PRODUCT SUMMARY

KAI-16050 IMAGE SENSOR

4896 (H) X 3264 (V) PROGRESSIVE SCAN INTERLINE CCD IMAGE SENSOR

DESCRIPTION

The KAI-16050 Image Sensor is a 16-megapixel CCD in an APS-H optical (32.36 mm diagonal) optical format. Based on the 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 8 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 TRUESENSE Sparse 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 TRUESENSE 5.5 micron Interline Transfer CCD Platform, allowing a single camera design to be leveraged to support multiple members of this sensor family..

FEATURES

- Bayer Color Pattern, TRUESENSE Sparse 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 and Inspection
- Traffic
- Security

Parameter	Typical Value
Architecture	Interline CCD; Progressive Scan
Total Number of Pixels	4964 (H) x 3332 (V)
Number of Effective Pixels	4920 (H) x 3288 (V)
Number of Active Pixels	4896 (H) x 3264 (V)
Pixel Size	5.5 µm (H) x 5.5 µm (V)
Active Image Size	26.93 mm (H) x 17.95 mm (V) 32.36 mm (diag) APS-H format
Aspect Ratio	3:2
Number of Outputs	1, 2, or 4
Charge Capacity	20,000 electrons
Output Sensitivity	34 µV/e^-
Quantum Efficiency R, G, B (-CXA, -PXA) Pan (-AXA, -PXA)	 31 %, 43 %, 42 % (620, 540, and 470 nm) 46% (500 nm)
Read Noise (f= 32MHz)	12 electrons rms
Dark Current Photodiode VCCD	 2 electrons/s 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	Estimated -100 dB
Image Lag	< 10 electrons
Maximum Pixel Clock Speed	40 MHz
Maximum Frame Rates Quad Output Dual Output Single Output	 8 fps 4 fps 2 fps
Package	72 pin PGA
Cover Glass	AR Coated, 2 Sides

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

ORDERING INFORMATION

Catalog Number	Product Name	Description	Marking Code
4H2190	KAI-16050-AXA-JD-B1	Monochrome, Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 1	KAI-16050-AXA Serial Number
4H2191	KAI-16050-AXA-JD-B2	Monochrome, Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 2	
4H2192	KAI-16050-AXA-JD-AE	Monochrome, Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2194	KAI-16050-CXA-JD-B1	Color (Bayer RGB), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 1	KAI-16050-CXA Serial Number
4H2195	KAI-16050-CXA-JD-B2	Color (Bayer RGB), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 2	
4H2196	KAI-16050-CXA-JD-AE	Color (Bayer RGB), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Engineering Grade	
4H2198	KAI-16050-PXA-JD-B1	Color (Sparse CFA), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 1	KAI-16050-PXA Serial Number
4H2199	KAI-16050-PXA-JD-B2	Color (Sparse CFA), Special Microlens, PGA Package, Sealed Clear Cover Glass with AR coating (both sides), Grade 2	
4H2200	KAI-16050-PXA-JD-AE	Color (Sparse 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 reference documentation, including information on evaluation kits, visit our Web Site at www.truesenseimaging.com

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