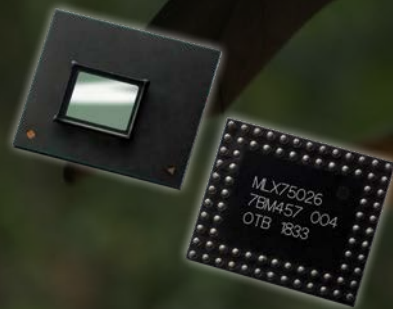




**MLX75026**

AUTOMOTIVE GEN3 QVGA 3D

**TIME-OF-FLIGHT SENSOR  
WITH IRBP FILTER**



Microbats generate ultrasound via the larynx and emit the sound through the nose or open mouth: from 14,000 to over 100,000 hertz, well beyond the range of the human ear. The emitted vocalizations form a broad beam of sound used to probe the environment, as well as communicate with other bats.

## ACCURATE, SUNLIGHT AND TEMPERATURE ROBUST 3D RANGE DETECTION

The MLX75026 QVGA is the second member of the third generation of fully integrated optical time-of-flight (ToF) sensors. It is backward compatible with the MLX75027 VGA resolution ToF sensor.



Target applications include automotive driver monitoring (DMS), in-cabin monitoring (ICM), exterior cocooning as well as robotics, autonomous transport (AGVs), people and 3D object detection in industry, retail, logistics and smart cities.

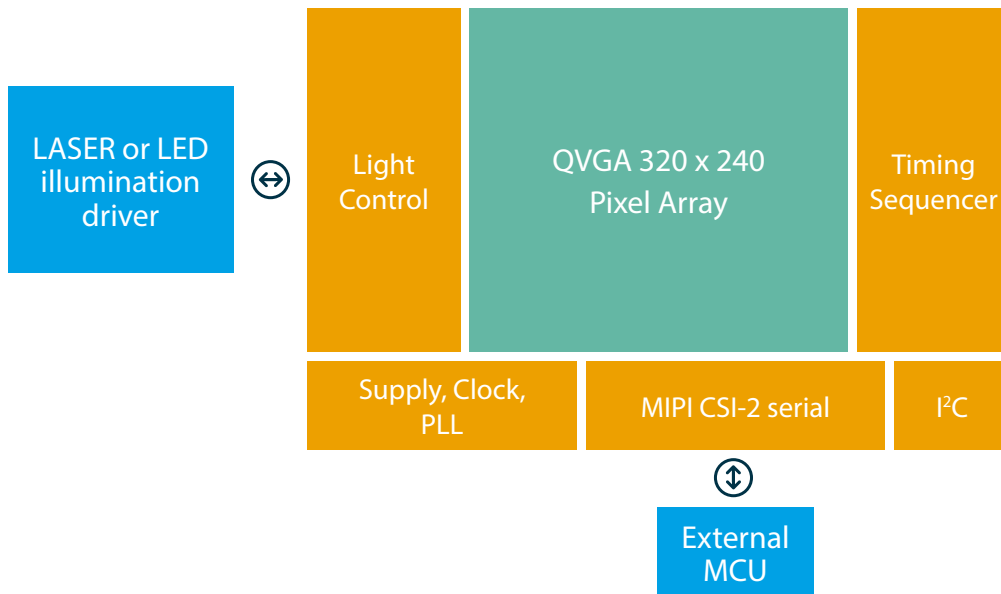
In automotive interior sensing use cases, while one VGA resolution sensor covers the full interior of a car, the MLX75026 QVGA ToF sensor offers a similar resolution for single-seat areas e.g. for driver monitoring, body position, occupancy classification, etc.

The sensor features a QVGA (320x240) pixel array and comes in a small package size and small 1/4" optical format and it is available with Standard Anti Reflective Coating or with integrated 940nm Narrow IR bandpass filter.

Its full compatibility with the VGA ToF sensor highly facilitates the reuse of existing software, which eases migration paths between cost-effective QVGA and more high-end VGA solutions.

The EVK75026 evaluation kit is available to evaluate the MLX75026 QVGA ToF sensor.

## BLOCK DIAGRAM



## KEY FEATURES

- ✓ QVGA (320 x 240 pixels) resolution
- ✓ 1/4" optical format
- ✓ High distance accuracy due to programmable modulating frequencies up to 100 MHz
- ✓ Full resolution readout up to 180 fps (distance frames in 4 phase configuration)
- ✓ 0.8 ms phase readout time
- ✓ Up to 8 raw phases per frame, per-phase statistics & diagnostics
- ✓ Region of interest (ROI) selection, integrated support for binning (2x2, 4x4, 8x8), horizontal mirror & vertical flip image modes
- ✓ Continuous or triggered operation mode(s)
- ✓ Configurable over I2C (up to 400 kHz)
- ✓ CSI-2 serial data output, MIPI D-PHY, 1 clock lane, 2 data lanes
- ✓ Built-in temperature sensor
- ✓ Package: 9.2 x 7.8 x 1.0 mm encapsulated BGA (80 pins)
- ✓ Double sided ARC for 850 and 940nm IR illumination or 940nm bandpass filter
- ✓ Ambient operating temperature range -40 +105 °C (ambient temperature)
- ✓ AEC-Q100 qualified (grade 2)

## APPLICATIONS



### Comfort & UX

- ✓ Hand position detect
- ✓ Hand gestures
- ✓ Intuitive HMI, pointing finger
- ✓ Object detection, parcel classification
- ✓ Face and body recognition

### Safety L3/L4 - Legal, NCAP

- ✓ Driver monitoring, eye gaze/open/close ...
- ✓ Driver activity detection
- ✓ Hand-on wheel
- ✓ Occupant classification, head & body pose
- ✓ Advanced seatbelt detection
- ✓ Child left behind

### Security

- ✓ Anti-spoof (2D+3D based) face and body recognition
  - access control
  - secure authentication

### Autonomous vehicles

- ✓ Blindspot detection
- ✓ Collision avoidance
- ✓ Autonomous parking
- ✓ Vehicle exterior cocoon
- ✓ Smart access