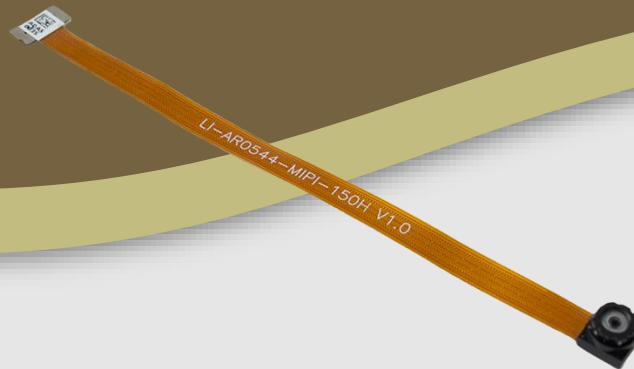




**LEOPARD**  
IMAGING

# LI-AR0544-MIPI-150H



**Address:**

910 Auburn Ct  
Fremont, CA 94538  
USA



**Phone:**

+1 (408)263-0988

**Fax:**

+1 (408)217-1960



**Sales:**

[sales@leopardimaging.com](mailto:sales@leopardimaging.com)

**Support:**

[support@leopardimaging.com](mailto:support@leopardimaging.com)

## INTRODUCTION

The LI-AR0544-MIPI-150H camera module integrates the ON Semiconductor 5MP CMOS image sensor AR0544. It features enhanced NIR sensitivity and low-noise technology, supports 60 fps at full resolution and 30 fps in HDR mode, and includes low-power features such as Wake on Motion. These capabilities make it an ideal solution for surveillance and security applications.

## SPECIFICATIONS

|                          |                                         |
|--------------------------|-----------------------------------------|
| Maximum Frame Rate       | 60 fps @ Full Size, Linear Mode         |
| Output Format            | 10-bit / 12-bit RAW data                |
| Focusing range           | 15 cm ~ Infinity                        |
| HDR (High Dynamic Range) | Supported                               |
| Sensor                   | ON Semiconductor AR0544 5MP CMOS Sensor |
| Optical Format           | 1/4.2-inch 5 MP (4:3)                   |
| Pixel Size               | 1.4 $\mu$ m Back Side Illuminated (BSI) |
| Color / Mono             | Color                                   |
| Resolution               | 2592 (H) x 1944 (V) (active pixels)     |
| Interface                | 2-lane MIPI DPHY                        |
| Power Consumption        | TBD                                     |
| Operating Temp           | TBD                                     |
| Storage Temp             | TBD                                     |
| Weight                   | ~ 1g                                    |

## APPLICATIONS

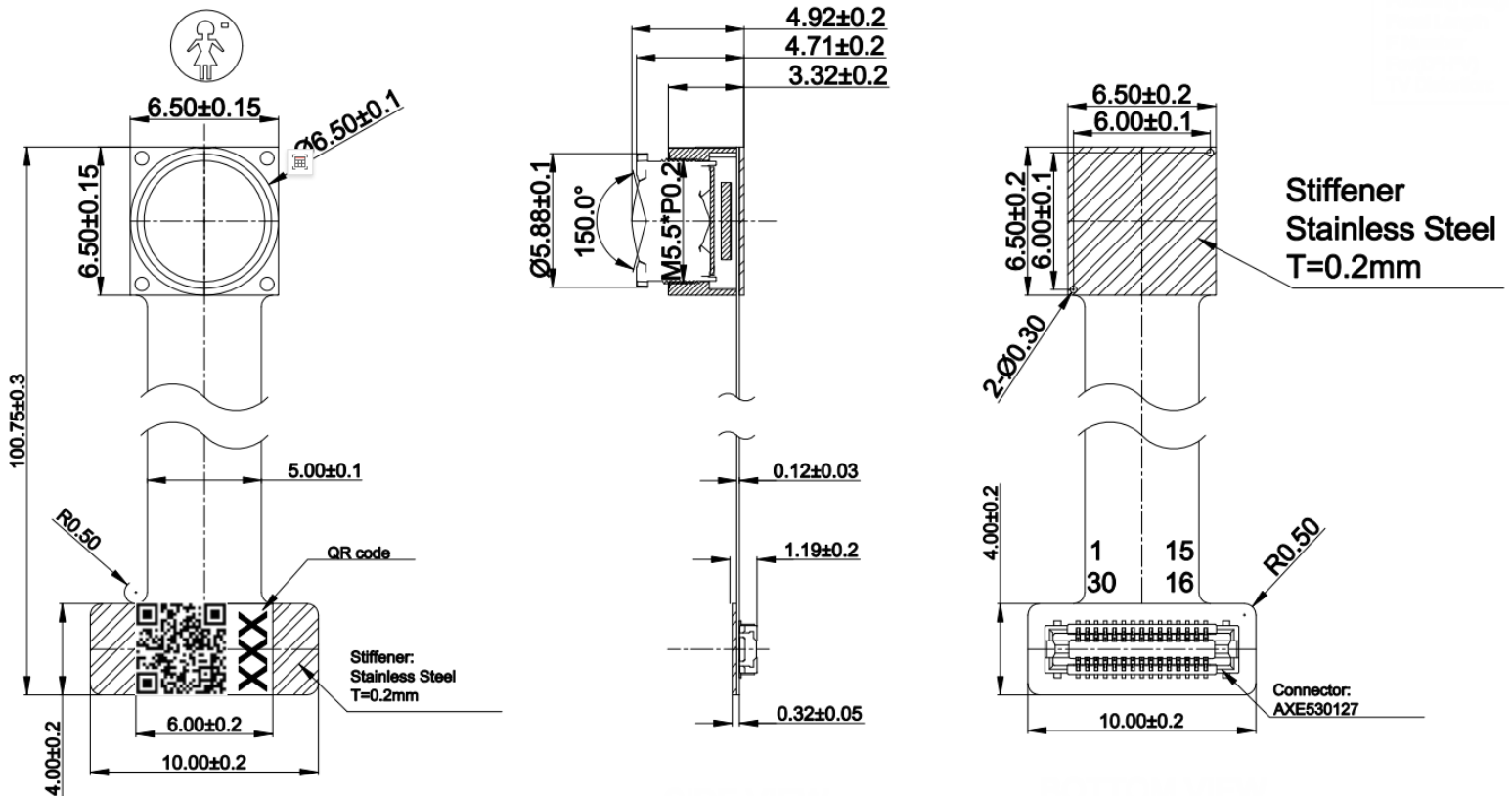
- Videoconferencing Endpoint
- Webcam
- Machine Vision Camera
- Video Doorbell
- Retail In-store Camera, Bodycam, etc.
- 3D and Stereo Camera

## LENS SPECIFICATIONS

|                        |                 |
|------------------------|-----------------|
| Effective Focal Length | 1.27 mm         |
| Aperture, F/#          | 2.4 $\pm$ 5%    |
| FOV                    | 150° diagonal   |
|                        | 150° horizontal |
|                        | 118° vertical   |
| TV Distortion          | < -85%          |



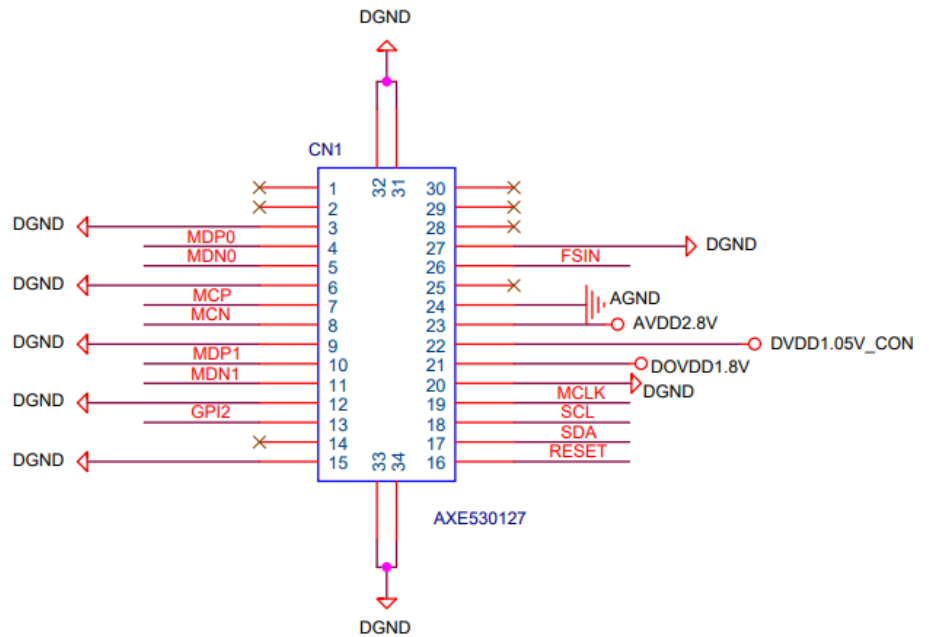
## DIMENSIONS



Unit: mm

## INTERFACE

- Part#: AXE530127
- Number of Positions: 30
- Number of Rows: 2
- External power supply: 1.05V, 1.8V, 2.8V



## PINOUT DETAILS

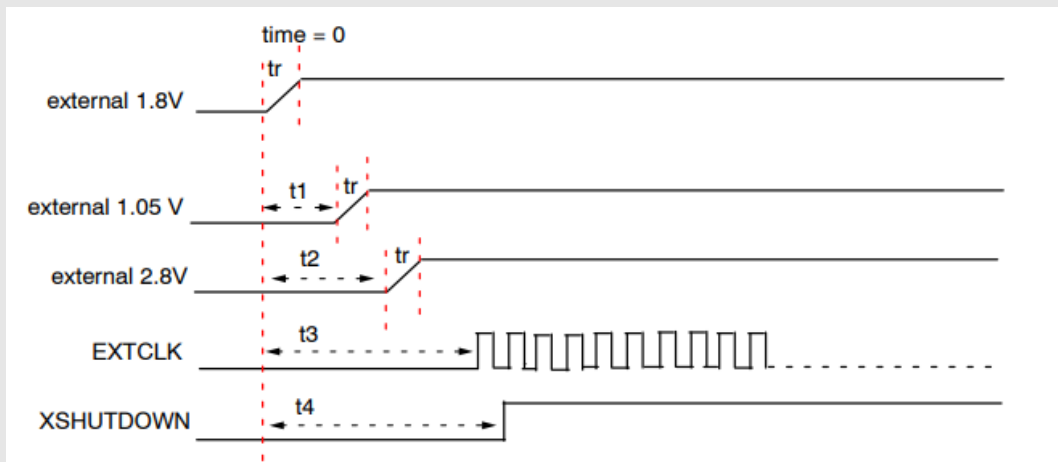
| Pin No | Signal Name | Pin Type | Description                                         | Voltage Level |
|--------|-------------|----------|-----------------------------------------------------|---------------|
| 1      | -           | -        | -                                                   | -             |
| 2      | -           | -        | -                                                   | -             |
| 3      | DGND        | -        | -                                                   | -             |
| 4      | MDP0        | OUTPUT   | MIPI Data Lane 0 Differential Pair +                | MIPI DPHY     |
| 5      | MDN0        | OUTPUT   | MIPI Data Lane 0 Differential Pair -                | MIPI DPHY     |
| 6      | DGND        | -        | -                                                   | -             |
| 7      | MCP         | OUTPUT   | MIPI Clock Lane Differential Pair +                 | MIPI DPHY     |
| 8      | MCN         | OUTPUT   | MIPI Clock Lane Differential Pair -                 | MIPI DPHY     |
| 9      | DGND        | -        | -                                                   | -             |
| 10     | MDP1        | OUTPUT   | MIPI Data Lane 1 Differential Pair +                | MIPI DPHY     |
| 11     | MDN1        | OUTPUT   | MIPI Data Lane 1 Differential Pair -                | MIPI DPHY     |
| 12     | DGND        | -        | -                                                   | -             |
| 13     | GPI2        | INPUT    | General purpose input<br>(Connect to sensor Pin-D4) | 1.8V          |

|    |            |       |                                                                |        |
|----|------------|-------|----------------------------------------------------------------|--------|
| 14 | –          | –     | –                                                              | –      |
| 15 | DGND       | –     | –                                                              | –      |
| 16 | RESET      | INPUT | Asynchronous active LOW reset<br>(Require pullup at host side) | 1.8 V  |
| 17 | SDA        | I/O   | Camera I2C SDA signal<br>(Require pullup at host side)         | 1.8 V  |
| 18 | SCL        | INPUT | Camera I2C SCL signal<br>(Require pullup at host side)         | 1.8 V  |
| 19 | MCLK       | INPUT | Input clock for sensor<br>(Must be provided from host side)    | 1.8 V  |
| 20 | DGND       | –     | –                                                              | –      |
| 21 | DOVDD_1.8V | POWER | 1.8V Power supply for I/O                                      | 1.8 V  |
| 22 | DVDD_1.05V | POWER | 1.05V Power supply for DPHY                                    | 1.05 V |
| 23 | AVDD_2.8V  | POWER | 2.8V Power supply for analog                                   | 2.8 V  |
| 24 | AGND       | –     | –                                                              | –      |
| 25 | –          | –     | –                                                              | –      |
| 26 | FSIN       | I/O   | FSIN I/O                                                       | 1.8 V  |
| 27 | DGND       | –     | –                                                              | –      |
| 28 | –          | –     | –                                                              | –      |
| 29 | –          | –     | –                                                              | –      |
| 30 | –          | –     | –                                                              | –      |

## External Power supply Power On Sequence

The recommended power-on sequence is shown in as follows.

1. Set reset low
2. Power up 1.8 V-only
3. After 1–500 ms, power up 1.05 V and 2.8 V (any order).
4. Apply EXTCLK (can be applied anytime).
5. After 1–500 ms, set reset high



| Timing | Min.    | Max.    | Unit    |
|--------|---------|---------|---------|
| $t_1$  | 1       | -       | ms      |
| $t_2$  | $t_1+1$ | -       | ms      |
| $t_3$  | -       | $< t_4$ | ms      |
| $t_4$  | $t_2+1$ | -       | ms      |
| $t_r$  | 100     | -       | $\mu s$ |

A minimum ramping time of 100  $\mu s$  for " $t_r$ " is needed to minimize surge of supply current when powering up the 1.05 V, 1.8 V, and 2.8 V external power supplies

## Power Consumption

| MODE                                                   | Symbol             | Min. | Typ. | Max.  | Unit |
|--------------------------------------------------------|--------------------|------|------|-------|------|
| 5M Linear mode (2592 x 1944), 60 fps                   | I <sub>DOVDD</sub> |      | 19   |       | mA   |
|                                                        | I <sub>DVDD</sub>  |      | 86   |       |      |
|                                                        | I <sub>AVDD</sub>  |      | 12   |       |      |
| 5M Linear mode (2592 x 1944), 30 fps                   | I <sub>DOVDD</sub> |      | 12   |       | mA   |
|                                                        | I <sub>DVDD</sub>  |      | 57   |       |      |
|                                                        | I <sub>AVDD</sub>  |      | 7    |       |      |
| 5M LI-HDR mode (2592x1944), 30 fps                     | I <sub>DOVDD</sub> |      | 24   |       | mA   |
|                                                        | I <sub>DVDD</sub>  |      | 104  |       |      |
|                                                        | I <sub>AVDD</sub>  |      | 14   |       |      |
| M (Bin2) Linear mode (1280x960), 120 fps               | I <sub>DOVDD</sub> |      | 20   |       | mA   |
|                                                        | I <sub>DVDD</sub>  |      | 86   |       |      |
|                                                        | I <sub>AVDD</sub>  |      | 13   |       |      |
| P Linear mode (1920x1080), 110 fps                     | I <sub>DOVDD</sub> |      | 19   |       | mA   |
|                                                        | I <sub>DVDD</sub>  |      | 83   |       |      |
|                                                        | I <sub>AVDD</sub>  |      | 14   |       |      |
| 5M eDR mode (2592x1944), 30 fps                        | I <sub>DOVDD</sub> |      | 26   |       | mA   |
|                                                        | I <sub>DVDD</sub>  |      | 107  |       |      |
|                                                        | I <sub>AVDD</sub>  |      | 16   |       |      |
| 5M SLP Linear mode (2592 x 1944), 1 fps                | I <sub>DOVDD</sub> |      | 309  |       | μA   |
|                                                        | I <sub>DVDD</sub>  |      | 1030 |       |      |
|                                                        | I <sub>AVDD</sub>  |      | 166  |       |      |
| VGA (Bin4) SLP Linear mode (640 x480), 1 fps           | I <sub>DOVDD</sub> |      | 173  |       | μA   |
|                                                        | I <sub>DVDD</sub>  |      | 618  |       |      |
|                                                        | I <sub>AVDD</sub>  |      | 383  |       |      |
| Wake on Motion with streaming mode (640x480), 1 fps    | I <sub>DOVDD</sub> |      | 74   |       | μA   |
|                                                        | I <sub>DVDD</sub>  |      | 674  |       |      |
|                                                        | I <sub>AVDD</sub>  |      | 96   |       |      |
| Wake on Motion without streaming mode (320x240), 1 fps | I <sub>DOVDD</sub> |      | 93   |       | μA   |
|                                                        | I <sub>DVDD</sub>  |      | 541  |       |      |
|                                                        | I <sub>AVDD</sub>  |      | 223  |       |      |
| XSHUTDOWN (EXTCLK ON)                                  | I <sub>DOVDD</sub> |      |      | 23.22 | μA   |
|                                                        | I <sub>DVDD</sub>  |      |      | 3.9   |      |
|                                                        | I <sub>AVDD</sub>  |      |      | 3.42  |      |

# Power Consumption

| MODE                                                       | Symbol             | Min. | Typ. | Max.    | Unit |
|------------------------------------------------------------|--------------------|------|------|---------|------|
| XSHUTDOWN (EXTCLK OFF)                                     | I <sub>DOVDD</sub> |      |      | 7.98    | μA   |
|                                                            | I <sub>DVDD</sub>  |      |      | 3.63    |      |
|                                                            | I <sub>AVDD</sub>  |      |      | 2.97    |      |
| STANDBY current when asserting<br>R0x0100 = 0 (EXTCLK on)  | I <sub>DOVDD</sub> |      |      | 31.8    | μA   |
|                                                            | I <sub>DVDD</sub>  |      |      | 1907.32 |      |
|                                                            | I <sub>AVDD</sub>  |      |      | 14.58   |      |
| STANDBY current when asserting<br>R0x0100 = 0 (EXTCLK off) | I <sub>DOVDD</sub> |      |      | 14.05   | μA   |
|                                                            | I <sub>DVDD</sub>  |      |      | 1594.62 |      |
|                                                            | I <sub>AVDD</sub>  |      |      | 14.32   |      |



## • REVISION HISTORY

| Revision | Description    | Release Date |
|----------|----------------|--------------|
| 0.1      | Initial draft. | 10 Dec 2025  |

910 Auburn Ct, Fremont, CA 94538, USA

Phone: +1 (408)263-0988

Fax: +1 (408)217-1960

Email: [sales@leopardimaging.com](mailto:sales@leopardimaging.com)

Website: [www.leopardimaging.com](http://www.leopardimaging.com)



Leopard Imaging Inc.