

Features

- Imaging Array:
 - 160×120 array
 - Active area: 3900×3000 μm^2
 - Die size: 6379×5260 μm^2
 - Pixel Pitch: 18.8 μm (vertical), 21.4 μm (horizontal)
 - Frame rate: scalable up to 120 FPS
- Optical Properties:
 - SPAD PDE: 5% @ 940nm
- Distance Measurement
 - Range: up to 15m
 - Range resolution: 0.75cm
 - Measurement accuracy: $\pm 1\%$
- On-Chip Calibration
 - Ambient light suppressing
 - System level calibration for non-linear signal distortions
- Digital Interface:
 - Configuration: I2C, up to 200kHz
 - ToF output: 11 bits DVP, up to 75MHz
- Power Supply: 1.5V/3.3V/28.5V
- Optimized Optical Package
 - COB
- Operating Temperature: -20°C to 65°C
- Storage Temperature: -40°C to 105°C

Applications

- Advanced Driver Assistance System (ADAS)
- SLAM for robotic vacuum
- 3D machine vision
- Security and surveillance
- Gesture controls
- Augmented and virtual reality
- Collisions avoidance for UAV (Unmanned Aerial Vehicle) & AGV (Automated Guided Vehicle)

Description

VisionICs releases a single photon imaging sensor features a monolithic single photon imaging detector array of 19k pixels (160 rows by 120 columns) with integrated 3D imaging electrical circuits. The SoC provides the high-performance and cost-effective solid-state Lidar and 3D imaging solutions. Based on visionICs' single photon detection and direct Time-of-Flight (ToF) technology, the sensor could output 3D cloud point data with centimeter distance resolution. Actual detection range depends on the laser optical power and optics field-of-view. Measurement data is transferred via SPI. High reliability and robust can be achieved by removing the mechanical scanning system. The sensor is capable of working at outdoor environment, thanks to the on-die ambient light suppression algorithm.

Application Block Diagram

