# LI7030SA

**16mm Diagonal 12MP CMOS Sensor on 154pin LGA with 3.2µm Square Pixels at 24fps**

## DESCRIPTION

LI7030SA is a CMOS type solid-state imaging sensor having a size equivalent to 1 inch, and 3.2 µm square pixel arrangement with 12 mega effective pixels.

4K3K video at 24 fps (12bit), 4K2K video at 60 fps (10bit) and HD720p video at 120 fps (10bit) are possible.

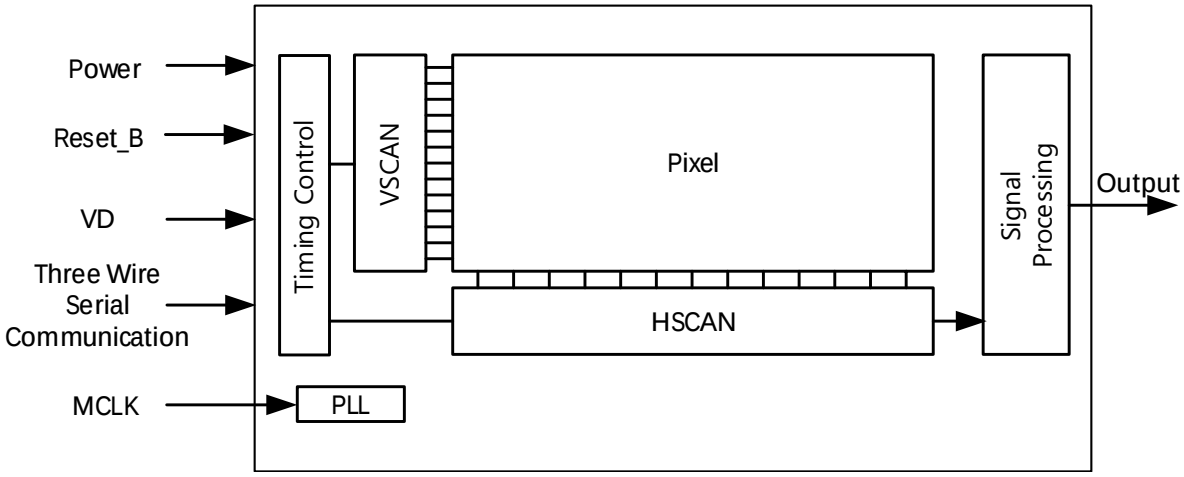
Based on Canon's low-noise technology, LI7030SA has a high dynamic range and achieved excellent imaging characteristics at low illuminance.

*The designators "TBD" show these items contain temporary values due to the preliminary version.

## FEATURES

- Color sensor (RGB on-chip color filter)
- Rolling shutter
- Recording screen size: 1 inch or equivalent (12.8 mm x 9.6 mm)
- Number of effective pixels: 4004 x 3000 (Horizontal x Vertical)
- Pixel size: 3.2 µm x 3.2 µm
- Number of output channels: Data 12 lanes, Clock 2 lanes
- Output format: LVDS output, 648 Mbps (max.)
- Main clock frequency: 27 MHz (recommended)
- 4K3K mode: 24 fps (12bit)
- 4K2K 30fps mode: 30 fps (12bit)
- 4K2K 60fps mode: 60 fps (10bit)
- HD720p mode: 120 fps (10bit)
- Analog gain: 0dB, 6dB, 12dB, 18dB and 24dB
- Serial communication
- Saturation: 25,000 e
- Sensitivity : 22,000 e/lx/sec
- Dark Random Noise: 2.6 erms @4K3K readout, 24 fps (12bit)
- Dark Current: 17 e/sec @60°C (package reverse side), 4K3K readout, 24 fps (12bit)
- Power consumption: 540 mW @4K2K readout, 60fps (10bit)
- Power supply voltage: 3.3 V, 1.8V
- 154 pin ceramic LGA
- Package size: 25.10 mm x 22.20 mm x 2.99 mm

## 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)<br>7,000e – Frame Rate Priority Mode (@ Analog gain 0 dB) | | | 12,000e – Dynamic Range Priority Mode (@ Analog gain 0 dB)<br>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<br>120fps – Frame Rate Priority Mode | | | 60fps – Dynamic Range Priority Mode<br>120fps – Frame Rate Priority Mode | | | 60fps<br>30 fps (HDR) | 4K3K video at 24 fps (12bit)<br>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)<br>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