Mira016 – Product overview

1/10” 0.16MP NIR Enhanced Global Shutter Image Sensor

Internal & Distributor use – Not for external distribution

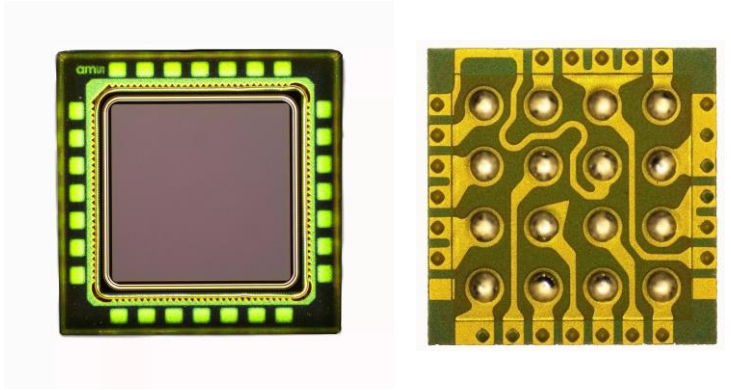
01/25

Mira016

1/10” 0.16MP NIR Enhanced Global Shutter Image Sensor

Applications

- Head, eye, gesture tracking for AR/VR
- Automatic Identification and Data Capture (AIDC), QR Readers
- Drones
- Smart Wearable Devices
- Mobile Facial Authentication
- Active Stereo Vision
- Structured Light Vision
- Smart Home Appliances



General description

Mira016 is a compact 0.16MP Near IR enhanced global shutter image sensor and has a small 2.79 µm pixel size with high sensitivity made possible by a state-of-the-art BSI technology. The sensor has a MIPI CSI-2 interface to allow easy interfacing with a plethora of processors and FPGAs. With its small 1.8mm x 1.8mm size, configurability and high sensitivity both in visual as well as NIR wavelengths. Low active power and high sensitivity in NIR enables increased measurement range as well as overall system power consumption optimization which is key for battery powered consumer and industrial applications.

Key Features

- Programmable registers
- High sensitivity and NIR enhanced pixel
- Context switching
- On-chip processing
- On-chip advanced power management
- On-chip temperature sensor
- Illumination synchronization trigger

Associated Benefits

- Compact size
- Low active power
- NIR enhanced with high sensitivity
- On-chip noise reduction
- Reduced off-chip processing
- Extended battery operation
- Ideal in low light conditions

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Key Sales Message

Mira016 is a compact 0.16MP Near IR enhanced global shutter image sensor designed for 2D and 3D consumer and industrial machine vision applications. The sensor has a small 2.79 µm pixel size with high sensitivity made possible by a state-of-the art BSI technology. The sensor has a MIPI CSI-2 interface to allow easy interfacing with a plethora of processors and FPGAs. With its small 1.8mm x 1.8mm size, configurability, and high sensitivity both in visual as well as NIR wavelengths, the Mira016 is well suited for many 2D and 3D applications, including eye tracking in ARVR. Low active power and high sensitivity in NIR enables increased measurement range as well as overall system power consumption optimization which is key for battery powered consumer and industrial applications.

Unique Selling Proposition

- High NIR sensitivity means lower illumination needed in NIR applications 940nm and 850nm
- Ultra-low power consumption with dynamic power management to optimize power consumption based on target application of the customer
- Stacked Image Sensor where the pixel layer and logic layer are stacked meaning the ratio of active pixel area to passive area is high compared to competitors

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Discovery Questions

Q1: What is the requested resolution, frame rate and exposure time to be used?
A1: Mira016 supports a max res of 0.16MP, 400 by 400 pixels, but supports flexible windowing such that a cropped image can be supported.

Q2: What is the wavelength of operation. Visible range, NIR range or both?
A2: Mira016 supports high QE and sensitivity both in NIR and Visible range. Please see latest datasheet for data.

Q3: What are the power requirements of the Mira016?
A3: Mira016 is best in class for power consumption and will provide a huge advantage for battery operated systems.

Q4: What is the sensor integration, will a bare die or chip scale package (CSP) be needed?
A4: To be answered by the customer. Generally, customers prefer CSP version but bare die is also available.

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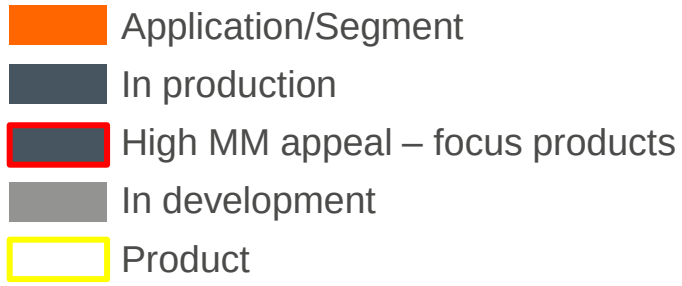
Web resources, Price, Availability

Product Info Page		https://ams-osram.com/products/sensors/cmos-image-sensors/ams-mira016-cmos-image-sensor
Product Documentation		https://ams-osram.com/support/download-center?search=Mira016
Availability	Product Release Dates:	Disti NPI notification date: 10.01.2025 Official release of CSP: 23.01.2025 Official release of bare die: 30.01.2024
Additional resources	Mira Evaluation Kit	https://ams-osram.com/products/boards-kits-accessories/kits/ams-mira-evm-sn-raspberry-evaluation-kit
	Official Press Release	https://ams-osram.com/de/news/media-update/photonics-west-2024

Mira Global Shutter CMOS Image Sensor

Product Portfolio & Roadmap



2.2MP, 1600x1400, 2.79um enhanced NIR pixel
Monochrome, RGB and RGBIR available
1/2.7” optical format, CSP and bare die

0.5MP, 576x768, 2.79um enhanced NIR pixel
Monochrome, RGB and RGBIR under review
1/7” optical format, CSP and bare die (600x800)
Product Release 2022Q4

0.16MP, 400x400, 2.79um enhanced NIR pixel
Monochrome
1/10” optical format, CSP and bare die
Target Availability 2024Q1

Mira220
2.2MP 90fps

Mira130
1.3MP 120fps

Mira050
0.5MP 245fps

Mira016
0.16MP 480fps

Mira
Consumer and Industrial
Sensor Family

1.3MP, 1080x1280, 2.7um enhanced NIR pixel
Monochrome
1/4” optical format, bare die. PLCC

Mira016

Who to sell to…

	Communication, Computing, Consumer	Industrial
Example End Equipment	• Media Devices & Tablets	• Household / Industrial Robot
	• Wearables (incl. AR/VR)	• Access Control & Security
	• Computer (3D ID)	• Drones
	• Phone (3D ID)	• Home & Building Automation (HaBA) / Industrial Factory Automation
	• Media, TV, Home assist, Personal assist (user ID, motion sensing, etc.)	• Appliance (User ID, etc.)
Key Market Differentiators	• Small size (resolution per footprint)	
	• High NIR sensitivity	
	• High Speed	
	• Pipelined Global Shutter	
	• Back Side illumination	

Customer Invitation

Promotional Invite for official release

Dear _____

The Mira016 was recently introduced by ams OSRAM. The Mira016is a 0.16 MP Near IR enhanced ultra low power global shutter image sensor designed for augmented and virtual reality (AR/VR) camera-based eye tracking and world-facing gesture tracking, as well as other applications in 2D and 3D sensing and part of the broader ams OSRAM Mira image sensor portfolio.

This innovative device is designed for the following applications (among others):

- Eye and gesture tracking in AR/VR products
- SLAM based Navigation and obstacle avoidance in industrial and consumer robots and drones.
- Facial authentication in mobile devices, laptops and smart locks.

Key features and benefits include the following:

- High sensitivity and quantum efficiency both in visual as well as NIR spectrum which results in better image quality as well as lower illumination power requirements
- Ultra low power consumption which improves battery life
- A small footprint which is ideal for making camera modules that need to fit tight spaces.

You can learn more at the website here: https://ams-osram.com/products/sensors/cmos-image-sensors/ams-mira016-cmos-image-sensor

Thank you for your interest. Let me know if you would like to learn more about Mira016.

Sincerely,

<Your name here>