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Introduction

The IMX219-77-4Lane 8MP Camera Module is a high-performance imaging solution **designed for high-definition visual applications with the Raspberry Pi 5**. Featuring the Sony IMX219 photosensitive chip, it offers 8 million pixels and a resolution of **3280x2464**, delivering sharp, distortion-free images. The module uses the MIPI-CSI-4Lane interface, ensuring fast data transfer for demanding image processing tasks. It is ideal for applications such as security surveillance, robotics, and image processing, where both fast, high-quality imaging and smooth video performance are crucial.

Excellent Compatibility with Raspberry Pi 5

IMX219-77-4Lane 8MP Camera is designed with seamless integration in mind, providing out-of-the-box compatibility with the Raspberry Pi 5. Its 22-pin 0.5mm pitch connector and optimized interface make installation and use straightforward, ensuring it works effectively with Raspberry Pi-based projects.

Figure: Wiring Diagram of Raspberry Pi 5 and IMX219-77-4Lane 8MP Camera Module

High-Resolution (3280x2464) Imaging

With an 8MP resolution (3280x2464), this Raspberry Pi 5 camera module delivers sharp, detailed images, ensuring high-quality output for both static and dynamic content. The 79.3° field of view guarantees comprehensive capture without distortion, making it suitable for a wide range of applications, including security cameras and visual inspections.

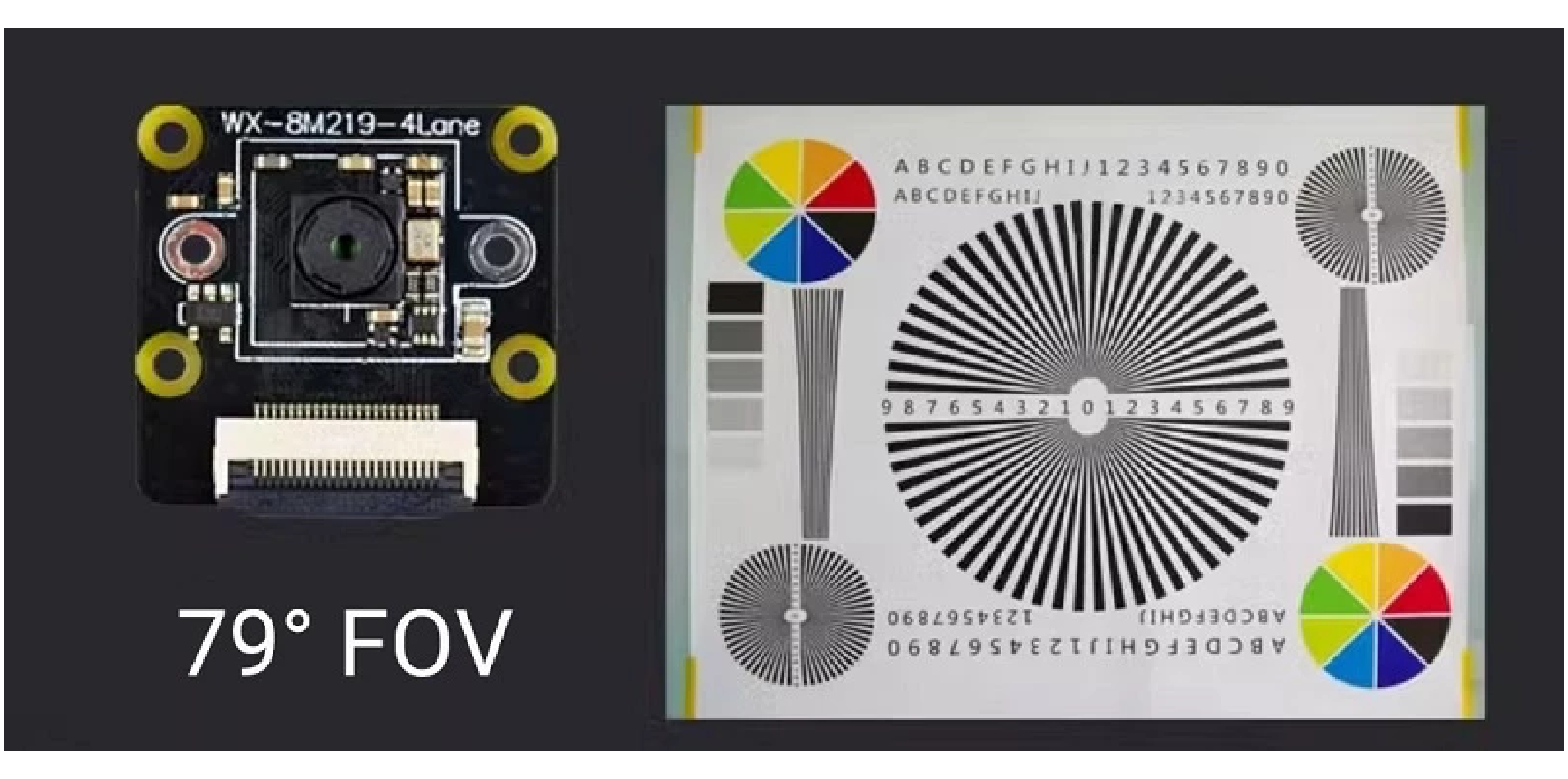


Figure: IMX219-77-4Lane 8MP Raspberry Pi 5 Camera Module Test Shot at 50cm - Approximate Horizontal Field: 62cm, Vertical Field: 47cm (Manual Measurement, Allow for Error)

MIPI-CSI-4Lane Interface for Enhanced Performance

Utilizing a MIPI-CSI-4Lane interface, the Raspberry Pi 5 camera module offers a higher frame rate compared to traditional 2-lane modules. This results in smoother video capture and enhanced performance for tasks requiring real-time imaging, such as object detection and machine vision.

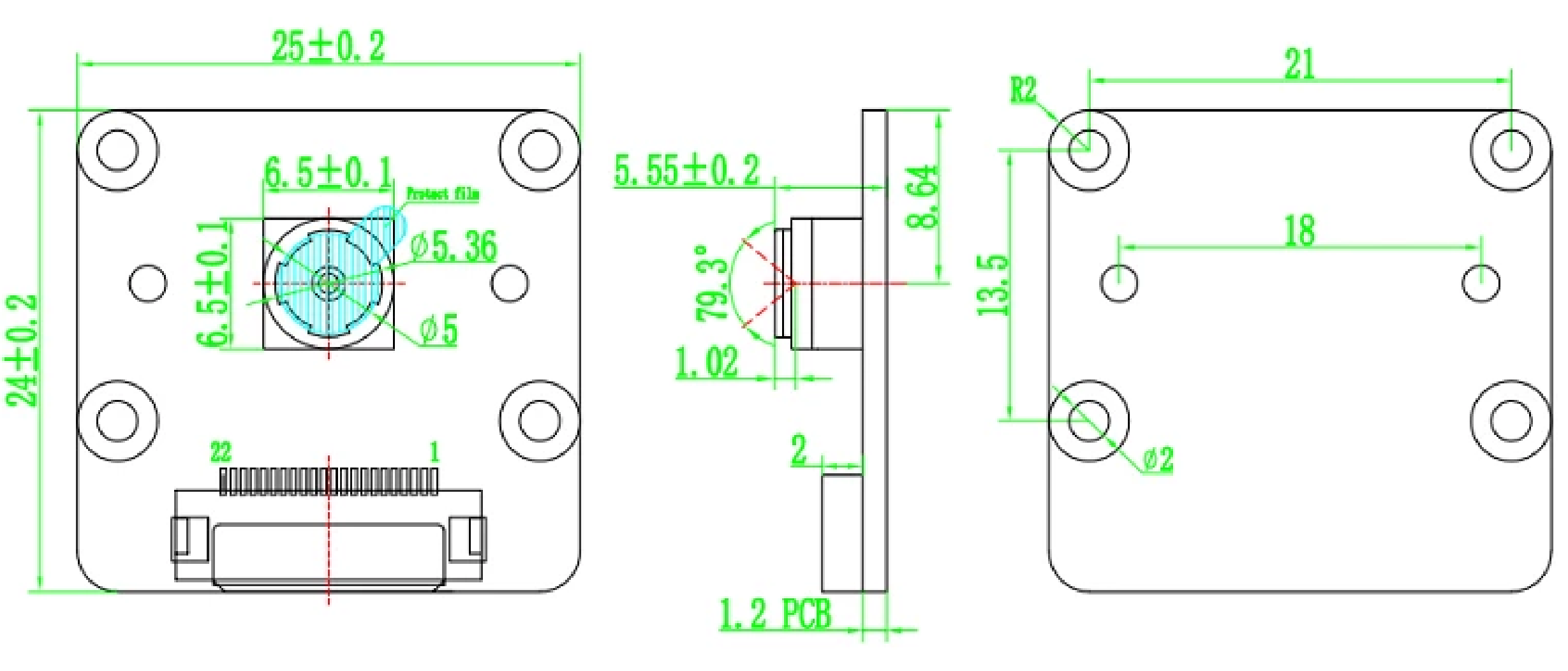
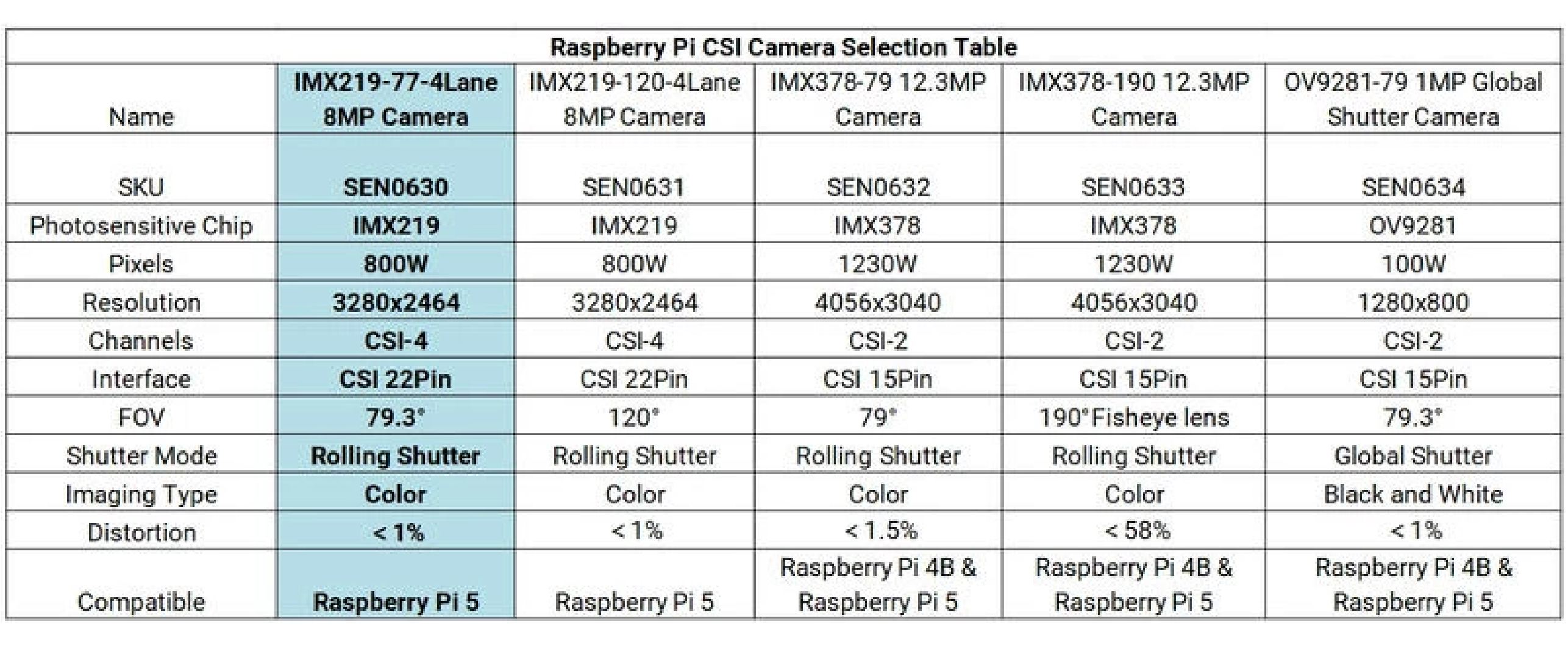


Figure: Dimension Diagram of IMX219-77-4Lane 8MP Raspberry Pi 5 Camera Module

How to Choose IMX219-77-4Lane camera module

The IMX219-77-4Lane camera module is available in two versions: 79° FOV (this one) and 120° FOV. The 79° FOV version offers a narrower, more focused field of view, making it ideal for applications requiring precision and detail, such as industrial automation, object recognition, and close-range inspections. The 120° FOV wide-angle version, designed for broader area capture, is perfect for security surveillance, smart home monitoring, autonomous robots, and large-scale visual inspections. Its wider field of view allows for fewer cameras to cover larger spaces, reducing blind spots in monitoring systems.



Raspberry Pi CSI Camera Selection Table

Name	**IMX219-77-4Lane 8MP Camera**	IMX219-120-4Lane 8MP Camera	IMX378-79 12.3MP Camera	IMX378-190 12.3MP Camera	OV9281-79 1MP Global Shutter Camera
SKU	**SEN0630**	SEN0631	SEN0632	SEN0633	SEN0634
Photosensitive Chip	**IMX219**	IMX219	IMX378	IMX378	OV9281
Pixels	**800W**	800W	1230W	1230W	100W
Resolution	**3280x2464**	3280x2464	4056x3040	4056x3040	1280x800
Channels	**CSI-4**	CSI-4	CSI-2	CSI-2	CSI-2
Interface	**CSI 22Pin**	CSI 22Pin	CSI 15Pin	CSI 15Pin	CSI 15Pin
FOV	**79.3°**	120°	79°	190°Fisheye lens	79.3°
Shutter Mode	**Rolling Shutter**	Rolling Shutter	Rolling Shutter	Rolling Shutter	Global Shutter
Imaging Type	**Color**	Color	Color	Color	Black and White
Distortion	**< 1%**	< 1%	< 1.5%	< 58%	< 1%
Compatible	**Raspberry Pi 5**	Raspberry Pi 5	Raspberry Pi 4B & Raspberry Pi 5	Raspberry Pi 4B & Raspberry Pi 5	Raspberry Pi 4B & Raspberry Pi 5

Figure: Raspberry Pi CSI Camera Selection Table

Applications

- Industrial automation
- Close-range inspections
- Object detection and machine vision

Specification

- Photosensitive chip: Sony IMX219
- Pixels: 8 million
- Resolution: 3280x2464
- Camera type: color
- Shutter mode: rolling shutter
- Focus mode: fixed focus
- CMOS size: 1/4 inch
- Aperture: 2.0
- Focal length: 2.85mm
- Field of view: 79.3°
- Distortion: < 1%
- Interface: MIPI-CSI-4Lane
- Cable specification: FPC-22Pin-0.5mm pitch
- Lens size: 6.5*6.5mm
- PCB size: 25*24mm

Documents

- Tutorial
- IMX219 DataSheet
- Interface Schematic
- Module Specifications

Shipping List

- IMX219-77-4Lane 8MP Raspberry Pi 5 Camera x1
- 22-pin FPC cable x1

Raspberry Pi Projects