LEOPARD IMAGING

LI-IMX296-MIPI-M12

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INTRODUCTION

The LI-IMX296-MIPI-M12 is a MIPI CSI-2 camera equipped with Sony diagonal 6.3 mm (Type 1/2.9) 1.58 MP Pregius CMOS image sensor IMX296 which features a global shutter with variable charge-integration time and could achieve low power consumption. This camera outputs 10-bit RAW data.

SPECIFICATIONS

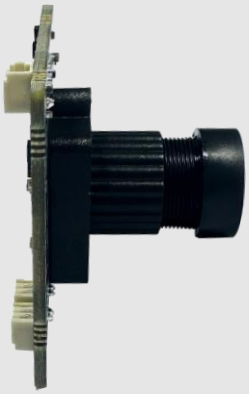
Sensor	Sony Diagonal 6.3 mm 1.58MP Pregius Sensor IMX296
Optical Format	1/2.9"
Shutter Type	Global shutter
Resolution	1456 (H) x 1088 (V) (active pixels)
Pixel Size	3.45 x 3.45 µm
Output Format	10-bit RAW data
Maximum Frame Rate	60.3 fps @ full resolution
ISP	Not included
Color / Mono	Mono sensor
Interface	1-lane MIPI CSI-2
Power Consumption	313 mA @ 5V (1456 x 1088 @ 56.7 fps)
Operating Temp	-30 ℃ ~ +75 ℃
Storage Temp	-30 ℃ ~ +75 ℃
Weight	~ 12 g
Part#	LI-IMX296-MIPI-M12

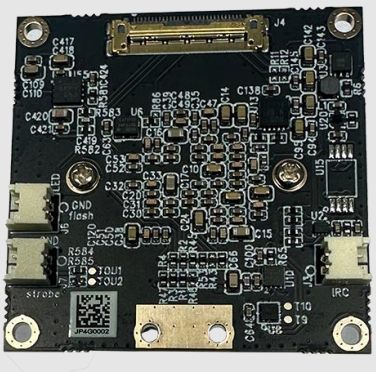
APPLICATIONS

- IoT
- Drone
- Robots

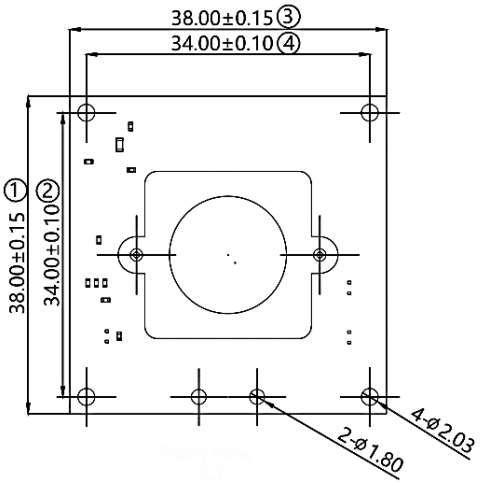
LENS SPECIFICATIONS

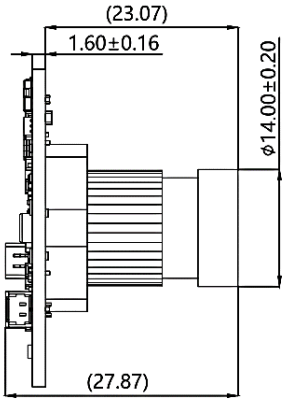
Effective Focal Length	4.2 mm
Aperture, F/#	2.5
Field of View (FOV)	60˚ horizontal
OP Distortion	-1.2 %
Relative Illumination	40 %
Lens Mount	M12 x P0.5

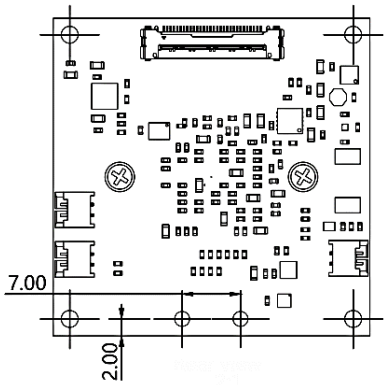


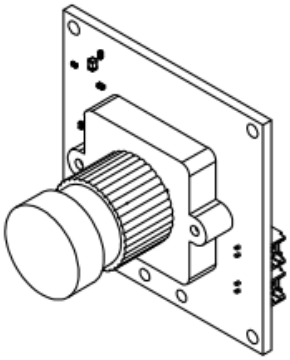


DIMENSIONS









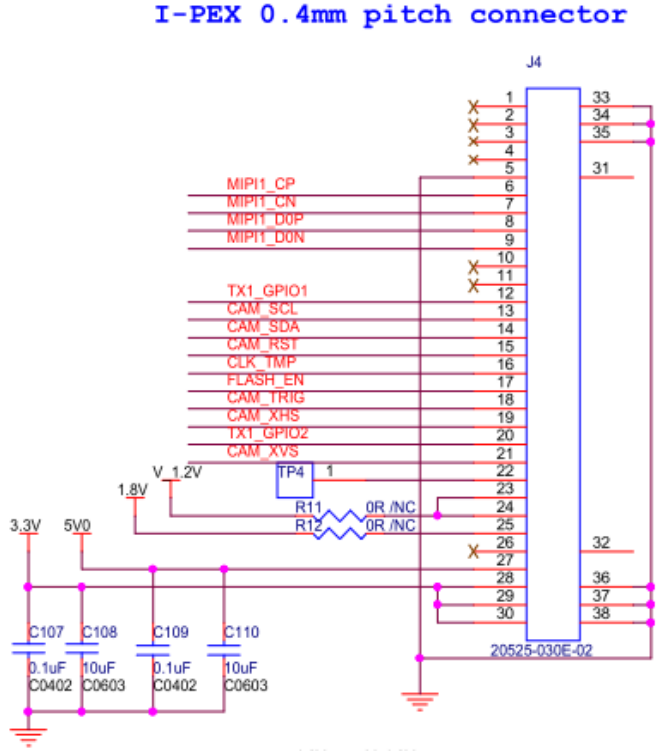
TOLERANCE TABLE					
LENGTH TOLERANCE		CHAMFER TOLERANCE		ANGLE TOLERANCE	
Size X	Tolerance	Size X	Tolerance	Size X	Tolerance
0.5 < X≤3	±0.1	0.5 < X≤3	±0.2	X≤10	±1°
3 < X≤6	±0.1	3 < X≤6	±0.5	10 < X≤50	±30'
6 < X≤30	±0.2	6 < X≤30	±1	50 < X≤120	±20'
30 < X≤120	±0.3	X > 30	±2	120 < X≤400	±10'
120 < X≤400	±0.5			X > 400	±5'
400 < X≤1000	±0.8				
X > 1000	±1.2				

NOTE:

- ⊗ marked are important sizes.
- Tolerances for the unmarked refer to the tolerance table.
- All materials are compliant with RoHS requirements.
- Unit: mm

INTERFACE J4

- Connector Part#: 20525-030E-02
- Number of Positions: 30
- Pitch: 0.4 mm
- Mating I-PEX Cable: FAW-1233-03
- Sensor I2C Address: 0X37 (7-bit)
- External Power Supply: 5V0, 3.3V



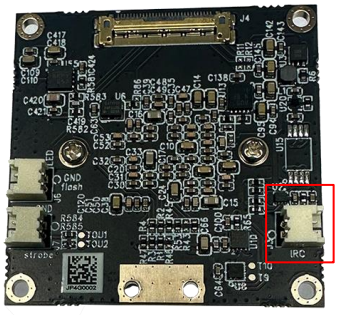
PINOUT DETAILS OF J4

Pin No	Signal Name	Pin Type	Description	Voltage Level
1	NC	-	No Connection	-
2	NC	-	No Connection	-
3	NC	-	No Connection	-
4	NC	-	No Connection	-
5	GND	POWER	Ground signal for digital and analog	-
6	MIPI_CLKP	OUTPUT	MIPI Clock Lane Differential Pair +	MIPI DPHY
7	MIPI_CLKN	OUTPUT	MIPI Clock Lane Differential Pair -	MIPI DPHY
8	MIPI_D0P	OUTPUT	MIPI Clock Data0 Differential Pair +	MIPI DPHY
9	MIPI_D0N	OUTPUT	MIPI Clock Data0 Differential Pair -	MIPI DPHY
10	NC		No Connection	-
11	NC		No Connection	-
12	GPIO1	I/O	General-Purpose Input/Output 1	-
13	CAM_SCL	INPUT	1.8V IO Camera I2C SCL signal (Externally pull up to 1.8V using 1.5k)	1.8V

Pin No	Signal Name	Pin Type	Description	Voltage Level
14	CAM_SDA	I/O	1.8V IO Camera I2C SDA signal (Externally pull up to 1.8V using 1.5k)	1.8V
15	CAM_RST	INPUT	1.8V IO camera reset signal (Externally pull up to 1.8V using 10k)	1.8V
16	CLK IN	INPUT	Reserved CLK for camera	1.8V
17	FLASH_EN	I/O	Reserved 1.8V control signal to drive external light sources	1.8V
18	CAM_TRIG	INPUT	1.8V IO Trigger signla for camera	1.8V
19	CAM_XHS	I/O	1.8V IO Horizontal sync signal for camera	1.8V
20	GPIO2	I/O	General-Purpose Input/Output 2	-
21	CAM_XVS	I/O	1.8V IO Vertical sync signla for camera	1.8V
22	TP	I/O	Reserved Test Point	-
23	VCC_1V2	POWER	Reserved 1.2V power supply	1.2V
24	VCC_1V2	POWER	Reserved 1.2V power supply	1.2V
25	VCC_1V8	POWER	Reserved 1.8V power supply	1.8V
26	NC	-	-	-
27	VCC_5V0	POWER	5V power supply	5V
28	VCC_3V3	POWER	3.3V power supply	3.3V
29	VCC_3V3	POWER	3.3V power supply	3.3V
30	VCC_3V3	POWER	3.3V power supply	3.3V

INTERFACE J3 **(NOT USED IN DEFAULT)**

Interfaces	Description
J3 for IR-Cut switcher (No IR cut switcher on this camera)	■ Part#: 1734829-2 ■ Number of Positions: 2 ■ Pitch: 1.25 mm

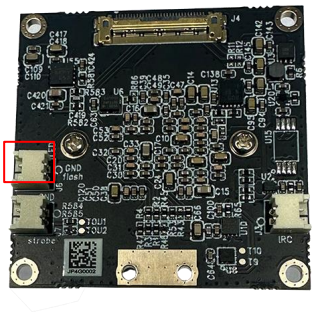


PINOUT DETAILS OF J3

Pin No	Signal Name	Pin Type	Description	Voltage Level
1	Motor output2	OUTPUT	IR-CUT Driver output signal 2 (Connect these pins to the motor winding)	-
2	Motor output1	OUTPUT	IR-CUT Driver output signal 1 (Connect these pins to the motor winding)	-

INTERFACE J6 (Flash_EN)

Interfaces	Description
J6 for Flash_EN (Not used in default)	■ Part#: 1734829-2 ■ Number of Positions: 2 ■ Pitch: 1.25 mm

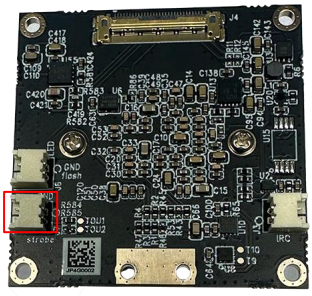


PINOUT DETAILS OF J6

Pin No	Signal Name	Pin Type	Description	Voltage Level
1	GND	POWER	Ground signal for digital and analog	-
2	FLASH_EN	I/O	Reserved 1.8V control signal to drive external light sources (Not used in default)	1.8V

INTERFACE J7 (STROBE)

Interfaces	Description
J7 for STROBE	■ Part#: 1734829-2 ■ Number of Positions: 2 ■ Pitch: 1.25 mm



PINOUT DETAILS OF J7

Pin No	Signal Name	Pin Type	Description	Voltage Level
1	GND	GND	Ground signal for digital and analog	-
2	STROBE	I/O	1.8V IO Strobe signla for camera	1.8V

REVISION HISTORY

Revision	Description	Release Date
1.0	First release.	13 May 2024

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