GSENSE6504BSI

4MP BSI SCIENTIFIC CMOS IMAGE SENSOR

GSENSE6504BSI is a 2048 x 2048 (4.2 MP) resolution backside-illuminated scientific CMOS image sensor with industry-standard 6.5 μm x 6.5 μm rolling shutter pixels, 18.8 mm diagonal, and peak QE of 95%. In low-noise mode, the sensor achieves a read noise floor of 0.43 e- rms at 100 fps while delivering 91 dB of dynamic range using the on-chip dual-gain output. With a noise histogram peak of 0.28 e-, the sensor enables single photon detection in the low-noise mode. In high-speed mode, the sensor delivers a read noise of 0.7 e- at its maximum frame rate of 300 fps. Under -30℃ die temperature, sensor dark current is only 0.004 e-/s/p. The sensor package is mechanically identical to GSENSE2020BSI for easy integration into existing camera platforms.

Feature

- Max frame rate 300 fps
- Low Noise 0.43 e- rms
- Dual-gain HDR
- Square Optical Format
- QE 95% @ 450 nm
- Average QE >50% @ 200~300nm

Application

- Life Science
- Astronomy
- Semiconductor inspection

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Sensor Specifications

Active Resolution	2048(H) x 2048(V)	Imaging Diagonal	18.8 mm
Pixel Size	6.5 μm x 6.5 μm	Shutter Type	Rolling Shutter
Peak QE	95% @ 450 nm	Readout Noise	0.4 e-(median) / 0.45 e-(rms) @ Low Noise 0.8 e-(median) / 0.85 e-(rms) @ HDR 0.7 e-(median) / 0.75 e-(rms) @ STD
Max. FWC	15 ke-	Dynamic Range	91 dB(median) / 90 dB(rms) @ Low Noise 85 dB(median) / 84 dB(rms) @ HDR
Max. Frame rate	100 fps @ Low Noise 170 fps @ HDR 300 fps @ STD	Dark current	0.004 e-/s/p @ -30℃
Data Channel	16x LVDS @ 1.2 G	ADC bit	12 bit
Chroma	Mono	Power Consumption	1.6W
Supply	3.3 V (Analog), 1.5 V (Digital) 1.8~3.3 V (IO)	Package	153 pins μPGA in removable glass lid (26.1mm x 29.5mm)

Ordering Information

Sensor PN

GSENSE6504BSI-ABM-NUN-ARE	153-pin micro-PGA package, Removable D 263® T eco glass lid without AR coating on both sides, ES grade

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