



Product Overview

PYTHON300: CMOS Image Sensor, Global Shutter, 0.3 MP (VGA)

For complete documentation, see the [data sheet](#)

Product Description

The PYTHON 300 is a 1/4 inch VGA CMOS image sensor with a pixel array of 640 by 480 pixels.

The high sensitivity 4.8 μm x 4.8 μm pixels support low noise “pipelined” and “triggered” global shutter readout modes. Furthermore the correlated double sampling (CDS) support in global shutter mode results in reduced noise and increased dynamic range.

The sensor has on-chip programmable gain amplifiers and 10-bit A/D converters. The integration time and gain parameters can be reconfigured without any visible image artifact. Optionally the on-chip automatic exposure control loop (AEC) controls these parameters dynamically. The image’s black level is either calibrated automatically or can be adjusted by adding a user programmable offset.

A high level of programmability using a four wire serial peripheral interface enables the user to read out specific regions of interest. Up to 8 regions can be programmed, achieving even higher frame rates. The image data interface consists of four LVDS lanes, facilitating frame rates up to 815 frames per second in Zero ROT mode. Each channel runs at 720 Mbps. A separate synchronization channel containing payload information is provided to facilitate the image reconstruction at the receiving end.

The PYTHON 300 is packaged in a 48-pin LCC package and is available in a monochrome and color version.

Contact your local ON Semiconductor office for more information.

Features

- IP-CDS global shutter technology
- True HW scalable family concept
- High configurability
- Fast adaptability
- Multiple windowing
- High Dynamic Range
- Higher frame rates

Benefits

- Enables global shutter imaging with single digit noise performance
- Easily adopt multiple resolutions (5 resolutions with single PCB)
- High flexibility to optimize sensor for customer application
- Fast switching between operating modes
- Speed increase from windowing in x- and y- direction
- Retain image detail in high-contrast scenes
- Faster image capturing capabilities

Applications

- Machine Vision
- Motion Monitoring
- Security
- Barcode Scanning

End Products

- Industrial cameras and systems
- Medical Imaging systems
- Barcode readers
- Inspection systems (food, bottles, recycling labels)

Part Electrical Specifications

| Product | Compliance | Status | Type | Megapixels | Frame Rate (fps) | Optical Format | Shutter Type | Pixel Size (µm) | Output Interface | Color | Package Type |
|------------------|------------------------|--------|------|------------|------------------|----------------|--------------------------------|-----------------|------------------|-------------|--------------|
| NOIP1FN0300A-QDI | Pb-free Halide free | Active | CMOS | 0.3 | 815 | 1/4 inch | Pipelined and Triggered Global | 4.8 x 4.8 | LVDS | NIR | LCC-48 |
| NOIP1FN0300A-QTI | Pb-free Halide free | Active | CMOS | 0.3 | 815 | 1/4 inch | Pipelined and Triggered Global | 4.8 x 4.8 | LVDS | NIR | LCC-48 |
| NOIP1SE0300A-QDI | Pb-free Halide free | Active | CMOS | 0.3 | 815 | 1/4 inch | Pipelined and Triggered Global | 4.8 x 4.8 | LVDS | Bayer Color | LCC-48 |
| NOIP1SE0300A-QTI | Pb-free Halide free | Active | CMOS | 0.3 | 815 | 1/4 inch | Pipelined and Triggered Global | 4.8 x 4.8 | LVDS | Bayer Color | LCC-48 |
| NOIP1SN0300A-QDI | Pb-free Halide free | Active | CMOS | 0.3 | 815 | 1/4 inch | Pipelined and Triggered Global | 4.8 x 4.8 | LVDS | Mono | LCC-48 |
| NOIP1SN0300A-QTI | Pb-free Halide free | Active | CMOS | 0.3 | 815 | 1/4 inch | Pipelined and Triggered Global | 4.8 x 4.8 | LVDS | Mono | LCC-48 |

For more information please contact your local sales support at www.onsemi.com

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