21MP Global Shutter High Speed CMOS Image Sensor

SENSOR DESCRIPTION
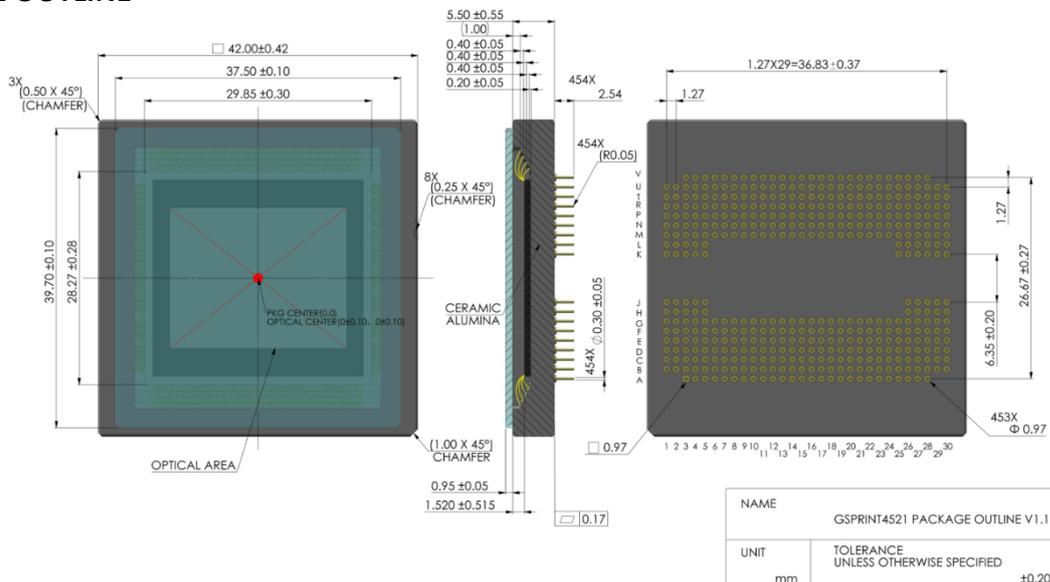
Preliminary and Confidential

GSPRINT4521 is a 21 Megapixel (5120 x 4096) APS sized ($\varnothing$29.5mm) high speed, global shutter image sensor designed with the latest 4.5 µm charge domain global shutter pixel. It achieves more than 30k e⁻ FWC, less than 3 e⁻ rms read noise and > 69 dB dynamic range, optionally increased to 80 dB with a dual gain HDR mode. Using advanced 65nm CIS process and light pipe technology, the sensor achieves >65% QE and more than 1/40,000 shutter efficiency. With on-chip charge binning, FWC can be further increased to 120k e⁻ and frame rate is quadrupled.

GSPRINT4521 will be offered in different speed variants. The full speed variant consists of 160 pairs sub-LVDS channels running at 1.2Gbps which delivers a stunning 1000 fps in single gain operation at 8 bit per pixel and full resolution and more than 3000 fps with a ROI of 1024 rows in a dedicated 3D laser profiling mode. These unique features make it an ideal solution for demanding imaging in high-end applications such as high speed 4K video, industrial inspection , motion analysis and life science imaging.

SENSOR SPECIFICATION

Resolution	5120 (H) × 4096 (V)	Optical format	APS sized ($\varnothing$29.5mm)
Pixel size	4.5µm × 4.5µm	Photo-sensitive area	23 mm x 18.4 mm
Shutter type	Global Shutter	Quantum efficiency	>65%
Full well capacity	30k e⁻ (max in LG mode)	Shutter efficiency	1/40,000
Dark noise	3 e⁻ (min in HG mode)	Dark current	2e⁻/p/s @ 25℃
Dynamic range	±48 dB @ 8bit ±60 dB @ 10bit >69 dB @ 12bit >80 dB @ dual-gain HDR	Frame rate	1000fps @ 8bit 500 fps @ 10bit 250 fps @ 12bit
Output interface	160 x sub-LVDS	Channel multiplexing	160/156/152/.../12/8/4 (any multiple of 4)
ADC	8/10/12 bit	Max. Data rate	192 Gbps (@ 1.2 Gbps /channel)
Chroma	Color & Mono	Package	454 pins µPGA
Power supply	3.3V / 1.8V / 1.2V Dedicated pixel supplies	Power consumption	6-7 W

PACKAGE OUTLINE

Subject to change without notice. Please address all product inquiries to GPIXEL

Email: info@gpixel.com