

## Product Overview

### KAE-08152: Interline Transfer EMCCD Image Sensor, 8.1 MP

For complete documentation, see the data sheet.

The KAE-08152 Image Sensor is an 8.1 Mp, 4/3 format (22.2 mm diagonal), Interline Transfer EMCCD image sensor that provides increased Quantum Efficiency (particularly for NIR wavelengths) compared to KAE-08151. Each of the sensor's four outputs incorporates both a conventional horizontal CCD register and a high gain EMCCD register, resulting in exceptional low-light imaging performance.

QE at 820 nm has approximately doubled, enabling enhanced sensitivity without any decrease in the device's Modulation Transfer Function (MTF). An intra-scene switchable gain feature samples each charge packet on a pixel-by-pixel basis. This enables the camera system to determine whether the charge will be routed through the normal gain output or the EMCCD output based on a user selectable threshold. This feature enables imaging in extreme low light, even when bright objects are within a dark scene, allowing a single camera to capture quality images from sunlight to starlight.

A vertical overflow drain structure suppresses image blooming, provides excellent MTF, and enables electronic shuttering for precise exposure.

KAE-08152 is available in two package configurations: PGA, and PGA with integrated thermoelectric cooler (TEC).

#### Features

- Increased QE, with 2x improvement at 820 nm
- Intra-Scene Switchable Gain
- Wide Dynamic Range
- Low Noise Architecture
- Exceptional Low Light Imaging
- Global Shutter
- Excellent Image Uniformity and MTF
- Multiple spectral sensitivity options
- PCA package, or PGA with integrated thermoelectric cooler

#### Benefits

- Improved sensitivity for NIR wavelengths
- Dynamic compensation under changing conditions
- Imaging of bright regions in otherwise dark scenes
- Sub-electron noise for EMCCD gains of 2x at T = 0°C
- Enables imaging in widely varying conditions, sunlight to starlight
- Excellent imaging of moving objects without artifacts
- CCD technology provides excellent image quality
- Optimized for monochrome or color image capture
- Integrated cooler simplifies development of cooled camera design

#### Applications

- Scientific Imaging
- Surveillance
- Medical Imaging
- Intelligent Transportation Systems

## Part Electrical Specifications

Product	Compliance	Status	Type	Megapixels	Frame Rate (fps)	Optical Format	Shutter Type	Pixel Size (µm)	Output Interface	Color	Package Type
KAE-08152-ABA-JP-EE	Pb-free Halide free	Active	Interline Transfer-EMCCD	8.2	8	4/3 inch	Electronic	5.5 x 5.5	Analog	Mono	CPGA-155
KAE-08152-ABA-JP-FA	Pb-free Halide free	IntroPending	Interline Transfer-EMCCD	8.2	8	4/3 inch	Electronic	5.5 x 5.5	Analog	Mono	CPGA-155
KAE-08152-ABA-SD-EE	Pb-free Halide free	Active	Interline Transfer-EMCCD	8.2	8	4/3 inch	Electronic	5.5 x 5.5	Analog	Mono	CPGA-155
KAE-08152-ABA-SD-FA	Pb-free Halide free	IntroPending	Interline Transfer-EMCCD	8.2	8	4/3 inch	Electronic	5.5 x 5.5	Analog	Mono	CPGA-155
KAE-08152-FBA-JP-EE	Pb-free Halide free	Active	Interline Transfer-EMCCD	8.2	8	4/3 inch	Electronic	5.5 x 5.5	Analog	Bayer Color	CPGA-155
KAE-08152-FBA-JP-FA	Pb-free Halide free	IntroPending	Interline Transfer-EMCCD	8.2	8	4/3 inch	Electronic	5.5 x 5.5	Analog	Bayer Color	CPGA-155
KAE-08152-FBA-SD-EE	Pb-free Halide free	Active	Interline Transfer-EMCCD	8.2	8	4/3 inch	Electronic	5.5 x 5.5	Analog	Bayer Color	CPGA-155
KAE-08152-FBA-SD-FA	Pb-free Halide free	IntroPending	Interline Transfer-EMCCD	8.2	8	4/3 inch	Electronic	5.5 x 5.5	Analog	Bayer Color	CPGA-155

For more information please contact your local sales support at [www.onsemi.com](http://www.onsemi.com).

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