

General Description

OPNM8608B is a tiny RGB-D camera module, based on OPNOUS Time-of-Flight (ToF) technology using VCSEL illumination. The high integration, low power consumption and high precision make this module ideal for depth sensing applications.



Key Specifications of RGB Camera

Parameter	Description
Sensor	OV02K10-GA5A-Z
Optic size	1/2.8"
Resolution	1920*1080
Connector	BM20B(0.8)-30DP-0.4V(51)
EFL	4.05mm
FNo.	1.8
FoV	77° (D)
TV distortion	<1.0%
Relative Illumination	<32.0%

Key Specifications of Depth Camera

Parameter	Description
Sensor	OPN8008D, global shutter
Resolution	320 * 240
Pixel size	15um
Sensor size	1/3"
Dimensions	29.25mm * 11.00mm * 6.10mm
Frame rate	10 – 60 fps

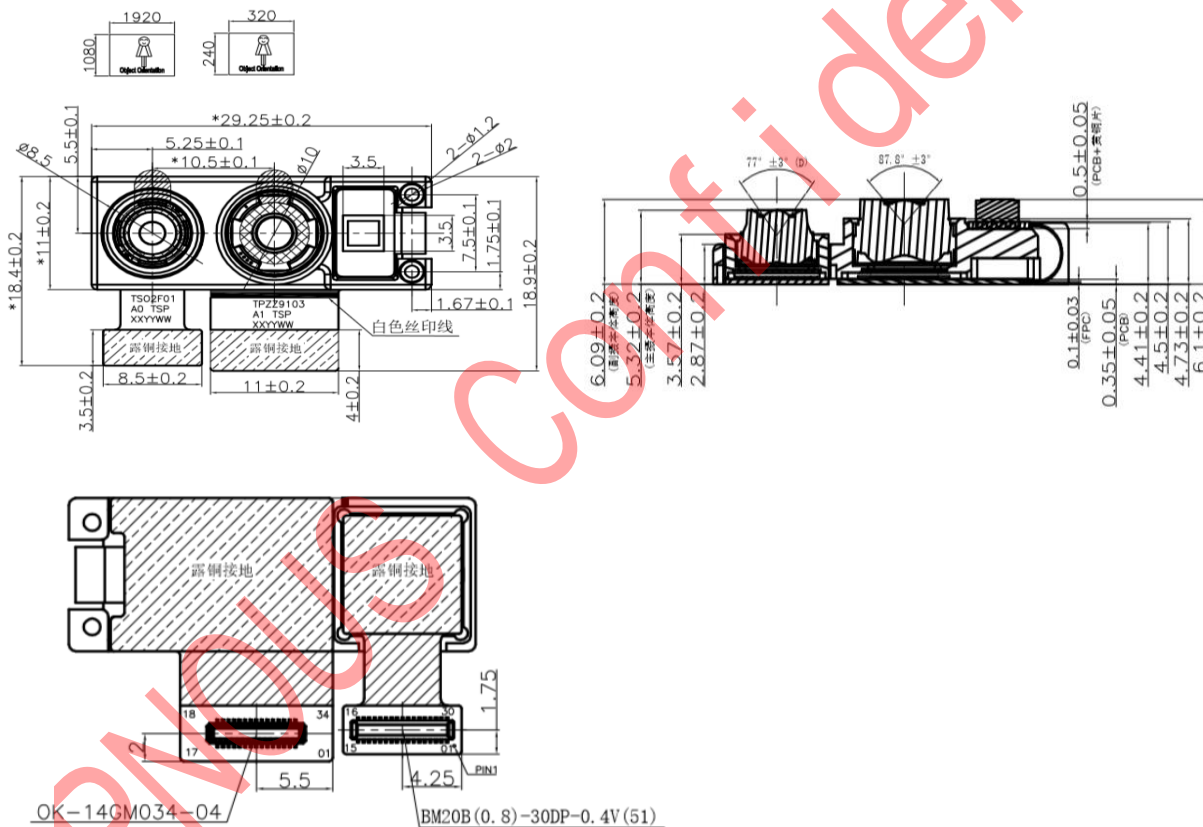
Measurement range	0.15 - 5m
FoV	71.8°(H) * 56.5°(V)
Distortion	<2.5%
Illumination	850nm, 2W
Input clock	27Mhz
Power supply	Sensor: 3.3V single power supply, >=300mA VCSEL: 4V, >= 2A
Power consumption	340mW. Typ
Depth accuracy	<=1%
Interface	MIPI CSI-2, 2 lanes

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Typical Applications

- ✓ Face recognition and face motion tracking
- ✓ 3D reconstruction
- ✓ AR/VR
- ✓ Hand and finger tracking for gesture control and interaction with virtual objects
- ✓ visual support for robot grippers
- ✓ Localization, tracking and identification of individuals (humans, animals)
- ✓ People counting and motion analysis

Module Dimensions



Module connectors shown in above Figure:

- ✓ OK-14GM034-04 is connector for Depth Camera, and mating connector is OK-14F034-04
- ✓ BM20B(0.8)-30DP-0.4V(51) is the connector for RGB Camera, and mating connector is BM20B(0.8)-30DS-0.4V(51).

Pin Definitions of RGB Camera

Pin No.	Name	Function/Description
1	MDN1	CSI-2 inverting data output of data lane 1
2	MDP1	CSI-2 non-inverting data output of data lane 1
3	DGND	Digital ground
4	MDN3	CSI-2 inverting data output of data lane 3
5	MDP3	CSI-2 non-inverting data output of data lane 3
6	DGND	Digital ground
7	MDN0	CSI-2 inverting data output of data lane 0
8	MDP0	CSI-2 non-inverting data output of data lane 0
9	DGND	Digital ground
10	MDN2	CSI-2 inverting data output of data lane 1
11	MDP2	CSI-2 non-inverting data output of data lane 1
12	DGND	Digital ground
13	MCN	CSI-2 inverting clk
14	MCP	CSI-2 non-inverting clk
15	AGND	Analog ground
16	VSYNC_IN	Sync in
17	AVDD 2.8V	2.8V, analog power supply
18	DVDD 1.1V	1.1V, digital power supply
19	DOVDD 1.8V	1.8V, digital IO power supply
20	NC	No connection
21	MCLK	Reference clock 24MHz
22	NC	No connection
23	I2C_SEL	I2C ship address selector, 10k pull down internal
24	SCL	CCI, Camera control interface
25	SDA	CCI, Camera control interface
26	RESET	Hardware reset
27	PWDN	Power down
28	NC	No connection
29	NC	No connection
30	NC	No connection

Pin Definitions of Depth Camera

Pin No.	Name	Function/Description
1	SCL	CCI, Camera control interface
2	SDA	CCI, Camera control interface
3	SLV_LSB	Sensor chip address select
4	RESET	Reset (active low)
5	AGND	Analog ground
6	AV33	3.3V Power Supply
7	AV33	3.3V Power Supply
8	GND	Ground
9	DV33	3.3V Power Supply
10	DV33	3.3V Power Supply
11	PGND	Power ground
12	DV33	3.3V Power Supply
13	PGND	Power ground
14	V-ILLU	VCSEL power supply
15	V-ILLU	VCSEL power supply
16	V-ILLU	VCSEL power supply
17	NTC+	On chip NTC
18	SPI_CLK	SPI Clock
19	MOSI	SPI data in
20	MISO	SPI data out
21	CS	SPI chip selector
22	GDRV-O	Sync out
23	GDRV	Sync in
24	GND	Ground
25	MCP	CSI-2 inverting clock output
26	MCN	CSI-2 non-inverting clock output
27	GND	Ground
28	MDP0	CSI-2 inverting data output of data lane 0
29	MDN0	CSI-2 non-inverting data output of data lane 0

Pin No.	Name	Function/Description
30	GND	Ground
31	MDP1	CSI-2 inverting data output of data lane 1
32	MDN1	CSI-2 non-inverting data output of data lane 1
33	GND	Ground
34	IMG-CLK	Reference clock,27MHz

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Revision History

Revision	Date	Description
v1.0	2019/11/20	Initial revision.
v1.1	2020/2/8	Modify VCSEL power voltage and doc format

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