

# Unit ToF

SKU:U010

UNIT  
ToF



VL53L0X  
DISTANCE  
SENSOR

I2C  
INTERFACE



## Description

**Unit ToF** is a high-precision laser distance measurement unit. It integrates the VL53L0X laser ranging sensor and adopts Time-of-Flight (ToF) technology to accurately calculate distance by measuring the round-trip time of the laser, independent of target reflectivity. This unit communicates via the I2C interface (0x29) and integrates a 940nm VCSEL laser emitter and a SPAD array receiver. It supports a measurement range of 3cm ~ 200cm with a response time of less than 30ms. Featuring a LEGO-compatible hole design, it can be flexibly integrated with LEGO structures or mounted using screws. It is suitable for various distance-measurement application scenarios such as robot obstacle avoidance, smart home control, and auto-focusing.

## Features

- Measurement Range: 3cm ~ 200cm
- Measurement Accuracy:  $\pm 3\%$
- Resolution: 1mm
- Response Time: < 30ms
- Laser Wavelength: 940nm
- 2 x LEGO-Compatible Holes
- Development Platform

- UiFlow1
- UiFlow2
- Arduino IDE

## Includes

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- 1 x Unit ToF
- 1 x HY2.0-4P Grove Cable (20cm)

## Applications

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- Laser ranging
- 3D structured light imaging (3D sensing)
- Camera assistance (ultra-fast autofocus and depth mapping)

## Specifications

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Specification	Parameter
Sensor	VL53L0X
Protocol	I2C @0x29
Measurement Range	3cm ~ 200cm
Measurement Accuracy	±3%
Product Size	32.0 x 24.0 x 8.0mm
Product Weight	4.1g
Package Size	138.0 x 93.0 x 9.0mm
Gross Weight	9.4g

## Learn

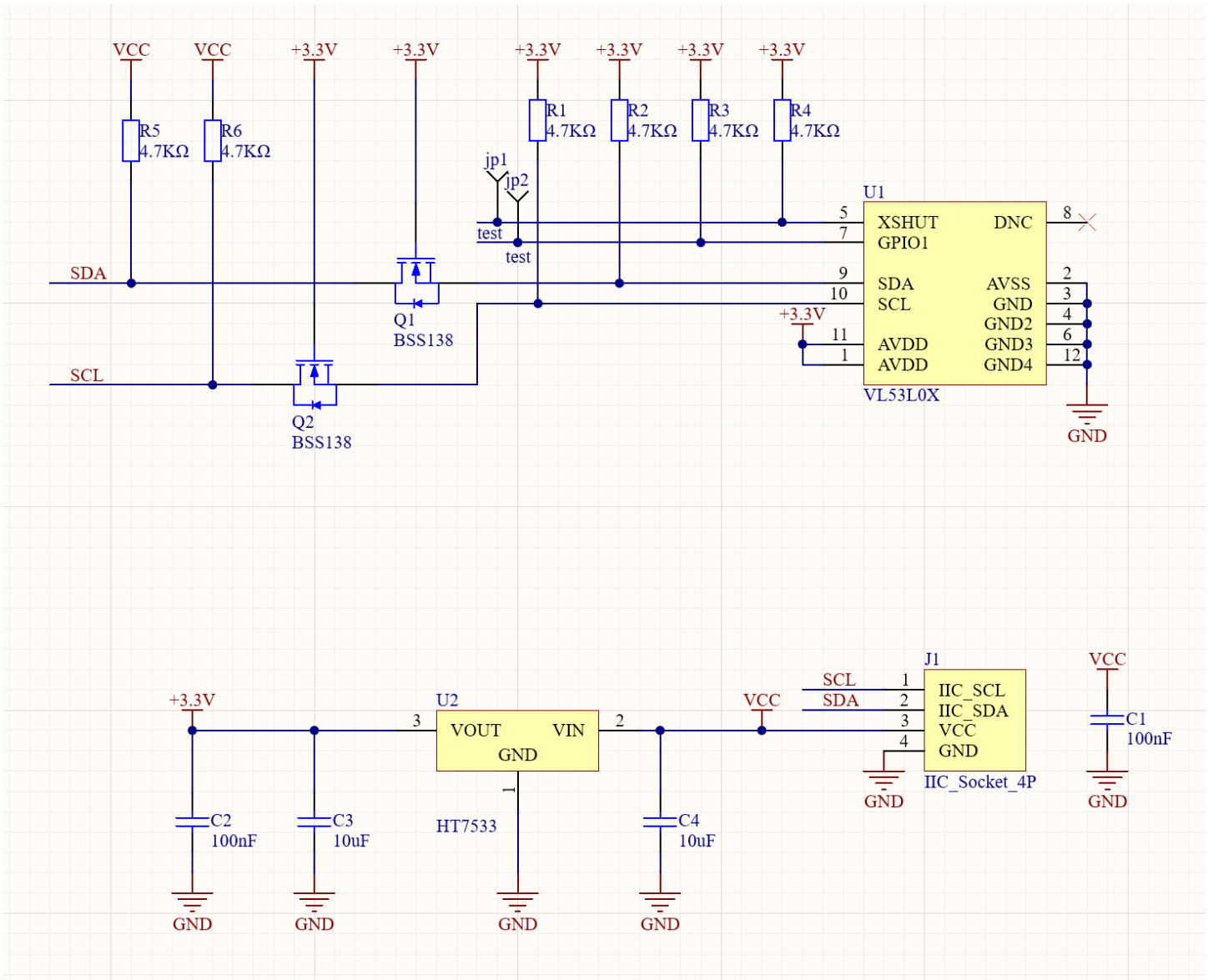
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### Measurement Distance

Under normal conditions, the maximum test distance is 120cm; to reach 200cm, you need to set Long Range mode and ensure a dark environment without infrared interference.

## Schematics

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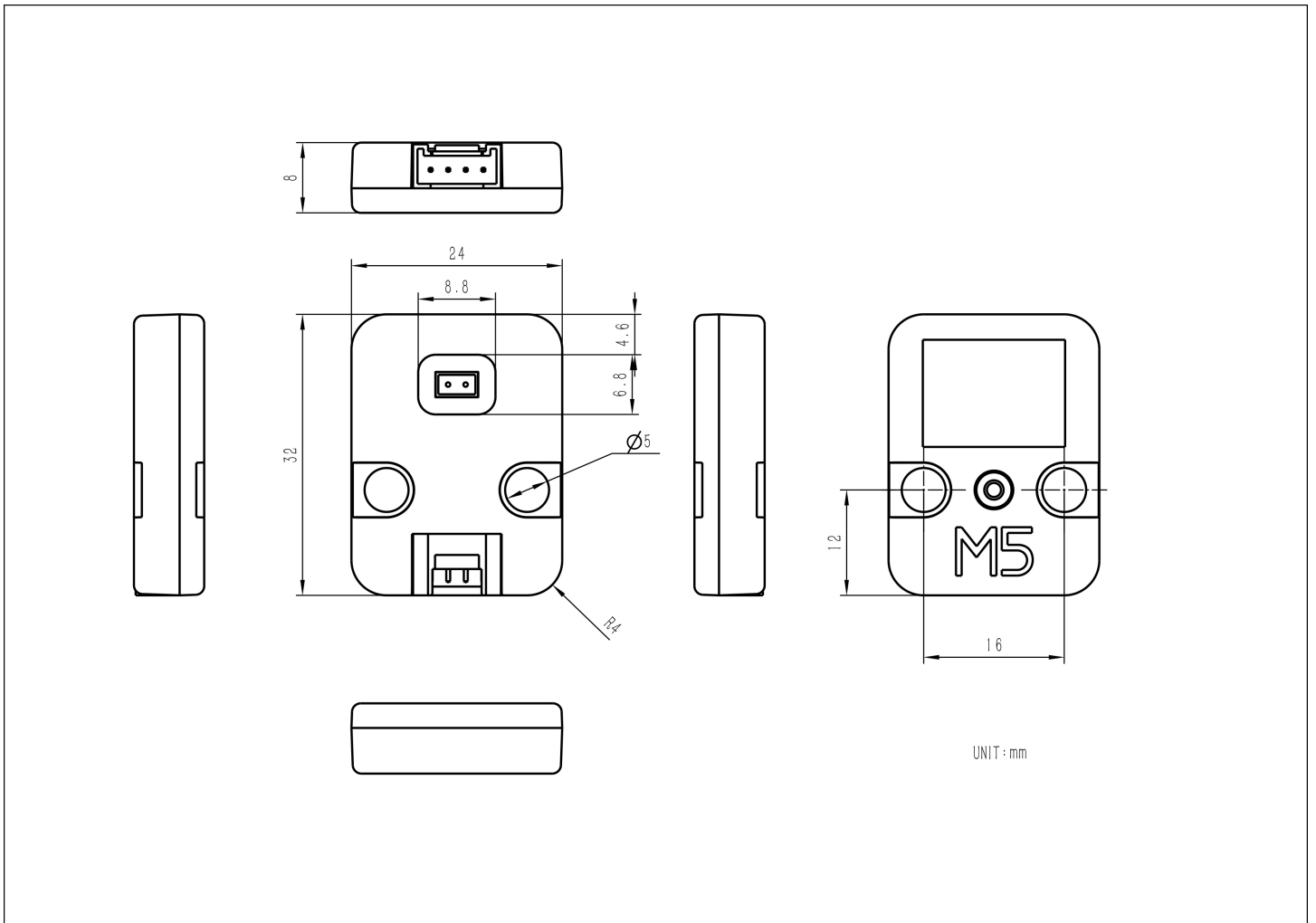


## PinMap

## Unit ToF

HY2.0-4P	Black	Red	Yellow	White
PORT.A	GND	5V	SDA	SCL

## Model Size



## Datasheets

- [VL53L0X Datasheet](#)

## Softwares

### Arduino

- [Unit ToF Test Program](#)

### UiFlow1

- [Unit ToF UiFlow1 Docs](#)

### UiFlow2

- [Unit ToF UiFlow2 Docs](#)

### EasyLoader

Easyloader	Download	Note
Unit ToF Test Example Easyloader	<a href="#">download</a>	/

## Video

- Unit TOF Example

[ToF\\_UNIT.mp4](#)

## Product Comparison

### Product Compare



**Unit-ToF4M**



**Unit-TOF**

Chip	VL53L1X	VL53L0X
Maximum Range	4 meters	2 meters
Typical Accuracy	±1-2%	±3%
Field of View (FoV)	27° (adjustable)	25°
Adjustable Field of View	YES	NO