SUMMARY SPECIFICATION

KODAK KAC-3100

## 2048(H) X 1536(V) QXGA CMOS RAW COLOR IMAGE SENSOR

DESCRIPTION

The KAC-3100 is a high performance 1/2.7" format 3.1 Megapixel raw output CMOS image sensor incorporating Kodak PIXELUX technology, including the use of pinned photodiodes and a four-transistor shared-pixel (4T4S) architecture. The sensor offers outstanding image quality while providing unique binning modes of operation for increased sensitivity.

FEATURES

- Kodak PIXELUX technology, including pinned photodiodes and 4T4S architecture, for superior imaging performance

- Selectable charge-domain binning for increased sensitivity under low-light operation.

- Thin copper metal manufacturing process for improved optical angle response and high quantum efficiency

- Outstanding color fidelity and low pixel cross talk.

- Subsampling and region of interest windowing modes

- Progressive programmable scan, electronic rolling shutter, digital video output with Flip and Mirror output options

- Flexible programming via I^{2}C compatible serial interface

- Dedicated strobe flash sync

APPLICATIONS

Mobile Phones & PDAs
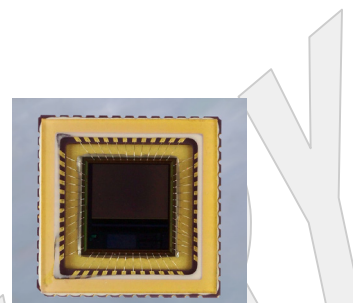
Parameter		Typical Value
Architecture		4T4S pixel CMOS architecture with PIXELUX
Digital Video Output		10 bit parallel Bayer Raw
Dimensions	Number of Active Pixels	2048 (H) x 1536 (V) = ca. 3.1Mpix
	Pixel Size	2.7 μm (H) x 2.7 μm (V)
	Active Pixels Optical Size	6.9 mm (diagonal) 1/2.7" optical format
	Effective image area	Active: 5.5296 mm (H) x 4.1472 mm (V)
Chief Ray Angle		28º
Readout rate / Master Clock		36 MSPS / 36 MHz (48MHz max)
Maximum Frame Rate	QXGA	12 fps
	VGA	38 fps
Performance	Sensitivity	TBD V/lux-sec
	Dynamic Range	54 dB
	SNR	TBD dB
	Quantum Efficiency	(480 nm, 540 nm, 590 nm) 35%, 41%, 39%
Scan mode		Progressive scan
Shutter modes		Continuous & Single Frame Rolling Shutter
Programmable Gain		Global or RGB: 4x up to 8x with additional 2x digital gain
Power supply	I/O	2.7V ±5%
	Analog	1.8V ±5%, 2.7V ±5%
	Core	1.8V ±5%
Power Dissipation	Dynamic	150 mW
	Standby	500 μW
Operating Temperature		-20°C to 70°C
Package Type		Bare die 48 CLCC package available for sampling

BINNING AND SUBSAMPLING MODES

The KAC-3100 supports subsampling, charge binning, weighted averaging and windowing both individually as well as in any combination, providing great flexibility in selecting the resolution, frame rate and image quality most appropriate for a given application. While subsampled readout provides the highest frame rates, PIXELUX charge binning offers improved image quality at reduced resolutions.

	Resolution				Frame Rate (36 MHz)		Image Quality	
Operating Mode	Format	Horiz	Vert	Relative	fps	Relative	Sensitivity	SNR Increase
Full Resolution	QXGA	2048	1536	Nominal	10	Nominal	Nominal	Nominal
PIXELUX Same-Color Binning	XGA	1024	768	1/4	19	2x	2x	TBD
2x2 Subsample	XGA	1024	768	1/4	32	3x	Nominal	Nominal
3x3 Subsample	VGA+	682	512	1/9	28	3x	Nominal	Nominal
PIXELUX All-Color Binning (Mono)	¼ XGA	512	384	1/16	37	4x	4x	TBD
4x4 Subsample	¼ XGA	512	384	1/16	63	6x	Nominal	Nominal