

## PRODUCT SUMMARY

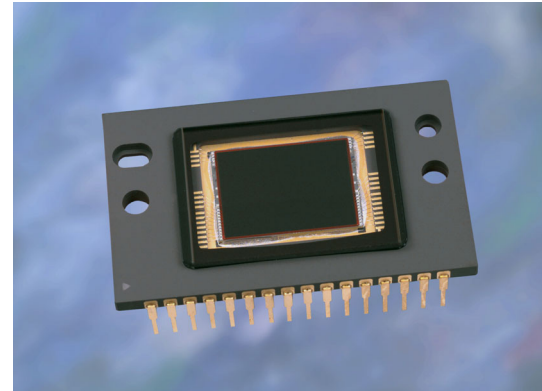
### KODAK KAI-2020 IMAGE SENSOR

1600 (H) X 1200 (V) PROGRESSIVE SCAN INTERLINE CCD IMAGE SENSOR

#### DESCRIPTION

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The KODAK KAI-2020 Image Sensor is a high performance 2-million pixel sensor designed for a wide range of medical, scientific and machine vision applications. The 7.4  $\mu\text{m}$  square pixels with microlenses provide high sensitivity and the large full well capacity results in high dynamic range. The split horizontal register offers a choice of single or dual output allowing either 18 or 35 frame per second (fps) video rate for the progressively scanned images. Also included is a fast line dump for sub-sampling at higher frame rates. The vertical overflow drain structure provides antiblooming protection and enables electronic shuttering for precise exposure control. Other features include low dark current, negligible lag and low smear.



#### FEATURES

- High resolution
- High sensitivity
- High dynamic range
- Low noise architecture
- High frame rate
- Binning capability for higher frame rate
- Electronic shutter

#### APPLICATIONS

- Industrial Imaging
- Scientific Imaging

Parameter	Typical Value
Architecture	Interline CCD; Progressive Scan
Total Number of Pixels	1640 (H) x 1214 (V)
Number of Effective Pixels	1608 (H) x 1208 (V)
Number of Active Pixels	1600 (H) x 1200 (V)
Pixel Size	7.4 $\mu\text{m}$ (H) x 7.4 $\mu\text{m}$ (V)
Active Image Size	11.84 mm (H) x 8.88 mm (V) 14.80 mm (diagonal)
Aspect Ratio	4:3
Number of Outputs	1 or 2
Saturation Signal	40 MHz – 20,000 e <sup>-</sup> 20 MHz – 40,000 e <sup>-</sup>
Output Sensitivity	30 $\mu\text{V}/\text{e}$
Quantum Efficiency KAI-2020-ABA (460 nm)	55%
Quantum Efficiency KAI-2020-CBA R(620nm), G(540nm), B(460nm)	31%, 37%, 41%
Readout Noise	40 MHz – 20 electrons 20 MHz – 16 electrons
Dynamic Range	40 MHz – 60 dB 20 MHz – 68 dB
Dark Current	< 0.5 nA/cm <sup>2</sup>
Maximum Pixel Clock Speed	40 MHz
Maximum Frame Rate	Dual Output – 35 fps Single Output – 18 fps
Package type	32 pin CerDIP
Package Size	0.790" [20.07mm] width 1.300" [33.02mm] length
Package pin spacing	0.070"
Cover Glass	AR coated, 2 sides

Parameters above are specified at T = 40° C unless otherwise noted.

## ORDERING INFORMATION

Catalog Number	Product Name	Description	Marking Code
4H0466	KAI- 2020-AAA-CF-AE	Monochrome, No Microlens, CERDIP Package (sidebrazed), Quartz Cover Glass (no coatings), Engineering Sample	KAI-2020 Serial Number
4H0465	KAI- 2020-AAA-CF-BA	Monochrome, No Microlens, CERDIP Package (sidebrazed), Quartz Cover Glass (no coatings), Standard Grade	
4H0458	KAI- 2020-AAA-CR-AE	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass with AR coating (2 sides), Engineering Sample	
4H0457	KAI- 2020-AAA-CR-BA	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass with AR coating (2 sides), Standard Grade	
4H0794	KAI- 2020-ABA-CD-AE	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass with AR coating (both sides), Engineering Sample	KAI-2020M Serial Number
4H0793	KAI- 2020-ABA-CD-BA	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass with AR coating (both sides), Standard Grade	
4H0796	KAI- 2020-ABA-CR-AE	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass with AR coating (2 sides), Engineering Sample	
4H0795	KAI- 2020-ABA-CR-BA	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass with AR coating (2 sides), Standard Grade	
4H0460	KAI- 2020-CBA-CD-AE	Color (Bayer RGB), Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass with AR coating (both sides), Engineering Sample	KAI-2020CM Serial Number
4H0459	KAI- 2020-CBA-CD-BA	Color (Bayer RGB), Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass with AR coating (both sides), Standard Grade	
4H0844	KAI- 2020-CBA-CR-AE	Color (Bayer RGB), Telecentric Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass with AR coating (2 sides), Engineering Sample	
4H0843	KAI- 2020-CBA-CR-BA	Color (Bayer RGB), Telecentric Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass with AR coating (2 sides), Standard Grade	
4H0691	KEK-4H0691-KAI-2001/2020-12-20	Evaluation Board, 12 Bit, 20 MHz (Complete Kit)	n/a
4H0692	KEK-4H0692-KAI-2001/2020-10-40	Evaluation Board, 10 Bit, 40 MHz (Complete Kit)	n/a

Please see the User's Manual (MTD/PS-0715) for information on the Evaluation Kit for this part.

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

### Address all inquiries and purchase orders to:

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