



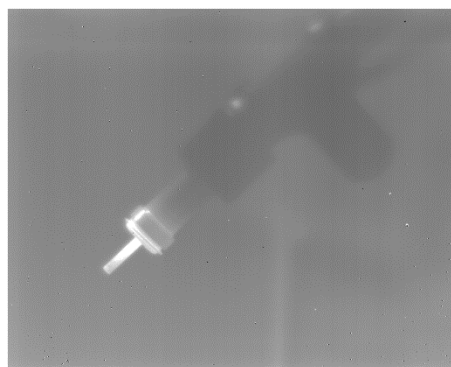
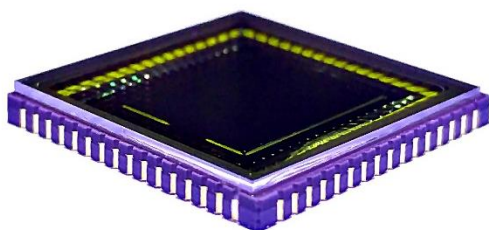
## Near-Infrared ( 0.9 - 1.7 $\mu\text{m}$ ) 640x512 InGaAs Focal Plane Array

### FEATURES

- 640x512 Array Format
- 0.9 $\mu\text{m}$ -1.7 $\mu\text{m}$  Spectral Range
- Light Weight 64CLCC Package
- Typical Pixel Operability >99.9%
- 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         | $\mu\text{m}$ | 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<sub>AMB</sub> = 22 °C)

| Parameter                                                            |                                    | Unit                     | Typical Value            | Conditions                                                                                   |
|----------------------------------------------------------------------|------------------------------------|--------------------------|--------------------------|----------------------------------------------------------------------------------------------|
| <sup>1,2</sup> Dark Current                                          |                                    | fA<br>(=6250 e/s)        | ≤ 30                     | Photopixel Biased @ -0.5 V<br>Mean Value                                                     |
| <sup>1,2</sup> Quantum Efficiency * Fill Factor (QE <sub>EFF</sub> ) |                                    | %                        | ≥ 70                     | λ = 1.0 μm - 1.6 μm                                                                          |
| <sup>1,2</sup> Response Nonuniformity                                |                                    | %                        | ≤ 5                      | At 50% Full Well                                                                             |
| <sup>1,2</sup> Response Nonlinearity                                 |                                    | %                        | ≤ 2                      | 15% - 85% Well Occupation Range                                                              |
| <sup>3</sup> Charge Capacity                                         | @High Gain, 46.2 μV/e <sup>-</sup> | Me <sup>-</sup>          | 0.041                    | ROIC Specifications                                                                          |
|                                                                      | @Mid Gain, 16.2 μV/e <sup>-</sup>  |                          | 0.118                    |                                                                                              |
|                                                                      | @Low Gain, 1.39 μV/e <sup>-</sup>  |                          | 1.380                    |                                                                                              |
| <sup>3</sup> Readout Noise Floor                                     |                                    | e <sup>-</sup>           | < 35                     | In High Gain Mode                                                                            |
| <sup>2</sup> Noise-Equivalent Irradiance (NEI)                       |                                    | ph# / cm <sup>2</sup> -s | ≤ 2.1 x 10 <sup>10</sup> | In High Gain Mode<br>Integration Time = 3.33 ms<br>λ = 1.55 μm                               |
| <sup>2</sup> Mean Detectivity                                        |                                    | cm-√Hz / W               | ≥ 3.0 x 10 <sup>12</sup> |                                                                                              |
| Output Swing                                                         |                                    | V                        | 2.25                     |                                                                                              |
| <sup>2</sup> Minimum Integration Period                              |                                    | μs                       | < 1                      |                                                                                              |
| <sup>1,4</sup> Pixel Operability                                     |                                    | %                        | ≥ 99.9                   | Percentage of Pixels with QE <sub>EFF</sub> Deviation within ± 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.

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.

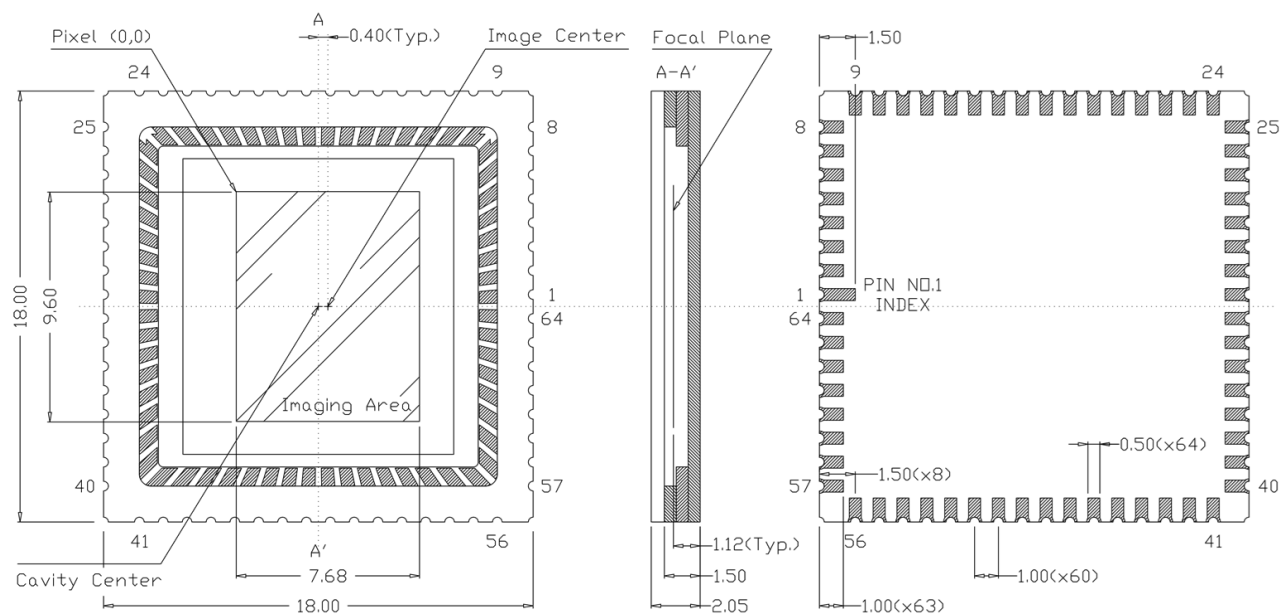
## ABSOLUTE MAXIMUM RATINGS

| Parameter                          | Unit | Min. | Max. |
|------------------------------------|------|------|------|
| <sup>5</sup> Operating Temperature | °C   | -40  | +71  |
| <sup>5</sup> Storage Temperature   | °C   | -40  | +80  |
| Power Consumption                  | mW   | ---  | 200  |

5. In non-condensing environment.



## PACKAGE OUTLINE (Unit: mm)

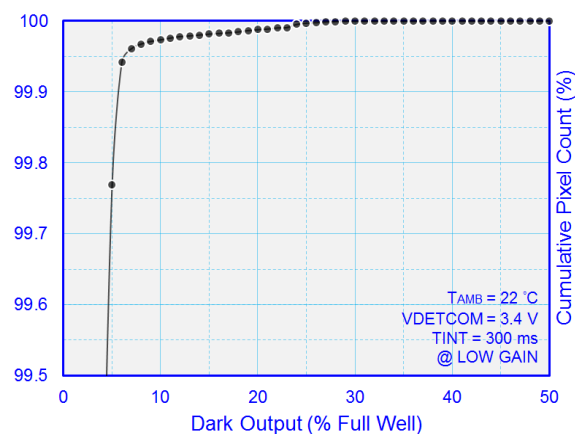
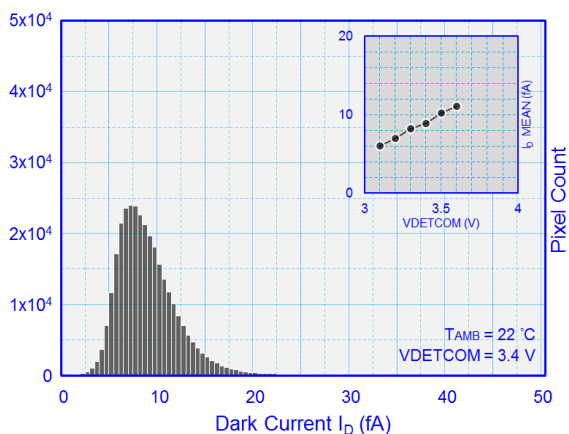


Note: CLPT can provide lidless version per customer requests. Lidless FPA can reap the benefits from less window interference and the adoption of proximate optical filter(s).

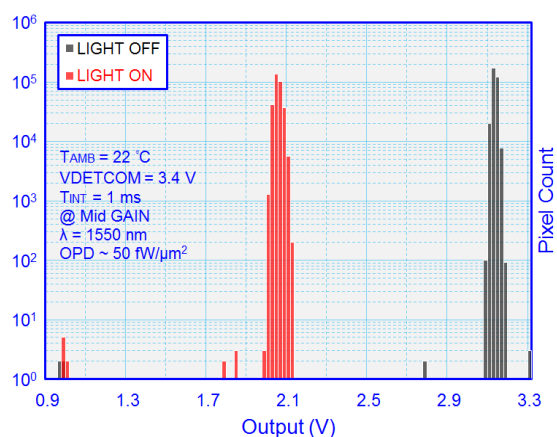
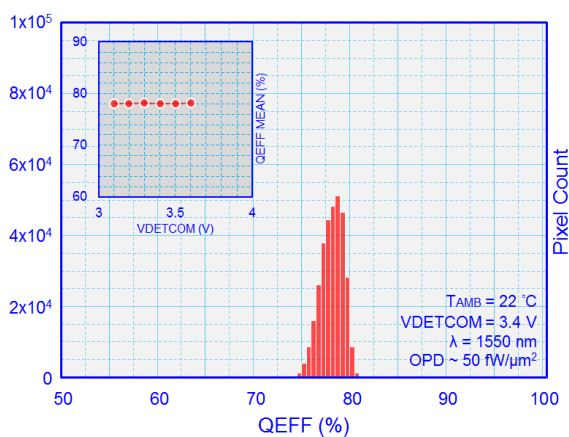


## EXAMPLE CURVES

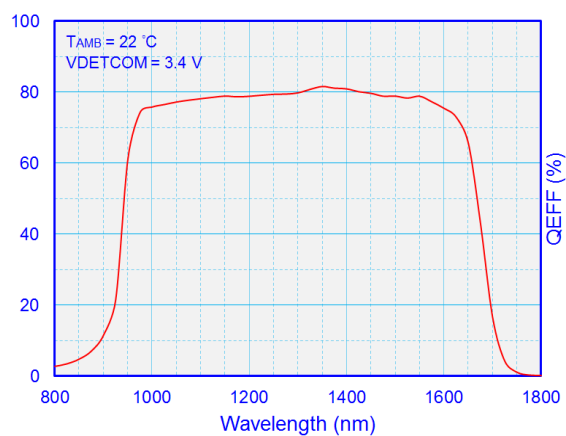
Histograms of Dark Condition



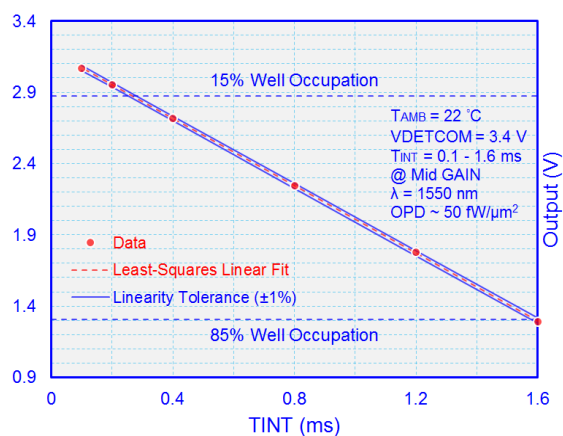
Histograms of Illuminated Condition



QE FF Spectrum



Output Linearity



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

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