



**SIONYX**

**XQE-9950/51**

**4K ULTRA HD  
4/3 INCH IMAGE SENSOR  
BLACK SILICON CMOS**

The SIONYX XQE-9950 / 9951 image sensor features ultra low light imaging and breakthrough sensitivity in the 800nm – 1,100nm range. This sensor enables digital fusion capability, high QE detection for instrument-industrial vision, and all use cases of traditional i2 tube-based night vision.

**MODEL NUMBERS**

MONOCHROME XQE-9950

COLOR XQE-9951

**APPLICATIONS**

- INDUSTRIAL VISION
- FLUORESCENCE MICROSCOPY
- MEDICAL DIAGNOSTICS
- SILICON CHARACTERIZATION
- DAY / NIGHT SURVEILLANCE
- WEAPON SITES + TARGETING
- SEE SPOT
- VEHICLE SITUATION AWARENESS
- ROBOTIC + UAV NAVIGATION
- NIGHT VISION

## KEY PERFORMANCE PARAMETERS

OPTICAL FORMAT	4/3 INCH (4/3")
OPTICAL DIAGONAL	23.0 mm
ACTIVE IMAGE SIZE	20.0 (H) X 11.3 (V) mm
PIXEL SIZE	4.75 X 4.75 $\mu$ m
ACTIVE PIXELS	4224 X 2372
TOTAL ACTIVE PIXELS	10,019,328
TOTAL LIGHT SENSITIVE	4208 X 2364
SHUTTER TYPE	ROLLING
SHUTTER SPEED	13.88 $\mu$ sec TO 6.05sec
MASTER CLOCK	6 - 27 MHz
MAXIMUM FRAME RATE	4208 X 2364 @ 60 FPS
COLUMN PARALLEL ADC	10 OR 12 BITS
READ NOISE	$\leq$ 0.8 E- RMS
OUTPUT DATA INTERFACE	MIPI CSI2 8-DATA LANE MAX. 900 MHz / LANE
I2C CONTROL INTERFACE	400 KHz
NATIVE DYNAMIC RANGE	67 dB
HDR	UP TO 2 EXP / LINE
POWER CONSUMPTION	1060 mW AT 10 BIT, 4208 X 2364 @ 60 FPS
OPERATING TEMPERATURE	-20°C TO +85°C
FUNCTIONAL TEMPERATURE	-40°C TO +125°C
VERSIONS	COLOR (BAYER + QUAD) / MONOCHROME
PACKAGING	PLCC
PACKAGE SIZE	30.0 X 20.0 mm
COVERGLASS	NORMAL

All product specifications, and data, are subject to change without notice due to continuous quality improvement initiatives. Visit [SIONYX.com](http://SIONYX.com) for the most current data documentation.

## FEATURES + BENEFITS

- SIONYX 2nd Generation Backside Illuminated XQE process technology
- Extremely high sensitivity (400 - 1200nm)
- Capable of 1.0mLux imaging at 60fps and F1.2
- 4208x2364 resolution
- Rolling electronic shutter
- Ultra Low read noise
- High dynamic range
- Progressive scan readout
- Raw image data output
- Full framerate HDR
- Column summing 2x2 binning for extreme low light SNR
- Region-of-Interest readout
- Flip & Mirror readout modes
- MIPI CSI2 output
- Alternate digital parallel data interface
- I2C control interface
- Programmable RGB gain controls
- Programmable exposure control
- Automatic black level calibration
- Sensor temperature output

## HDR

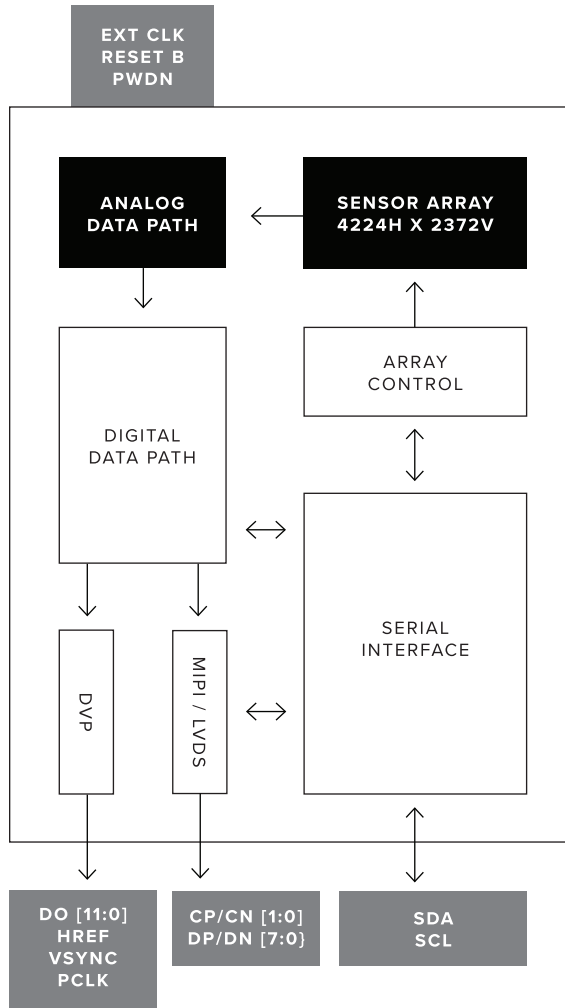
2 EXP / FRAME	90dB (30 FPS)
HORIZONTAL 2 EXP / FRAME	90dB (60 FPS VERTICAL RESOLUTION)

## SUPPLY VOLTAGE

ANALOG	2.6 - 3.0 V (2.8V NOMINAL)
DIGITAL IO LEVEL	1.7 - 3.0 V (1.8V NOMINAL)
DIGITAL	1.14 - 1.26 V (1.2V NOMINAL)

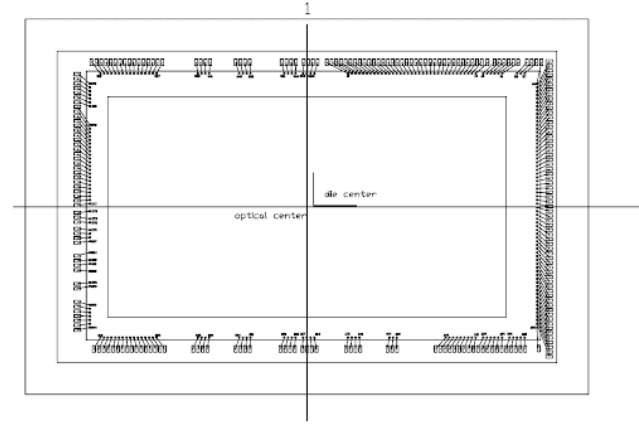


# FUNCTIONAL BLOCK DIAGRAM



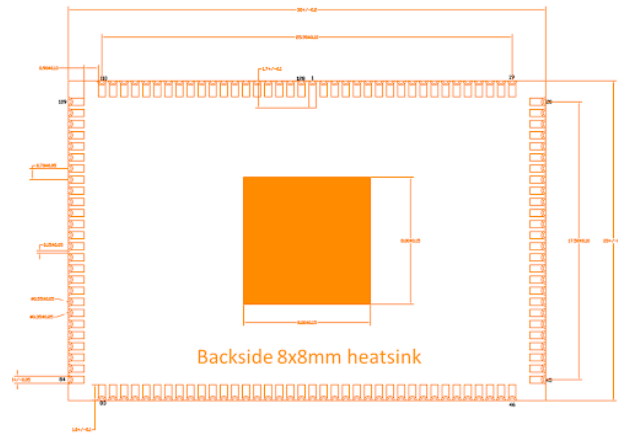
Full size drawings and complete user integration specification available upon request.

# PACKAGE: PLCC

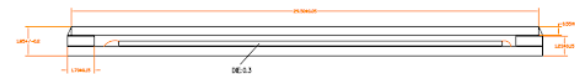


TOP VIEW

ACTIVE PIXEL CENTER = PACKAGE CENTER



BOTTOM VIEW



SIDE VIEW