Product Overview

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

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 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 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

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
- Traffic surveillance (ITS)

End Products

- Industrial cameras and systems
- Intelligent Traffic Systems (ANPR)
- 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
NOIP1FN1300A-QDI	Pb-free / Halide free	Active	CMOS	1.3	210	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	NIR	LCC-48
NOIP1FN1300A-QTI	Pb-free / Halide free	Active	CMOS	1.3	210	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	NIR	LCC-48
NOIP1SE1300A-QDI	Pb-free / Halide free	Active	CMOS	1.3	210	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	Bayer Color	LCC-48
NOIP1SE1300A-QTI	Pb-free / Halide free	Active	CMOS	1.3	210	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	Bayer Color	LCC-48
NOIP1SN1300A-QDI	Pb-free / Halide free	Active	CMOS	1.3	210	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	Mono	LCC-48
NOIP1SN1300A-QTI	Pb-free / Halide free	Active	CMOS	1.3	210	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	Mono	LCC-48
NOIP2SE1300A-QDI	Pb-free / Halide free	Active	CMOS	1.3	43	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	Parallel	Bayer Color	LCC-48
NOIP2SN1300A-QDI	Pb-free / Halide free	Active	CMOS	1.3	43	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	Parallel	Mono	LCC-48
NOIP3FN1300A-QDI	Pb-free / Halide free	Active	CMOS	1.3	105	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	NIR	LCC-48
NOIP3FN1300A-QTI	Pb-free / Halide free	Active	CMOS	1.3	105	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	NIR	LCC-48
NOIP3SE1300A-QDI	Pb-free / Halide free	Active	CMOS	1.3	105	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	Bayer Color	LCC-48
NOIP3SE1300A-QTI	Pb-free / Halide free	Active	CMOS	1.3	105	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	Bayer Color	LCC-48
NOIP3SN1300A-QDI	Pb-free / Halide free	Active	CMOS	1.3	105	1/2 inch	Pipelined and Triggered Global	4.8 x 4.8	LVDS	Mono	LCC-48
NOIP3SN1300A-QTI	Pb-free / Halide free	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.

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