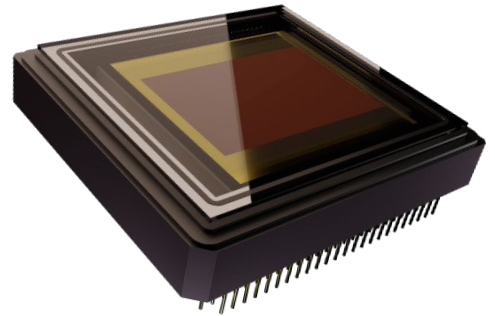


Acuros[®] 4 CQD[®] SWIR Sensor

Preliminary Product Sheet



SWIR sensing meets high resolution:

Introducing our 4MP SWIR sensor

Large format sensors are essential for generating high resolution, wide field of view images. Data generated by these sensors is vital for precision-driven industries, including pharmaceutical, medical, defense, and aerospace. The Acuros 4 high-resolution sensor empowers users and algorithms to detect and identify, objects, defects, and materials, generating high-value images across a broad spectral range. With its 7 μm pixel pitch and single stage TEC, this sensor is an ideal candidate for cost-sensitive, compact systems.

Features:

- 7 μm pixel pitch
- Global snapshot shutter
- Integrated 12bit ADC
- Vis-SWIR and Vis-ESWIR
- 2 gain modes
- Up to 100 Hz frame rates

Applications:

- Silicon inspection
- Machine vision
- Surveillance
- Free space optics
- Situational awareness
- Degraded visual environments

Specifications:

Image Format

Resolution	2040 x 2040 pixels
Pixel Pitch	7 μm
Image Diagonal	19.8 mm
Shutter	Global Shutter

Detector Performance

Detector Technology	Colloidal quantum dot (CQD) photodiode	
Detector type	SWIR	eSWIR
Spectral Range	400-1700 nm	400-2100 nm
QE	>20% @ 1550 nm	>15% @ 1900 nm
Dark Current (25C)	~10 nA/cm ² (TBD)	~20 nA/cm ² (TBD)
Dark current doubling temp	10 C	9 C

Specifications:

Sensor Features and Performance

Input amplifier	Direct Injection (DI)	
Gain Modes	Low Gain	High Gain
Read noise	125 e-	20 e-
Well-depth	350 Ke-	52 Ke-
Dynamic Range	68 db	63 db
ADC bit depth	8-bit or 12-bit	
Min Exposure time	10 us	
Max FPS (full frame)	50 Hz (12 bit), 100 Hz (8 bit)	
Region of interest (ROIC)	Yes (8 row increments)	
ROI FPS scaling	Yes. FPS up to 10 KHz for 2040 x 8 pixel	
Frame readout mode	ROI ITR (with CDS) or IWR (without CDS)	
Input clock	340 MHz	
Data output	12 ports, LVDS, 420 Mb/s per port	

Electrical

Supply Voltages	3.3 V & 1.8 V
Power Consumption	1.2 W (TEC off, full frame, 100 FPS)

Package

Architecture	100 pin Ceramic PGA with Internal TEC
Length	36.6 mm
Width	33.3 mm
Height	7.125 mm

Environmental

Operating temperature	-40C to 85C
Storage temperature	-40C to 100C
Radiation tolerance	Contact SVS

Mechanical Drawing

