



FPA640x512_P15-C (Badger-C)

NEAR INFRARED (0.9 - 1.7 μm) 640x512 InGaAs Focal Plane Array

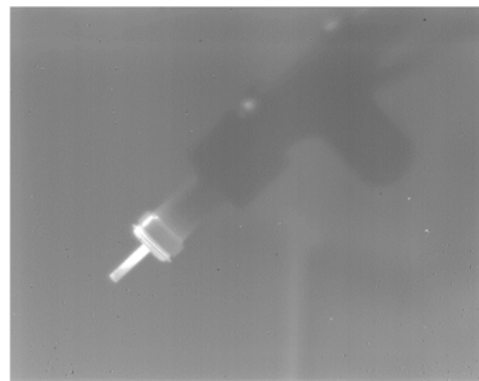
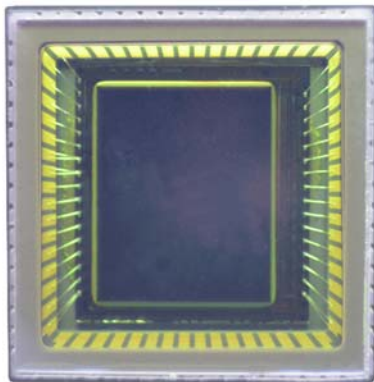
FEATURES

- 640 x 512 Array Format
- 0.9 μm - 1,7 μm Spectral Range
- Light Weight 64CLCC Package
- Typical Pixel Operability > 99.9 %
- Quantum Efficiency > 70 %
- Room Temperature Operation
- Built-in Temperature Sensor
- Snapshot ITR¹/IWR² and IMRO³ Readout Modes
- 2, 4 or 8 Outputs with up to 18 MHz Pixel Rate
- Windowing Capability

APPLICATIONS

- Near-infrared Imaging
- Covert Surveillance
- Semiconductor/Solar Panel Inspection
- Medical Science and Biology
- Fiberoptic Assembly and Testing
- See through Fog/Smoke
- Ice/Slush/Moisture Mapping
- Industrial Thermal Imaging
- Astronomy and scientific

¹ITR: Integrate-Then-Read - ²IWR : Integrate-While-Read - ³IMRO : Integration with Multiple ReadOut



GENERAL DESCRIPTIONS

PARAMETER	UNIT	VALUE
Sensor Technology	--	Planar InGaAs PIN
Spectral Range	μm	0.9 – 1.7
Actual Pixel Array	--	640 x 512
Effective Pixel Array	--	636 x 508
Pixel Pitch	μm	15
Image Size	mm	9.6 x 7.68
Package Type	--	64-pin Ceramic LCC
Package Size L x W x T	mm	18 x 18 x 2
Weight	g	1.7



SPECIFICATIONS ($T_{AMB} = 22^{\circ}\text{C}$)

PARAMETER		UNIT	TYPICAL VALUE	COMMENTS
Dark Current ^{1,2}		fA (= 6250 e ⁻ /s)	≤ 30	Photopixel Biased @ -0.5 V Mean Value
Quantum Efficiency (QE _{EFF}) ^{1,2}		%	≥ 70	λ = 1.0 μm - 1.6 μm
Response Nonuniformity ^{1,2}		%	≤ 5	At 50 % Full Well
Response Nonlinearity ^{1,2}		%	≤ 2	15 % - 85 % Well Occupation Range
Charge Capacity ^{2,3}	@ High Gain, 46.2 μV/e ⁻	Me ⁻	0.041	ROIC Specifications
	@ Mid Gain, 16.2 μV/e ⁻		0.118	
	@ Low Gain, 1.39 μV/e ⁻		1.380	
Readout Noise Floor ³		e ⁻	≤ 35	In High Gain Mode, ROIC Specifications
Noise-Equivalent Irradiance (NEI)		ph# / cm ² s	≤ 2.1 x 10 ¹⁰	High Gain, Integration Time = 3.33 ms, λ = 1.55 μm
Mean Detectivity		cm√Hz / W	≥ 3.0 x 10 ¹²	
Output Swing		V	2.3	
Minimum Integration Period ²		μs	< 1	
Pixel Operability ^{1,4}		%	≥ 99.9	Percentage of Pixels with QE _{EFF} Deviation within ±20% (QE _{EFF} Mean)

1. These items are defined for central effective pixel array (636x508). Their values correspond to default operation conditions.
2. Contact us for further information.
3. These values are ROIC-version dependent.
4. FPA with pixel operability lower than 99.9% (< 99.9%) is categorized as a test-grade device, which, if available in stock, can be provided on request

ABSOLUTE MAXIMUM RATINGS

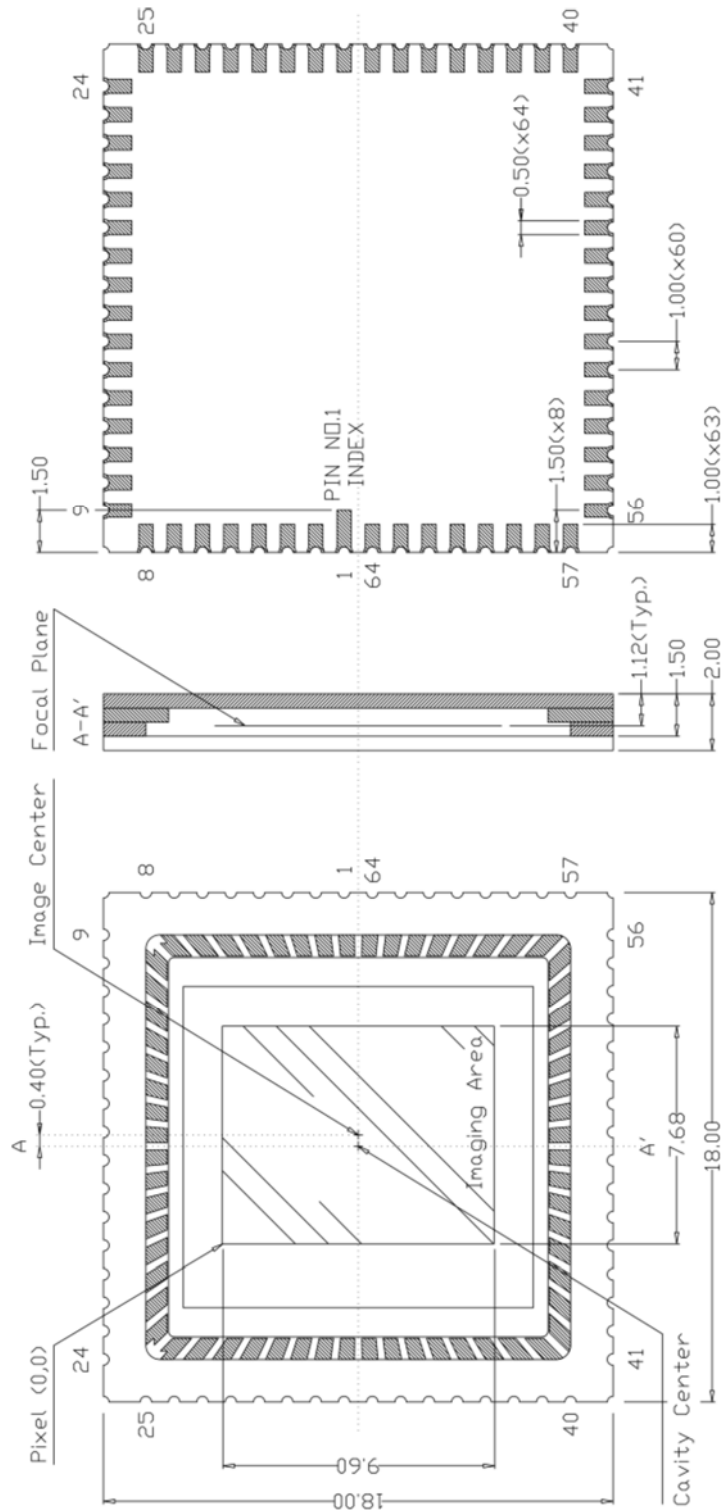
PARAMETER	UNIT	MIN.	MAX.
Operation Temperature ⁵	°C	-40	+71
Storage Temperature ⁵	°C	-40	+80
Power Consumption	mW	--	200

5. In non-condensing environment.



PACKAGE OUTLINE

64 Ceramic LCC. The FPA Serial Number is printed on the bottom of the LCC.
(Unit: mm)

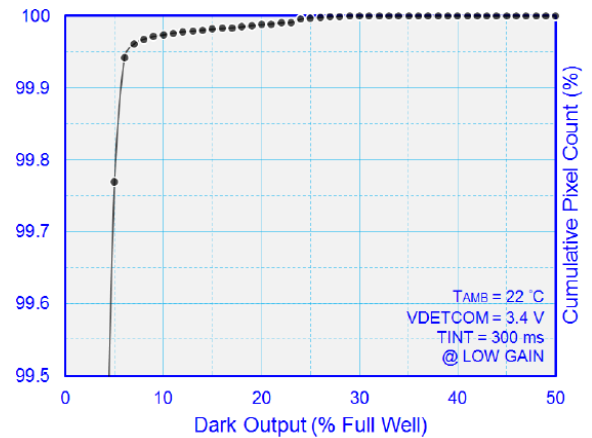
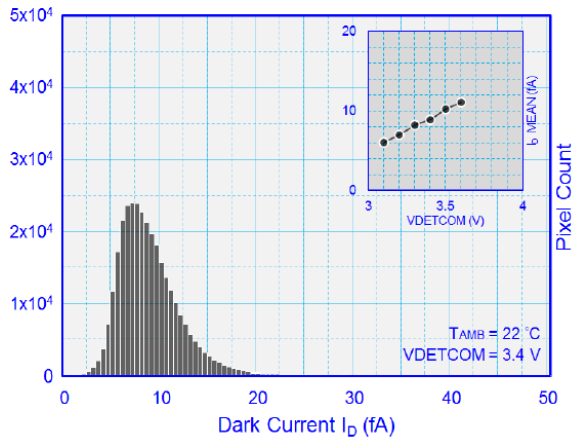


Note: ANDANTA can provide lidless versions per customer requests. Lidless FPAs can reap the benefits from less window interference and the adoption of proximate optical filter(s).

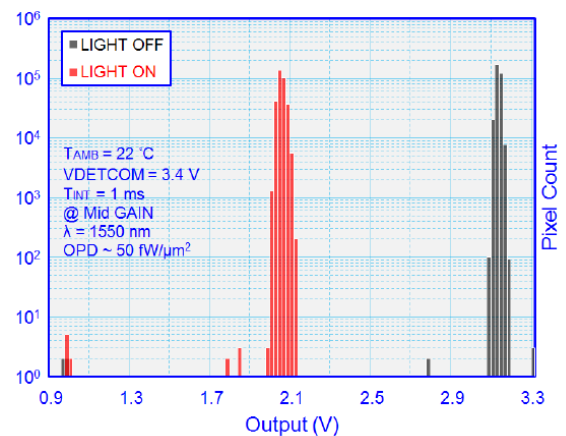
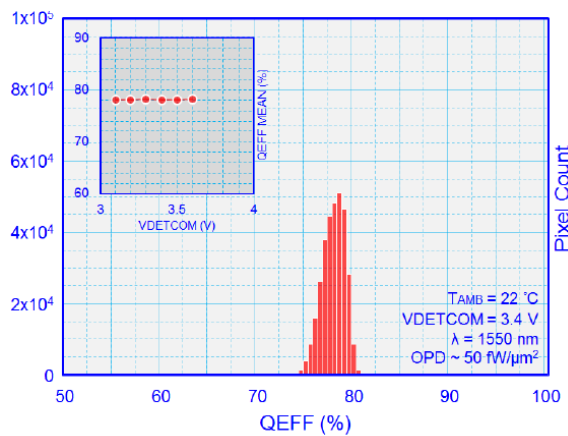


EXAMPLE CURVES

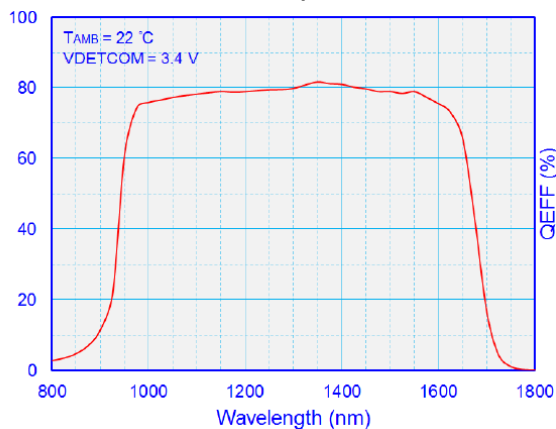
Histograms of Dark Condition



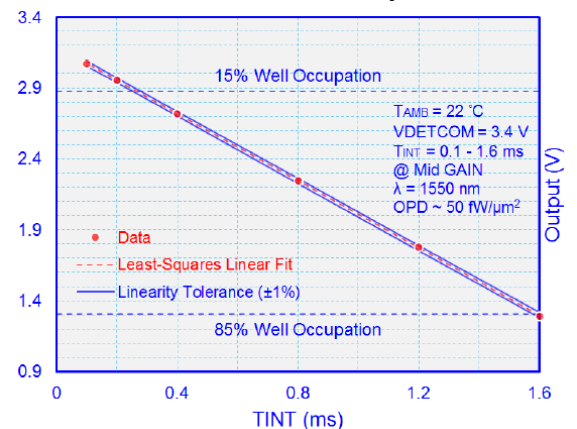
Histograms of Illuminated Condition



QEFF Spectrum



QEFF Linearity



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