

OPN8001 100×100 3D Time-of-Flight Sensor

Features

- Imaging Array
 - 100 × 100 Array
 - Flexible ROI (100 × 10)
 - 1/6 Optical Format
 - Pixel Pitch: 15 μm
 - Frame Rate: 5fps, 10fps, 20fps, 30fps, 60fps, 120fps
- Optical Properties
 - Responsivity: 850nm or 940nm
- Control Interface
 - CCI(I2C)
- Data Interface
 - MIPI CSI-2
- Multi-Sensor Capability
- Timing Generator
- 3.3V Single Power Supply
- Low Power Consumption with Scalability
 - <50mW @ 30fps
- One System Clock for all range measurement with wide range flexibility
- Leading accurate measurement resolution in the industry
 - <= 0.5% of distance (0.2 ~ 10m @ 30fps)
- Micro lens availability with advanced optical system solution capability
- Eye Safety Controllability
- Operating Temperature: -20~85°C

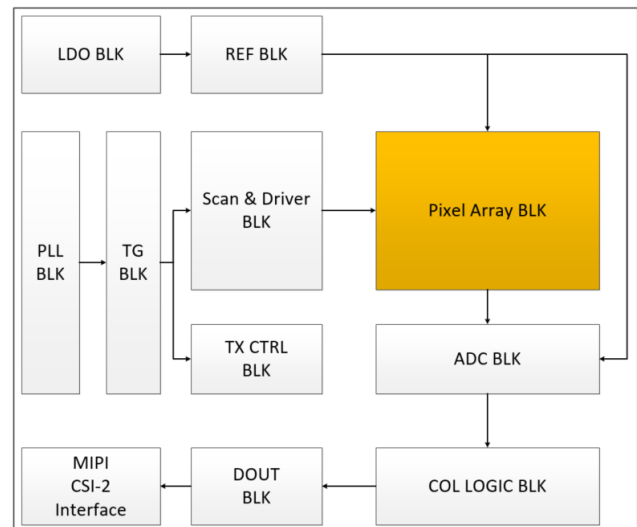
Applications

- Depth Sensing
 - 3D Sensing
 - 3D Face & Gesture recognition
 - 3D Gaming and AR/VR solutions
 - Security, Surveillance and Industry Automation
 - Drone, AGV and Robot Sensing
 - Automotive Self-driving sensing

General Description

OPN8001 is a Time-of-Flight (ToF) imaging sensor for 3D sensing covering a 100x100 level matrix sensing resolution. The 3D sensing is realized upon NIR wave length with an industry leading accuracy. The power consumption of this chip achieves the lowest power level in the industry, which will benefit many portable and energy saving applications. OPN8001 is developed as one key product of a series of OPNOUS ToF solutions, which will be compatible with other OPNOUS products by sharing similar SDK, Module and Firmware features. This product supports MIPI CSI-2 interface for a broad range of applications.

Block Diagram

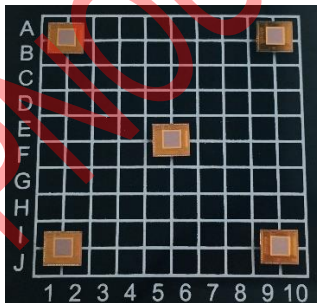


Specifications

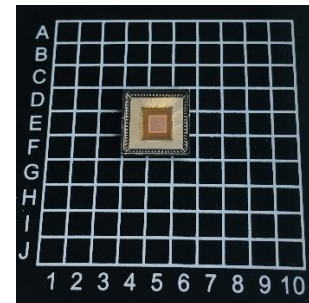
Pixel Size	15um × 15um
Number of Pixels	100(H) × 100(V) pixels
Frame Rate	5fps, 10fps, 20fps, 30fps, 60fps, 120fps
Shutter Mode	Global Shutter
Target Wavelength	850nm or 940nm
Measure Range	0.2 ~ 5m(@37ns)
Range Accuracy	1mm (@1m)
ADC Resolution	12-bit on-chip
Control Interface	CCI (I2C)
Data Interface	MIPI CSI-2
External Input Clock Frequency	27MHz(typ.)
MIPI Clock Frequency	189MHz
Output Data Rate	378Mbps/lane (2-lane)
Power Supply	3.3V
Power Consumption	≤50mW @ 30fps
Operation Temperature	-20 ~ +85 °C

Ordering Information

Product Type	Description	Pixel Resolution	Package	Optical Format	Pixel Size	Body Size	Interface
OPN8001D	3D ToF Sensor	100 x 100	Bare Die - 53	1/6"	15um	3.72 mm × 4.12 mm	MIPI
OPN8001Q	3D ToF Sensor	100 x 100	QFN-68	1/6"	15um	8.00 mm × 8.00 mm	MIPI



OPN8001D



OPN8001Q