



FPA640x512_P15-C-VIS (Badger-C-VIS)

NEAR INFRARED (0.6 - 1.7 μm) 640x512 InGaAs Focal Plane Array

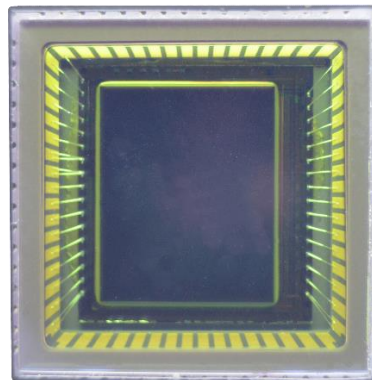
FEATURES

- 640 x 512 Array Format
- 0.6 μm - 1,7 μm Spectral Range
- Light Weight 64CLCC Package
- Typical Pixel Operability \geq 99.5%
- 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	0.6 - 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) ²		ph# / cm ² s	≤ 2.1 x 10 ¹⁰	High Gain, Integration Time = 3.33 ms, λ = 1.55 μm
Mean Detectivity ²		cm√Hz / W	≥ 3.0 x 10 ¹²	
Output Swing		V	2.25	
Minimum Integration Period ²		μs	< 1	
Pixel Operability ^{1,4}		%	≥ 99.5	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 99.5% (< 99.5%) is categorized as a test-grade device, which, if available in stock, can be provided on request

ABSOLUTE MAXIMUM RATINGS

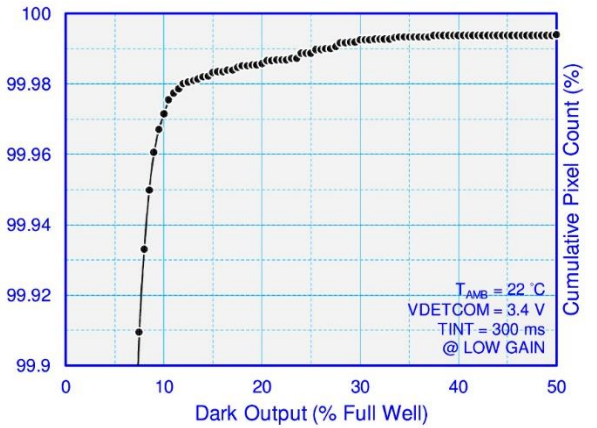
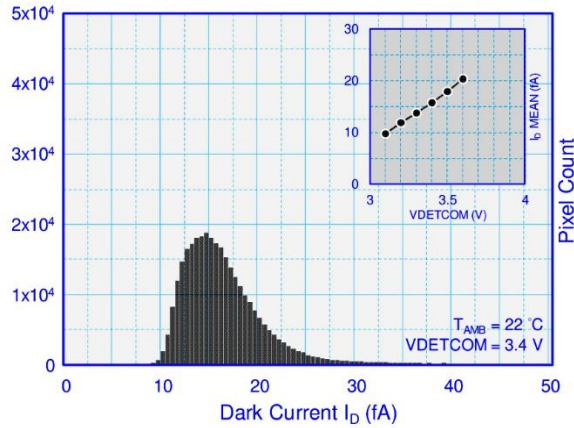
PARAMETER	UNIT	MIN.	MAX.
Operation Temperature ⁵	°C	-40	+71
Storage Temperature ⁵	°C	-40	+80
Power Consumption	mW	--	200

5. In non-condensing environment.

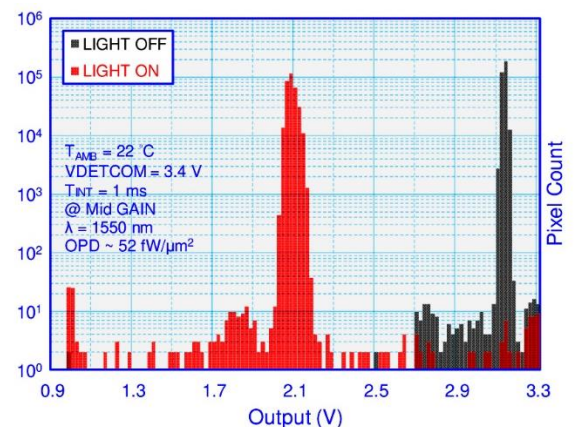
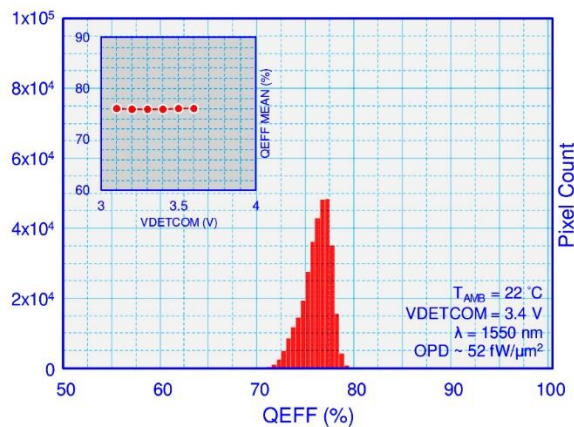


EXAMPLE CURVES

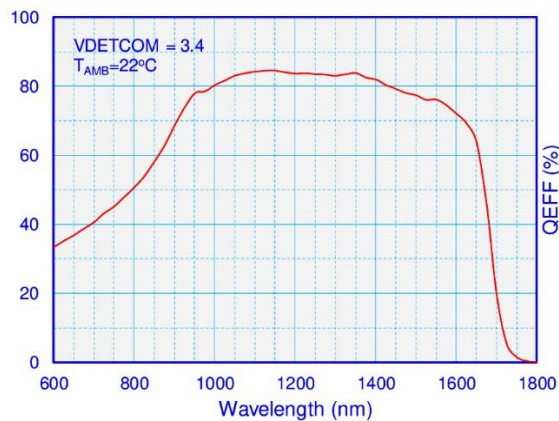
Histograms of Dark Condition



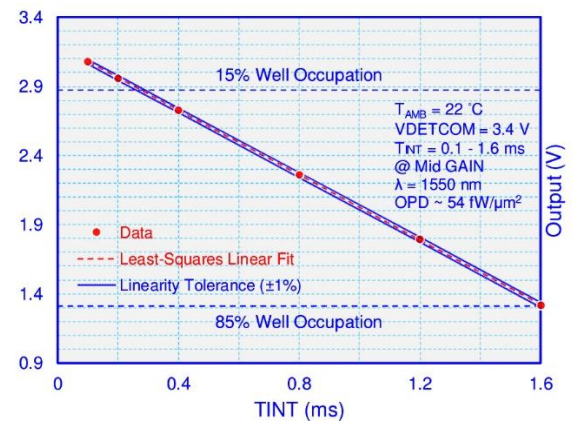
Histograms of Illuminated Condition



QEFF Spectrum



QEFF Linearity



The information in this document is subject to change without notice. Copyright © 2021 ANDANTA GmbH. All rights reserved.