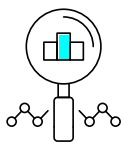


Company overview

Singular Photonics is redefining how information is captured, processed, and understood - one photon at a time. We transform light into insight through state-of-the-art single-photon avalanche diode (SPAD) sensor technology with advanced on-chip compute. Our sensors combine ultra-sensitive light detection with intelligent in-pixel processing, enabling real-time data processing at the source.



60+ years combined CMOS and SPAD sensor design expertise



Advanced CMOS-integrated with embedded timing functions



Architectures designed for scalable system integration



Andarta

3D stacked image sensor with integrated autocorrelation and time-gating for parallel photon correlation and time-resolved imaging

Key Features:

512 × 512 SPAD array | 128 × 128 macropixel architecture | 47% PDE @ 785 nm | 100% fill factor (microlenses) | 4.3 ns dead time | Integrated autocorrelation (per-pixel & ensemble) | Low dark counts | Room-temperature operation

Operating Modes:

Photon counting | Time gating | Autocorrelation (pixel-wise and ensemble)

Integration:

GUI for interactive control | Universal API | Official Python SDK

Applications:

Time-gated FLIM | Time-gated Raman Spectroscopy | Diffuse Correlation Spectroscopy (DCS) | Fluorescence Correlation Spectroscopy (FCS) | High-speed imaging | Low-light Microscopy

Andarta

Technical Specifications



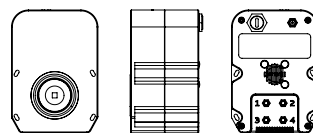
Andarta Sensor

Sensor Type	CMOS SPAD, 65 nm / 40 nm, BSI Stacked
SPAD Array	512 x 512 / 128 x 128 (macropixel)
Pixel Pitch	10.17 μm (SPAD), 40.68 μm (macropixel)
Sensor Size	5 mm x 5 mm
Fill Factor	100% (with microlens)
Photon Detection Efficiency ¹	47% @ 785 nm (@2 Vex, 20°C)
Dark Count Rate	~60 cps (@2 Vex, 20°C)
Dead Time	4.3 ns



Dimensions and Mounting

Camera Unit WxHxD:	102 mm x 145 mm x 85.25 mm
Clear Aperture:	SM1.5 thread 22 mm diameter
Flange Focal Distance:	9.0 mm
Mounting Options:	• 4x M4 screws in through holes • 1x 1/4"-20 bottom thread
Optional Accessory:	• C-mount/CS-mount adapter • Protective window

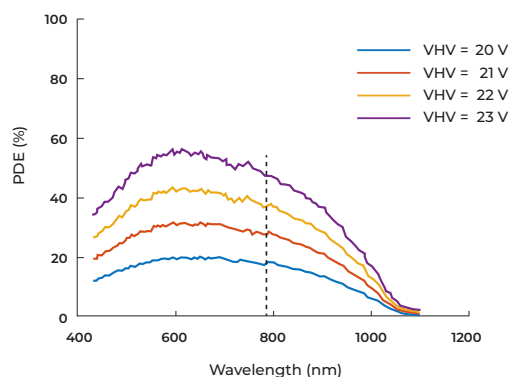


Timing and Gating

Timing Function	Time gating
Triggering	Primary: 25 MHz Secondary: 12 - 80 MHz
Gate Resolution	11.9 ps
Integration Window	Up to 32,768 steps (15-bit)
Laser Step Control	Programmable (15-bit)
On-chip Delay Generator	Yes



Photon Detection Efficiency



Interfaces

Power:	12 V AC/DC
Data Connection:	USB-C
Sync ports:	4 SMA ports (factory configurable TTL/ NIM, $\geq 50\Omega$)



Data Handling

Photon Counting Mode:	1653 FPS
Per-pixel Autocorrelation:	31.6 FPS
Ensemble Autocorrelation:	520 FPS
Measured at 40 MHz system clock	



Autocorrelation

Architecture	Per-pixel and ensemble
Correlator Channels	31
Repetition Rate	5 MHz - 40 MHz
Correlation Lag	1.28 μs (25 MHz, default) 800 ns (40 MHz) - 6.4 μs (5 MHz)

Datasheets are subject to change

