

KAI-0340 Image Sensor

DESCRIPTION

The KAI-0340 image sensor is a 640 (H) x 480 (V) resolution, 1/3" optical format, progressive scan interline CCD. This image sensor is offered in 2 versions: the KAI-0340-Dual supports 210 full resolution frame-per-second readout while the KAI-0340-Single supports 110 frame-per-second readout. Frame rates as high as 2,000 Hz (KAI-0340-Single) and 3,400 Hz (KAI-0340-Dual) can be achieved by combining the Fast Horizontal Line Dump with custom clocking modes. Designed for demanding imaging applications, the KAI-0340 provides electronic shuttering, peak QE (quantum efficiency) of 55%, extremely low noise and low dark current. These features give this sensor exceptional sensitivity and make it ideal for machine vision, scientific, surveillance, and other computer input applications.

FEATURES

- High sensitivity
- High dynamic range
- Low noise architecture
- High frame rate
- Electronic shutter

APPLICATIONS

- Intelligent Transportation Systems
- Machine Vision
- Scientific



Parameter	Value	
Architecture	Interline CCD; Progressive Scan	
Total Number of Pixels	696 (H) x 492 (V)	
Number of Effective Pixels	648 (H) x 484 (V)	
Number of Active Pixels	640 (H) x 480 (V)	
Pixel Size	7.4 μm (H) x 7.4 μm (V)	
Active Image Size	4.736mm (H) x 3.552mm (V) 5.920mm (diagonal) 1/3" optical format	
Aspect Ratio	4:3	
Number of Outputs	1 or 2	
Charge Capacity	40 MHz – 20,000 electrons 20 MHz – 40,000 electrons	
Output Sensitivity	30 µV/e	
Photometric Sensitivity KAI-0340-ABB	3.61 V/lux-sec	
Photometric Sensitivity KAI-0340-CBA	1.17(B), 1.54(G), 0.65(R) V/lux-sec	
Readout Noise	40 MHz – 16 electrons 20 MHz – 14 electrons	
Dynamic Range	40 MHz – 62 dB 20 MHz – 69 dB	
Dark Current	Photodiode < 200 eps VCCD < 1000 eps	
Maximum Pixel Clock Speed	40MHz	
Maximum Frame Rate	KAI-0340-Dual – 210 fps KAI-0340-Single – 110 fps	
Package Type	CerDIP	
Package Size	0.500" [12.70mm] width 0.625" [15.87mm] length	
Package Pins	22	
Package Pin Spacing	0.050"	

All parameters above are specified at T = 40 °C





Ordering Information

Catalog Number	Product Name	Description	Marking Code	
4H0655	KAI-0340-AAA-CP-AA-Single	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Standard Grade, Single Output	KAL 03405	
4H0656	KAI-0340-AAA-CP-AE-Single	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Engineering Grade, Single Output	NAI-03403	
4H0657	KAI-0340-AAA-CP-AA-Dual	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Standard Grade, Dual Output	KAL 0340D	
4H0658	KAI-0340-AAA-CP-AE-Dual	Monochrome, No Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Engineering Grade, Dual Output	KAI-0340D	
4H0659	KAI-0340-AAA-CF-AA-Single	Monochrome, No Microlens, CERDIP Package (sidebrazed), Quartz Cover Glass, no coatings, Standard Grade, Single Output	KAL 02405	
4H0660	KAI-0340-AAA-CF-AE-Single	Monochrome, No Microlens, CERDIP Package (sidebrazed), Quartz Cover Glass, no coatings, Engineering Grade, Single Output	KAI-03405	
4H0661	KAI-0340-AAA-CF-AA-Dual	Monochrome, No Microlens, CERDIP Package (sidebrazed), Quartz Cover Glass, no coatings, Standard Grade, Dual Output	KALOZADD	
4H0662	KAI-0340-AAA-CF-AE-Dual	Monochrome, No Microlens, CERDIP Package (sidebrazed), Quartz Cover Glass, no coatings, Engineering Grade, Dual Output	KAI-0340D	
4H0872	KAI-0340-ABB-CP-AA-Single	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Standard Grade, Single Output		
4H0873	KAI-0340-ABB-CP-AE-Single	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Engineering Grade, Single Output	KAI-0340ABBS	
4H0874	KAI-0340-ABB-CP-AA-Dual	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Standard Grade, Dual Output		
4H0875	KAI-0340-ABB-CP-AE-Dual	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Taped Clear Cover Glass, no coatings, Engineering Grade, Dual Output	KAI-0340ABBD	
4H0868	KAI-0340-ABB-CB-AA-Single	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass, no coatings, Standard Grade, Single Output		
4H2143	KAI-0340-ABB-CB-A2-Single	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass, no coatings, Grade 2, Single Output	KAI-0340ABBS	
4H0869	KAI-0340-ABB-CB-AE-Single	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass, no coatings, Engineering Grade, Single Output		
4H0870	KAI-0340-ABB-CB-AA-Dual	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass, no coatings, Standard Grade, Dual Output		
4H0871	KAI-0340-ABB-CB-AE-Dual	Monochrome, Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass, no coatings, Engineering Grade, Dual Output	KAI-0340ABBD	
4H0663	KAI-0340-CBA-CB-AA-Single	Color (Bayer RGB), Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass, no coatings, Standard Grade, Single Output		
4H0664	KAI-0340-CBA-CB-AE-Single	Color (Bayer RGB), Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass, no coatings, Engineering Grade, Single Output	KAI-0340SCM	
4H0665	KAI-0340-CBA-CB-AA-Dual	Color (Bayer RGB), Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass, no coatings, Standard Grade, Dual Output		
4H0666	KAI-0340-CBA-CB-AE-Dual	Color (Bayer RGB), Telecentric Microlens, CERDIP Package (sidebrazed), Clear Cover Glass, no coatings, Engineering Grade, Dual Output	KAI-0340DCM	
4H0472	KEK-4H0472-KAI-0340-10-40	Evaluation Board (Complete Kit)	n/a	

See Application Note *Product Naming Convention* for a full description of the naming convention used for Truesense Imaging image sensors. For reference documentation, including information on evaluation kits, please visit our web site at www.truesenseimaging.com.

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