

**APPLICATION**

- ⇒ Medical and non-medical imaging
- ⇒ Small specimen radiography, micro CT
- ⇒ X-ray photon counting concept demonstration

**FEATURES**

- ⇒ ROIC for indirect X-ray detection
- ⇒ Suitable for a large range of indirect detectors (scintillators): GdOS, CsI, ...
- ⇒ 91(x) \* 90(y) effective pixels. Column x=92 contains testpixels.
- ⇒ Energy discrimination by two programmable threshold levels; two energy channels.
- ⇒ 100µm pixel pitch
- ⇒ High QE\*FF, peak at 40-50% (front side illumination)
- ⇒ X/Y addressed readout
- ⇒ Pulse detection read noise 15 electrons<sub>RMS</sub>
- ⇒ Pulse charge packet size 60 to 6000 electrons
- ⇒ Total electrical power < 100mW
- ⇒ Maximum count rate 100-300kHz
- ⇒ Maximum count value below PSN: >1000
- ⇒ Requires no fiber optic faceplate (FOP)

**SPECIFICATIONS**

Specification	unit	min	typ	max
<b>Geometrical</b>				
Pixels			90x91	
pixel pitch	µm		100x100	
Die size	mm		10x10	
Windowed readout, region of interest			X/Y random access	
Electronic shutter			Implemented by a "global counter reset"	
<b>Electro-optical</b>				
Detectable input charge packet $Q_{FW}$	e <sup>-</sup>	60	300	>3000
Temporal read noise @input $Q_{noise}$	e <sup>-</sup> <sub>RMS</sub>	10	15	50
Fixed pattern noise @input	e <sup>-</sup> <sub>RMS</sub>		15	
MTF (400-600nm) visible light domain, not including scintillator		40%	50%	60%
QE front side illumination 500-700nm	%		50	
<b>Interfacing</b>				
Package		Ceramic 100 pin PGA		
Output data		Dual analog output (one per counter or energy level)		
Input signals		Digital CMOS levels (3.3V)		
Pixel readout rate or addressing rate in X-direction	Mpix/s	1	5	
1/ full frame readout time	fps	100		
Analog power supplies	V	3.0	3.3	3.6
Digital power supply	V	3.0	3.3	3.6
Total Power dissipation	mW	20	30	50
<b>Environmental</b>				
Total dose tolerance	Mrad	>1 (estimated)		
SEU tolerance			To be evaluated	
Specification temperature	°C		21	
Operation temperature	°C	-40	21	60
Storage temperature	°C	-	21	120

**ORDERING**

Minimum order: 1 (demonstrator) or 10 (devices)  
This datasheet is tentative. Specifications are subject to change.

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