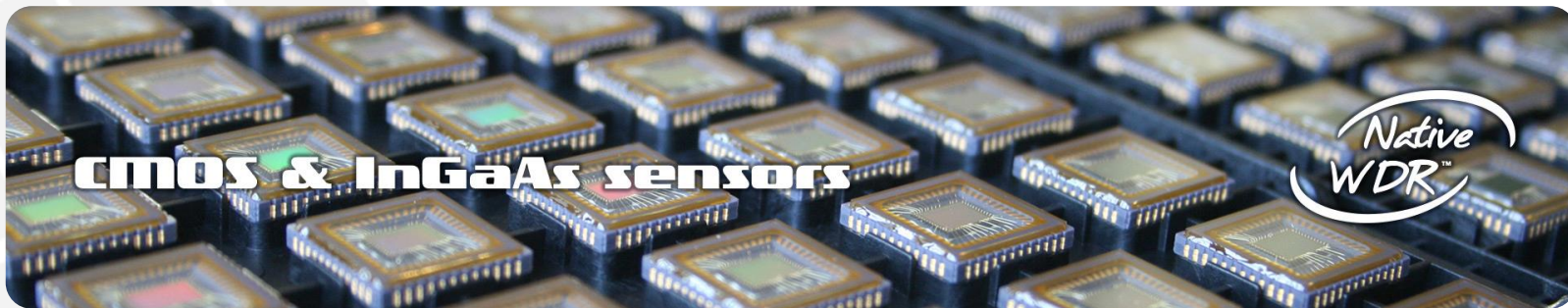




niT

New Imaging Technologies

NEW IMAGING TECHNOLOGIES



1 Impasse de la Noisette
Verrières le Buisson
91370
FRANCE

NewImagingTechnoNIT



COMPANY OVERVIEW

 20 EMPLOYEES
PARIS, FRANCE



15 YEARS OF RESEARCH
20 PATENTS



SWIR & CMOS
SENSORS & CAMERAS



HDR SOLUTIONS IN
VISIBLE AND INFRARED



>85% EXPORT



INDUSTRY



AIR & SPACE



DEFENSE &
SECURITY

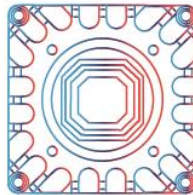
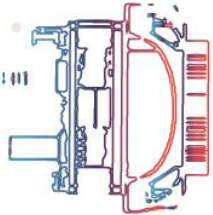


SCIENCE

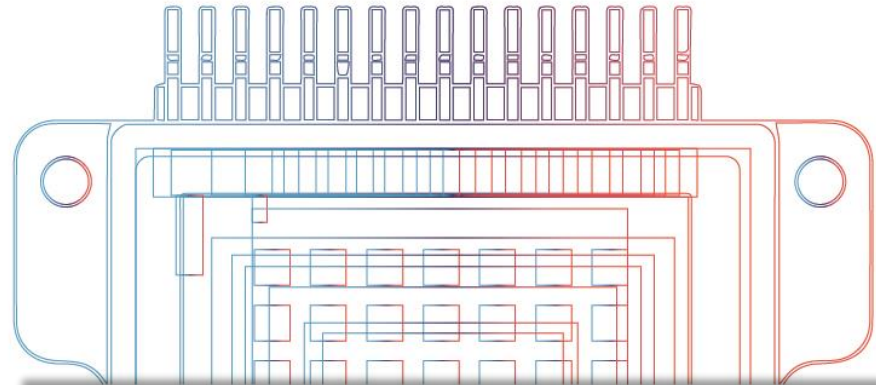


nit

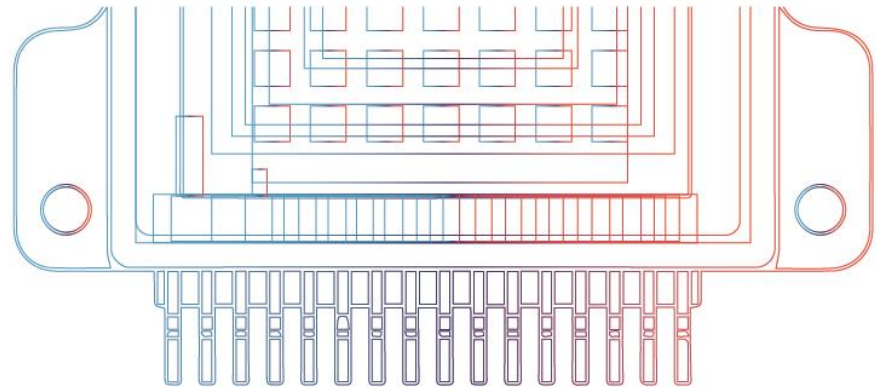
www.new-imaging-technologies.com



MACHINE VISION, DEFENSE & SECURITY,
SURVEILLANCE INDUSTRIAL VISION, ACTIVE
IMAGING, WELDING, SEMICONDUCTOR &
WAFER INSPECTION, THERMOGRAPHY



SWIR TECHNOLOGY 900 – 1700nm

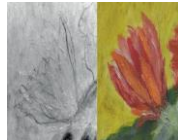
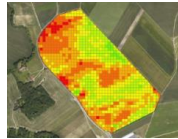
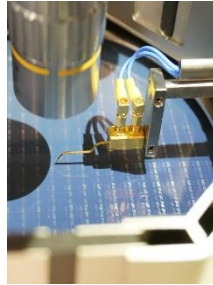


● ○ WHY SWIR ? – Various Applications



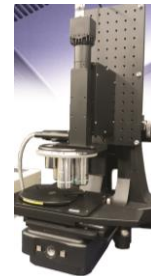
▶ Industrial

- Wafer & Solar cell inspection
- Welding/Additive Manuf.
- Agriculture / Thermography



▶ Defense & Security

- Long Distance & adverse conditions imaging
- Head fire detection
- Naval observation
- Decamouflage



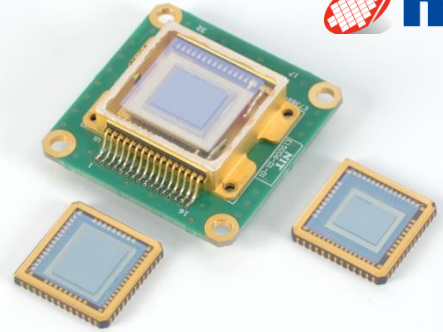
▶ Laser

- Laser monitoring & alignment
- Beam profiling
- Active Imaging – LIDAR
- Communication

▶ Scientific

- Fluorescence
- Microscopy
- Astronomy
- Art Inspection

● ○ OUR PRODUCTS FOR YOUR APPLICATION



▶ NSC1401

- QVGA 25 μ m Log Pixel
- TECless & HDR 120dB
- Gated Imaging option

▶ NSC1201

- VGA 15 μ m Log Pixel
- TECless & HDR 120dB
- Gated Imaging option

▶ NSC1601

- VGA 15 μ m Log and Linear Pixel
 - High Sensitivity in CTIA mode
 - HDR in Log Mode
- Gated Imaging option

▶ NSC1801

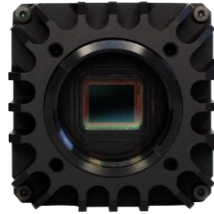
- 2048x1 scan 7.5 μ m Linear Pixel
 - 70KHz

● ○ OUR PRODUCTS FOR YOUR APPLICATION



▶ WiDy SWIR

- NSC1201 & 1401
- Gated Imaging option
- Cost effective solutions



▶ WiDy SenS

- NSC1601
- High Sensitivity and HDR
- Gated Imaging option



▶ WiDy Nano

- VGA NSC1201
- HDR 120dB
- Miniature size



▶ HiPe SenS

- VGA NSC1601
- High Sensitivity
- Long exposure <30s

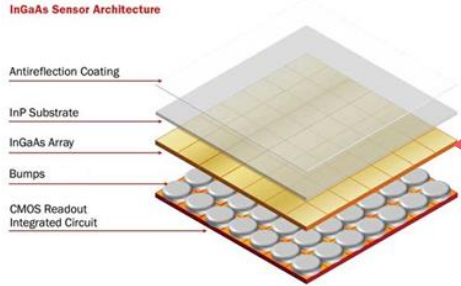
Compact Series:

For Integrated solutions
USB3.0 or CameraLink output

Smart Series:

For Stand-Alone imaging
CameraLink, GIGE, or Analog output

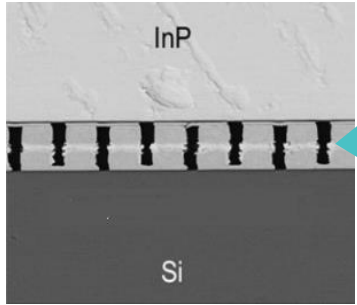
A DEDICATED IN-HOUSE SWIR PRODUCTION : FROM ROIC TO A FULL CAMERA



Readout CMOS Circuit / PD array

In house Design & High Volume foundry

Low Dark current



An innovative cost-effective and scalable flip-chip process for Hybridization

pixel pitch achievable :
in production: 15µm & 25µm
In R&D: 10µm & 7.5µm

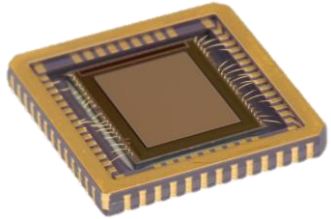
A full line of configurable cameras

USB3.0
CameraLink
GigE
Analog



Custom Solutions

Fully customized SWIR sensor solutions for specific & strategic customer needs



Dedicated Product for Specific Applications - 4 examples

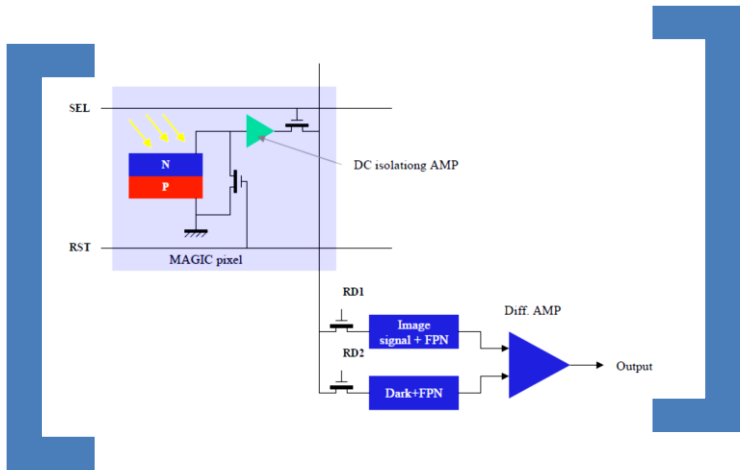


● ○ EXAMPLE n°1 – PIXEL for INDUSTRY

▶ SOLAR CELL HDR LOGARITHMIC PIXELS

Unique Patented Pixel Architecture with in-pixel Solar Cell Mode

HDR 120dB => Welding and metal additive manufacturing

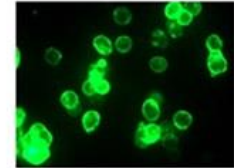


● ○ EXAMPLE n°2 PDA & MECHANICS for SCIENCE

▶ Long Exposure Compact Camera

Dedicated Photodiode design and double TEC forced air-cool mechanical integration

Compact Scientific fluorescence imaging & Astronomy
 => Low dark current PDA & cooled for 1min exposure times
 <math><3\text{ke-}/\text{pixel}/\text{s}</math> @ -15°C

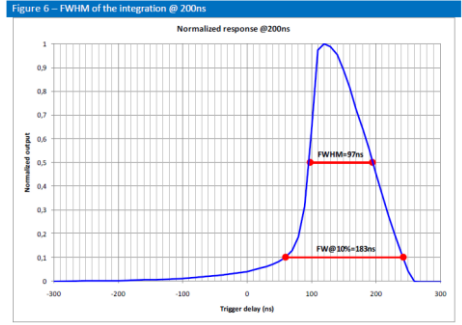


● ○ EXAMPLE n°3 ROIC/PDA/ELECTRONICS for SECURITY

Specifically designed biased photodiodes

Parametric testing with variable **bump size** and **Photodiode size**
Dedicated pulsed bias on photodiode and short exposure times

Very narrow active window (20-40ns) => Anti-drone solutions
< 3m uncertainty

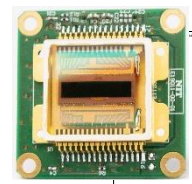


● ○ EXAMPLE n°4: FLIP-CHIP for INDUSTRY & SPACE

▶ In-House Flip-Chip Process

Small pitches can be addressed => 7.5 μ m

Compact 2048x1 Line Scan compatible with most existing optics: Food Sorting, Earth observation



● ○ FURTHER CHALLENGES

▶ TECHNOLOGY

The up-coming challenges are to follow all the imaging trends:

- More pixels, smaller pitch, lower noise, extended wavelengths...



Grazie

شكرا

спасибо

σας ευχαριστώ

Dank u

Danke

Merci

धन्यवाद

ありがとう

谢谢

Terima kasih

감사합니다

Thank you

Teşekkür ederiz

Dziękuję

Gracias

▶ APPLICATIONS

Applications for SWIR imaging are ever-growing and every market/application has its own requirements
NIT would be pleased to work around integration teams with specific requirements

▶ PARTNERS

In order to improve our products, NIT is always looking for Partners that can help provide smart solutions:

- Packaging solutions
- A/R and hyperspectral Coatings
- Diode pumped lasers for active imaging

This presentation was presented at EPIC World Photonics Technology Summit 2020

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PASSION

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MORE LIGHT

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