

Product Overview

PYTHON1300: CMOS Image Sensor, 1.3 MP (SXGA), Global Shutter

For complete documentation, see the data sheet.



The PYTHON 1300 is a 1/2 inch SXGA CMOS image sensor with a pixel array of 1280 by 1024 pixels.

The high sensitivity $4.8 \mu\text{m} \times 4.8 \mu\text{m}$ 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. 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 P1-SN/SE part variants have 4 LVDS lanes, facilitating frame rates up to 210 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 P2-SN/SE part variants provide a parallel CMOS output interface at reduced frame rate.

The PYTHON 1300 is packaged in a 48-pin LCC package and is available in monochrome, Bayer color, and extended NIR versions both with and without protective tape.

Features

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

Applications

- Image Capture

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

End Products

- Machine Vision camera
- Industrial cameras and systems
- Intelligent Transportation Systems (ITS) camera
- Inspection systems (food, bottles, recycling labels)
- Medical imaging systems

Part Electrical Specifications

| Product | Pricing (\$/Unit) | Compliance | Status | Type | Megapixels | Frame Rate (fps) | Optical Format | Shutter Type | Pixel Size (µm) | Output Interface | Color | Package Type |
|------------------|-------------------|---|--------|------|------------|------------------|----------------|---|-----------------|------------------|----------------|--------------|
| NOIP1FN1300A-QTI | | Pb-free Halide free non AEC-Q and PPAP | Active | CMOS | 1.3 | 210 | 1/2 inch | Pipelined and Triggered Global | 4.8 x 4.8 | LVDS | NIR | LCC-48 |
| NOIP1SE1300A-QTI | | Pb-free Halide free non AEC-Q and PPAP | Active | CMOS | 1.3 | 210 | 1/2 inch | Pipelined and Triggered Global | 4.8 x 4.8 | LVDS | Bayer Color | LCC-48 |
| NOIP1SN1300A-QTI | | Pb-free Halide free non AEC-Q and PPAP | Active | CMOS | 1.3 | 210 | 1/2 inch | Pipelined and Triggered Global | 4.8 x 4.8 | LVDS | Mono | LCC-48 |
| NOIP2SE1300A-QTI | | Pb-free Halide free non AEC-Q and PPAP | Active | CMOS | 1.3 | 43 | 1/2 inch | Pipelined and Triggered Global | 4.8 x 4.8 | Parallel | Bayer Color | LCC-48 |
| NOIP2SN1300A-QTI | | Pb-free Halide free non AEC-Q and PPAP | Active | CMOS | 1.3 | 43 | 1/2 inch | Pipelined and Triggered Global | 4.8 x 4.8 | Parallel | Mono | LCC-48 |
| NOIP3SE1300A-QTI | | Pb-free Halide free non AEC-Q and PPAP | Active | CMOS | 1.3 | 105 | 1/2 inch | Pipelined and Triggered Global | 4.8 x 4.8 | LVDS | Bayer Color | LCC-48 |
| NOIP3SN1300A-QTI | | Pb-free Halide free non AEC-Q and PPAP | Active | CMOS | 1.3 | 105 | 1/2 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.

Created on: 10/28/2020