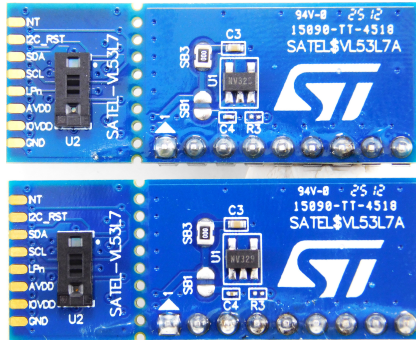# Breakout board based on the VL53L7 series Time-of-Flight sensors

Features

- Breakout boards based on the VL53L7 series for STM32 Nucleo
  - VL53L7CX Time-of-Flight (ToF) 8x8 multizone ranging sensor with 90 degrees FoV
  - VL53L7CH Artificial intelligence enabler, Time-of-Flight (ToF) 8x8 multizone sensor with 90 degrees FoV
- Divisible board that can be used as a mini-PCB breakout board, easy to integrate into the customer's device
- Two breakout boards available in the package
- Compatible with X-NUCLEO-53L7A1

Description

The SATEL-VL53L7 package includes two breakout boards, which can be easily integrated into the customer's devices.

The PCB section that embeds the VL53L7 series Time-of-Flight sensor module is perforated. The developers can then break off the mini-PCB and use it in a 3.3 V supply application via flying wires.

The breakout boards support two products, VL53L7CX and VL53L7CH.

The VL53L7CX is an 8x8 multizone, ToF ranging sensor. Based on STMicroelectronics FlightSense technology, the sensor is designed to provide accurate ranging up to 350 cm with a 90° diagonal FoV.

The VL53L7CH is the perfect Time-of-Flight sensor enabling AI applications, with ultrawide 90° diagonal FoV and low-power consumption. The compact and normalized histogram (CNH) innovative data output is specially designed for artificial intelligence (AI) applications requiring multizone raw data from a high-performance multizone ToF sensor.

This makes it easier to integrate the SATEL-VL53L7 breakout boards into the development and evaluation devices, thanks to their small size.

Product summary	
Breakout board based on the VL53L7 series Time-of-Flight sensors	SATEL-VL53L7
Time-of-Flight 8x8 multizone ranging sensor with 90 degrees FoV expansion board based on the VL53L7CX for STM32 Nucleo	X-NUCLEO-53L7A1
Applications	Home Entertainment
	Gaming and XR accessories
	Smartphones, Tablets and eReaders
	Wearable

1 Breakout boards

You can break the breakout boards along the perforations to use the mini-PCB.

Figure 1. Breakout board
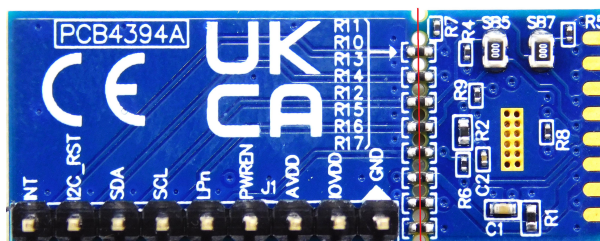
This setup is easier to integrate into a customer's device thanks to its small form factor.

You can plug the VL53L7 breakout boards directly onto the X-NUCLEO-53L7A1 expansion board through two six-pin connectors (Figure 2), or connect them to the board through flying wires (Figure 3).

Figure 2. SATEL-VL53L7 breakout boards connected to the X-NUCLEO-53L7A1 expansion board
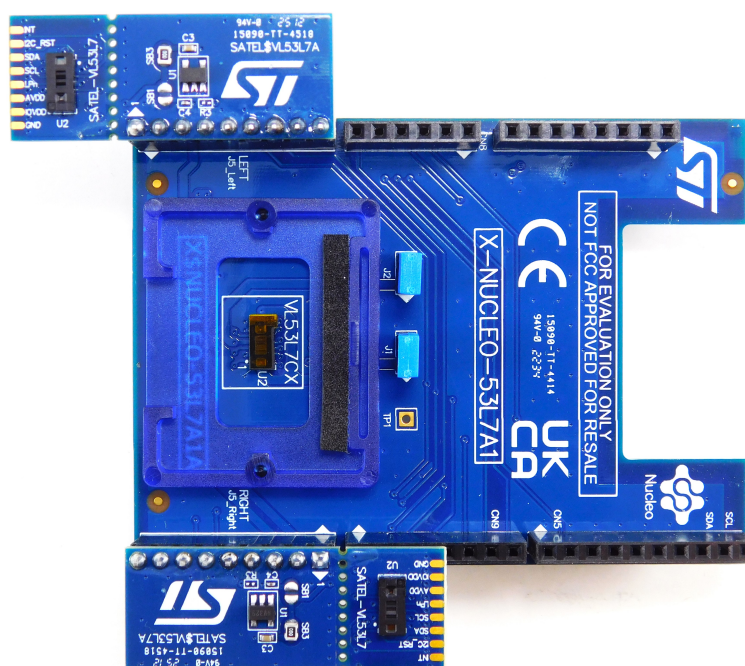
Figure 3. SATEL-VL53L7 mini-PCB flying wire connection to the X-NUCLEO-53L7A1 expansion board
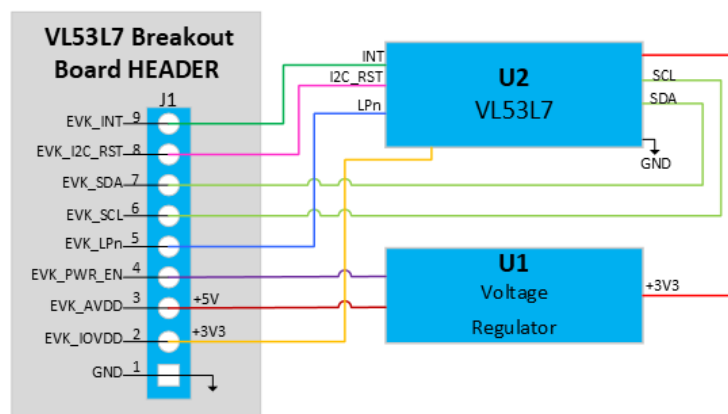
2   Ordering information for the VL53L7 series ToF sensor

This board is equipped with a noncommercial VL53L7CA evaluation purpose only Time-of-Flight sensor. Its equivalent orderable products are listed in the following table.

For a detailed description of each sensor, please refer to its datasheet on the product web page.

Additional information is available from the user manual and collateral documents of the target ToF sensor.

Table 1. Ordering table

RPN	CPN	Datasheet	Features
VL53L7CX	VL53L7CXV0GC/1	DS13865	Low-power high-performance Time-of-Flight 8x8 multizone ranging sensor with 90° FoV
VL53L7CH	VL53L7CHV0GC/1	DS14309	Artificial intelligence enabler, Time-of-Flight (ToF) 8x8 multizone sensor with 90° FoV

3 **Schematic diagrams**

Figure 4. SATEL-VL53L7 circuit schematic
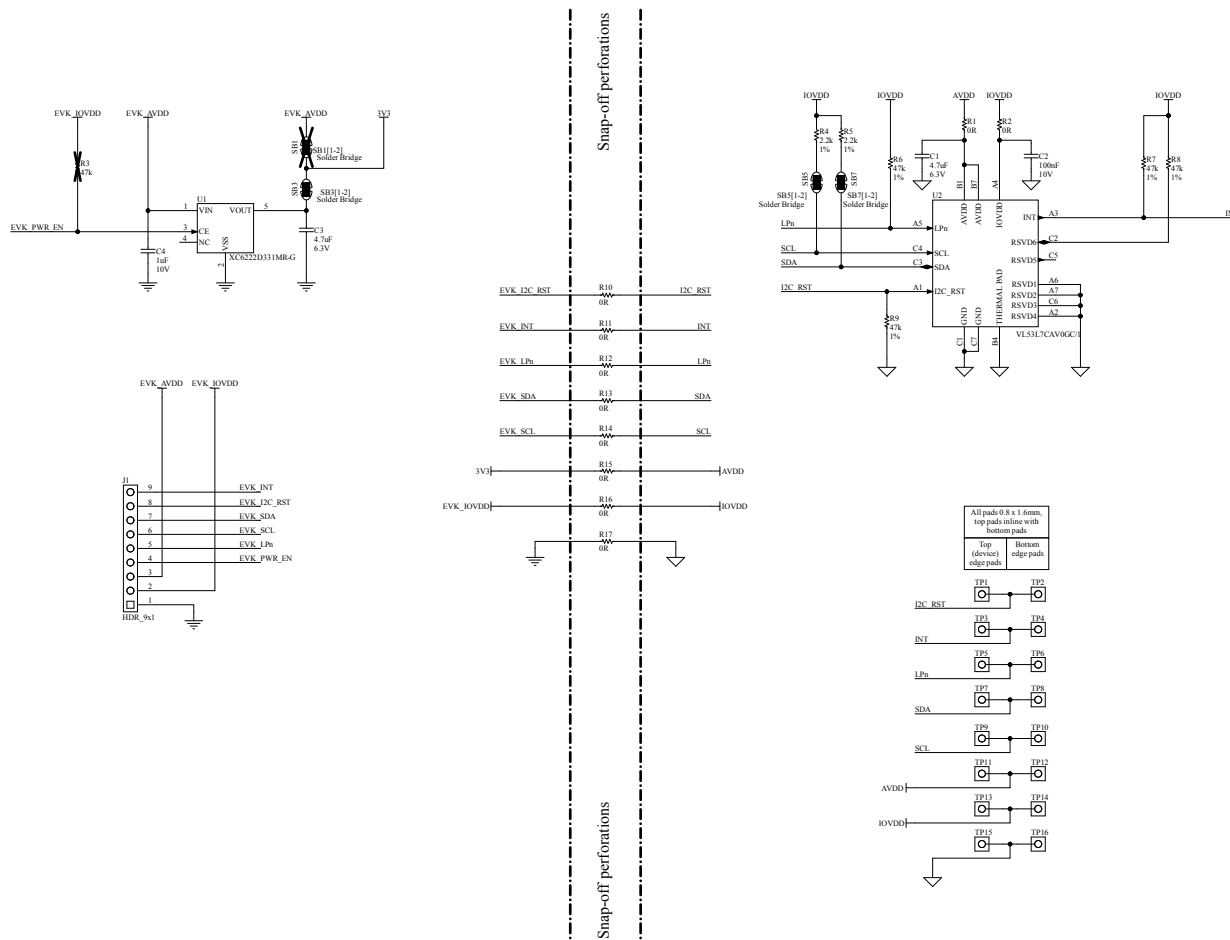
4 Board versions

Table 2. SATEL-VL53L7 versions

Finished good	Schematic diagrams	Bill of materials
SATEL$VL53L7A [1]	SATEL$VL53L7A schematic diagrams	SATEL$VL53L7A bill of materials

1. This code identifies the SATEL-VL53L7 expansion board first version.

Revision history

Table 3. Document revision history

Date	Revision	Changes
17-Jun-2025	1	Initial release.

IMPORTANT NOTICE – READ CAREFULLY