New Infrared Technologies

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PRESS NOTE

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New MWIR Uncooled FPA ROIC from New Infrared Technologies: larger resolution, high-speed and very competitive price

New Infrared Technologies (NIT) presents the new and revolutionary **TACHYON SERIES:** uncooled MWIR imaging detectors with ROIC monolithically integrated and digital interface for control and data readout (input / output). The new **TACHYON FPA**s will be available in two formats: a new, larger resolution 80x80 pixels FPA (**TACHYON 6400 FPA**), and a 32x32 version (**TACHYON 1024 FPA**), allowing image acquisition frame rates of 2 kHz (@80x80) and 10 kHz (@32x32). Both versions work in complete uncooled operation, making them the only FPAs in the market for MWIR detection with ROIC and uncooled performance.

The **TACHYON FPA** sensors, made of polycrystalline PbSe using the Vapor Phase Deposition manufacturing method (exclusive from NIT), are built directly on top of the Si-CMOS readout circuitry (ROIC) taking advantage of the VPD – Si-CMOS manufacturing method compatibility. This allows the use of large Si-CMOS substrates (8-inch) and has a big impact in the final cost per device obtained. The spectral response is mainly centered in the MWIR (3 – 5 um) with a peak response @ 3.7 microns; in addition, the material has an extended response down to 1 micron.

The Si-CMOS ROIC has been specifically designed for the VPD PbSe material and is based in an innovative pixel design called Active Pixel Sensor. Each pixel includes the following functionalities: dark current correction, signal amplification, ADC stage, and programmable gain/offset compensation. This allows to achieve very high acquisition speed as most of the processing is made at pixel level, and all the pixels are read at the same time (snapshot acquisition).

As an infrared detector perfectly suitable for civilian and defense applications, the new **TACHYON FPAs** represents a major breakthrough in the infrared industry and will have a huge impact in future infrared sensing systems. For example, some industrial applications will move from single point detectors to imaging detectors, capturing much more information and at a similar price level thanks to the multiple advantages of the new **TACHYON FPA SERIES** from NIT. In the military side, some applications include Active Protection Systems (APS), Passive Infrared Cueing Systems (PICS), final guidance, intelligent ammunition and countermeasures, with an orientation to low cost system development.

New Infrared Technologies manufactures MWIR (1 - 5 microns) uncooled detectors, being the only company offering high-speed imaging FPAs with these characteristics. The product offer is completed with linear arrays for scanning systems and single element detectors (cooled detectors also available), also offering electronic modules for high-speed acquisition (2,000 images per second and up to 20,000 lines per second), cameras for R+D and detectors for spectroscopy applications, all based on self-produced sensors.

*For more information, visit our dedicated site at **www.niteurope.com** or contact us at **sales@niteurope.com**.*

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Makes uncooled IR imaging fast and affordable!

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TECHNICAL SPECIFICATIONS

TACHYON 6400 FPA

FPA resolution: 80 x 80 (6400 pixels)
Pixel size: 130 x 130 um^2 (square format)
Pixel pitch: 135 um
A/D readout electronics: on-chip
Dark current cancellation: on-chip
Digital interface for FPA control and data acquisition/transmission
Readout method: Snapshot
Data format: raw, 10 bit (depth)
Packaging: SMD / LCC 64 pins (4x16) / 720x720 mils / pitch: 40 mils
Pinout:
- **Power supply:** 3.3 V, <0.5 W (digital & analog)
- **Detector biasing voltage:** -5 V
- **Control:** 5 lines
- **Gain, offset control (per pixel):** 16 lines (serial communication, 10 MHz)
- **Data output:** 16 lines (serial communication, 10 MHz)
- **Readout speed:** 2000 frames per second

Integration time: programmable, 100 us – 1 ms

TACHYON 1024 FPA

FPA resolution: 32 x 32 (1024 pixels)
Pixel size: 130 x 130 um^2 (square format)
Pixel pitch: 135 um
A/D readout electronics: on-chip
Dark current cancellation: on-chip
Digital interface for FPA control and data acquisition/transmission
Readout method: Snapshot
Data format: raw, 10 bit (depth)
Packaging: SMD / LCC 48 pins (4x12) / 560x560 mils / pitch: 40 mils
Pinout:
- **Power supply:** 3.3 V, <0.5 W (digital & analog)
- **Detector biasing voltage:** -5 V
- **Control:** 5 lines
- **Gain, offset control (per pixel):** 16 lines (serial communication, 10 MHz)
- **Data output:** 16 lines (serial communication, 10 MHz)
- **Readout speed:** 10000 frames per second

Integration time: programmable, 100 us – 1 ms