PRODUCT SUMMARY

TRUESENSE IMAGING KAI-16070 IMAGE SENSOR

4864 (H) X 3232 (V) PROGRESSIVE SCAN INTERLINE CCD IMAGE SENSOR

DESCRIPTION

The Truesense Imaging KAI-16070 Image Sensor is a 16-megapixel CCD in a 35 mm optical format (43 mm diagonal). Based on a new 7.4 micron Interline Transfer CCD Platform, the sensor provides very high smear rejection and up to 82 dB linear dynamic range through the use of a unique dual-gain amplifier. Flexible readout architecture enables use of 1, 2, or 4 outputs for full resolution readout up to 8 frames per second, while a vertical overflow drain structure suppresses image blooming and enables electronic shuttering for precise exposure control.

The sensor is available with the 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 pin-out and electrical configurations with a full family of Truesense Imaging Interline Transfer CCD image sensors, allowing a single camera design to be leveraged in support of multiple devices.

Parameter	Typical Value (T = 40° C)
Architecture	Interline CCD; Progressive Scan
Total Number of Pixels	4932 (H) x 3300 (V)
Number of Effective Pixels	4888 (H) x 3256 (V)
Number of Active Pixels	4864 (H) x 3232 (V) (15.7M)
Pixel Size	7.4 µm (H) x 7.4 µm (V)
Active Image Size	36.0 mm (H) x 23.9 mm (V) 43.2 mm (diag) 35mm optical format
Aspect Ratio	3:2
Number of Outputs	1, 2, or 4
Charge Capacity	40,000 electrons
Output Sensitivity	9.7 µV/e^- (low), 33 µV/e^- (high)
Quantum Efficiency R, G, B (-CBA, -PBA) Pan (-ABA, -PBA)	 31%, 42%, 41% 50%
Base ISO -ABA -CBA, -PBA	 350 130, 310 (respectively)
Read Noise (f= 40MHz)	12 electrons rms
Dark Current Photodiode / VCCD	 1 / 145 electrons/s
Dark Current Doubling Temp Photodiode / VCCD	 7 °C / 9 °C
Dynamic Range High gain amp (40 MHz) Dual amp, 2x2 bin (40 MHz)	 70 dB 82 dB
Charge Transfer Efficiency	0.999999
Blooming Suppression	> 1000 X
Smear	-115 dB
Image Lag	< 10 electrons
Maximum Pixel Clock Speed	40MHz
Maximum Frame Rates Quad/Dual/Single Output	 8 / 4 / 2 fps

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

FEATURES

- Superior smear rejection
- Up to 82 dB linear dynamic range
- Bayer Color Pattern, TRUESENSE Color Filter Pattern, and Monochrome configurations
- Progressive scan & flexible readout architecture.
- High frame rate
- High sensitivity - Low noise architecture
- Package pin reserved for device identification

APPLICATIONS

- Industrial Imaging and Inspection
- Traffic
- Aerial Photography

ORDERING INFORMATION

Catalog Number	Product Name	Description	Marking Code
4H2212	KAI-16070-AXA-JD-B1	Monochrome, Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 1	KAI-16070-AXA Serial Number
4H2213	KAI-16070-AXA-JD-B2	Monochrome, Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 2	
4H2189	KAI-16070-AXA-JD-AE	Monochrome, Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2214	KAI-16070-CXA-JD-B1	Color (Bayer RGB), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 1	KAI-16070-CXA Serial Number
4H2215	KAI-16070-CXA-JD-B2	Color (Bayer RGB), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 2	
4H2185	KAI-16070-CXA-JD-AE	Color (Bayer RGB), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2216	KAI-16070-PXA-JD-B1	Color (TRUESENSE CFA), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 1	KAI-16070-PXA Serial Number
4H2217	KAI-16070-PXA-JD-B2	Color (TRUESENSE CFA), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 2	
4H2187	KAI-16070-PXA-JD-AE	Color (TRUESENSE CFA), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	

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

For all reference documentation, please visit our Web Site at www.kodak.com/go/imagers.

Please address all inquiries and purchase orders to:

Truesense Imaging, Incorporated
1964 Lake Avenue
Rochester, New York 14615

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

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