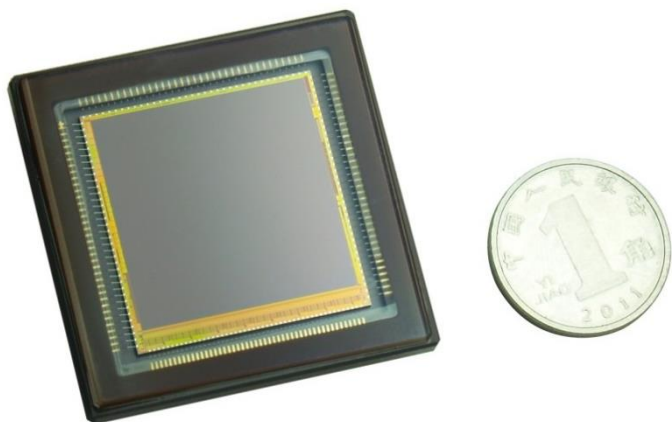


CMOS Image Sensor for Scientific Applications – GSENSE400



- Dark noise: $1.47 e^-$
- Sensitivity: $1.81 \times 10^8 e^- / ((W/m^2) \cdot s)$
- Dynamic range: >96dB
- STD mode and HDR mode

SENSOR DESCRIPTION

The GSENSE400 is a 4 Megapixels CMOS image sensor with $11\mu m$ patented pinned photodiode pixels and electronic rolling shutter. Designed for scientific and high-end surveillance applications, GSENSE400 features low readout noise of 1.47 electrons, dynamic range of 96dB and sensitivity of $1.81 \times 10^8 e^- / ((W/m^2) \cdot s) @ 600nm$

GSENSE400 can be either operated in standard mode (STD) with 70dB intra-scene dynamic range, or in high dynamic range mode (HDR) with 96dB intra-scene dynamic range. GSENSE400 is capable of running up to 48fps in STD mode, or 24fps in HDR mode, and higher frame rates can be achieved in row-windowing mode.

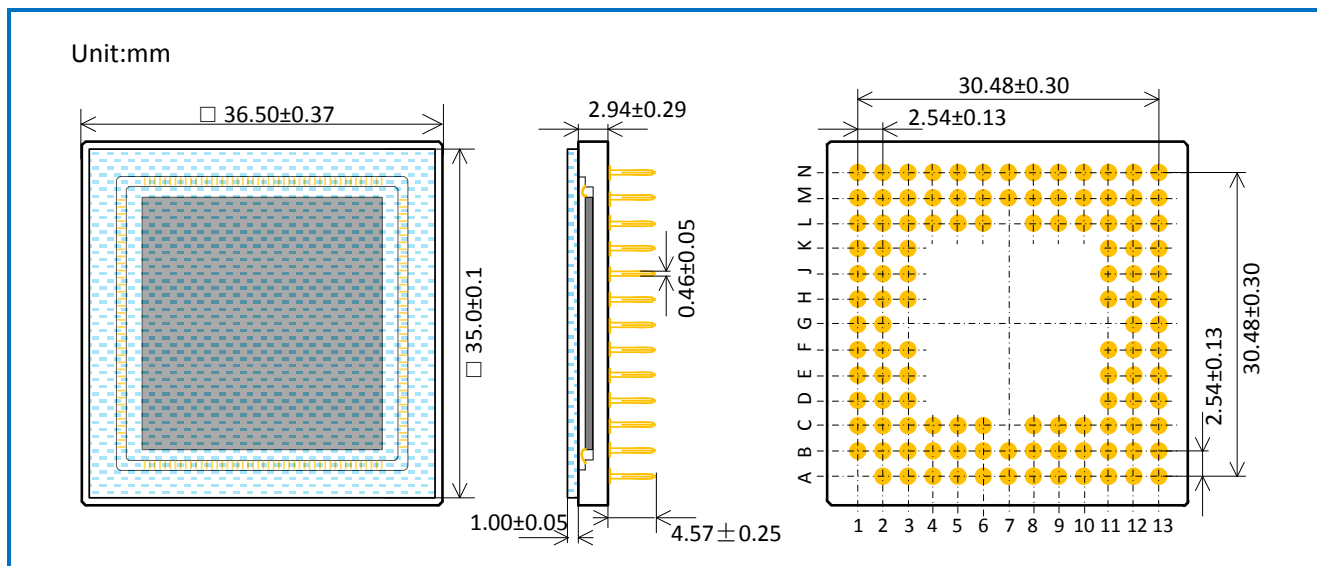
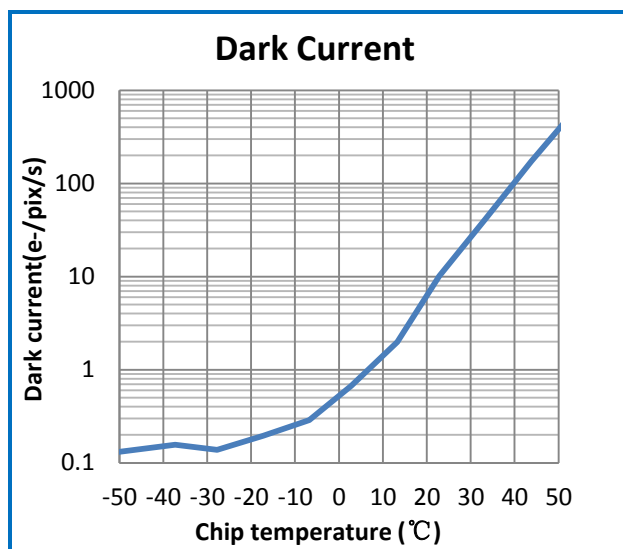
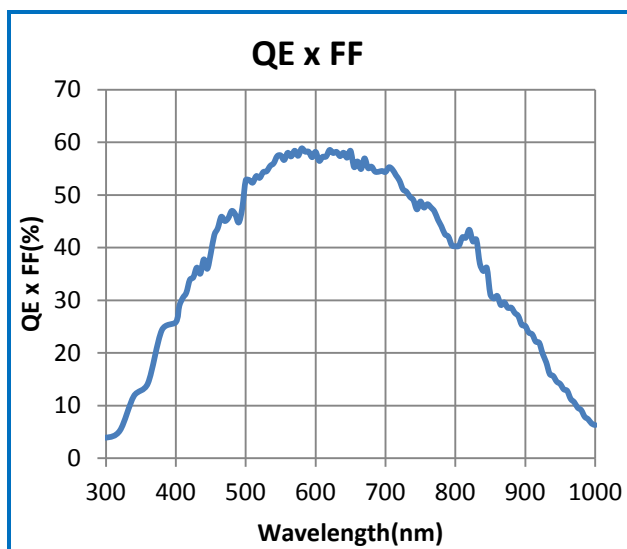
Mounted in a 115-pin ceramic PGA package, the power consumption of less than 600mW can be easily dissipated. In addition, GSENSE400 has a dark current of less than $0.15 e^- / s / pix$ at minus $20^\circ C$, making it an ideal solution for the most demanding bio-imaging applications with long exposure time.

SENSOR FEATURES

- Pixel Resolution: 2048(H) x 2048(V)
- $11\mu m$ patented pinned photodiode pixel
- Optical and electrical black pixel rows
- Electronic rolling shutter
- Sensitivity: $1.81 \times 10^8 e^- / ((W/m^2) \cdot s) @ 600nm$
- Dark noise: $1.47 e^-$
- Dynamic range:
 - STD mode: 68dB (intra-scene)
 - HDR mode: 96dB (intra-scene)
- Dark current : $< 0.15 e^- / s / pix @ -20^\circ C$
- 48fps in STD mode
- 24fps in HDR mode
- Row-based ROI windowing capability with enhanced frame rate
- PRNU: $< 0.8\%$
- FPN: $< 2 e^-$
- On-chip temperature sensor
- On-chip SPI control and on-chip PLL
- Power consumption $< 600mW$

SENSOR SPECIFICATIONS

Photon-sensitive area	22.5mm(H) x 22.5mm(V)	SNR Max	>49dB
Pixel size	11μm x 11μm	Dark noise	1.47e ⁻
Resolution	2048 x 2048	Dark current	<0.15e ⁻ /s/pix @ -20°C
Shutter type	Electronic rolling shutter	Dynamic range(STD mode)	>68dB(intra-scene)
ADC	12bit	Dynamic range (HDR mode)	>96dB(intra-scene)
Main clock rate	20MHz ~ 30MHz	Sensitivity(600nm)	1.81 x 10 ⁸ e ⁻ /((W/m ²)·s)
Max frame rate	48fps	Full well charge	91ke ⁻
Data rate	2.4Gbit/s @ 25MHz	FPN	<2e ⁻
Supply voltage	3.3V / 1.8V	PRNU	<0.8%
Operating temperature	-55°C ~ +80°C	QExFF (no μlens)	58% @ 600nm
Max power	<600mW	Package	115-pin PGA



Please address all product inquiries to GPIXEL Inc.

Addr: No.588 Yingkou Road, Changchun, China • Tel: 0431-86176682 • Email: info@gpixelinc.com