



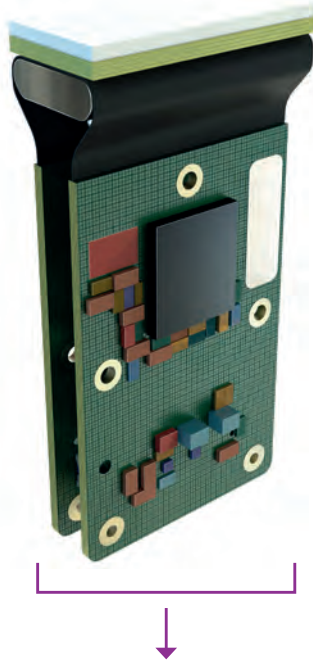
CUSTOMIZED X-RAY DETECTOR SOLUTIONS

for medical imaging



UNIQUE DESIGN AND MANUFACTURING CAPABILITIES

Detection Technology is one of the few companies selected by the largest medical computed tomography (CT) manufacturers to supply high-performance CT detectors to the most stringent medical solutions in the world. Through its continuous development, Detection Technology pursues to perfect its proprietary photodiode, ultra-low noise mixed-signal ASIC, and detector manufacturing technologies at the state-of-the-art factories.



By utilizing unique set of design and development capabilities, Detection Technology offers customized detector modules with the highest imaging performance. Detection Technology's wide technology portfolio and streamlined development process enable unbeatable time-to-market and minimized development cost. Product design will be tailored to meet required or jointly determined product specifications.

Pixelated scintillator optimized for high speed, brightness and low dose

Low temperature opto-coupling of various scintillator materials

Proprietary frontside illuminated or backside illuminated photodiode offering excellent responsivity with lowest dark current

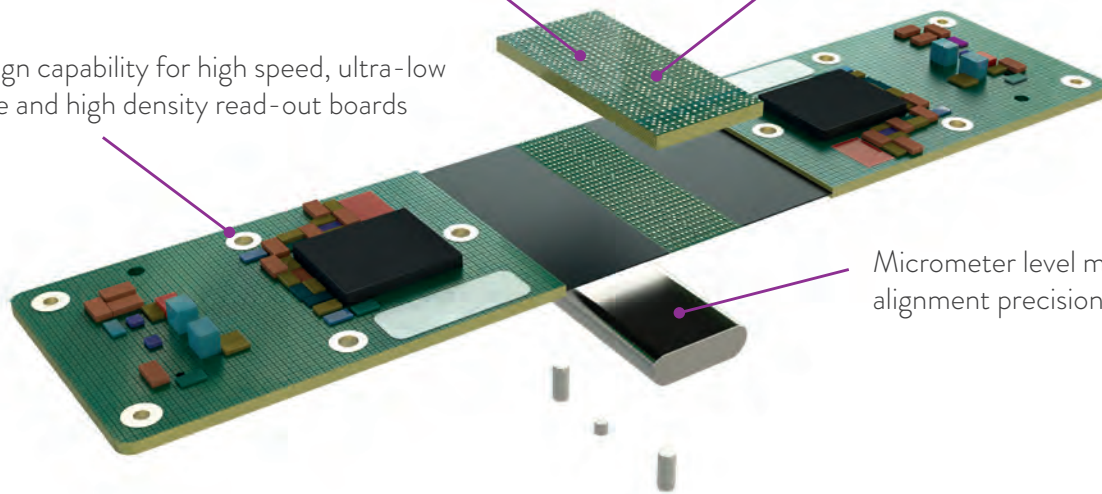
Photodiode stud bumping and high precision flip-chip assembly of fully tileable detector modules

Various substrate materials available for optimized performance and cost

Low temperature, low warpage photodiode assembly process for various substrate materials

Design capability for high speed, ultra-low noise and high density read-out boards

Micrometer level mechanical alignment precision



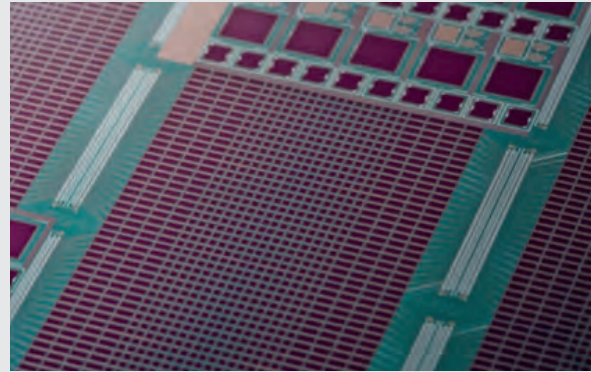
Detection Technology's unique in-house design and manufacturing capabilities for medical x-ray imaging systems.

HIGH-PERFORMANCE PHOTODIODE TECHNOLOGY

Backside illuminated (BSI) photodiode technology enables manufacturing of fully tileable photodiode array modules meeting all the requirements of modern multi-slice and true volumetric CT scanners. BSI photodiode array solutions are tailored to interface to customer detector mechanics and data acquisition systems.

Frontside illuminated (FSI) photodiode technology enables manufacturing of large photodiode array modules for multi-slice CT scanners with high quality requirements. The photodiode array module can be equipped with switch ASICs which connect the photodiode elements to a data acquisition system in a specified way according to the operating modes defined by the customer.

A well-proven and optimized manufacturing and supply chain ensures cost effective and high quality sensor solutions.



ELECTRICAL AND OPTICAL CHARACTERISTICS OF BSI (& FSI)

PARAMETER	CONDITION	MINIMUM	TYPICAL	MAXIMUM
Responsivity [mA/W]	@500nm @560nm @620nm		325 (335) 395 (385) 455 (430)	
Temperature coefficient of Responsivity [%/°C]	460 nm to 700 nm	-0.01		0.01
Response uniformity [%]	Within one photodiode chip / pixel matrix	-5 (-2)		5 (2)
Dark current [pA]	1mm ² pixel, @10mV DC bias		1	6
Capacitance [pF]	1mm ² pixel		10	
Crosstalk [%]	Ch to Ch (adjacent)		5 (0.1)	

Characteristics of DT's proprietary backside illuminated (BSI) and frontside illuminated (FSI) photodiodes.

Please notice that electrical and optical characteristics of the photodiode array module presented above depend also on the exact design of the module. Validity of given specification above must be verified for each individual photodiode array design.



DETECTION TECHNOLOGY

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