PHOTONIC
SCIENCE

Cooled qVGA SWIR InGaAs Camera

Quantitative SWIR imaging and spectroscopy

The camera uses selected InGaAs focal plane arrays with low dark current and low defective pixel count.

Thanks to efficient cooling and stable offset, the InGaAs camera allows reproducible acquisition for precise metrology measurements in the SWIR spectrum.

Camera Link and Gigabit Ethernet Vision compliant interface enables easy integration into existing systems. InGaAs sensors with 320 x 256 resolution are also available with extended spectral response up to 2.2µm.

OEM versions with special form factors / cooling options are available for integration into specific instruments / systems.

Key Features

- 14-bit digitization / 16-bit image processing
- Read out noise
  down to typically <120 electrons
- >100 fps
  full resolution with region of interest ROI
- Excellent linearity
  response to varying intensities and / or exposures
- Gigabit Ethernet & Camera Link interface
- Software option:
  SDK kit, Labview VI's

Applications

Available with passive cooling

Semiconductor inspection

SWIR handheld vision enhancement

SWIR airborne payload

Photoluminescence for solar cells

Air cooling or water cooling for long exposure

Astronomy

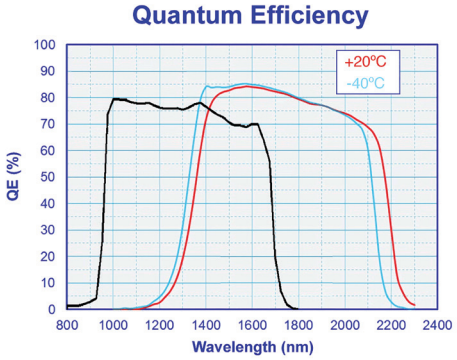
Hyperspectral imaging

Laser beam profiling

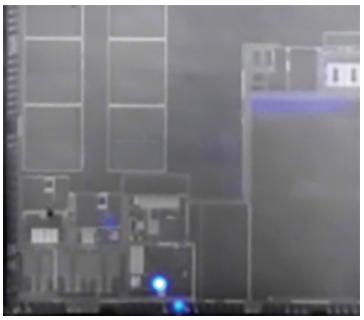
Spectroscopy

Cooled qVGA SWIR InGaAs Camera

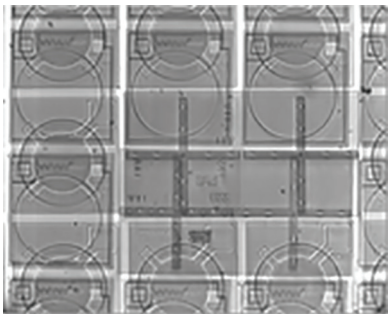
Characteristics	PSEL qVGA 30µm
Spectral Range	900 - 1700 nm
Resolution	320 x 256
Sensor Size	9.6 mm x 7.68 mm
Frame Rate	110 fps at full qVGA resolution
Pitch	30µm x 30µm
Full Well Capacity	110k - 150k electrons (high gain mode) 1.5M - 2.2M electrons (low gain mode)
Read Out Noise	110 - 200 electrons (high gain mode) 1000 - 1590 electrons (low gain mode)
Reading Mode	Integrate Then Read, Integrate While Read
Dark Current	<8fA with air cooling & <0.5fA with water cooling
Sensor Temperature (°C)	-20°C with air cooling, -40°C with water cooling (lower dark current)
Corrections	Non uniformity, bright pixel, gain, offset, flatfield
ADC	14-bit with 16-bit digital processing
Exposure	1 microsecond up to > 1 second
QE at 1500 nm	80%



Quantum efficiency response of Cooled SWIR InGaAs camera



Photoemission microscopy on IC using water cooled SWIR InGaAs camera, with 20x objective, exposure time 30s



Transmission infrared microscopy of MEMS wafers using SWIR InGaAs camera with 6x objective, exposure time 15ms

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