LI5010SA

3U5MGXSBAM, 3U5MGXSBAC, 3U5MGXSBAI

2/3 inch Diagonal 5.33MP CMOS Sensor on 180pin LGA with 3.4µm Square Pixels at 120fps.

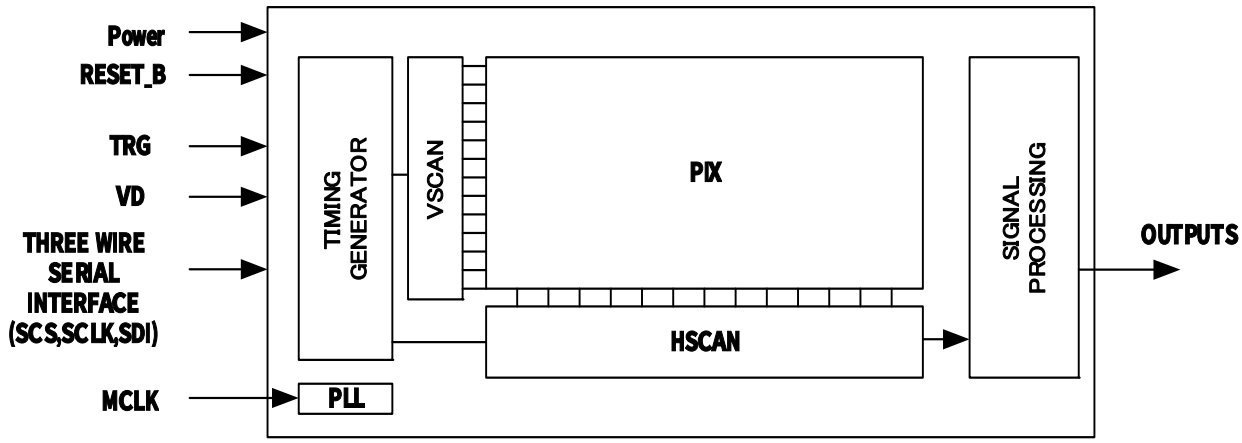
DESCRIPTION

3U5MGXSBA is a CMOS type of solid-state image sensor with a 2/3 inch effective pixel array of 5.33M pixels. It uses a global shutter feature as a charge storage period control feature.
It can output an effective 2592 x 2056 pixels of video at 120 fps and 12bit via 12 channels of digital signal output.
*3U5MGXSBA series consists of 3U5MGXSBAC (color) and 3U5MGXSBAM (monochrome) and 3U5MGXSBAI (RGBIR)(TBD).

FEATURES

- 3U5MGXSBAM: Monochrome sensor
- 3U5MGXSBAC: Color sensor (RGB on-chip color filter)
- 3U5MGXSBAI: RGBIR sensor (RGB IR on-chip color filter) (TBD)
- Global shutter / Progressive scan
- Recording screen size: 2/3 inch equivalent (8.8 mm x 7.0 mm)
- Number of effective pixels: 2592 x 2056 (Horizontal x Vertical)
- Pixel size: 3.4 µm x 3.4 µm
- Number of output channels Data: 12 lanes, Clock: 2 lanes
- Main clock frequency: 36 MHz (recommended)
- Output format: LVDS output maximum 864 Mbps @12 bit
- Analog gain: 0 to 36 dB
- Digital gain: 0 to 24 dB
- Maximum of 8 areas (horizontal 8, vertical 8) of optional segmentation (ROI: Region Of Interest) feature
- Horizontal and vertical inverted output feature
- External trigger exposure control feature
- Sensitivity (Green) of 3U5MGXSBAC: 30,000 e/lx/sec @Analog gain x1
- Sensitivity of 3U5MGXSBAM: 47,000 e/lx/sec @Analog gain x1
- Saturation: 12,000 e @Analog gain x1
- Dark random noise: 2.6 e rms @Analog gain x1
- Dark current: 1.3 e/sec @Analog gain x1, room temperature
- Power consumption: 500 mW(Typ.) @using all pixels 60 fps
- Power supply voltages: 3.3 V, 1.2 V
- 180 pin ceramic LGA
- Package size: 18.96mm x 18.10mm x 2.51mm

FUNCTIONAL BLOCK DIAGRAM



	250MP		120MP			5MP Global shutter						1/1.8” 2.1MP HDR	1” 12MP
	LI8020SAC	LI8020SAM	120MXSC	120MXSM	120MXSI	LI5010SAC	LI5010SAM	LI5010SAI	LI5020SAC	LI5020SAM	LI5020SAI	LI7050SAC	LI7030SAC
Filter Type	RGB	Monochrome	RGB	Monochrome	RGB-NIR	RGB	Monochrome	RGB-NIR	RGB	Monochrome	RGB-NIR	RGB	RGB
Sensitivity (e/lx/sec)	4,600 (Green)	11,000	10,000 (Green)	20,000	10,000 (Green)	30,000 (Green)	47,000	30,000 (Green)	30,000 (Green)	54,000	30,000 (Green)	55,000 (Green)	22,000
Dark Random Noise	3.8 erms @ 12dB		2.3e rms @ gain x8, Room Temperature			2.6e rms @ Analog gain x1			2.6e rms @ Analog gain x1			1.1e rms @ room temperature	2.6e rms @ 4K3K, 24fps(12bit)
Saturation	5,400 [e] (@6dB)		10,000 [e] (@gain x0.5)			12,000e – Dynamic Range Priority Mode (@ Analog gain 0 dB) 7,000e – Frame Rate Priority Mode (@ Analog gain 0 dB)			12,000e – Dynamic Range Priority Mode (@ Analog gain 0 dB) 7,000e – Frame Rate Priority Mode (@ Analog gain 0 dB)			30,000 [e] (@gainx1)	25,000 [e]
Resolution (megapixels)	250		122			5			5			2.12	12
Effective Pixels (Horizontal xVertical)	19568 x 12588		13272 x 9176			2592 x 2056			2592 x 2056			1936 x 1096	4004 x 3000
Sensor Size	APS-H (29.35mm x 18.88mm)		APS-H (29.22mm x 20.20mm)			Approx. 2/3 inch (8.8mm x 7.0mm)			Approx. 2/3 inch (8.8mm x 7.0mm)			1/1.8 inch (7.94mm x 4.49mm)	1 inch (12.8mm x 9.6mm)
Pixel Size	1.5μm x 1.5μm		2.2μm x 2.2μm			3.4μm x 3.4μm			3.4μm x 3.4μm			4.1μm x 4.1μm	3.2μm x 3.2μm
Maximum Frame Rate	5 fps		9.4 fps			60fps – Dynamic Range Priority Mode 120fps – Frame Rate Priority Mode			60fps – Dynamic Range Priority Mode 120fps – Frame Rate Priority Mode			60fps 30 fps (HDR)	4K3K video at 24 fps (12bit) 4K2K video at 60 fps (10bit)
Shutter Type	Rolling		Rolling			Global electronic shutter function			Global electronic shutter function			Rolling	Rolling
I/F	LVDS		LVDS			LVDS			LVDS			MIPI CSI-2	LVDS
Power Consumption (Type)	2.0W (under recommended operating conditions)		2.5 W (under recommended operating conditions)			500mW (all pixels @ 120 fps)			510mW (all pixels @ 120 fps) 440mW (all pixels @ 42 fps)Low Power mode			320mW (all pixels @ 60 fps)	540 mW @4K2K readout, 60fps (10bit)

The contents of this specification are subject to change without notice