Melexis
INSPIRED ENGINEERING

MLX75027

VGA TIME OF FLIGHT 3D CAMERA
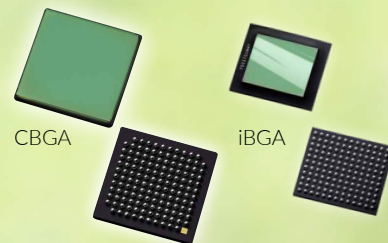
CBGA   iBGA

The MLX75027 time-of-flight (ToF) sensor supports up to VGA resolution. The sensor, alongside the BSI VGA pixel array, provides the control signals for the illumination unit and has a MIPI CSI-2 high speed serial interface to stream data to the host processor. The sensor enables the design of very compact 3D cameras. It is compatible with the MLX75026 QVGA resolution ToF sensor IC.

TOF 3D BY Melexis

The targeted 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.

The MLX75027 supports up to 100MHz illumination modulation frequency, which makes it well suited for VCSELs illumination. It also has a built-in temperature sensor.

An EVK75027 kit is available to evaluate the MLX75027 VGA ToF sensor.

Product	Package	Microlens [°]	Temperature [°C]	ASIL / SIL
MLX75027RTC	iBGA (TI)	30	-40 to 105 °C (automotive)	not applicable
MLX75027RTI	CBGA (TC)	15	-40 to 105 °C (automotive) -20 to 85 °C (industrial)	ASIL B capable

BLOCK DIAGRAM
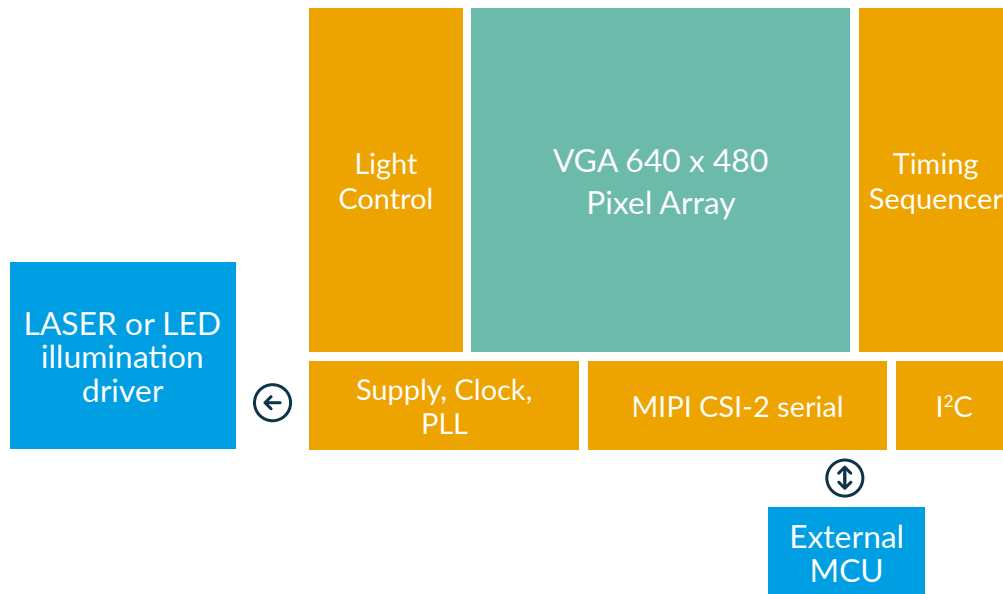
KEY FEATURES

- 1/2" optical VGA (640 x 480) ToF image sensor
- High distance accuracy because of programmable modulating frequencies up to 100MHz
- Full resolution readout up to 120 distance frames per second (in 4 phase configuration)
- 1.5ms phase readout time
- Up to 8 raw phases (or quads) per frame
- Per-phase statistics & diagnostics
- Continuous or triggered operation mode(s)
- Configurable over I²C (up to 400kHz)
- CSI-2 serial data output, MIPI D-PHY, 1 clock lane, 2 or 4 data lanes
- Built-in temperature sensor
- Region of interest (ROI) selection
- Integrated support for binning (2x2, 4x4, 8x8)
- Horizontal mirror & vertical flip image modes

- Packages RoHS compliant (141 pins)
  - CBGA (TC) 14 mm x 14 mm
  - iBGA (TI) 11 mm x 9.5 mm
- Ambient operating temperature range
  - -40 +105°C (automotive)
  - -20 +85°C (industrial)
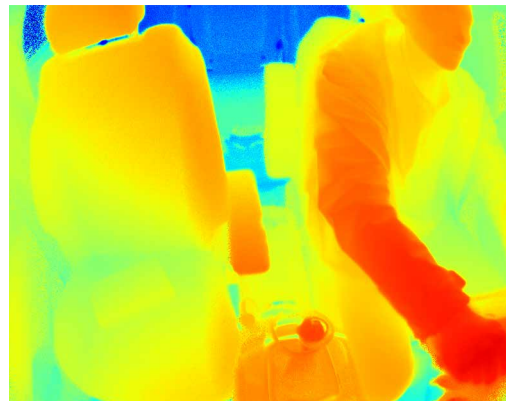
APPLICATIONS

- Driver monitoring (DMS)
- In-Cabin Monitoring (ICM)
- Car exterior cocooning

- Robotics
- Autonomous transport (AGVs)
- People and object detection in industry, retail, logistic and smart cities