

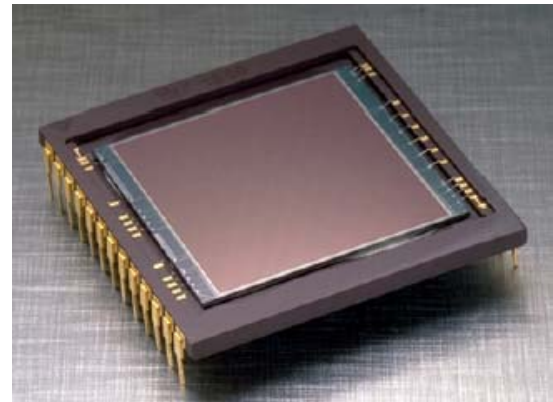
## PRODUCT SUMMARY

### KODAK KAF-1001E IMAGE SENSOR

1024 (H) X 1024 (V) FULL FRAME CCD IMAGE SENSOR

#### DESCRIPTION

The KODAK KAF-1001 Image Sensor is a high-performance, silicon charge-coupled device (CCD) designed for a wide range of image sensing applications in the 0.4mm to 1.1mm wavelength band. Common applications include medical, scientific, military, machine and industrial vision. The sensor is built with a true two-phase CCD technology employing a transparent gate. This technology simplifies the support circuits that drive the sensor and reduces the dark current without compromising charge capacity. The transparent gate results in spectral response increased ten times at 400nm, compared to a front side illuminated standard polysilicon gate technology. The sensitivity is increased 50% over the rest of the visible wavelengths. The clock selectable on-chip output amplifiers have been specially designed to meet two different needs. The first is a high sensitivity 2-stage output with 11 $\mu$ V/e<sup>-</sup> charge to voltage conversion ratio. The second is a single-stage output with 2 $\mu$ V/e<sup>-</sup> charge to voltage conversion ratio.



#### FEATURES

- Front Illuminated Full-Frame Architecture with Blue Plus Transparent Gate True Two Phase Technology for high sensitivity
- 100% Fill Factor
- Single Readout Register
- 2 Clock Selectable Outputs
- High Gain Output (11  $\mu$ V/e<sup>-</sup>) for low noise
- Low Gain Output (2.0  $\mu$ V/e<sup>-</sup>) for high dynamic range
- Low Dark Current (<30 pA/cm<sup>2</sup> @ T=25oC)

#### APPLICATIONS

- Scientific Imaging
- Medical Imaging

Parameter	Value
Architecture	Full Frame CCD
Pixel Count	1024 (H) x 1024 (V)
Pixel Size	24 $\mu$ m (H) x 24 $\mu$ m (V)
Active Image Size	24.6 mm (H) x 24.6 mm (V)
Chip Size	28.6 mm (H) x 25.5 mm (V)
Optical Fill-Factor	100%
Saturation Signal	
High Sensitivity Output	240,000 electrons
High Dynamic Range	650,000 electrons
Output Sensitivity	
High Sensitivity Output	10 $\mu$ mV/electron
High Dynamic Range	2 $\mu$ V/electron
Readout Noise [1 MHz]	15 electrons rms
Dark Current [25°C, Accumulation Mode]	<30 pA/cm <sup>2</sup>
Dark Current Doubling Rate	5–6°C
Dynamic Range (Sat Sig/Dark Noise)	
High Sensitivity Output	72 dB
High Dynamic Range	85 dB
Quantum Efficiency [450, 550, 650 nm]	40%, 55%, 65%
Maximum Data Rate	
High Sensitivity Output	5 MHz
High Dynamic Range	2 MHz
Transfer Efficiency [2 MHz, to -40°C]	>0.99997
Package	CERDIP Package (sidebrazed)
Cover Glass	Clear

**ORDERING INFORMATION**

<b>Catalog Number</b>	<b>Product Name</b>	<b>Description</b>	<b>Marking Code</b>
4H0016	KAF- 1001-AAA-CP-B1	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Grade 1	KAF-1001-AAA [Serial Number]
4H0017	KAF- 1001-AAA-CP-B2	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Grade 2	
4H0019	KAF- 1001-AAA-CP-AE	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Engineering Sample	
4H0842	KAF- 1001-AAA-CB-AE	Monochrome, No Microlens, CERDIP Package (sidebrazed), Clear Cover Glass (no coatings), Engineering Sample	
4H0847	KAF- 1001-AAA-CB-B2	Monochrome, No Microlens, CERDIP Package (sidebrazed), Clear Cover Glass (no coatings), Grade 2	
4H0080	KEK-4H0080-KAF-1001-12-5	Evaluation Board (Complete Kit)	N/A

Please see ISS Application Note "Product Naming Convention" (MTD/PS-0892) for a full description of naming convention used for KODAK image sensors.

For all reference documentation, please visit our Web Site at [www.kodak.com/go/imagers](http://www.kodak.com/go/imagers).

Address all inquiries and purchase orders to:

Image Sensor Solutions  
Eastman Kodak Company  
Rochester, New York 14650-2010

Phone: (585) 722-4385  
Fax: (585) 477-4947  
E-mail: [imagers@kodak.com](mailto:imagers@kodak.com)

Kodak reserves the right to change any information contained herein without notice. All information furnished by Kodak is believed to be accurate.