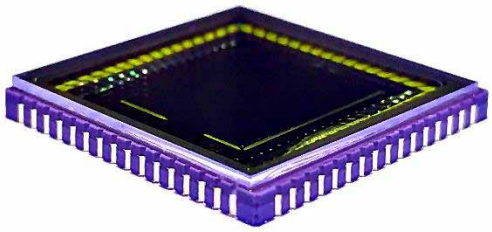
Near-Infrared (0.9 - 1.7 μm) 640x512 InGaAs Focal Plane Array

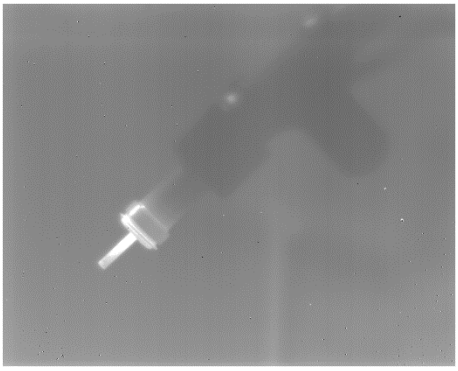
FEATURES

- 640x512 Array Format
- 0.9μm-1.7μm Spectral Range
- Light Weight 64CLCC Package
- Typical Pixel Operability >99.9%
- Quantum Efficiency >70%
- Room Temperature Operation
- Built-in Temperature Sensor
- Snapshot ITR/IWR and IMRO Readout Modes
- 2, 4 or 8 Outputs with up to 18MHz 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





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 °C)

Parameter		Unit	Typical Value	Conditions
[1,2]Dark Current		fA (=6250 e^-/s)	≤ 30	Photopixel Biased @ -0.5 V Mean Value
[1,2]Quantum Efficiency * Fill Factor (QEFF)		%	≥ 70	λ = 1.0 µm - 1.6 µm
[1,2]Response Nonuniformity		%	≤ 5	At 50% Full Well
[1,2]Response Nonlinearity		%	≤ 2	15% - 85% Well Occupation Range
[3]Charge Capacity	@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	
[3]Readout Noise Floor		e^-	< 35	In High Gain Mode
[2]Noise-Equivalent Irradiance (NEI)		ph# / cm^2-s	≤ 2.1 x 10^{10}	In High Gain Mode Integration Time = 3.33 ms λ = 1.55 µm
[2]Mean Detectivity		cm-√Hz / W	≥ 3.0 x 10^{12}	
Output Swing		V	2.25	
[2]Minimum Integration Period		µs	< 1	
[1,4]Pixel Operability		%	≥ 99.9	Percentage of Pixels with QEFF Deviation within ± 20%*(QEFF Mean).

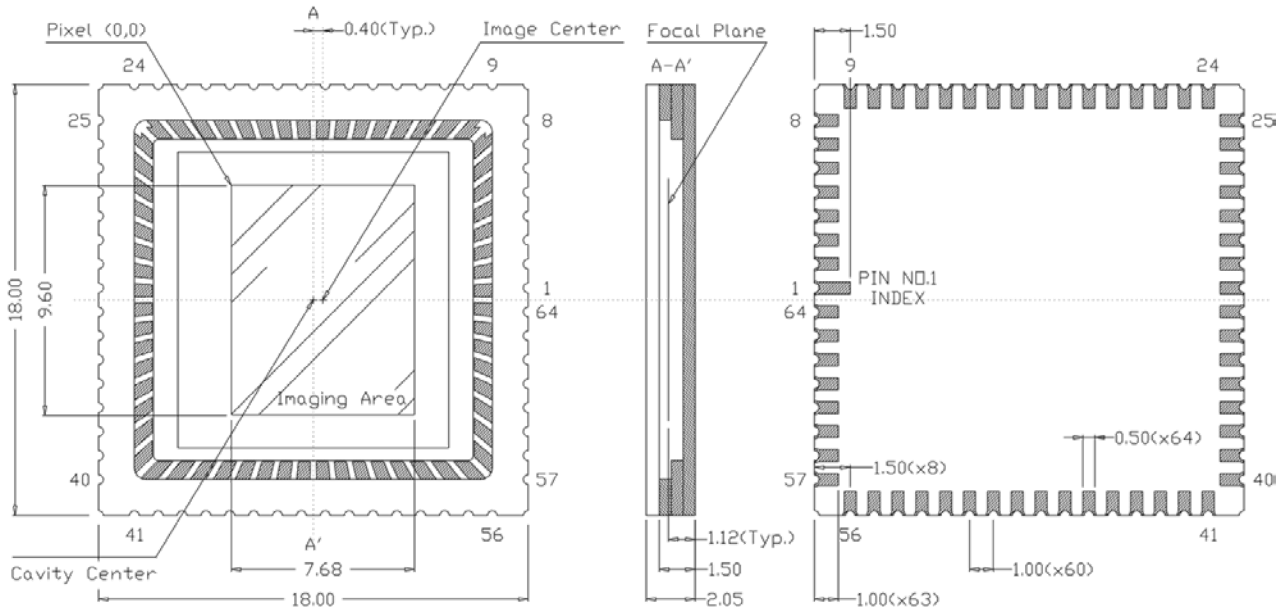
1. These items are defined for central effective pixel array (636x508). Their values correspond to default operation conditions.
2. Contact us for further information.
3. These values are ROIC-version dependent.
4. FPA with pixel operability lower than 99.9% (<99.9%) is categorized as a test-grade device,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

ABSOLUTE MAXIMUM RATINGS

Parameter	Unit	Min.	Max.
[5]Operating Temperature	°C	-40	+71
[5]Storage Temperature	°C	-40	+80
Power Consumption	mW	---	200

5. In non-condensing environment.

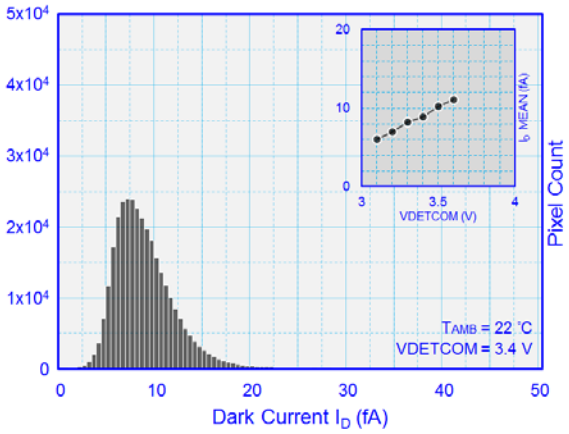
PACKAGE OUTLINE (Unit: mm)

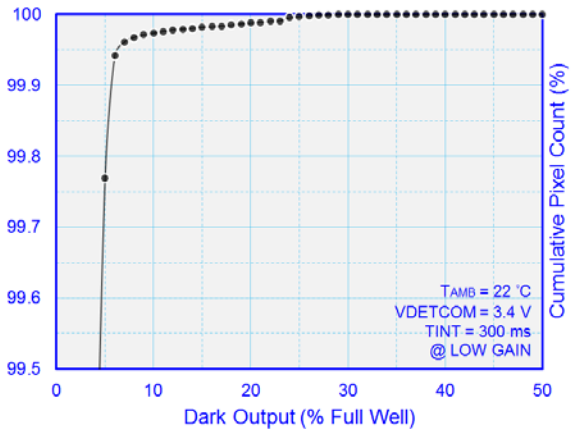


Note: CLPT can provide lidless version per customer requests. Lidless FPA can reap the benefits from less window interference and the adoption of proximate optical filter(s).

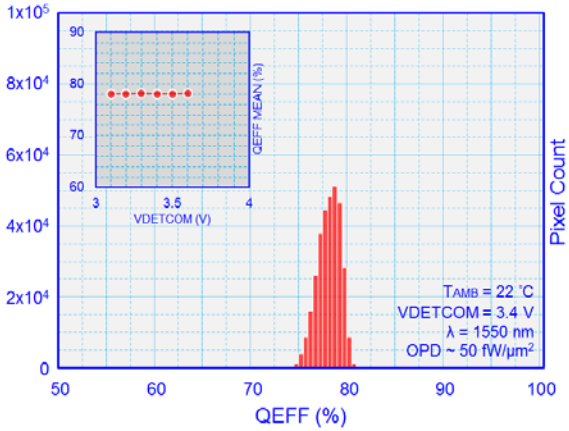
EXAMPLE CURVES

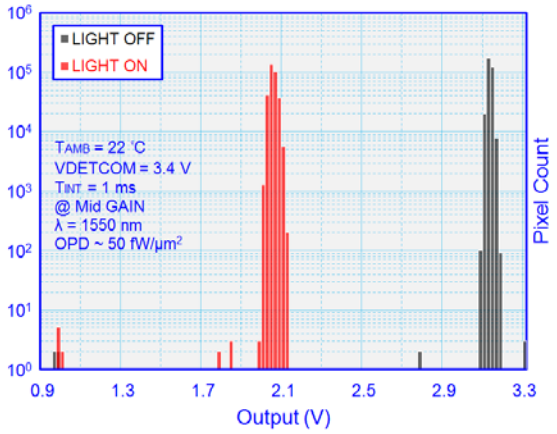
Histograms of Dark Condition



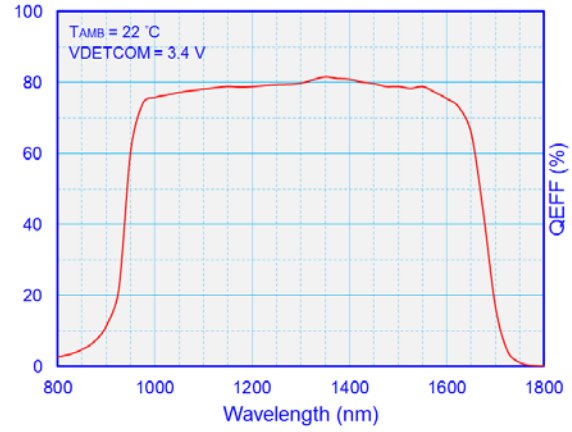


Histograms of Illuminated Condition

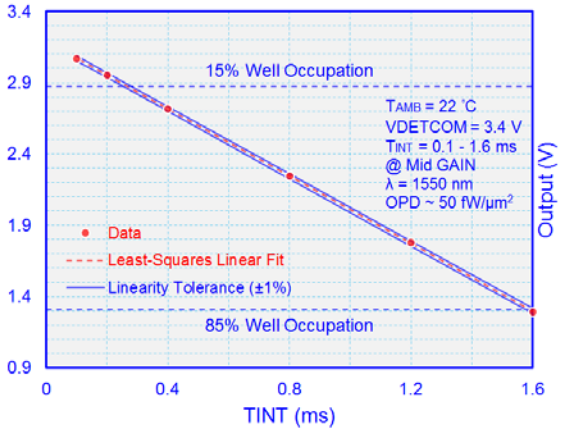




QEFF Spectrum



Output Linearity



Note: The example curves are subject to change without notice.