

PRODUCT SUMMARY

KODAK KAI-02150 IMAGE SENSOR

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

DESCRIPTION

The KODAK KAI-02150 Image Sensor is a 1080p (1920 x 1080) CCD in a 2/3" (11 mm diagonal) optical format. Based on the KODAK TRUESENSE 5.5-micron Interline Transfer CCD Platform, the sensor features broad dynamic range, excellent imaging performance, and a flexible readout architecture that enables use of 1, 2, or 4 outputs for full resolution readout up to 64 frames per second. A vertical overflow drain structure suppresses image blooming and enables electronic shuttering for precise exposure control.

The sensor is available with the KODAK TRUESENSE Color Filter Pattern, a technology which provides a 2x improvement in light sensitivity compared to a standard color Bayer part.

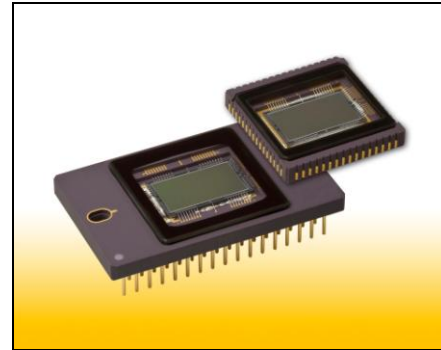
The sensor shares common PGA pin-out and electrical configurations with other devices based on the KODAK TRUESENSE 5.5 micron Interline Transfer CCD Platform, allowing a single camera design to support multiple members of this sensor family.

FEATURES

- Bayer Color Pattern, KODAK TRUESENSE Color Filter Pattern, and Monochrome configurations
- Progressive scan readout
- Flexible readout architecture
- High frame rate
- High sensitivity
- Low noise architecture
- Excellent smear performance
- Package pin reserved for device identification

APPLICATIONS

- Industrial Imaging
- Medical Imaging
- Security



Parameter	Typical Value
Architecture	Interline CCD; Progressive Scan
Total Number of Pixels	2004 (H) x 1144 (V)
Number of Effective Pixels	1960 (H) x 1120 (V)
Number of Active Pixels	1920 (H) x 1080 (V)
Pixel Size	5.5 μm (H) x 5.5 μm (V)
Active Image Size	10.56mm (H) x 5.94mm (V) 12.1mm (diagonal) 2/3" optical format
Aspect Ratio	16:9
Number of Outputs	1, 2, or 4
Charge Capacity	20,000 electrons
Output Sensitivity	34 $\mu\text{V}/\text{e}^-$
Quantum Efficiency	
R, G, B (-CBA, -PBA)	31%, 42%, 43% (620, 540, 470 nm)
Pan (-ABA, -PBA)	50% (500nm)
Base ISO	
KAI-02150-ABA	330
KAI-02150-CBA	150
KAI-02150-PBA	330
Read Noise (f= 40MHz)	12 electrons rms
Dark Current	
Photodiode / VCCD	7 / 140 electrons/s
Dark Current Doubling Temp	
Photodiode / VCCD	7 °C / 9 °C
Dynamic Range	64 dB
Charge Transfer Efficiency	0.999999
Blooming Suppression	> 300 X
Smear	-100 dB
Image Lag	< 10 electrons
Maximum Pixel Clock Speed	40 MHz
Maximum Frame Rate	
Quad / Dual / Single Output	64 / 33 / 17 fps
Package	68 pin PGA 64 pin CLCC
Cover Glass	AR Coated, 2 Sides or Clear Glass

All parameters are specified at T = 40° C unless otherwise noted.

ORDERING INFORMATION

Catalog Number	Product Name	Description	Marking Code
4H2039	KAI-02150-AAA-JR-BA	Monochrome, No Microlens, PGA Package, Taped Clear Cover Glass with AR coating (both sides), Standard Grade	KAI-02150-AAA Serial Number
4H2040	KAI-02150-AAA-JR-AE	Monochrome, No Microlens, PGA Package, Taped Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2041	KAI-02150-ABA-JD-BA	Monochrome, Telecentric Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Standard Grade	KAI-02150-ABA Serial Number
4H2042	KAI-02150-ABA-JD-AE	Monochrome, Telecentric Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2043	KAI-02150-ABA-JR-BA	Monochrome, Telecentric Microlens, PGA Package, Taped Clear Cover Glass with AR coating (both sides), Standard Grade	
4H2044	KAI-02150-ABA-JR-AE	Monochrome, Telecentric Microlens, PGA Package, Taped Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2117	KAI-02150-ABA-FD-BA	Monochrome, Telecentric Microlens, CLCC Package, Sealed Clear Cover Glass with AR coating (both sides), Standard Grade	
4H2118	KAI-02150-ABA-FD-AE	Monochrome, Telecentric Microlens, CLCC Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2045	KAI-02150-CBA-JD-BA	Color (Bayer RGB), Telecentric Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Standard Grade	KAI-02150-CBA Serial Number
4H2046	KAI-02150-CBA-JD-AE	Color (Bayer RGB), Telecentric Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2119	KAI-02150-CBA-FD-BA	Color (Bayer RGB), Telecentric Microlens, CLCC Package, Sealed Clear Cover Glass with AR coating (both sides), Standard Grade	
4H2120	KAI-02150-CBA-FD-AE	Color (Bayer RGB), Telecentric Microlens, CLCC Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2141	KAI-02150-CBA-JB-B2	Color (Bayer RGB), Telecentric Microlens, PGA Package, Sealed Clear Cover Glass (no coatings), Grade 2	
4H2142	KAI-02150-CBA-JB-AE	Color (Bayer RGB), Telecentric Microlens, PGA Package, Sealed Clear Cover Glass (no coatings), Engineering Grade	
4H2125	KAI-02150-PBA-JD-BA	Color (KODAK TRUESENSE CFA), Telecentric Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Standard Grade	KAI-02150-PBA Serial Number
4H2126	KAI-02150-PBA-JD-AE	Color (KODAK TRUESENSE CFA), Telecentric Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2205	KAI-02150-PBA-FD-BA	Color (KODAK TRUESENSE CFA), Telecentric Microlens, CLCC Package, Sealed Clear Cover Glass with AR coating (both sides), Standard Grade	
4H2206	KAI-02150-PBA-FD-AE	Color (KODAK TRUESENSE CFA), Telecentric Microlens, CLCC Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	

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

For reference documentation, including information on evaluation kits, visit our Web Site at www.kodak.com/go/imagers.

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