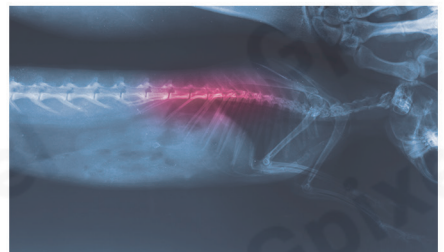


GSENSE Series

SCIENTIFIC CMOS IMAGE SENSORS

GSENSE is a world-leading scientific CMOS image sensor family, available in frontside (FSI) and backside illumination (BSI) options, with correlated multiple sampling for extreme low noise, dual gain HDR, and up to 95% quantum efficiency. Primary applications include 3D laser profiling, scientific imaging, medical imaging, spectroscopy, biometry and high-end surveillance.

GSENSE BSI products are available with optional PulSar (PS) technology, extending sensitivity into the deep UV and x-ray electromagnetic spectrum. In addition, the technology demonstrates excellent resistance to radiation damage in soft x-ray detection applications.



Product Family Features

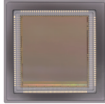
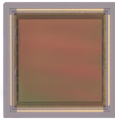
- ✓ sCMOS
- ✓ FSI and BSI options
- ✓ HDR dual gain combination to 90 dB
- ✓ Low noise
- ✓ On-chip temperature sensor
- ✓ On-chip SPI sensor
- ✓ Electrical black pixels for offset correction
- ✓ Pixel micro lenses for high QE
- ✓ Removable glass versions

Applications

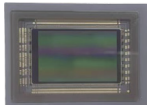
- ✓ Medical Imaging
- ✓ Scientific Imaging
- ✓ Spectroscopy
- ✓ Fluorescence imaging
- ✓ 3D laser profiling
- ✓ Astronomy

Gpixel

Sensor Specifications

					
	GSENSE2011 2.4MP	GSENSE2020 4.2MP	GSENSE400 4.2MP	GSENSE4040 16.8MP	GSENSE6060 37.7MP
Pixel	6.5 μm GS+RS	6.5 μm GS+RS	11 μm RS	9 μm RS	10 μm RS
Opt. Format	1"	1.2"	2" APS-H	3.3" Med Format	5.4" M90
Resolution	2048 x 1152	2048 x 2048	2048 x 2048	4096 x 4096	6144 x 6144
FWC _{max}	45.0 ke ⁻	45.0 ke ⁻	91.2 ke ⁻	74.2 ke ⁻	128.0 ke ⁻
Noise _{min}	1.9 e ⁻	1.9 e ⁻	1.5 e ⁻	2.3 e ⁻	4.6 e ⁻
DR _{max}	87.5 dB	86.6 dB	96.0 dB	86.0 dB	88.9 dB
QE _{max}	72% @ 595 nm	72% @ 595 nm	60% @ 600 nm	74% @ 600 nm	72% @ 550 nm
Frame Rate @Bitmode	668 fps @ GS DDS 81 fps@ RS HDR	370 fps @ GS DDS 45 fps @ RS HDR	48 fps @ 12b STD 24 fps @ 12b HDR	24 fps @ 12b HDR	44 fps @ 12b STD 19 fps @ 12b HDR 14 fps @ 14b STD
Power	<0.8 W	<0.8 W	<0.6 W	<1.3 W	<4.9 W
Interface	8 sLVDS @ 600 MHz	8 sLVDS @ 600 MHz	8 sLVDS @ 600 MHz	16 sLVDS @ 600 MHz	50 sLVDS @ 420 MHz
Package	26.1 x 23.5 mm ² 153p μPGA	26.1 x 29.5 mm ² 153p μPGA	36.5 x 36.5 mm ² 115p PGA	51.5 x 53.0 mm ² 140p PGA	74.0 x 99.0 mm ² 250p PGA
Availability	EVK & MP	EVK & MP	EVK & MP	EVK & MP	EVK & MP

Pin Compatible

						
	GSENSE2020BSI 4.2MP	GSENSE400BSI 4.2MP	GSENSE4040BSI 16.8MP	GSENSE6060BSI 37.7MP	GSENSE3243BSI 42.9MP	GSENSE1081BSI 81.7MP
Pixel	6.5 μm RS	11 μm RS	9 μm RS	10 μm RS	3.2 μm RS	10 μm RS
Opt. Format	1.2"	2" APS-H	3.3" Med Format	5.4" M90	1.2" APS-C	7.96" M130
Resolution	2048 x 2048	2048 x 2048	4096 x 4096	6144 x 6144	8192 x 5232	8900 x 9120
FWC _{max}	55.0 ke ⁻	91.2 ke ⁻	39.2 ke ⁻	102.0 ke ⁻	24.0 ke ⁻ 96.0 ke ⁻ (x4)	90.7 ke ⁻
Noise _{min}	1.6 e ⁻	1.5 e ⁻	1.6 e ⁻	3.0 e ⁻	3.3 e ⁻ , 4.4 e ⁻ HDR	5.4 e ⁻
DR _{max}	90.7 dB	96.0 dB	84.6 dB	90.6 dB	74.7 dB 80.8 dB (x4)	84.5 dB
QE _{max}	95% @ 560 nm	95% @ 570 nm	95% @ 550 nm	95% @ 580 nm	80% @ 550 nm	97% @ 610 nm
Frame Rate @Bitmode	74 fps @ 11b HDR 43 fps @ 12b HDR	48 fps @ 12b STD 24 fps @ 12b HDR	24 fps @ 12b HDR	26 fps @ 12b STD 11 fps @ 12b HDR 8 fps @ 14b STD	GSI: 100 fps @14b, 50 fps @14b HDR LVDS: 50 fps @14b, 25 fps @14b HDR	0.34 fps @ 16b 0.94 fps @ 15b
Power	<1.2 W	<0.65 W	<1.3 W	<4.9 W	<4.0 W	<1.4 W
Interface	16 @ 600 MHz	8 @ 300 MHz	16 @ 600 MHz	50 @ 420 MHz	GSI: 16 @ 5.25 G LVDS: 32 @ 1.2 G	4 @ 250 MHz
Package	26.1 x 29.5 mm ² 153p μPGA	36.5 x 36.5 mm ² 115p PGA	51.5 x 53.0 mm ² 140p PGA	74.0 x 99.0 mm ² 250p PGA	48.0 x 35.5 mm ² 455p LGA	92.3 x 98.4 mm ² 100p SiC
Availability	EVK & MP	EVK & MP	EVK & MP	EVK & MP	ES & EVK	ES only

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