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SL-MIPI-CSI-OV5640 Datasheet and Pinout

Rev. 20231127134140

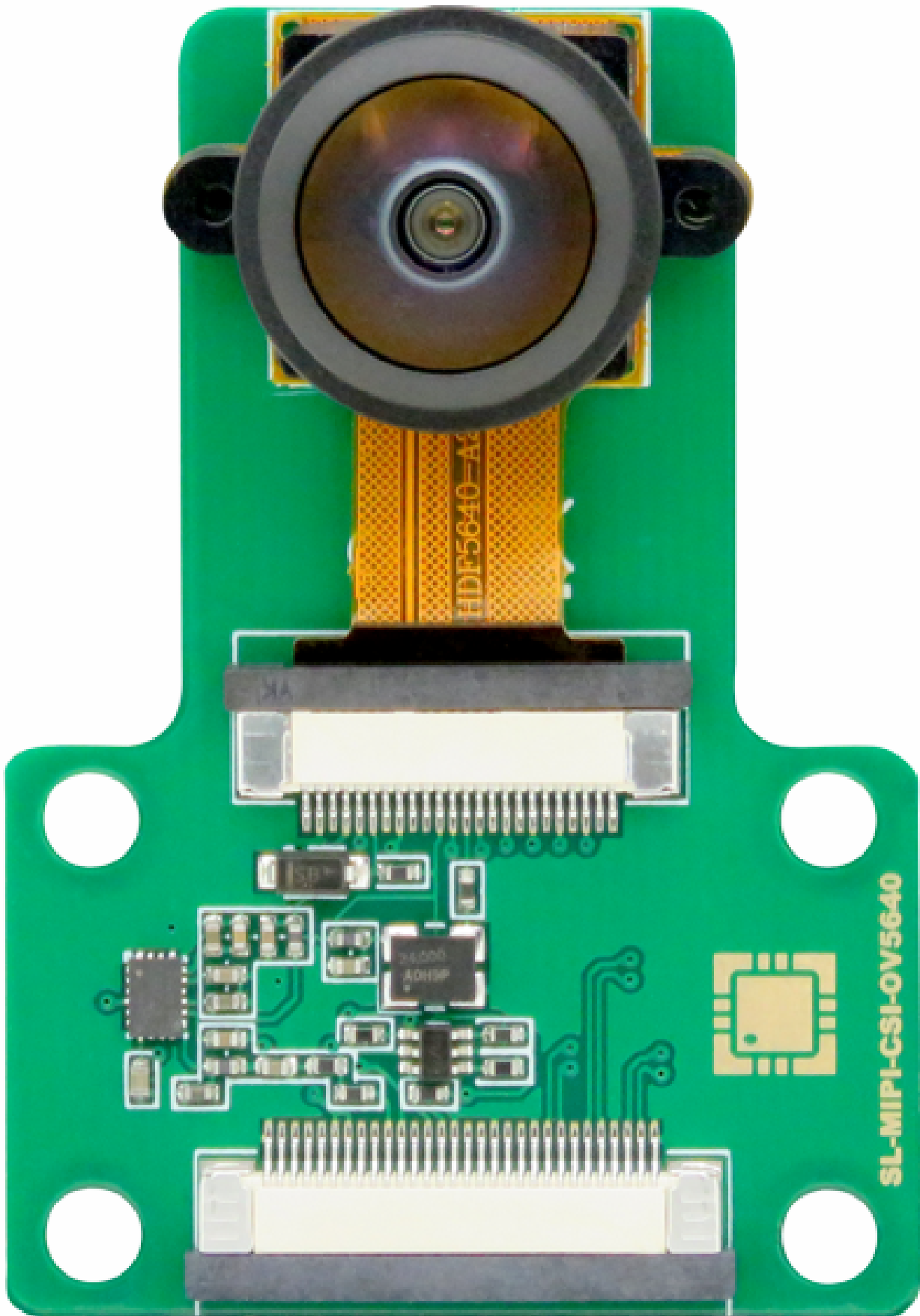
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SL-MIPI-CSI-OV5640 5Mpx camera module with MIPI-CSI interface and OV5640 video sensor Datasheet and Pinout

General description



SL-MIPI-CSI-OV5640 is the 5 Mpx color camera module. Module is equipped with MIPI-CSI interface and FPC30 connector therefore SL-MIPI-CSI-OV5640 module is matched to the SoMLabs carrier boards.

The SL-MIPI-CSI-OV5640 is equipped with OV5640 hi-res HD 5 Mpx CMOS video sensor. Video interface is dual lane MIPI-CSI interface and module supports electronic shutter mode: rolling shutter/frame exposure.

As a result of using advanced PMIC – SL1 – developed by SoMLabs, the SL-MIPI-CSI-OV5640 module is powered from single +3.3V line available in FPC connector.

The SL-MIPI-CSI-OV5640 is fully compatible with SoMLabs carrier boards equipped with MIPI-CSI connectors. By default SL-MIPI-CSI-OV5640 module is equipped with fish-eye (120°) lens.

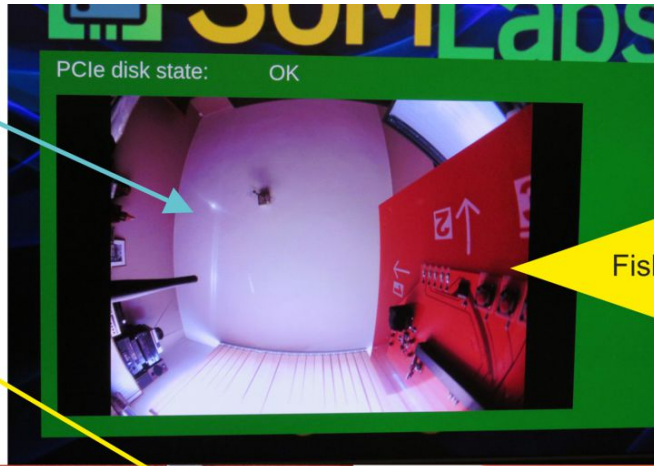
Features

- Based on OV5640 CMOS video chip
- Resolution 2592 x 1944 px
- Fish-eye lens (120°)
- Output formats: 8/10-b RGB RAW
- MIPI-CSI interface (2 lanes)
- Typical frame rates:
- QSXGA (2592×1944): 15 fps
 - 1080p: 30 fps
 - 1280×960: 45 fps
 - 720p: 60 fps
 - VGA (640×480): 90 fps
 - QVGA (320×240): 120 fps
- Shutter: rolling/frame exposure
- Single rail +3.3V power supply
- Configuration via I2C
- Operating temperature -30÷+70°C
- Fully compatible with SoMLabs carrier boards equipped with MIPI-CSI interface (FPC30 connector)
- Built-in clock source
- Built-in SL1 PMIC (developed by SoMLabs)
- Connection with carrier board using FPC30 cable

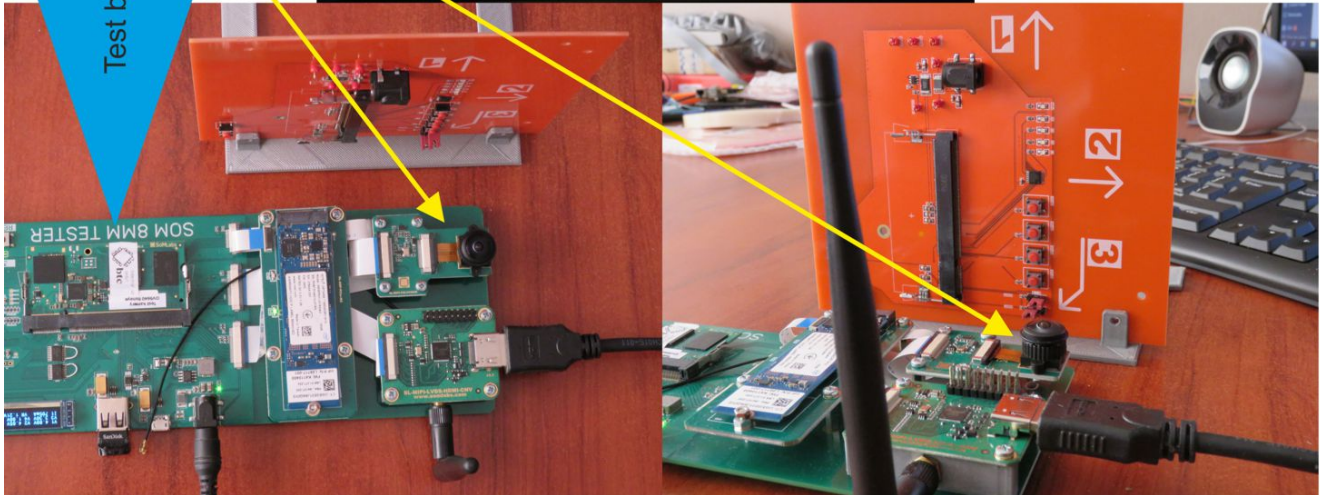
Note: fish-eye camera lens distorts the picture perspective. Example below.

Roof in the room

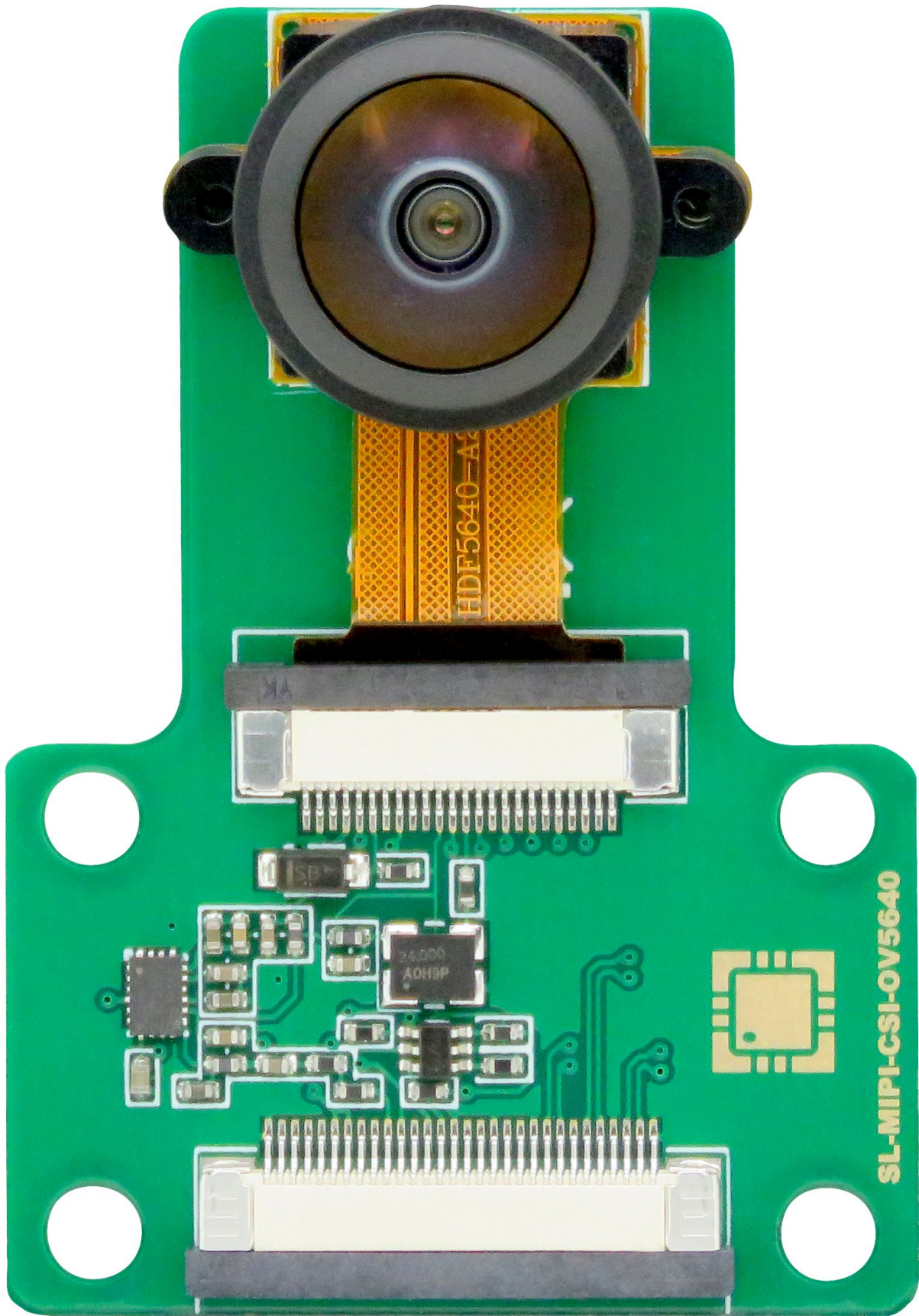
Test board with camera

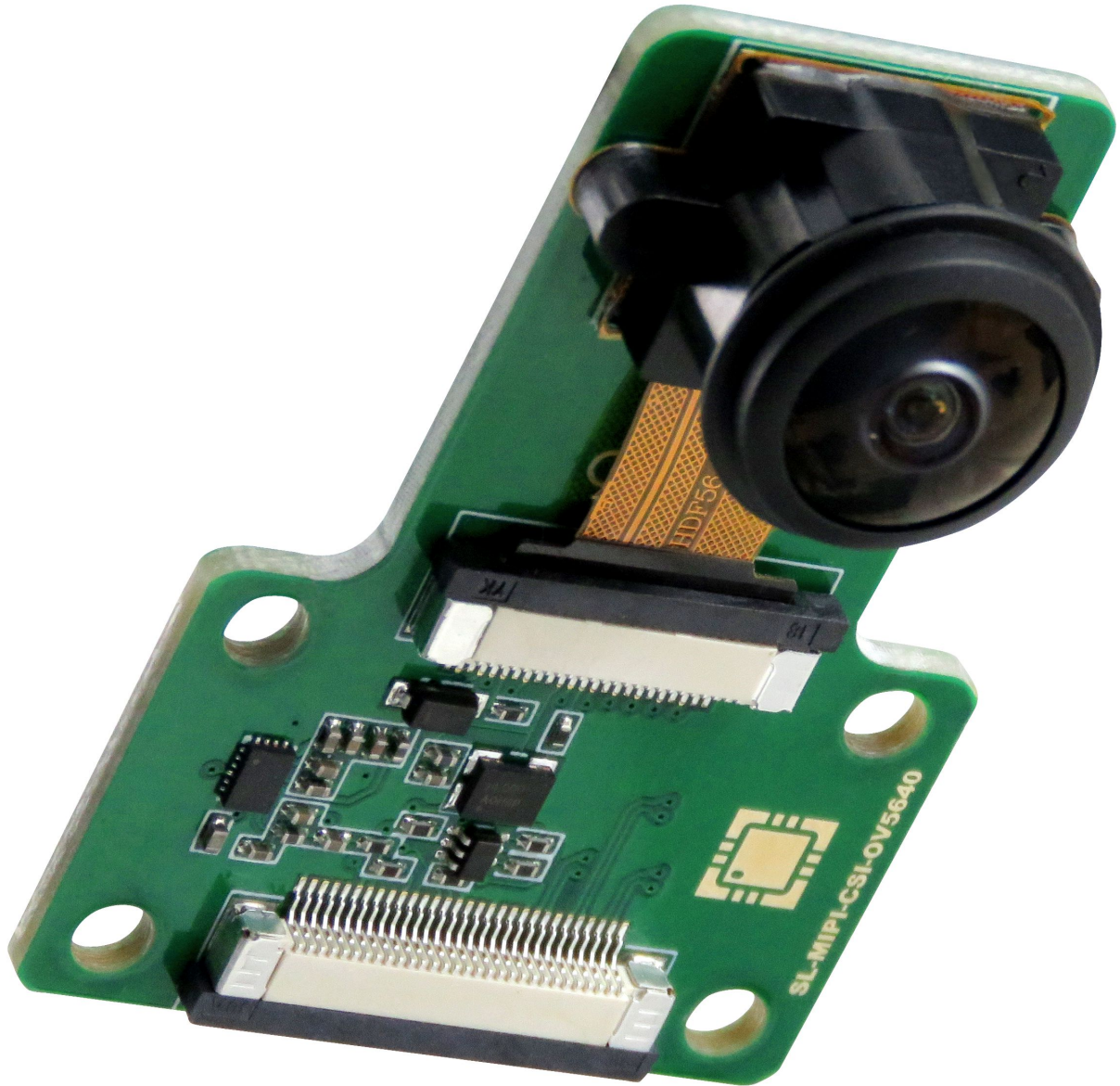


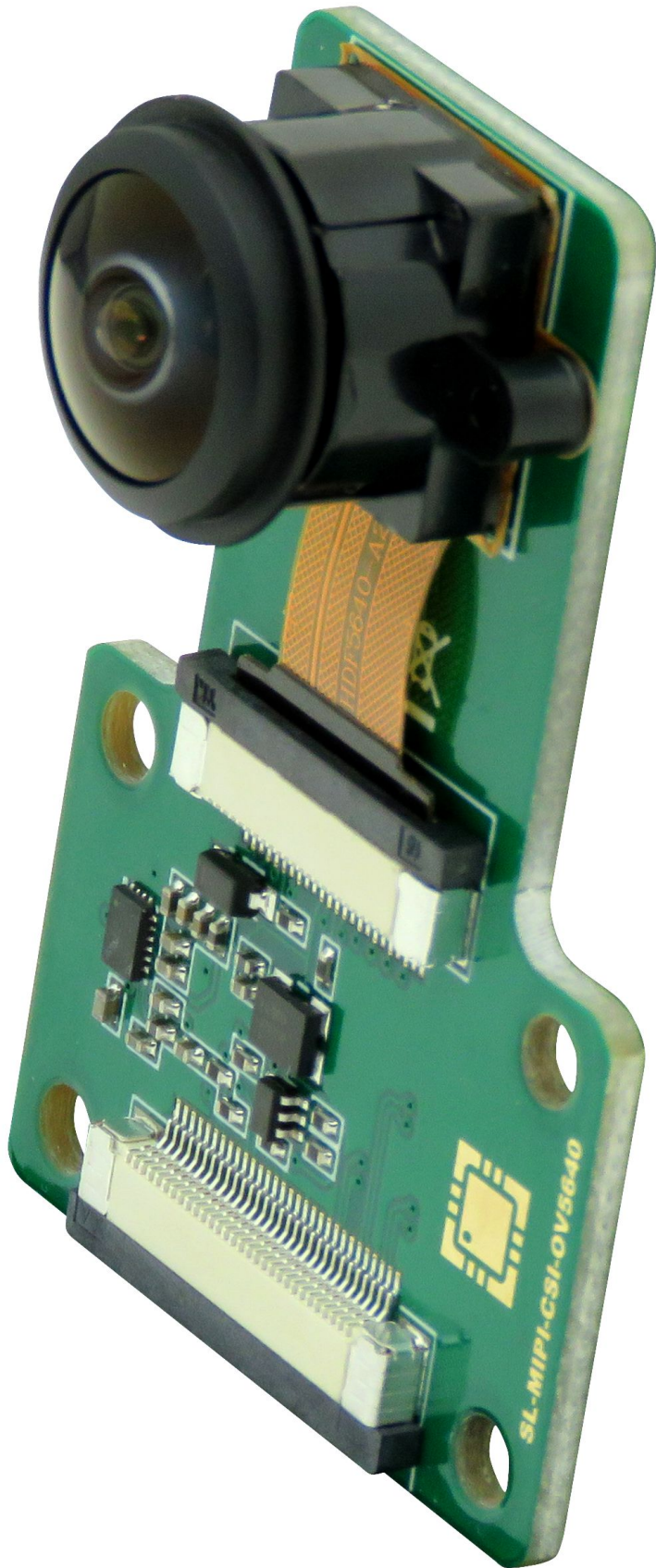
Fish-eye 120° camera lens view

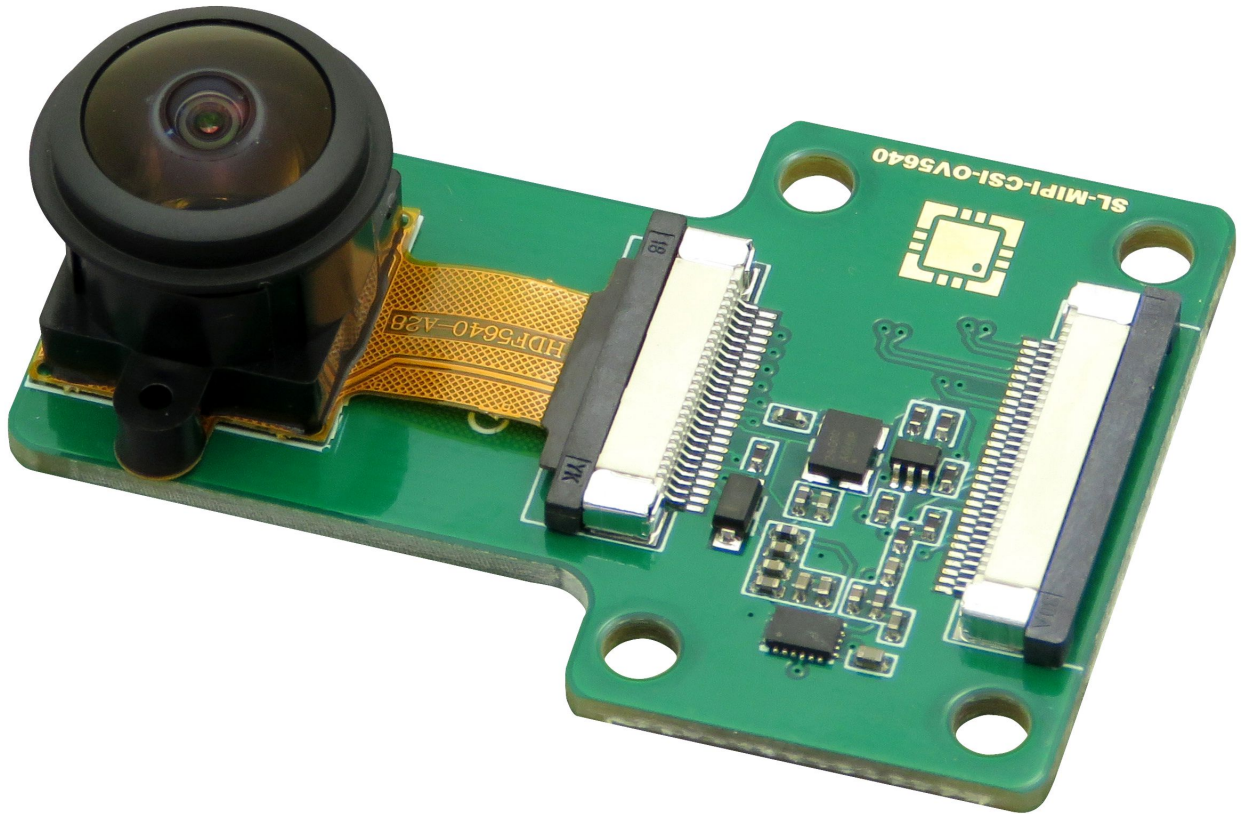


Pictures









Ordering info

SL-MIPI-CSI-OV5640 - FPC 30-pin flat cable (A-A) is included.

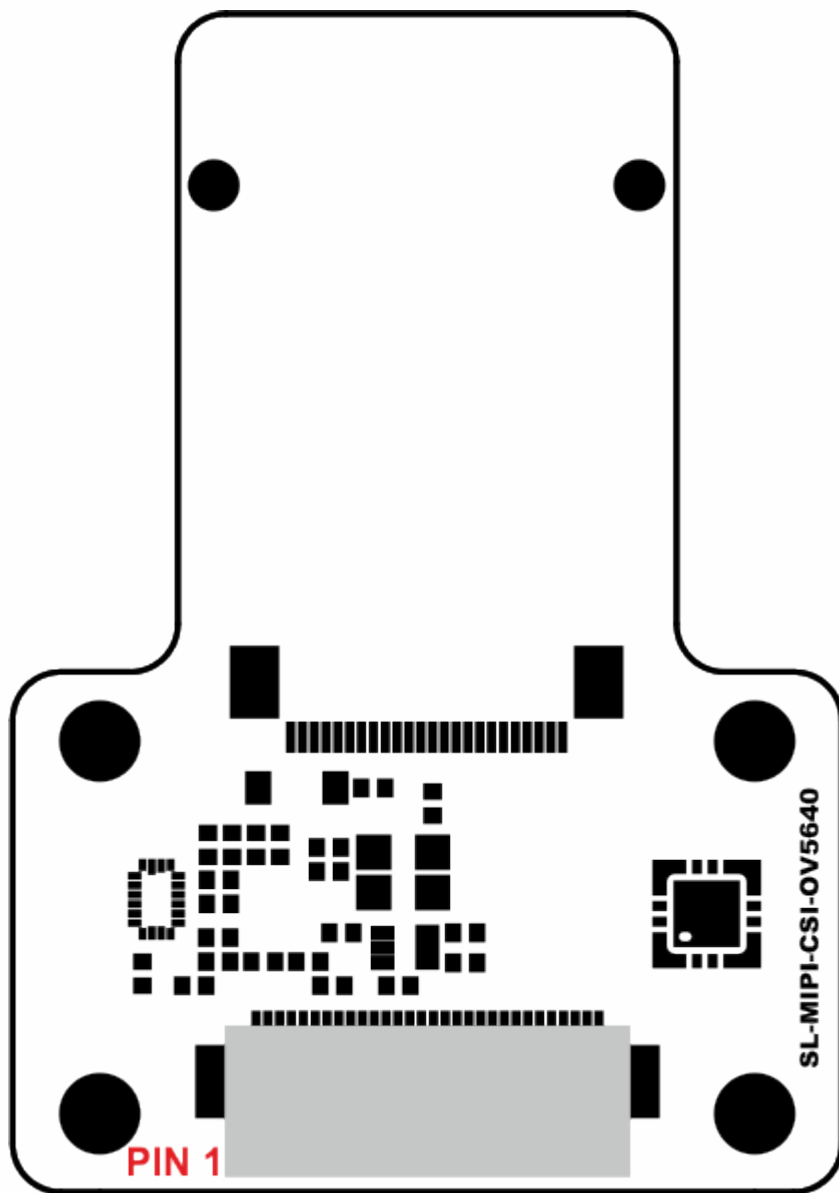
Operating ranges

Parameter	Value	Unit	Comment
Power Supply	3.3	V	Powered from carrier board
Current	0.16	A	Maximum peak value
Working temperature	-30...+70	°C	-

Electrical parameters

Signal name	Parameter	Value			Units
		Min.	Typ.	Max.	
+3.3V	Supply Voltage	3.2	3.3	3.35	V
$I_{3.3V}$	Supply Current (3.3V)	0.11	.16	-	mA
t_{PWRSEQ}	PMIC power-up time	-	150	-	ms
VIO	I2C, RES, PWDN Input Voltage	0	3.3	3.5	V
f_{I2C}	I2C Controller Speed	-	-	400	kHz
R_{I2C}	I2C IOs Pull-up Resistance	-	10	-	k Ω
R_{PWDN}	Serial resistors voltage divider connected between FPC30 pin and PWDN input of OV5640 sensor	-	2x10	-	k Ω

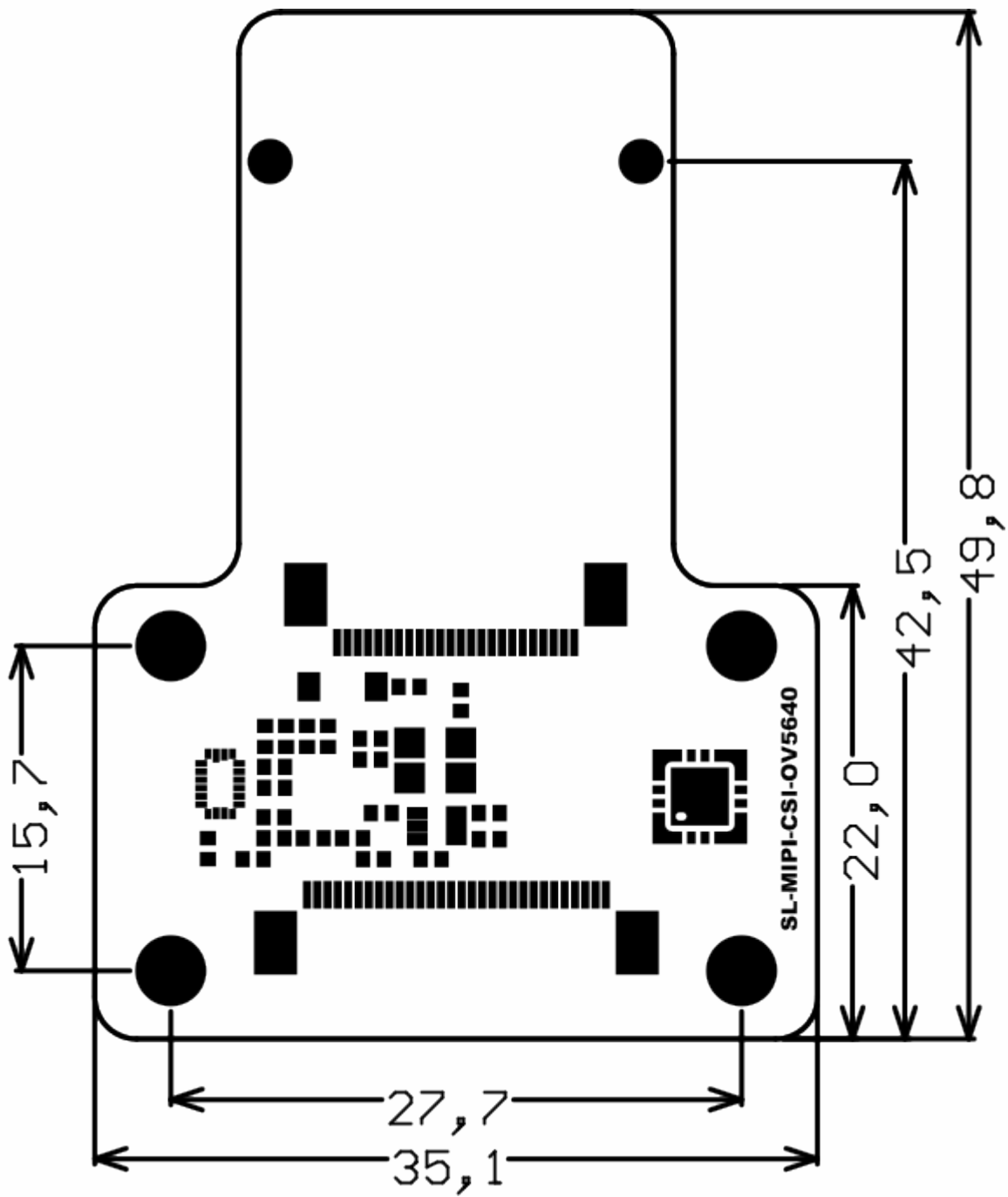
MIPI-CSI (output) Pinout



FPC30 connector pin	Function name	Description
1	GND	-
2	-	-
3	-	-
4	-	-
5	-	-
6	+3.3V	Power supply
7	+3.3V	Power supply
8	GND	-
9	-	-

10	PWDN	OV5640 - Power Down input (active high, internal pull-down)
11	RESET	OV5640 - Reset input (active low, internal pull-up)
12	GND	-
13	SIOD_C	SCL line of configuration I2C interface (internal pull-up)
14	SIO_D	SDA line of configuration I2C interface (internal pull-up)
15	GND	-
16	-	-
17	-	-
18	GND	-
19	-	-
20	-	-
21	GND	-
22	MDN1	CSI_DATA1_n
23	MDP1	CSI_DATA1_p
24	GND	-
25	MDN0	CSI_DATA0_n
26	MDP0	CSI_DATA0_p
27	GND	-
28	MCN	CSI_CLK_n
29	MCP	CSI_CLK_p
30	GND	-

Dimensions



**SoMLabs**

Lwowska 5
05-120 Legionowo
Poland
Tel. +48 22 767 36 20
Email: contact@somlabs.com
<http://somlabs.com>

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