Kodak
Image Sensor Solutions

PRODUCT SUMMARY

KODAK KAI-2093 IMAGE SENSOR

1920 (H) X 1080 (V) PROGRESSIVE SCAN INTERLINE CCD IMAGE SENSOR

DESCRIPTION

The KODAK KAI-2093 Image Sensor is a high-performance multi-megapixel image sensor designed for a wide range of medical imaging and machine vision applications.

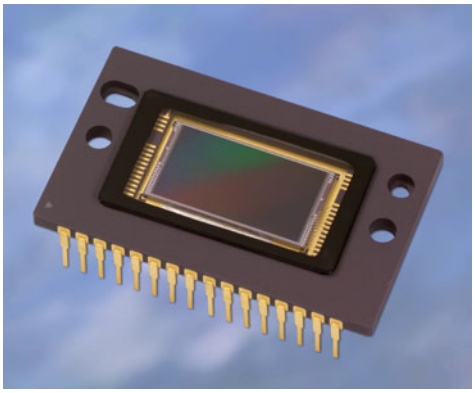
The 7.4 µm square pixels with microlenses provide high sensitivity and the large full well capacity results in high dynamic range. The split horizontal register offers a choice of single or dual output allowing either 15 or 30 frame per second (fps). The architecture allows for either progressive scan or interlaced readout. The imager features 5V clocking to facilitate camera design. The vertical overflow drain structure provides antiblooming protection, and enables electronic shuttering for precise exposure control.

FEATURES

- Progressive scan (non-interlaced)
- HCCD and output amplifier capable of 40 MHz operation
- 5 V HCCD clocking
- Single or dual video output operation
- 28 light shielded reference columns per output
- Only 2 vertical CCD clocks and 2 horizontal CCD clocks
- Electronic shutter
- Low Dark Current
- Antiblooming protection

APPLICATIONS

- Industrial Imaging
- Scientific Imaging



Parameter	Typical Value
Architecture	Interline CCD, Progressive Scan or Interlaced Readout
Total Number of Pixels	1984 (H) x 1092 (V)
Number of Effective Pixels	1928 (H) x 1084(V)
Number of Active Pixels	1920 (H) x 1080 (V)
Pixel Size	7.4 µm (H) x 7.4 µm (V)
Active Image Size	14.208 mm (H) x 7.992 mm (V) 16.3 mm (diagonal)
Aspect Ratio	16:9
Number of Outputs	1 or 2
Saturation Signal	40,000 electrons
Output Sensitivity	14 µV/electron
Quantum Efficiency KAI-2093-ABA (490 nm)	40%
Quantum Efficiency KAI-2093-CBA R(620 nm), G(540nm), B(460nm)	37%, 34%, 30%
Total Noise	40 electrons rms
Dark Current (Typical)	<0.5 nA/cm^2
Dynamic Range	60 dB
Blooming Suppression	100 X
Smear	<0.03%
Image Lag	<10 electrons
Frame Rate Single Output, 20 MHz Single Output, 35 MHz Dual Outputs, 20 MHz Dual Outputs, 37 MHz	 9 fps 15 fps 17 fps 30 fps
Maximum Data Rate	40 MHz/Channel (2 channels)
Package	32 pin CERDIP
Cover Glass	Clear Glass or Quartz Glass with AR Coating, 2 sides

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

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ORDERING INFORMATION

Catalog Number	Product Name	Description	Marking Code
2H4736	KAI- 2093-AAA-CP-AE	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass (no coatings), Engineering Sample	KAI-2093 Serial Number
2H4617	KAI- 2093-AAA-CP-BA	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass (no coatings), Standard Grade	
2H4728	KAI- 2093-ABA-CB-AE	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass (no coatings), Engineering Sample	KAI-2093M Serial Number
4H0174	KAI- 2093-ABA-CB-B1	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass (no coatings), Grade 1	
2H4725	KAI- 2093-ABA-CB-B2	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass (no coatings), Grade 2	
2H4923	KAI- 2093-ABA-CK-AE	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Quartz Cover Glass with AR coating (both sides), Engineering Sample	
2H4920	KAI- 2093-ABA-CK-BA	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Quartz Cover Glass with AR coating (both sides), Standard Grade	
2H4618	KAI- 2093-ABA-CP-AE	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass (no coatings), Engineering Sample	
2H4616	KAI- 2093-ABA-CP-BA	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass (no coatings), Standard Grade	
4H0137	KAI- 2093-CBA-CB-AE	Color (Bayer RGB), Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass (no coatings), Engineering Sample	KAI-2093CM Serial Number
4H0136	KAI- 2093-CBA-CB-BA	Color (Bayer RGB), Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass (no coatings), Standard Grade	
4H0705	KEK-4H0705-KAI-2093-10-40	Evaluation Board, 10 Bit, 40 MHz (Complete Kit)	n/a
4H0706	KEK-4H0706-KAI-2093-12-20	Evaluation Board, 12 Bit, 20 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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