

Innovation of real visual value More than you can see

HANKWANG OPTO

COMPANY

HANKWANG OPTO

Hankwang Opto is an ISO certified global optical products leader producing lenses and black box modules for OEM customers CCTV, Tier1 Automotive, Medical, many other OEM product applications.

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History



Environmental
/Quality



Certification



Location

PROCESS

01



Curvature
Machining

02



Low-speed
polishing

03



High-speed
polishing

04



Centering

05



Washing
& Cleaning

06



Coating

07



Assembly

08



Final quality
inspection

09



Packing
& Shipment

[View More +](#)

Representative product

Introducing Hankwang Opto's representative Product



BLACK BOX

29M335200FT-2MP-BIF

[View More +](#)

PRODUCTS



MEGA PIXEL LENS



BLACK BOX LENS



AUTOMOTIVE LENS



HR LENS



CAMERA MODULE



EMS

CEO Greetings

Dear Colleague

Thank you for visiting our Han Kwang-Opto website.

Wishing you good health and happiness.

Hankwang Opto is an ISO certified global optical products leader producing lenses and black box modules for OEM customers CCTV, Tier1 Automotive, Medical, many other OEM product applications.

We have built a unique optical design approach over 30 years using state of the art design technology and many years optical engineering design experience to meet our customers needs.

In addition to our wide range of in production lens models Hankwang Opto offers custom design optical solutions to specification. Hankwang Opto's state of the art production is producing standard and custom design lens models from raw materials to finished lens products.

Hankwang Opto process responds quickly to customers requirements, specifications.

Han Kwang Opto is committed to supporting customers successful business with continuous technical support, consistent production quality, world class competitive pricing, on time delivery and fast response.

Han Kwang Opto provides optical products and services based on the best technology and best products.

Please contact Han Kwang Opto regarding in production, modified, custom models, RFQ, technical topics.



1970s	1976	Hankwang Industry Co.,Ltd. Founded
1990s	1990	Optical Lens Division started
	1998	Annex Research Lab set up Export 10 Million Awarded
2000s	2000	Certified promising export firm by the small & medium business administration, Republic of Korea Rename to Hankwang Opto Corp.
	2001	INNO-BIZ company selected by Small & Medium Business Administration
	2002	Received the Iron Tower Order of Industrial Service Merit
	2004	LDWS(Line Departure Warning System) development & mass production
	2005	Megapixel lens development and production ISO 9001/14001 Certified
	2006	1.3M pixel fixed lens (C mount & CS mount)
2010s	2012	1.3M pixel vari-focal zoom lens development & mass production
	2013	2M pixel vari-focal zoom lens development & mass production
	2014	Automotive module division start FHD front/rear camera module development
	2015	2M pixel (CS mount) vari-focal zoom lens development & mass production 3M pixel (CS mount) vari-focal zoom lens development & mass production
	2016	Low light lens development & mass production 2D barcode lens development & mass production SportsCam 2K module development 360 degree VR lens development
	2017	8M pixel (4K) lens development & mass production UHD dash-cam lens development & mass production
	2018	5M pixel fixed focal, IR corrected lens development & mass production LED condensing lens and endoscope magnifying lens development & mass production Development of Structured light intraoral scanner using liquid lens
	2019	Development and mass production of barcode lenses
2020s	2020	Relocated headquarters to Cheongna, Incheon
	2021	Optical systems development for 3D scanner
	2022	High resolution iris recognition lens development & mass production

Environmental Policy

Hankwang Opto Co., Ltd. is a company that produces and supplies optical products. It recognizes environmental management as an important element of corporate management and systematically builds, implements and maintains the environmental management system, We will do our best to preserve the environment.

- 1

Operation of environmental management system

Establish and effectively implement an environmental management system to minimize the environmental impact of our company's activities, products, or services.
- 2

Continuous improvement

Our company continuously establishes and reviews goals and targets for environment preservation in all processes such as production, sales, distribution, use, and disposal of products.
- 3

Pollution prevention

Minimize emissions of environmental pollutants by minimizing waste generation, hazardous materials and energy use through process reuse, recycling, inhibition or replacement of major pollutants, and substituting and improving processes.
- 4

Compliance with environmental laws

Comply with environmental standards required by international conventions and regulations, and continuously improve its level.
- 5

Public management

To educate all employees to recognize the importance of compliance with the environmental management system, we conduct training periodically, and disclose our environmental policy to the general public to realize transparent environmental management.

Quality policy

Our company plans to improve the quality of technology and quality ahead of customers' needs through creative competence development and organizational harmony of the employees. It will also fulfill its social responsibility. Therefore, In order to implement the management philosophy that aims to be the best in the world, Our company established quality policy.

“Quality-oriented customer satisfaction through endless innovation”

The details of the action target are as follows.

New product development

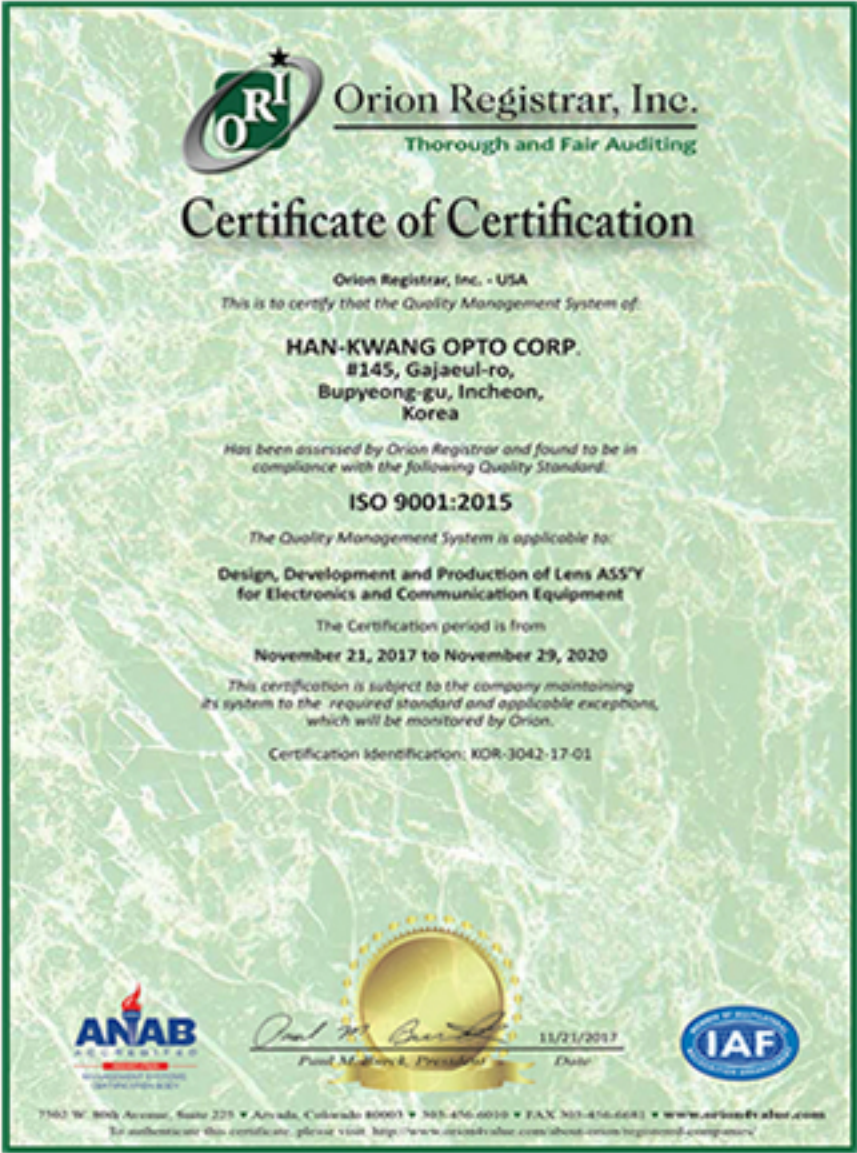
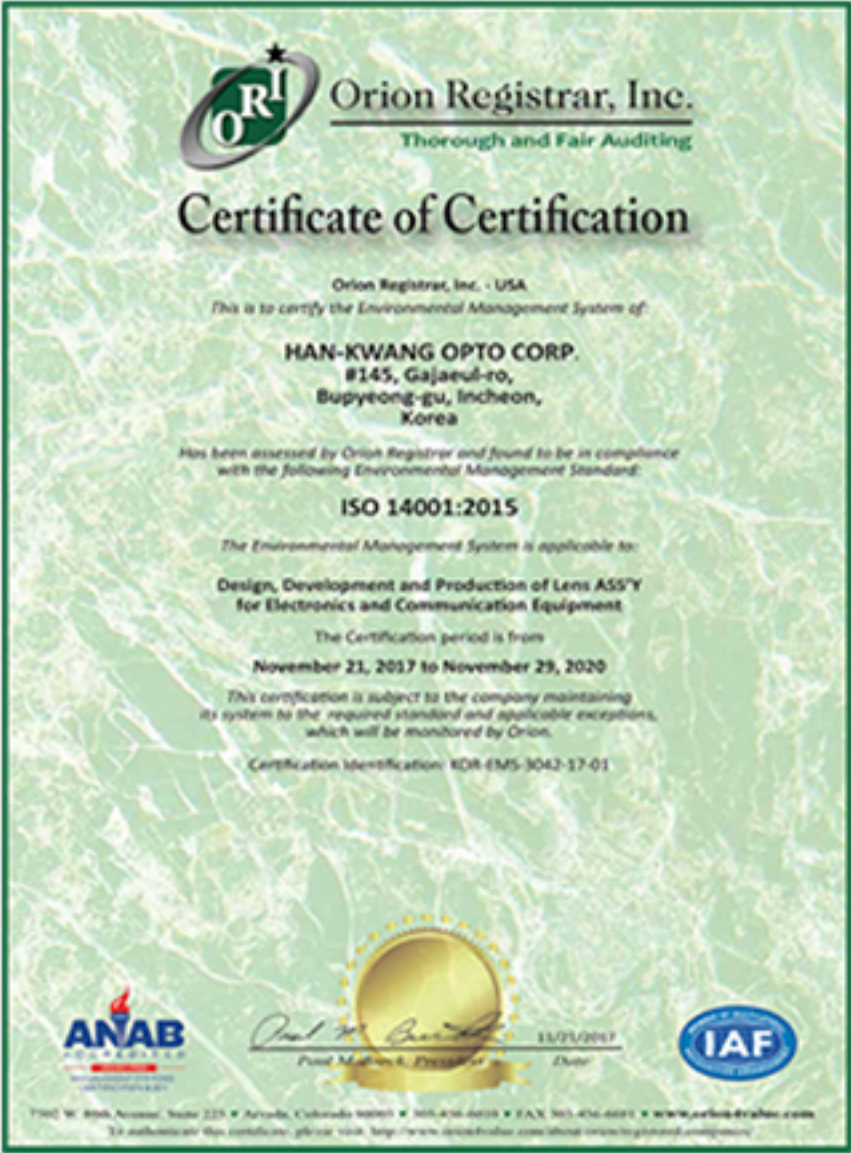
Development lead time 90%
Productization concept and technology improvement

Improve productivity

Establish quality system
Process improvement and worker education

Customer Satisfaction

95% Satisfaction with Delivery Time
Achieved 90 Customer Satisfaction Index



We select technology competitiveness research and development as the basis for future growth rather than past performance.

ISO 14001:2015

IATF:16949:2016

**CERTIFICATE OF PRODUCT –
SPECIFIC APPROVED EXPORTER**

ISO 13485:2016

COMPANY

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MEGA PIXEL LENS



Lens Resolution	Type	Model No.	Sensor size	Lens Assembly				Angle of View(FOV) Unit :Degree			Operation
				EFL (Focal Length)	F no (Relative Aperture)	BFL (Back Focal Length)	FBL (Flange Back)	D	H	V	Lens Construction
1.3M	Fixed Lens	406200FT-1.3MP	1/2"	4.0mm	F2.0	7.40mm	7.20mm	125.0°	103.0°	78.0°	6Glasses
1.3M	Fixed Lens	606200FT-1.3MP	1/2"	6.0mm	F2.0	10.7mm	7.20mm	85.0°	68.0°	51.0°	6Glasses
1.3M	Fixed Lens	806200FT-1.3MP-1	1/2"	8.0mm	F2.0	8.70mm	8.80mm	56.6°	45.6°	35.0°	6Glasses
1.3M	Fixed Lens	1206200FT-1.3MP	1/2"	12.0mm	F2.0	10.97mm	7.20mm	42.7°	32.8°	26.1°	6Glasses
1.3M	Fixed Lens	406200CS-1.3MP	1/2"	4.0mm	F2.0	7.40mm	12.50mm	118.2°	95.0°	71.6°	6Glasses
1.3M	Fixed Lens	606200CS-1.3MP	1/2"	6.0mm	F2.0	10.7mm	12.50mm	78.5°	62.2°	47.2°	6Glasses
1.3M	Fixed Lens	806200CS-1.3MP	1/2"	8.0mm	F2.0	8.70mm	12.50mm	56.6°	45.6°	35.0°	6Glasses
1.3M	Fixed Lens	1206200CS-1.3MP	1/2"	12.0mm	F2.0	10.97mm	12.50mm	42.7°	32.8°	26.1°	6Glasses
2M	Fixed Lens	29M364200FT-2MP-IR	1/2.9" 2M	3.6mm	F2.5	6.4mm	5.7mm	120.0°	92.6°	54.6°	4Glasses
2M	Fixed Lens	386140MP-BIF	1/2.7" 2M	3.8mm	F1.4	6.76mm	5.1mm	111.6°	94.2°	49.8°	5Glasses + 1ASG
2M	Fixed Lens	29M404200FT-2MP-IR	1/2.9" 2M	4.0mm	F2.5	5.8mm	5.6mm	100.0°	84.8°	45.3°	4Glasses
2M	Fixed Lens	29M406200FT-2MP-IR	1/2.7" 2M	4.0mm	F2.0	7.2mm	6.8mm	101.7°	87.7°	48.0°	6Glasses
2M	Fixed Lens	29M405200FT-2MP-IR	1/2.9" 2M	4.0mm	F2.4	8.8mm	7.3mm	104.6°	84.4°	50.3°	5Glasses
2M	Fixed Lens	29M505200FT-2MP-IR	1/2.9" 2M	5.0mm	F2.3	9.4mm	7.0mm	79.2°	65.4°	39.8°	5Glasses
2M	Fixed Lens	29M605200FT-2MP-IR	1/2.9" 2M	6.0mm	F2.3	9.4mm	7.3mm	63.6°	53.3°	33.1°	5Glasses
2M	Fixed Lens	29M865200FT-2MP-IR	1/2.9" 2M	8.6mm	F2.3	12.0mm	7.3mm	43.2°	36.4°	22.8°	5Glasses
3M	Fixed Lens	28M296200FT-3MP-BIF	1/2.8" 3M	2.9mm	F2.0	6.5mm	6.3mm	136.2°	114.0°	60.8°	5Glasses + 1ASG
3M	Fixed Lens	28M336200FT-3MP-BIF	1/2.8" 3M	3.3mm	F2.0	6.5mm	6.3mm	118.5°	100.3°	53.9°	5Glasses + 1ASG
3M	Fixed Lens	1607120C-3MP	2/3"	16.0mm	F1.2	12.3mm	17.526mm	38.2°	32.3°	24.0°	7Glasses
3M	Fixed Lens	2506140C-3MP	2/3"	25.0mm	F1.4	14.0mm	17.526mm	56.6°	45.6°	35.0°	6Glasses
3M	Fixed Lens	3507140C-3MP	2/3"	35.0mm	F1.4	17.0mm	17.526mm	18.0°	14.4°	10.8°	7Glasses
4M	Fixed Lens	29M286200FT-4MP-BIF	1/2.9" OV4689 4M	2.8mm	F2.0	4.9mm	3.95mm	135.6°	115.6°	63.2°	6Glasses
5M	Fixed Lens	398200FT-5MP-IR	1/2" IMX178	3.9mm	F2.0	6.10mm	6.0mm	127.2°	96.1°	70.°	8Glasses
5M	Fixed Lens	508200FT-5MP-IR	1/2" IMX178	5.0mm	F2.0	6.20mm	6.1mm	99.4°	75.5°	55.1°	8Glasses
5M	Fixed Lens	767200FT-5MP-IR	1/2" IMX178	7.6mm	F2.0	6.10mm	5.7mm	60.8°	47.9°	35.6°	7Glasses
2M	Pin Hole	P435200CPH-2MP-A	OV2715	4.3mm	f2.0	3.93mm	3.0mm	107.2°	87.4°	44.3°	1ASP Glass + 4 Glass

DASH CAM LENS



13M284200BX-BIF



27M296200FT-2MP-BIF



29M335200FT-2MP-BIF

Lens Resolution	Type	Model No.	Sensor size	Lens Assembly				Angle of View(FOV) Unit :Degree			Operation
				EFL (Focal Length)	F no (Relative Aperture)	BFL (Back Focal Length)	FBL (Flange Back)	D	H	V	Lens Construction
1M	Fixed Lens	13M236200BX-BIF	1/3" ZA10S10 1M	2.3mm	F2.0	2.3mm	1.9mm	139.8°	122.4°	69.9°	5Glasses + 1ASG
2M	Fixed Lens	16M184200FT-2MP	1/6" 2M	1.77mm	F2.0	2.56mm	2.0mm	116.5°	96.9°	50.5°	4Glasses
720P 2M	Fixed Lens	14M234180BX-BIF	1/3.2" 720P 2M	2.3mm	F1.8	2.1mm	1.6mm	120.9°	94.7°	50.2°	3Glasses + 1ASG
2M	Fixed Lens	14M244200FT	1/4" HM1375 2M	2.4mm	F2.2	3.49mm	2.4mm	115°	96.0°	50.7°	4Glasses
2M	Fixed Lens	13M284200BX-BIF	1/3" AR0330 2M	2.8mm	F2.0	2.34mm	2.1mm	126.5°	107.9°	58.7°	3Glasses + 1ASG
2M	Fixed Lens	27M296200FT-2MP-BIF	1/2.7" 2M	2.9mm	F2.5	5.3mm	2.5mm	143.2°	121.0°	64.6°	6Glasses
2M	Fixed Lens	29M315200FT-2MP-BIF	1/2.9" OV4689 4M	3.1mm	F2.0	5.0mm	4.2mm	135.0°	109.6°	57.7°	5Glasses
2M	Fixed Lens	29M335200FT-2MP-BIF	1/2.8" 2M	3.3mm	F2.2	6.4mm	2.4mm	130.7°	103.6°	61.1°	5Glasses
2M	Fixed Lens	29M344200FT-2MP-BIF	1/2.9" 2M	3.4mm	F2.2	6.0mm	2.4mm	121.1°	99.8°	51.6°	6Glasses

PRODUCTS

AUTOMOTIVE LENS



127200WP-BIF



156190WP-KTG



176200WPT

Lens Resolution	Type	Model No.	Sensor size	Lens Assembly				Angle of View(FOV) Unit :Degree			Operation
				EFL (Focal Length)	F no (Relative Aperture)	BFL (Back Focal Length)	FBL (Flange Back)	D	H	V	Lens Construction
1M	Fixed Lens	117200FT-BIF	1/4" 1M	1.1mm	F2.0	2.6mm	2.1mm	192°	192°	137°	7Glasses
1.3M	Fixed Lens	127200FT	1/4" OV9715	1.2mm	F2.0	3.4mm	3.1mm	192°	192°	114°	7Glasses
2M	Fixed Lens	097200FT-BIF	1/2.8" 2M	0.97mm	F2.0	3.0mm	1.86mm	200°	200°	200°	7Glasses
1.3M	Fixed Lens	165250WPO-BIF	1/3" AR0132AT	1.6mm	F2.5	2.90mm	1.90mm	190°	190°	130°	4Glasses + 1ASG
1.3M	Fixed Lens	236200WPO-BIF	1/3" AR0132AT	2.3mm	F2.0	3.20mm	1.90mm	151.9°	120.0°	90.9°	5Glasses + 1ASG
1.3M	Fixed Lens	306200WPO-BIF	1/3" AR0132AT	3.0mm	F2.0	3.70mm	1.90mm	113.5°	90.0°	67.8°	5Glasses + 1ASG
1.3M	Fixed Lens	475200WPO-BIF	1/3" AR0132AT	4.7mm	F2.0	5.80mm	1.90mm	78.4°	60.0°	44.9°	5Glasses
1.3M	Fixed Lens	905200WPO-BIF	1/3" AR0132AT	9.0mm	F2.0	10.97mm	1.90mm	35.6°	30.0°	22.2°	5Glasses
2M	Fixed Lens	127200WP-BIF	1/4" CCD	1.2mm	F2.0	2.90mm	2.40mm	192°	175°	127°	7Glasses
1.3M	Fixed Lens	156190WP-KTG	1/4" CCD	1.5mm	F1.9	2.20mm	2.00mm	163°	130°	100.9°	5Glasses + 1ASP
VGA	Fixed Lens	176200WPT-KTG	1/4" CCD	1.7mm	F2.0	2.40mm	2.20mm	146.7°	117.5°	88.3°	5Glasses + 1ASP
VGA	Fixed Lens	186250WP-KTG	1/4" CCD	1.8mm	F2.5	2.20mm	2.00mm	160°	120°	90°	5Glasses + 1ASP

PRODUCTS

HR LENS



216250HR



1604120HR



5004250K

Lens Resolution	Type	Model No.	Sensor size	Lens Assembly				Angle of View(FOV) Unit :Degree			Operation
				EFL (Focal Length)	F no (Relative Aperture)	BFL (Back Focal Length)	FBL (Flange Back)	D	H	V	Lens Construction
High Resolution	Fixed Lens	176200HR-HIF	1/4"	1.7mm	F2.0	3.25mm	2.00mm	154.0°	120.0°	95.0°	6Glasses
High Resolution	Fixed Lens	215250FT-KTG	1/4"	2.1mm	F2.5	2.90mm	2.60mm	154.6°	106.0°	75.7°	5Glasses
High Resolution	Fixed Lens	216250HR	1/3"	2.1mm	F2.5	4.25mm	4.00mm	165.7°	132.3°	102.0°	6Glasses
High Resolution	Fixed Lens	236250HR	1/3"	2.3mm	F2.5	5.20mm	4.90mm	158.3°	125.8°	97.3°	6Glasses
High Resolution	Fixed Lens	245250FT-KTG	OV7950	2.4mm	F2.5	3.05mm	2.80mm	150.7°	106.7°	76.9°	5Glasses
High Resolution	Fixed Lens	256250HR	1/3"	2.5mm	F2.5	5.04mm	4.60mm	142.7°	113.4°	85.9°	6Glasses
High Resolution	Fixed Lens	264200HR	1/4"	2.6mm	F2.0	3.00mm	2.60mm	114.0°	85.8°	62.3°	4Glasses
High Resolution	Fixed Lens	275200HR	1/3"	2.7mm	F2.0	6.07mm	5.90mm	153.0°	113.7°	82.3°	5Glasses
High Resolution	Fixed Lens	304200HR	1/3"	3.0mm	F2.0	5.67mm	5.30mm	126.0°	94.4°	69.5°	4Glasses
High Resolution	Fixed Lens	434180HR	1/3"	4.3mm	F1.8	6.16mm	5.80mm	83.1°	73.7°	47.3°	4Glasses
High Resolution	Fixed Lens	564200HR	1/3"	5.6mm	F2.0	8.07mm	7.70mm	65.3°	51.4°	36.9°	4Glasses
High Resolution	Fixed Lens	604200HR	1/3"	6.0mm	F2.0	8.06mm	7.60mm	60.0°	46.1°	34.2°	4Glasses
High Resolution	Fixed Lens	804200HR	1/3"	8.0mm	F2.0	7.60mm	6.60mm	43.0°	33.8°	25.7°	4Glasses
High Resolution	Fixed Lens	1204200HR	1/3"	12.0mm	F2.0	6.70mm	6.00mm	28.0°	22.2°	16.3°	4Glasses
High Resolution	Fixed Lens	1604120HR	1/2"	16.0mm	F1.2	7.20mm	5.00mm	27.7°	21.8°	16.5°	4Glasses
High Resolution	Fixed Lens	1804300HR	1/3"	18.0mm	F3.0	12.66mm	7.00mm	18.9°	13.3°	11.4°	4Glasses
High Resolution	Fixed Lens	2504250K	1/2"	25.0mm	F2.5	12.00mm	2.40mm	13.5°	10.7°	7.8°	4Glasses
High Resolution	Fixed Lens	3504200K	1/2"	35.0mm	F2.0	18.9mm	15.8mm	9.6°	7.7°	5.8°	4Glasses
High Resolution	Fixed Lens	5004250K	1/2"	50.0mm	F2.5	33.9mm	4.1mm	9.2°	6.8°	5.0°	4Glasses

CAMERA MODULE



FFS6(13)-B5_IMX307



FQS9(13)-B_IMX335



IHSO3TP2L2(13)_IMX335

Model	Sensor	Frame Rate	Output Format	Dynamic Range	Sensitivity	Power	LED	Operating temp.	Lens (F No. / TTL)	Dimension
FFS6(13)-B5	1/2.8" 2.13M CMOS SENSOR	30f@1080P (1920x1080)	MIPI (MIPI 4LINE) (CSI-2 high-speed serial interface)	69dB@1x Gain	G Sensitivity (1/30s Storage 12Bit Converted Value): HCG Mode : 1105mV, LCG Mode : 646mV / Lux.Sec	VDD2.9V / 1.2V and 1.8V		-30° ~ 85°C	D. 140° (F 2.0 / 17mm)	W. 23.0 x D. 26.8 x H. 18.9mm
FUS8GS2(15)-F	1/2.3" 12.35M CMOS SENSOR	60fps@2160P (3840x2160)	MIPI D-PHY (4LINE) (CSI-2 high-speed serial interface)	CDS/PGA on chip. Gain +27 dB	G Sensitivity / LUX.SEC	VDD2.8V / 1.2V and 1.8V		-30° ~ 85°C	D. 120° (F 2.8 / 16.31mm)	W. 31.6 x D. 22.4 x H. 18.51mm
IHSO3TP2L2(13)	1/3" 1M CMOS SENSOR	30f@720P (1280x720)	720P HD-TVI 3.0	70.4dB	6488mV/lux-sec	126mA@full (LED ON)	950nm IR LED x 6	-30° ~ 85°C	D113.0° (F 2.0 / 17mm)	W. 39.8 x D. 28.0 x H. 18.67 mm
FQS9(13)-B	1/2.8" 5.04M CMOS SENSOR	AD10bit : 60f @ 1440p (2560 x 1440)	MIPI, 10bit RAW (CSI2 High-speed and Sub-LVDS)	Function 0 dB to TBDdB (step pitch 0.3 dB)	TBD(2000mV) / Lux.Sec	VDDA2.9V / VDDO1.8V / VDDO1.2V		-30° ~ 85°C	D. 125° (F 2.0 / 17mm)	W. 22.3 x D. 18.0 x H. 18.53mm

PROCESS

01

Curvature Machining

This is the grinding process of the lens raw material for the lens curve generation. (CG Process)



02

Low-speed polishing

This is the process step of polishing one side of the lens at low speed. (Oscar Process)



03

High-speed polishing

This is the process step of polishing one side of the lens at high speed. (HS Process)



04

Centering

This is the process step that forms the center axis of the lens. (Manual/Auto)



05

Washing & Cleaning

This process removes oil from the centering machined lens and inspects the surface.



06

Coating

This process performs surface vacuum vapor coating (protection) on the lens surface to reduce reflection and refraction of light.



07

Assembly

This process is assembled by inserting the completed individual lenses into the composite lens barrel.



08

Final quality inspection

Process for checking the performance of assembled composite lenses



09

Packing & Shipment

Products packaging and shipment process