



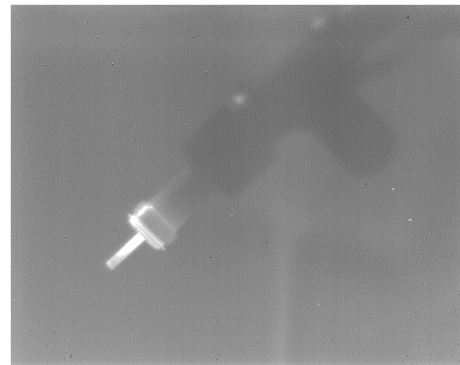
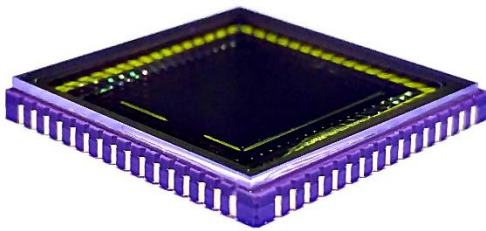
## Near-Infrared ( 0.9 - 1.7 $\mu\text{m}$ ) 640x512 InGaAs Focal Plane Array

### FEATURES

- 640x512 Array Format
- 0.9 $\mu\text{m}$ -1.7 $\mu\text{m}$  Spectral Range
- Light Weight 64CLCC Package
- Typical Pixel Operability >99.5%
- 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	$\mu\text{m}$	0.9 -1.7
Actual Pixel Array	---	640 x 512
Effective Pixel Array	---	636 x 508
Pixel Pitch	$\mu\text{m}$	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 (  $T_{AMB} = 22\text{ }^{\circ}\text{C}$  )

Parameter	Unit	Typical Value	Conditions
<sup>1,2</sup> Dark Current	fA	≤ 30	Photopixel Biased @ -0.5 V
<sup>1,2</sup> Quantum Efficiency * Fill Factor (QE <sub>EFF</sub> )	%	≥ 70	$\lambda = 1.0\text{ }\mu\text{m} - 1.6\text{ }\mu\text{m}$
<sup>1,2</sup> Response Nonuniformity	%	≤ 5	At 50% Full Well
<sup>1,2</sup> Response Nonlinearity	%	≤ 2	15% - 85% Well Occupation Range
<sup>2,3</sup> Charge Capacity	@High Gain, 46.2 $\mu\text{V}/\text{e}$	0.041	ROIC Specifications
	@Mid Gain, 16.2 $\mu\text{V}/\text{e}$	0.118	
	@Low Gain, 1.39 $\mu\text{V}/\text{e}$	1.380	
Readout Noise	$\text{e}^{-}$	≤ 72	High Gain, Integration Time = 3.33 ms
Noise-Equivalent Irradiance (NEI)	$\text{ph}\#/\text{cm}^2\text{-s}$	≤ $1.3 \times 10^{10}$	High Gain, Integration Time = 3.33 ms, $\lambda = 1.55\text{ }\mu\text{m}$
Mean Detectivity	$\text{cm}\sqrt{\text{Hz}/\text{W}}$	≥ $5.0 \times 10^{12}$	
Output Swing	V	2.3	
<sup>2</sup> Minimum Integration Period	$\mu\text{s}$	< 1	
<sup>1,2</sup> Pixel Operability	%	≥ 99.5	Percentage of Pixels with QE <sub>EFF</sub> Deviation within $\pm 20\%$ *(QE <sub>EFF</sub> Mean).

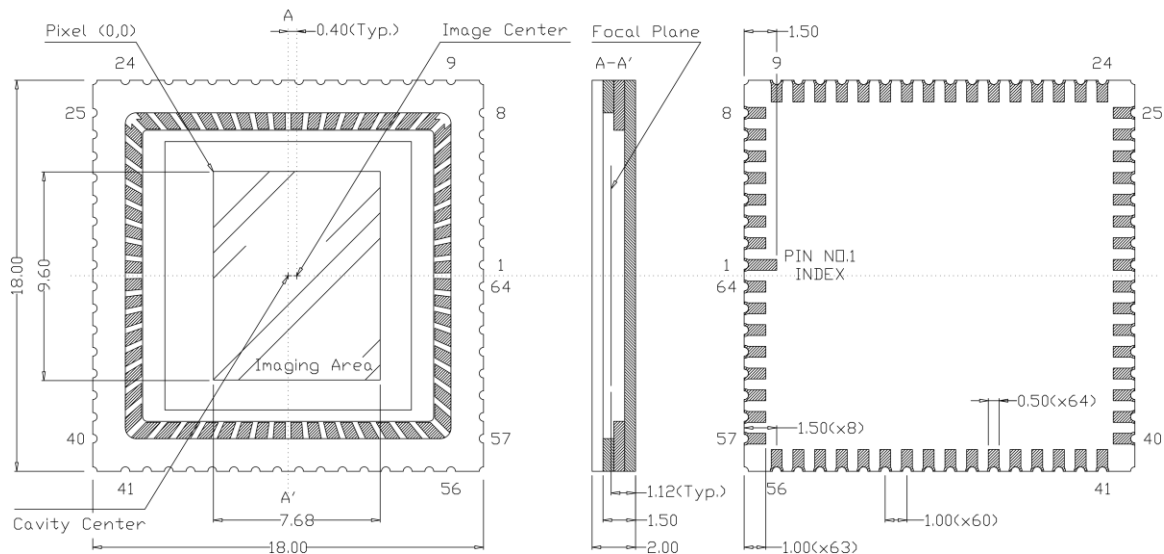
1. These items are defined for central effective pixel array (636x508). Their values correspond to default operation conditions.
2. Contact us for further information.
3. These values are ROIC-version dependent.

ABSOLUTE MAXIMUM RATINGS

Parameter	Unit	Min.	Max.
<sup>4</sup> Operation Temperature	$^{\circ}\text{C}$	-40	+70
<sup>4</sup> Storage Temperature	$^{\circ}\text{C}$	-40	+70
Power Consumption	mW	---	200

4. In non-condensing environment

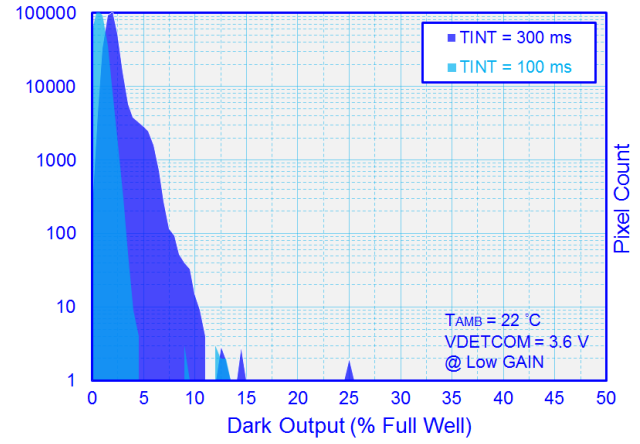
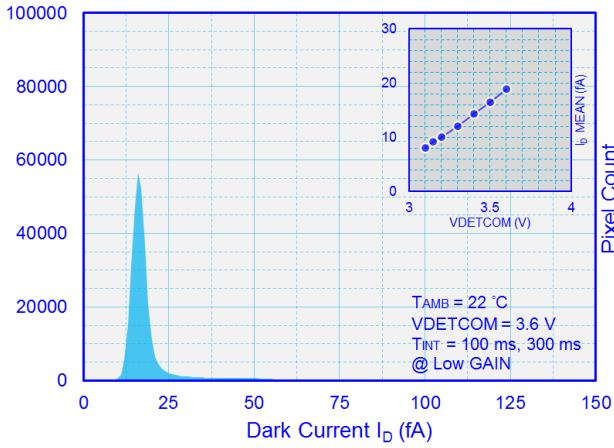
PACKAGE OUTLINE (Unit: mm)



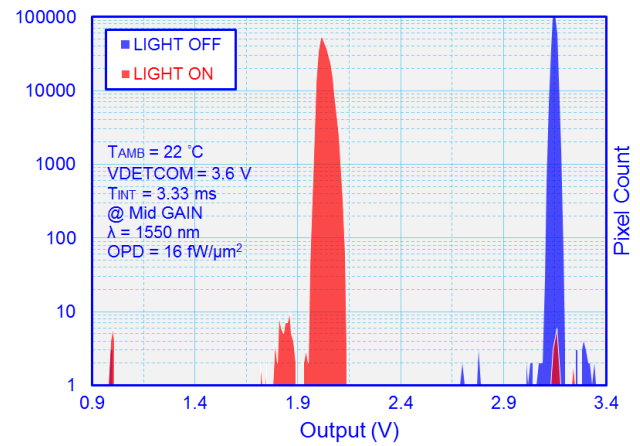
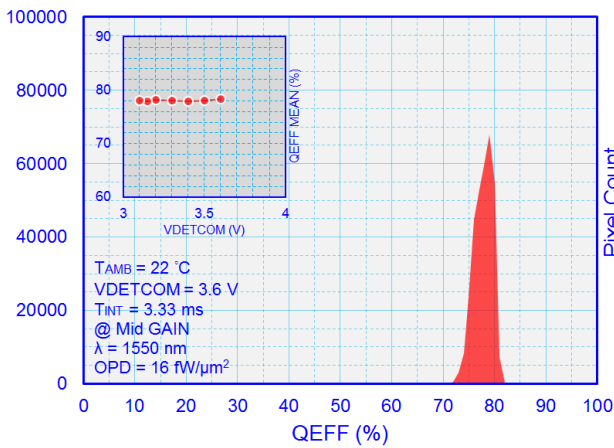


## EXAMPLE CURVES

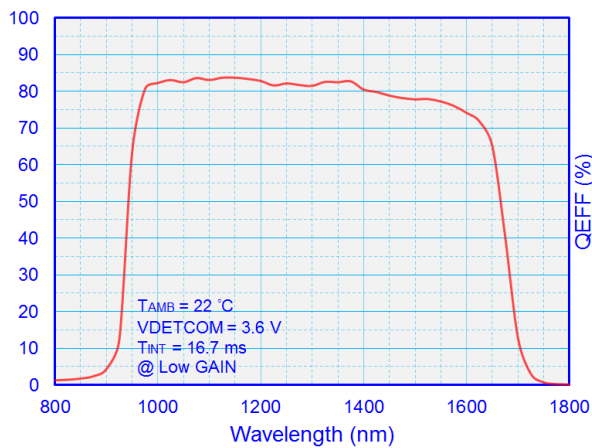
### Histograms of Dark Condition



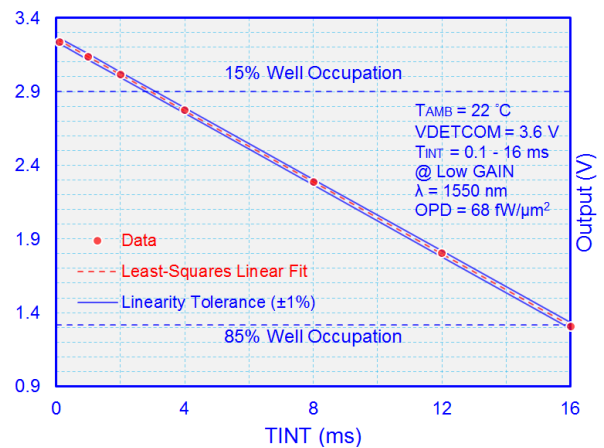
### Histograms of Illumination Condition



### QE FF Spectrum



### Output Linearity



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