

## Diagonal 21.7 mm (Type 4 / 3) CMOS solid-state Image Sensor with Square Pixel for Monochrome Cameras

### Description

The IMX387LLA is a diagonal 21.7 mm (Type 4 / 3) CMOS active pixel type solid-state image sensor with a square pixel array and 16.88 M effective pixels. This chip features a global shutter with variable charge-integration time. This chip operates with analog 3.3 V, digital 1.2 V, and interface 1.8 V triple power supply, and has low power consumption. High sensitivity, low dark current and low PLS characteristics are achieved.  
(Applications: FA cameras, ITS cameras)

### Features

- ◆ CMOS active pixel type dots
- ◆ Built-in timing adjustment circuit, H/V driver and serial communication circuit
- ◆ Global shutter function
- ◆ Input frequency  
37.125 MHz / 74.25 MHz / 54 MHz
- ◆ Number of recommended recording pixels: 5456 (H) × 3076 (V) approx. 16.78 M pixels
  - Readout mode
  - All-pixel scan mode
  - Vertical / Horizontal 1 / 2 Subsampling mode
  - 2 × 2 Vertical FD binning mode
  - ROI mode
  - Vertical / Horizontal - Normal / Inverted readout mode
- ◆ Readout rate
  - Maximum frame rate in
  - All-pixel scan mode: 8 bit: 61.3 frame/s, 10 bit: 56.5 frame/s, 12 bit: 40.4 frame/s
- ◆ 8-bit / 10-bit / 12-bit A/D converter
- ◆ CDS / PGA function
  - 0 dB to 24 dB: Analog Gain (0.1 dB step)
  - 24.1 dB to 48 dB: Analog Gain: 24 dB + Digital Gain: 0.1 dB to 24 dB (0.1 dB step)
- ◆ I/O interface
  - SLVS (2 ch / 4 ch / 8 ch switching) output (594 / 297 Mbps per ch)
  - SLVS - EC (1 Lane / 2 Lane / 4 Lane / 8 Lane) output (2.376 / 1.188 Gbps per Lane)
- ◆ Recommended lens F number: 2.8 or more (Close side)
- ◆ Recommended exit pupil distance: -100 mm to  $-\infty$

## Pregius

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**Device Structure**

◆ CMOS image sensor			
◆ Image size	Diagonal 21.7 mm (Type 4 / 3)	Approx. 16.88 M pixels	All-pixel
◆ Total number of pixels	5472 (H) × 3094 (V)	Approx. 16.93 M pixels	
◆ Number of effective pixels	5472 (H) × 3084 (V)	Approx. 16.88 M pixels	
◆ Number of active pixels	5472 (H) × 3084 (V)	Approx. 16.88 M pixels	
◆ Number of recommended recording pixels	5456 (H) × 3076 (V)	Approx. 16.78 M pixels	All-pixel
◆ Unit cell size	3.45 μm (H) × 3.45 μm (V)		
◆ Optical black	Horizontal (H) direction: Front 0 pixel, rear 0 pixel Vertical (V) direction: Front 10 pixels, rear 0 pixel		
◆ Package	236 pin PGA		

**Image Sensor Characteristics (Preliminary)**

(Tj = 60 °C)

Item		Value	Remarks
Sensitivity (F8)	Typ.	915 mV	1/30 s accumulation
Saturation signal	Min.	1001 mV	

**Basic Drive Mode**

Drive mode	Recommended number of recording pixels	Maximum frame rate [frame/s]	Output interface	ADC [bit]
All pixel	5456 (H) × 3076 (V) approx. 16.78 M pixels	32.9	SLVS 8 ch	8
		61.3	SLVS – EC 8 Lane	
		26.5	SLVS 8 ch	10
		56.5	SLVS – EC 8 Lane	
		22.3	SLVS 8 ch	12
		40.4	SLVS – EC 8 Lane	
Vertical / Horizontal 1/2 subsampling	2728 (H) × 1538 (V) approx. 4.20 M pixels	119.1	SLVS 8 ch	8
		119.1	SLVS – EC 8 Lane	
		99.0	SLVS 8 ch	10
		110.0	SLVS – EC 8 Lane	
		79.1	SLVS 8 ch	12
		79.1	SLVS – EC 8 Lane	
2 × 2 Vertical FD binning mode	2728 (H) × 1538 (V) approx. 4.20 M pixels	119.1	SLVS 8 ch	8
		119.1	SLVS – EC 8 Lane	
		99.0	SLVS 8 ch	10
		110.0	SLVS – EC 8 Lane	
		79.1	SLVS 8 ch	12
		79.1	SLVS – EC 8 Lane	

