



Brighttek BRIGHTTEK ISD Solutions

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Surveillance Camera

Infrared LED & Ambient Light Sensor Involved

Kick-Start :
Infrared LED Solutions
Ambient Light Sensor Solutions

Solutions for Security Systems



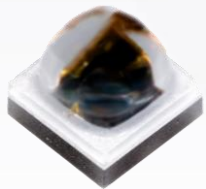
IP Camera



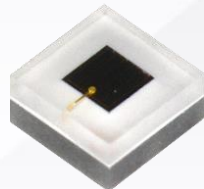
License Plate Recognition



Doorbell



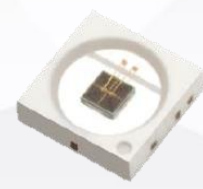
1616 Dome



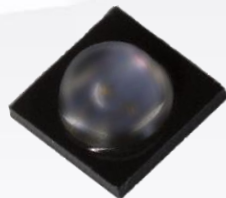
1616 Flat



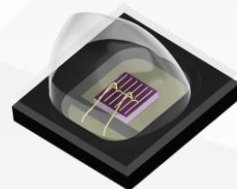
2720 Flat



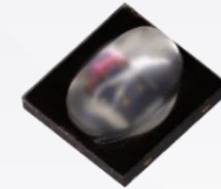
3030 Flat



3838 Dome

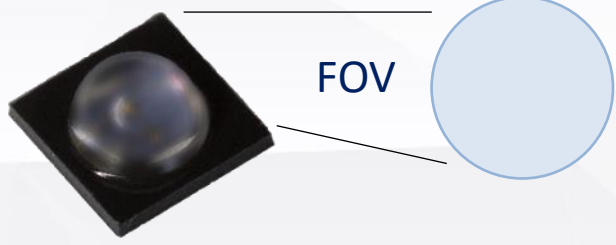


3838 Off Axis Dome

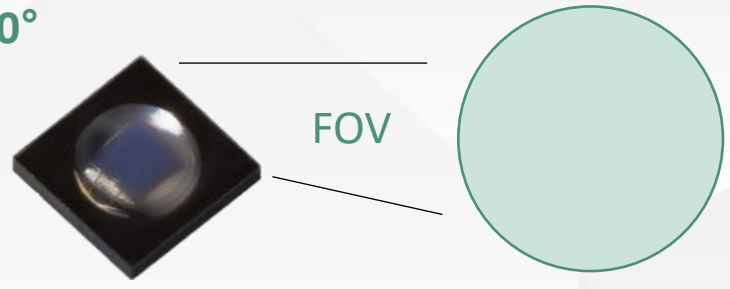


3838 Asymmetric Dome

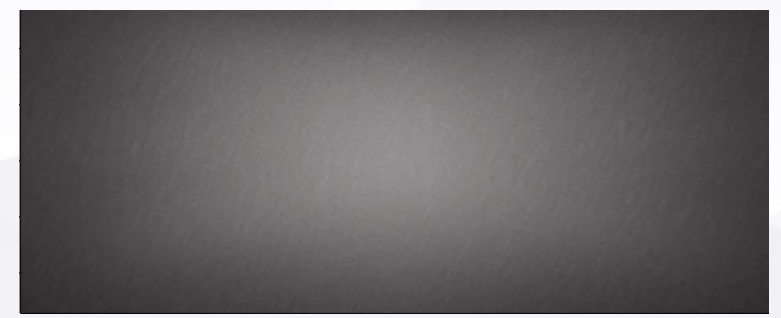
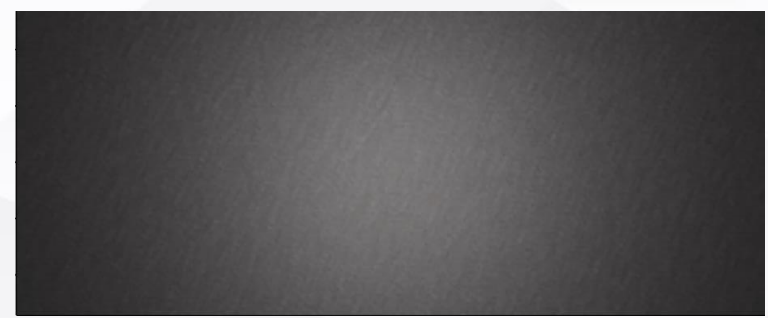
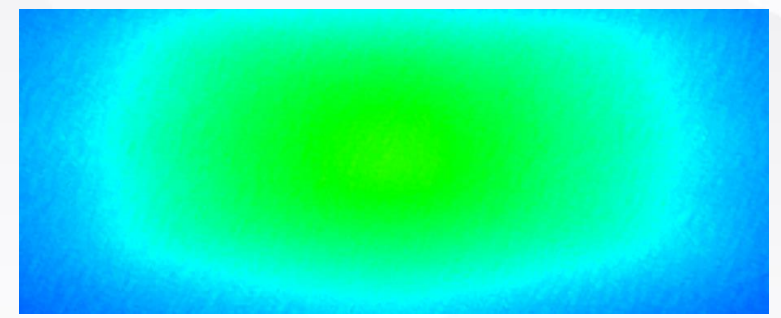
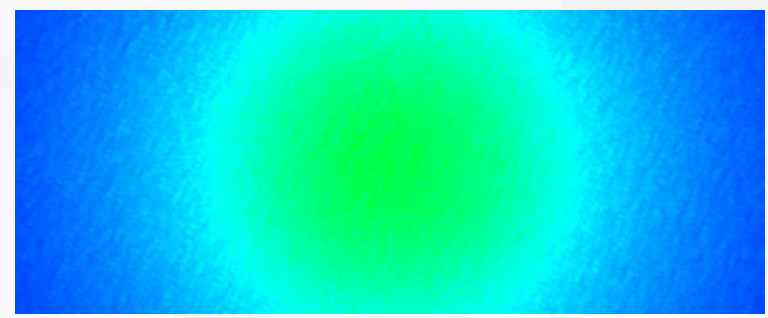
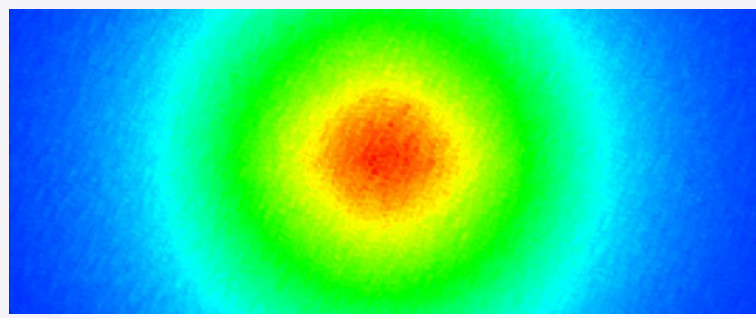
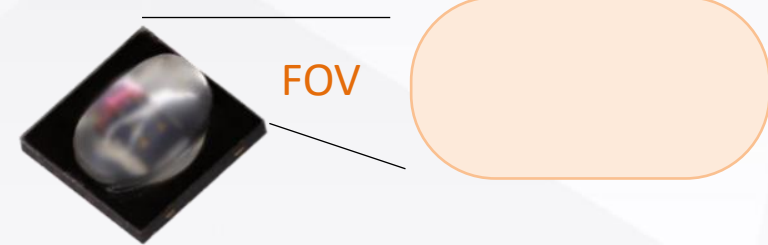
90°



150°



150° x 90°



☰ New design "Asymmetric" → One LED for same performance , simpler design and less cost & consumption.

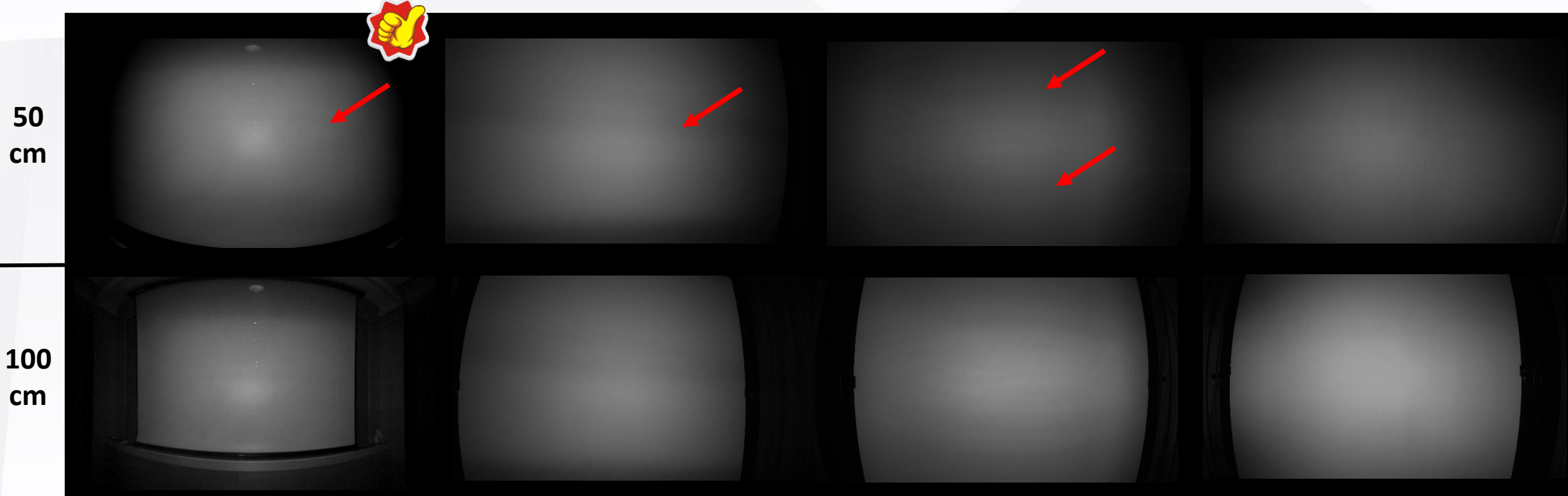
Wide Angle (150° x90°)



Competitor 1

Competitor 2

Competitor 3



☰ The "shadow area" often appears on 150D/90D across different suppliers, but the shadow area on our product is much narrower, has better uniformity compared to other competitors.

Narrow Angle (45°x25°)

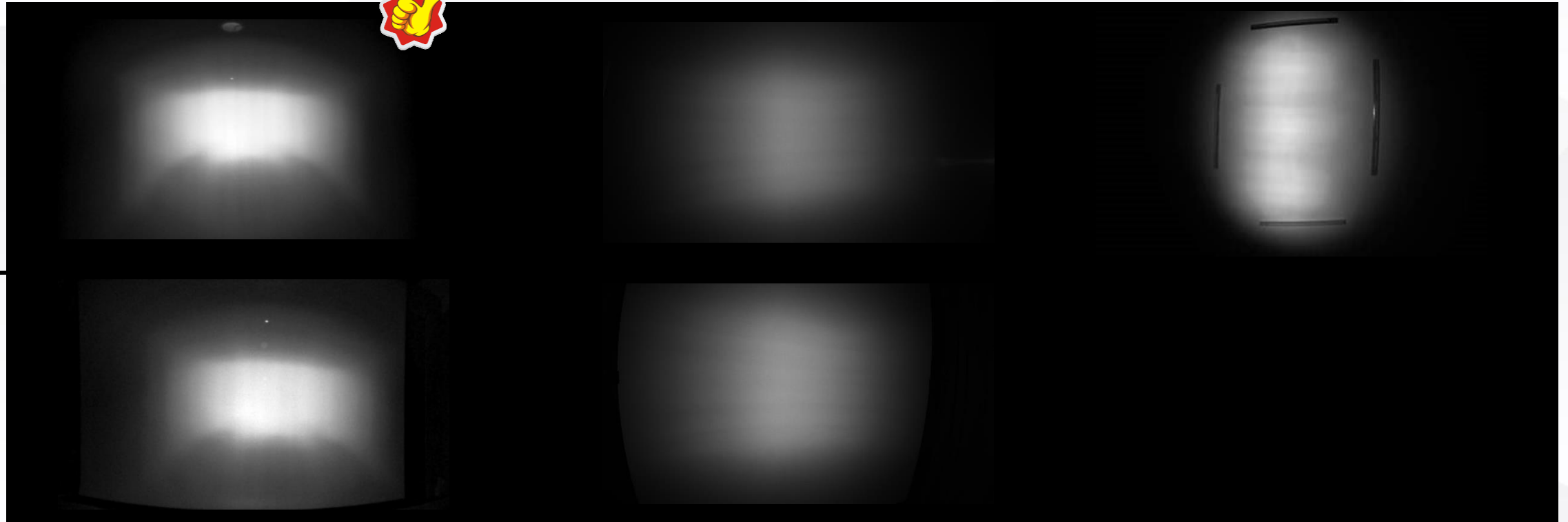
 Brightek
OPTOELECTRONIC

Competitor 1

Competitor 2

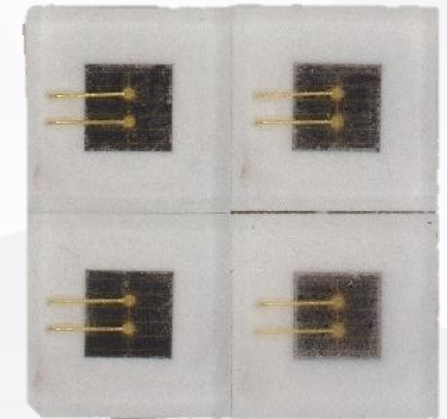
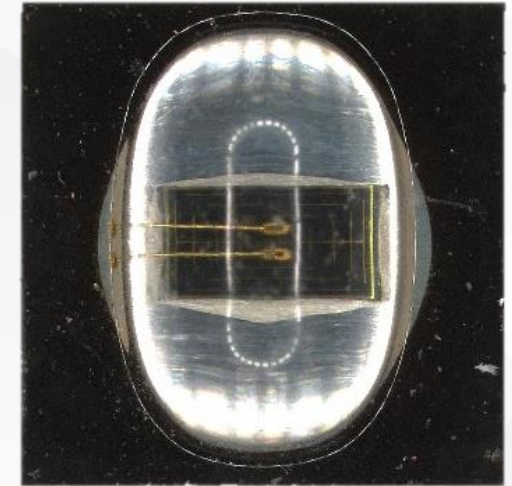
50
cm

100
cm



- ☰ The "shadow area" often appears on 45D/25D across different suppliers, but the shadow area on our product is much narrower, has better uniformity compared to other competitors.

Items	Unit	3838 Series	1616 Series
Diagram	-		
Maximum Ratings			
Forward Current	A	1.5	1
Power Consumption	W	5.5	3.6
Pulse forward current	A	5	3
Junction temperature	°C	145	145
Operating temperature	°C	-40 to 125	-40 to +105
Thermal resistance junction	K/W	typ. 4.5 max. 9	typ. 7 max. 11
Characteristics			
Spectral bandwidth	nm	45	45
Total radiant power	mW	1300	1100
Forward voltage	V	3.1	3.3



- The size of 1616 is only one-quarter of 3838, and its brightness is 85% of 3838.
- It is the smallest high-power product which forward currents can be 1A.

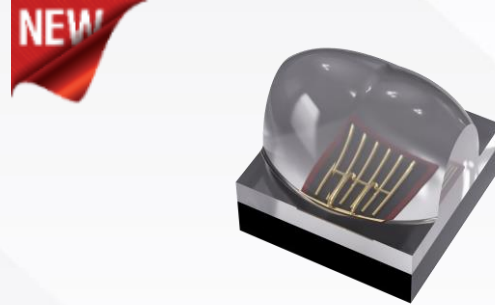
OSRAM

Brightek

33 Types

41 Types

- 3838 Series with 7 types of viewing angle and different functions → 29 types
- 1616 Series with 3 types of viewing angle and different functions → 12 types
- Leading the industry with a globally unique lens design technology.



OFF Axis LED

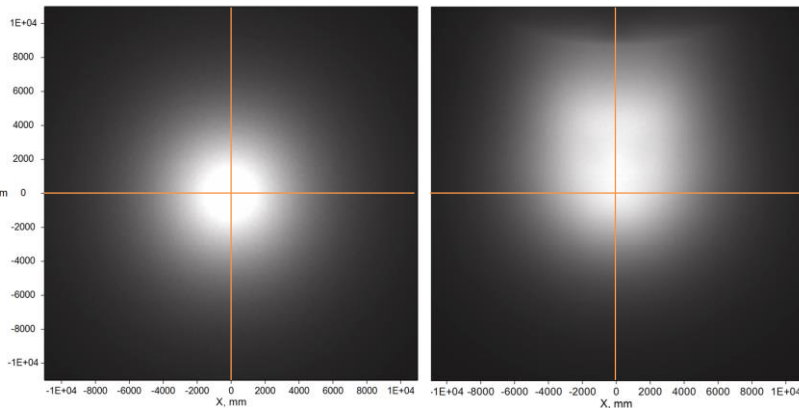
- First and Unique Off-Axis light IR LED.
- Reduce Cost & Space.

Smallest Asymmetric LED

- World Leader in Tiny Asymmetrical LEDs.
- Low Thermal Resistance and High Drive Current.
- Qualifications: AEC-Q102 Qualified

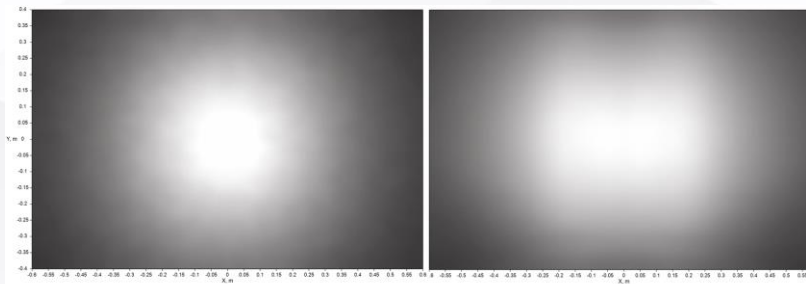
Non-RED Emitting LED

- The Real Invisible Infrared LED.
- Suitable for special applications.



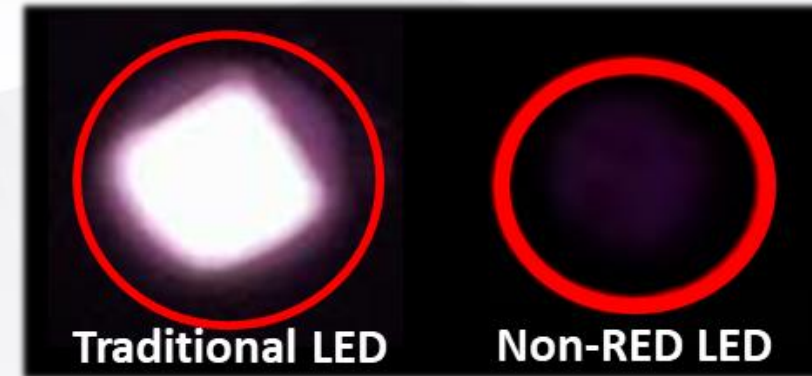
Traditional

OFF Axis



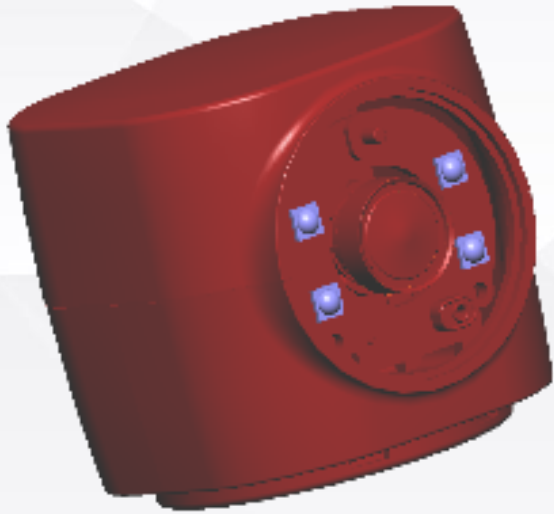
Traditional

Asymmetric



Traditional LED

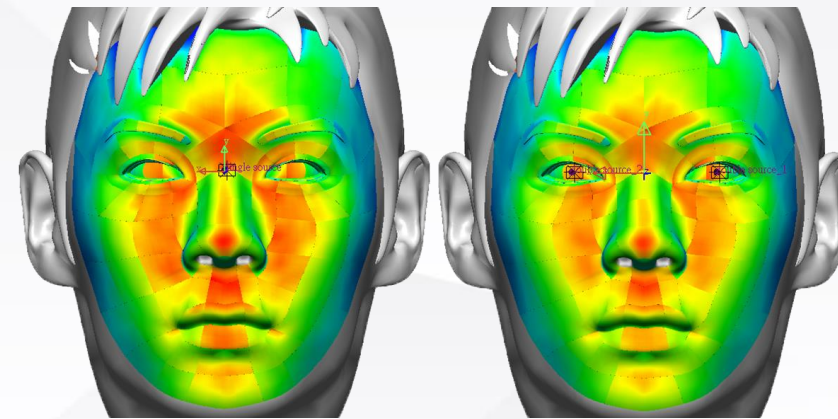
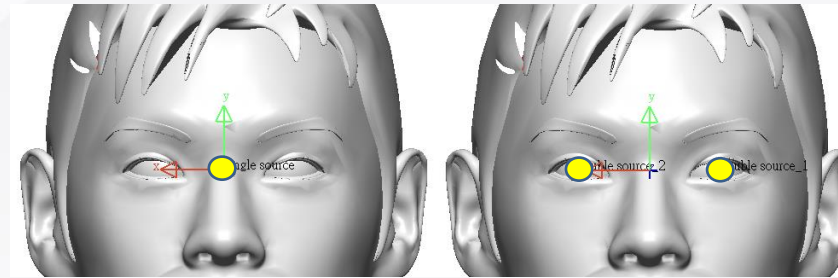
Non-RED LED



Security Camera

1 pc of LED

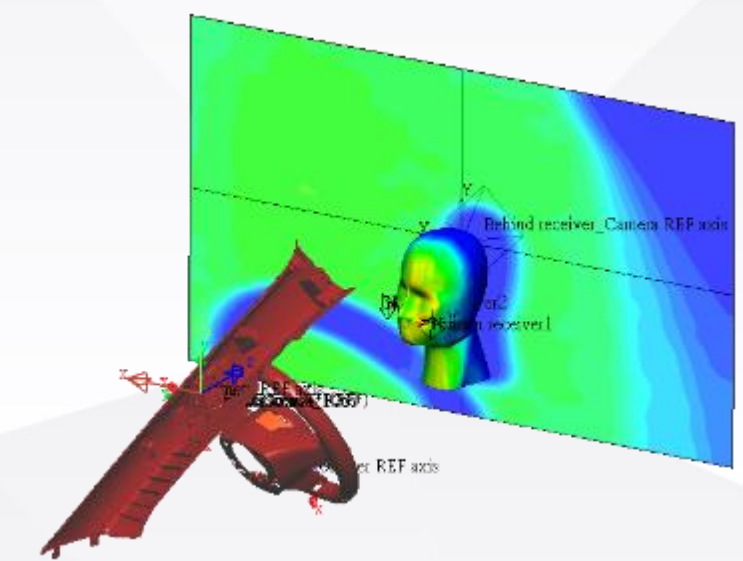
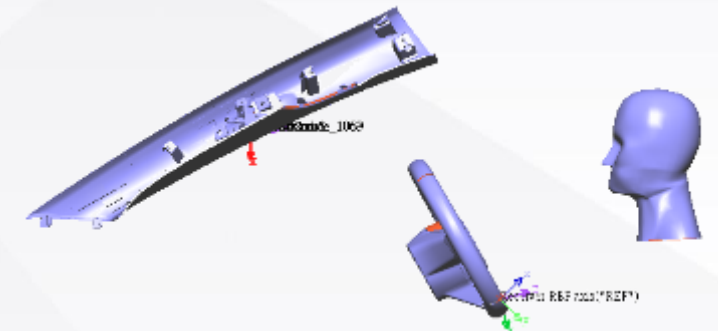
2 pcs of LED



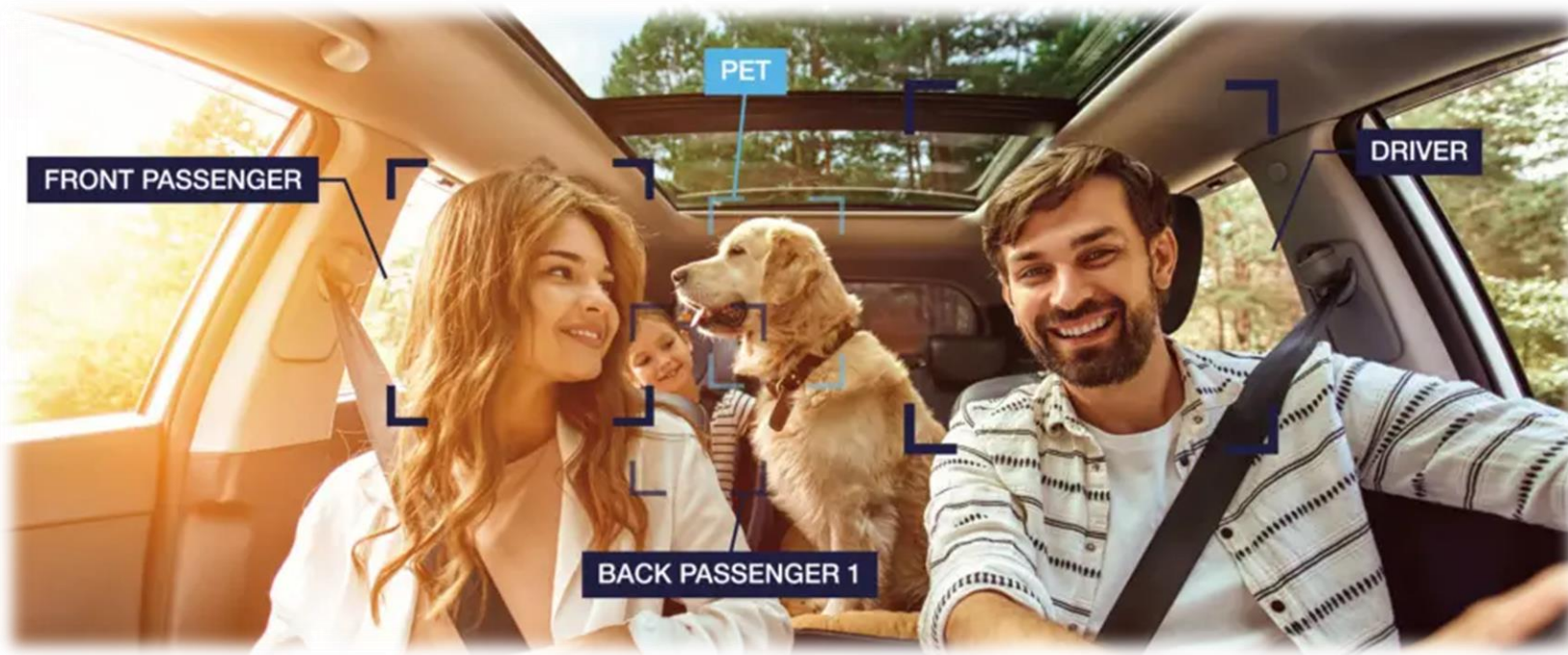
NO.	1	2	3	4	5	6	7	8
1 pcs.	2.61E-06	2.56E-06	2.78E-06	2.15E-06	2.13E-06	2.84E-06	2.66E-06	2.55E-06
2 pcs.	2.59E-06	2.51E-06	2.70E-06	2.17E-06	2.13E-06	2.69E-06	2.52E-06	2.51E-06

• min. • max.
unit: W/mm²

NB Facial Recognition



Driver Monitoring



In-Cabin Sensing

Driver Monitoring & Occupant Monitoring Systems

Kick-Start :

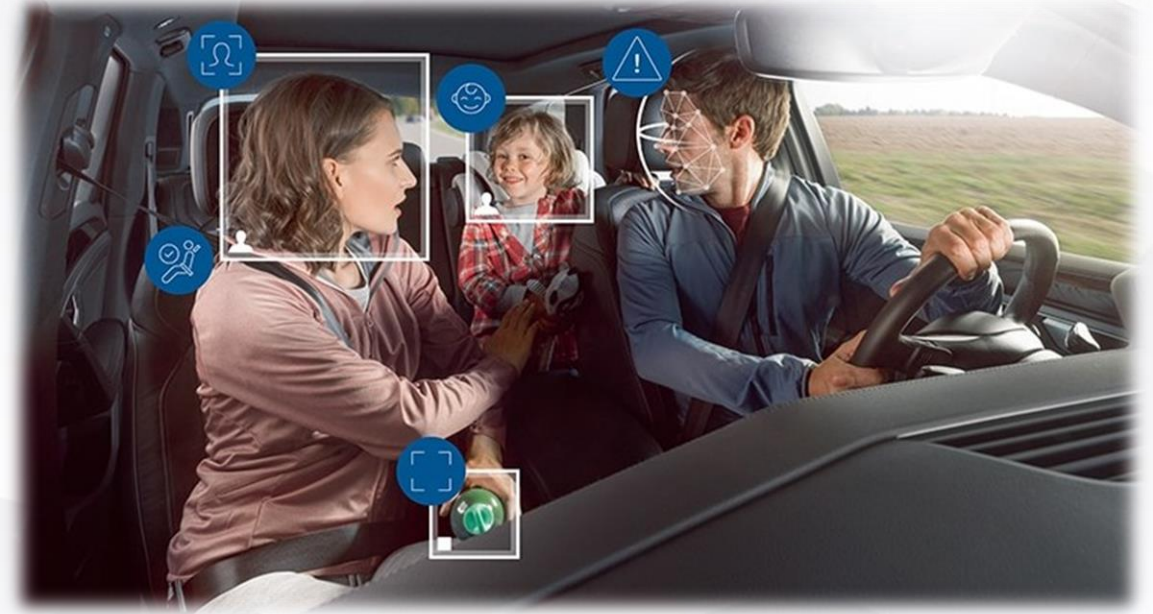
Infrared LED Solutions

DMS and OMS are supported by cameras
Light sources for camera is “ IR LED (2D CMOS Cameras) ”



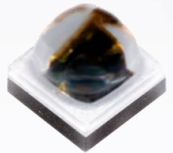
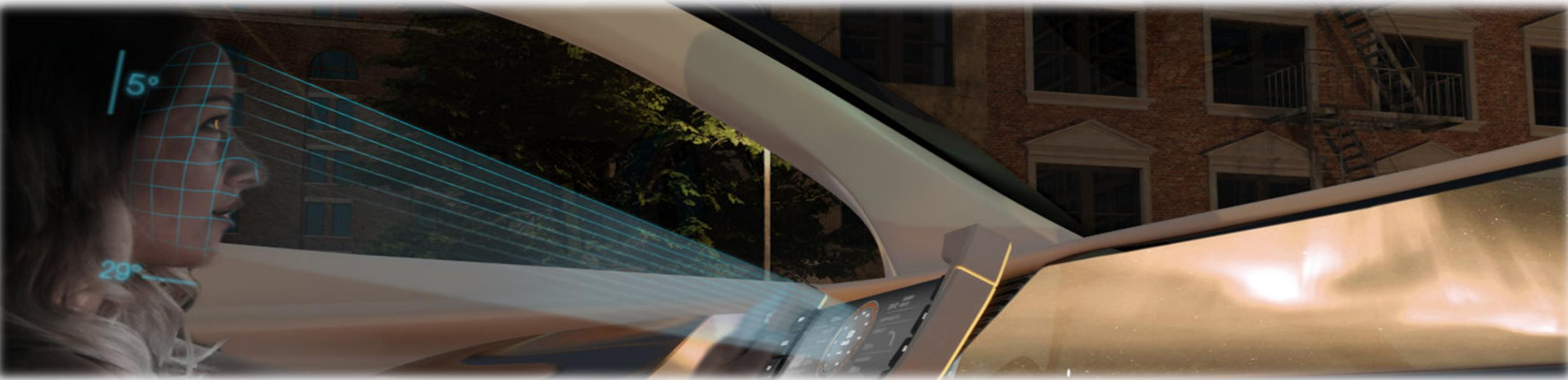
KEY FUNCTION

- ☰ Drowsy driver detection
- ☰ Gaze tracking and distraction warning
- ☰ Driver identification



KEY FUNCTION

- ☰ Child presence detection
- ☰ Vital signs and health monitoring
- ☰ Personalization (seat positioning)

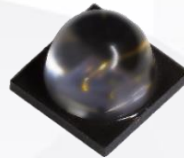


HE1616F94CQ01

600 mW/sr

80°

“Smallest High Power LED”

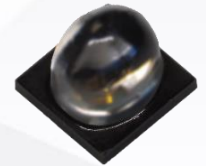


SF3838F94CQ01

1,050 mW/sr

50°

“High Efficiency”



SK3838F94CQ00

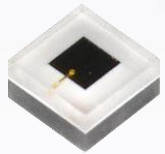
1,700 mW/sr

45°/25°

“Asymmetric”

☰ PASS AEC-Q102 Qualified

☰ PASS Eye Safety : IEC62471



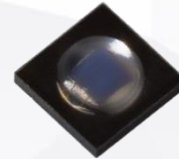
HE1616F94CQ01

400 mW/sr

120°

“Smallest High Power LED”

☰ PASS AEC-Q102 Qualified



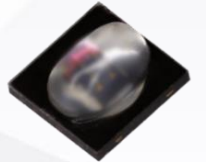
SJ3838F94CQ01

350 mW/sr

150°

“High Efficiency”

☰ PASS Eye Safety : IEC62471

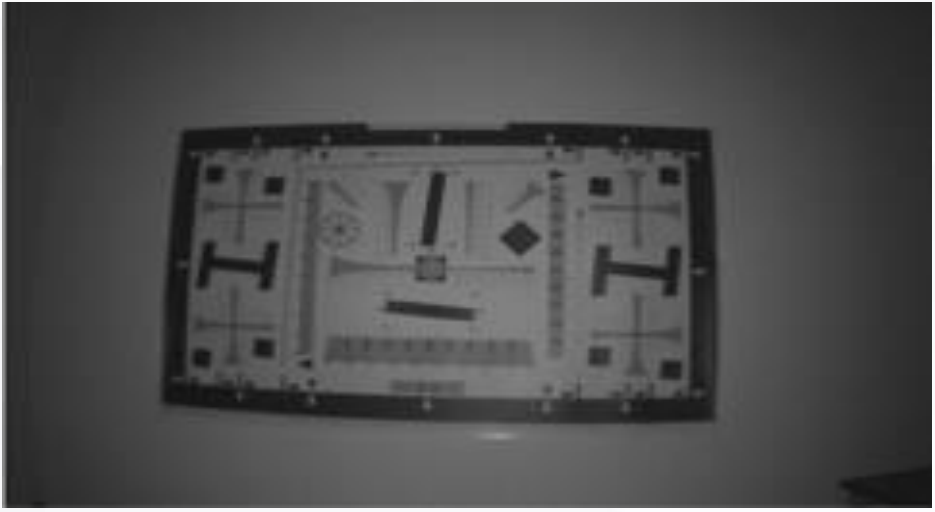
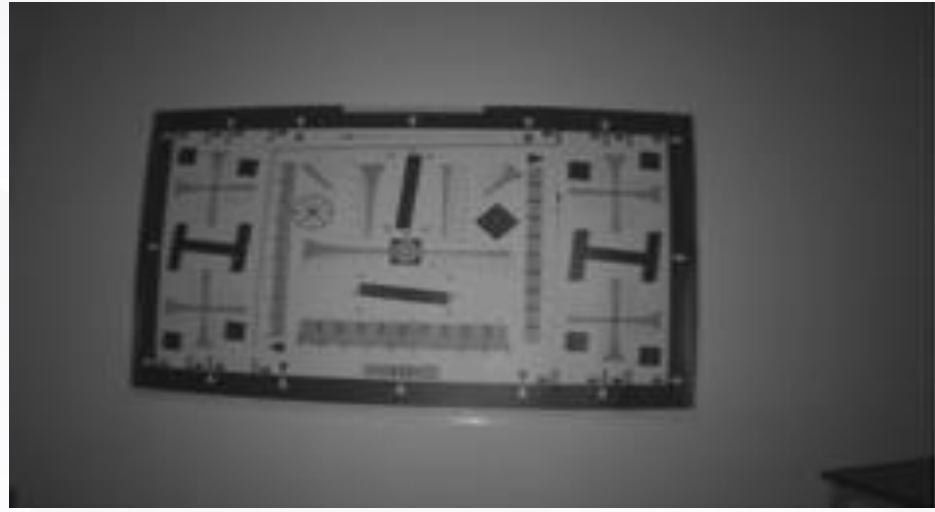




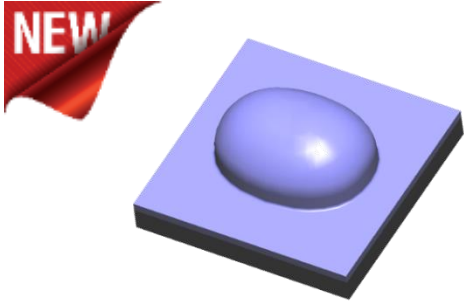
SL3838F94CQ01

400 mW/sr

150°/90°

“Asymmetric”

	OXXXXX 50°	BRIGHTTEK 50°
DMS		
	SXXXXXX 120°	BRIGHTTEK 150°
OMS		



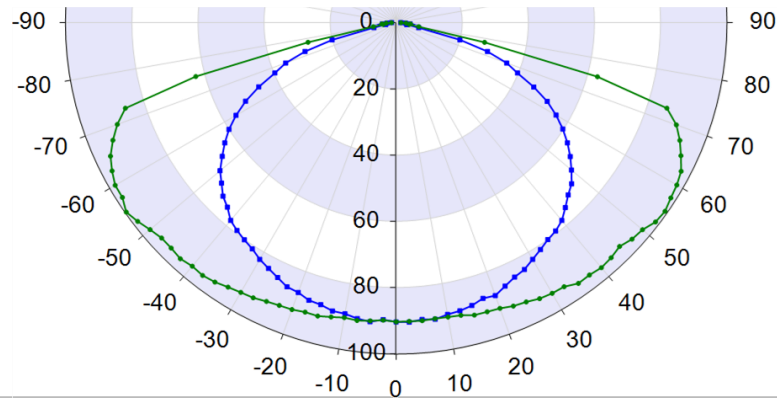
SQ3838F94CQ00

- Application : OMS
- Package : 3.8 x 3.8 x 1.52mm
- FOV : 150°X130°

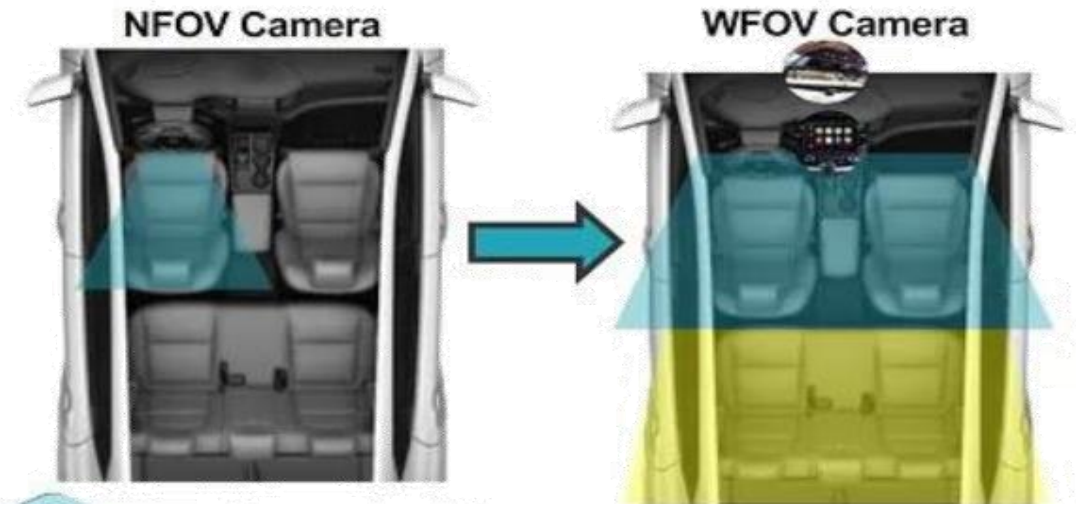
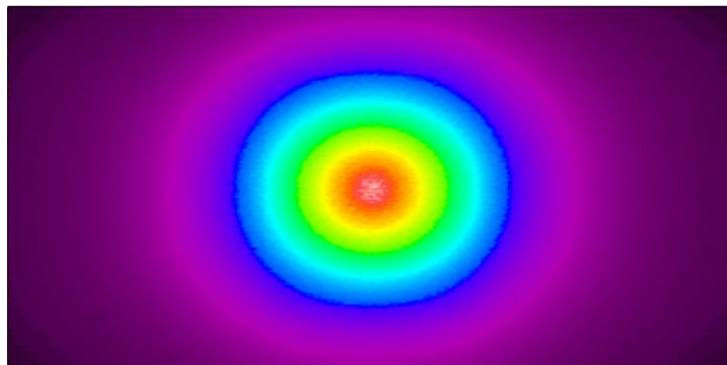
Items12

3838 Asymmetric

Intensity (%)



Irradiance (W/mm^2)

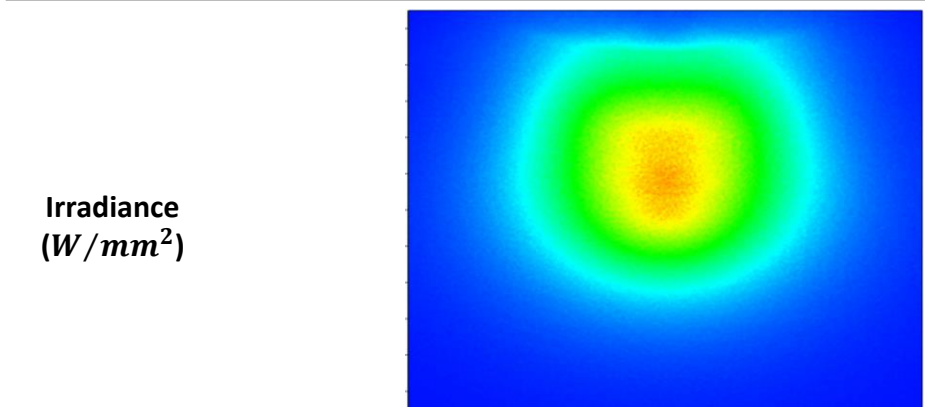
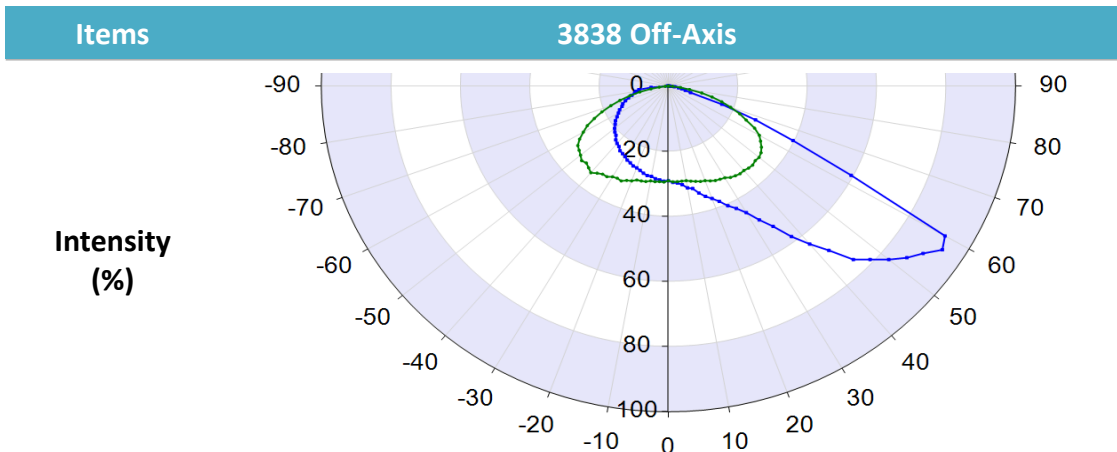


- For the integrated rearview OMS solutions, which covers a main lens FOV (Field of View) of 142x103 degrees (wide-angle lens with an aspect ratio of 16:13), it requires suitable specifications for the wide-angle IR (Infrared) LED.

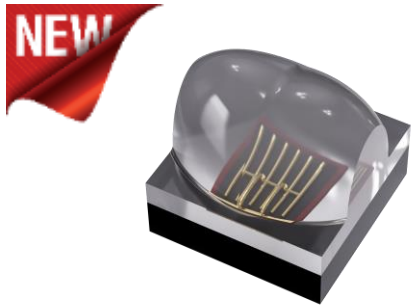


SN3838F85CQ01

- Application : IR Flood
- Package : 3.85 x 3.85 x 2.11mm
- Off-Axis 55°



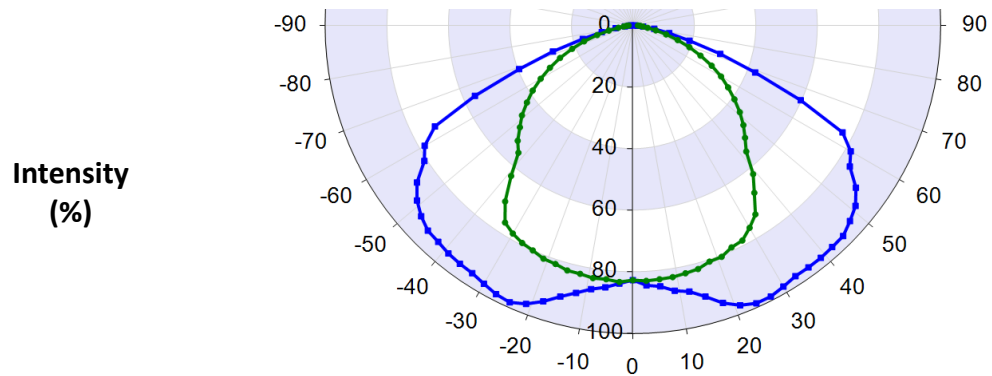
- Traditional ultra-wide-angle camera design often involves placing the IR LED small board separately and bending it at an offset angle.
- This arrangement allows for the simplification of the camera's mechanical design by aligning the IR LED board with the camera's main board on the same plane. It also helps to avoid overexposure issues in images.



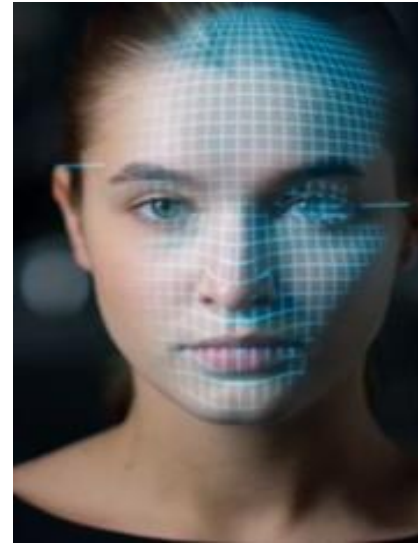
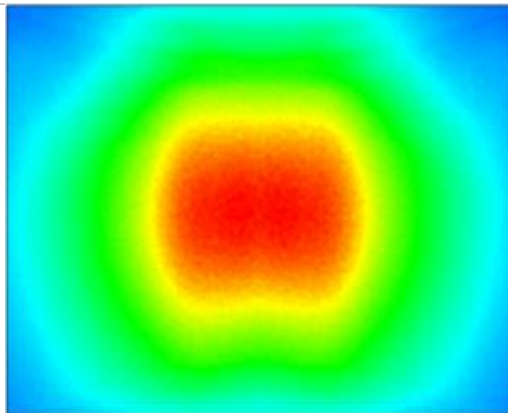
HF1616F85CQ01

- Application : OMS
- Package : 1.60X1.60X1.36mm
- FOV : 140°X110°

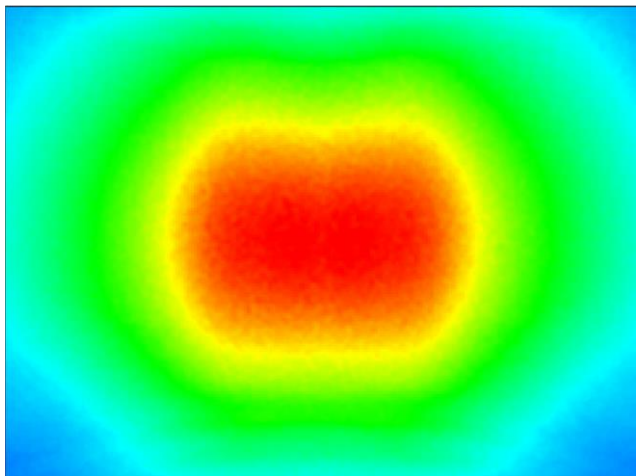
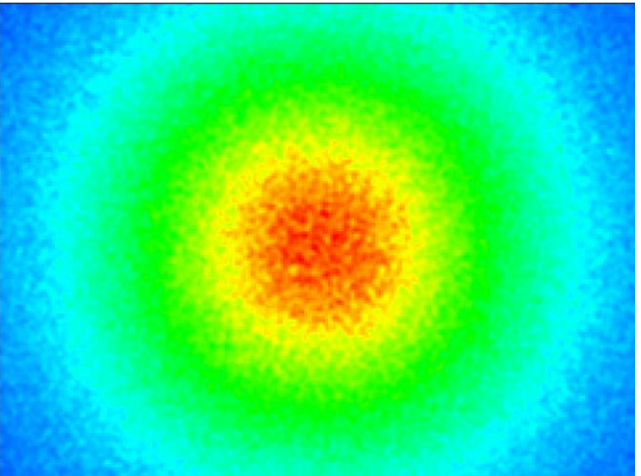
Items 1616 Asymmetric



Irradiance (W/mm^2)



- To complement the wide-angle imaging sensor for illumination in low-light scenarios, suitable high-angle IR LED specifications will be paired. The module's height is kept at a compact 1.36mm, ensuring it facilitates customer product compactness and miniaturization.
- Compared to traditional LEDs, the asymmetrical 1616 LED can achieve 38% uniformity, while traditional LEDs are below 27%. The high uniformity light source ensures that any position in the identification area is under approximately the same illuminance, simplifying the image processing and improving the accuracy of the solution.

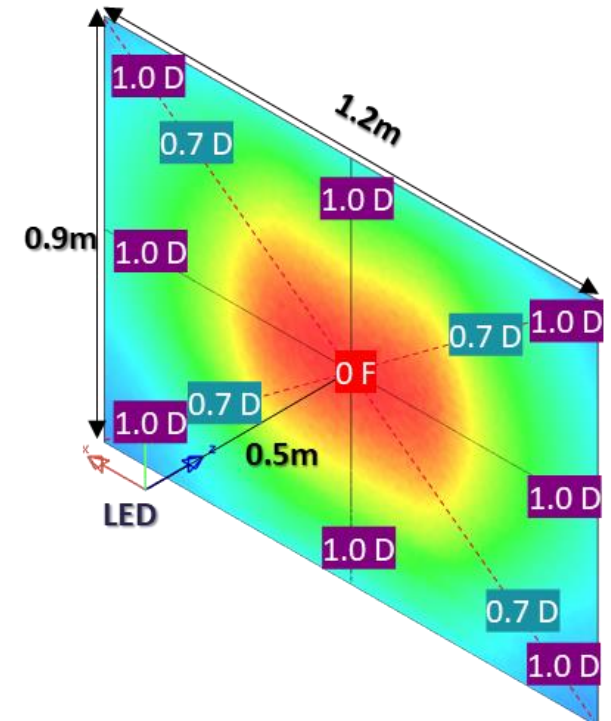
	HF1616F85CQ01 (Asymmetric)	HL1616F85CQ01 (Symmetric)																																																																																																				
Total radiant power (mW)	1000 mW	1000 mW																																																																																																				
Irradiance chart (mW/m ²)																																																																																																						
Irradiance value (mW/m ²)	<table border="1"> <tr><td>208.1</td><td></td><td>361.2</td><td></td><td>214.0</td></tr> <tr><td>20.0%</td><td></td><td>34.7%</td><td></td><td>20.5%</td></tr> <tr><td></td><td>399.9</td><td></td><td>407.1</td><td></td></tr> <tr><td></td><td>38.4%</td><td></td><td>39.1%</td><td></td></tr> <tr><td>354.6</td><td></td><td>1041.9</td><td></td><td>364.0</td></tr> <tr><td>34.0%</td><td></td><td>100.0%</td><td></td><td>34.9%</td></tr> <tr><td></td><td>316.0</td><td></td><td>321.3</td><td></td></tr> <tr><td></td><td>30.3%</td><td></td><td>30.8%</td><td></td></tr> <tr><td>151.9</td><td></td><td>349.6</td><td></td><td>155.6</td></tr> <tr><td>14.6%</td><td></td><td>33.6%</td><td></td><td>14.9%</td></tr> </table>	208.1		361.2		214.0	20.0%		34.7%		20.5%		399.9		407.1			38.4%		39.1%		354.6		1041.9		364.0	34.0%		100.0%		34.9%		316.0		321.3			30.3%		30.8%		151.9		349.6		155.6	14.6%		33.6%		14.9%	<table border="1"> <tr><td>125.4</td><td></td><td>352.4</td><td></td><td>125.5</td></tr> <tr><td>13.2%</td><td></td><td>37.1%</td><td></td><td>13.2%</td></tr> <tr><td></td><td>259.4</td><td></td><td>260.8</td><td></td></tr> <tr><td></td><td>27.3%</td><td></td><td>27.5%</td><td></td></tr> <tr><td>208.4</td><td></td><td>949.4</td><td></td><td>211.4</td></tr> <tr><td>21.9%</td><td></td><td>100.0%</td><td></td><td>22.3%</td></tr> <tr><td></td><td>263.2</td><td></td><td>263.7</td><td></td></tr> <tr><td></td><td>27.7%</td><td></td><td>27.8%</td><td></td></tr> <tr><td>131.8</td><td></td><td>358.4</td><td></td><td>132.8</td></tr> <tr><td>13.9%</td><td></td><td>37.8%</td><td></td><td>14.0%</td></tr> </table>	125.4		352.4		125.5	13.2%		37.1%		13.2%		259.4		260.8			27.3%		27.5%		208.4		949.4		211.4	21.9%		100.0%		22.3%		263.2		263.7			27.7%		27.8%		131.8		358.4		132.8	13.9%		37.8%		14.0%
208.1		361.2		214.0																																																																																																		
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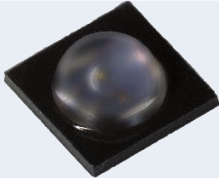
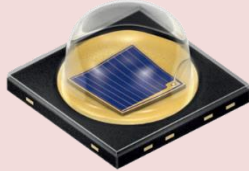




Irradiance :

- Asymmetric is better than symmetric.

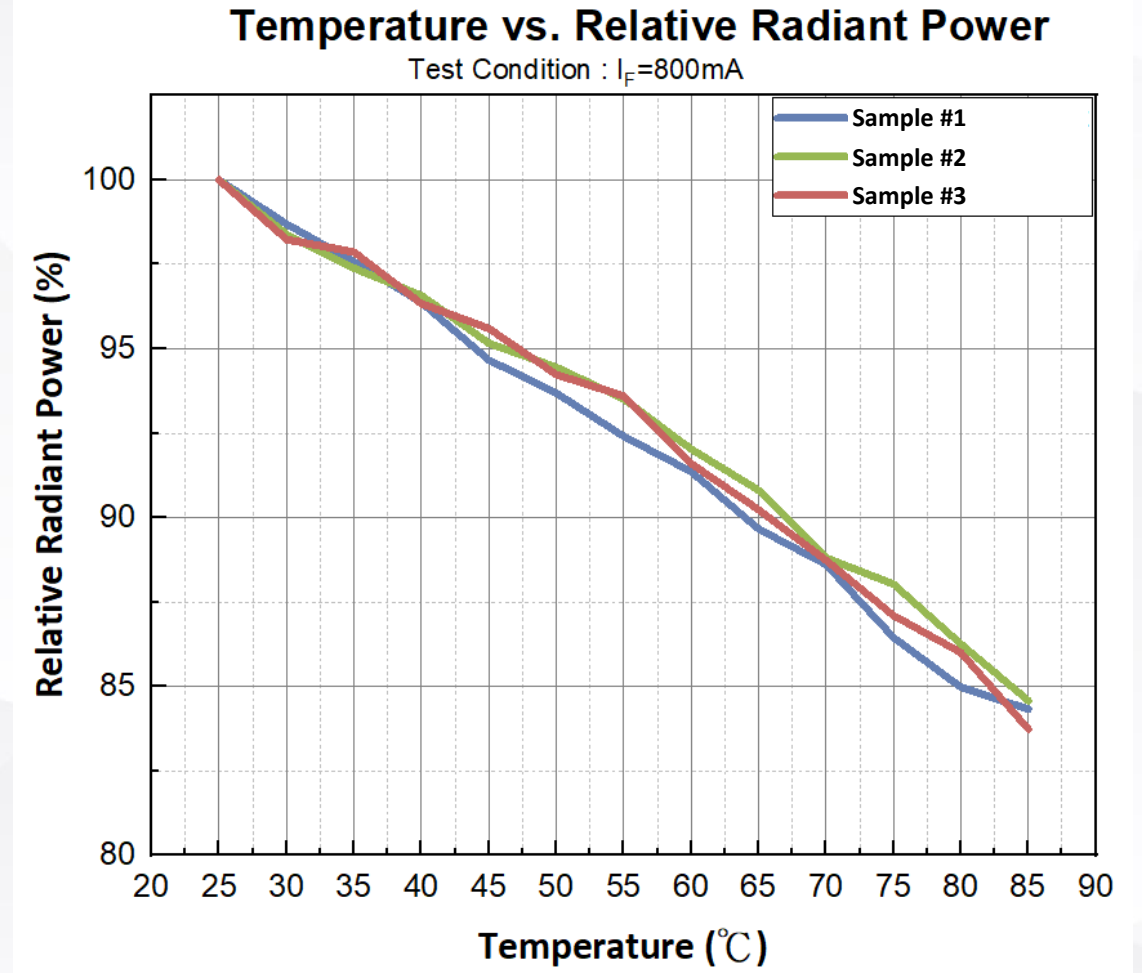
Uniformity :

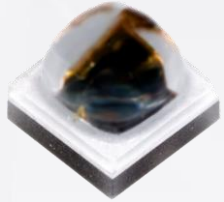
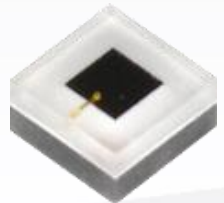
- Asymmetric is better than symmetric.

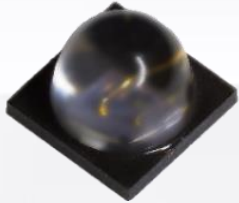
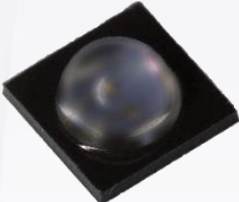
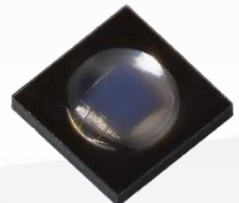


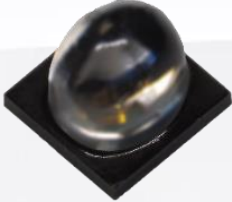

Items	Unit	SD3838F85CQ00		SFH 4715 AS	
Package Dimensional	mm	 3.85 x 3.85 x 2.21		 3.85 x 3.85 x 2.29	
Price	-	Low 		High	
Maximum Ratings					
Forward Current	A	1500		1500	
Power Consumption	W	5.7		5.5	
Pulse forward current	A	5		5	
Junction temperature	°C	145		145	
Operating temperature	°C	-40 to +125		-40 to +125	
Thermal resistance junction	K/W	typ. 4.5 max. 9		typ. N/A max. 9	
Characteristics (typ.)					
		Datasheet Specification	Sample Test	Datasheet Specification	Sample Test
View Angle	°	90	90.02	80	77.45
Spectral bandwidth	nm	35	36.02	30	31.9
Total radiant power	mW	1360	1361.92 	1530	1236.37
Radiant intensity	mW/sr	720	720.89	900	863.30 
Forward voltage	V	3.25	3.21	3.15	2.95 

Items	Sample #1	Sample #2	Sample #3
Package Dimensional			
	3.50 x 3.50 x 2.29	3.85 x 3.85 x 2.21	3.55 x 3.55 x 2.60
Test condition : $I_F=800\text{mA}$ // Unit : %			
25°C	100.00	100.00	100.00
30°C	98.69	98.39	98.23
35°C	97.58	97.39	97.87
40°C	96.37	96.58	96.34
45°C	94.67	95.16	95.60
50°C	93.69	94.45	94.24
55°C	92.41	93.52	93.60
60°C	91.36	92.03	91.61
65°C	89.66	90.81	90.24
70°C	88.62	88.81	88.74
75°C	86.46	88.04	87.11
80°C	84.99	86.26	86.01
85°C	84.33	84.59	83.74



Product Appearance	Part No.	Dimension (mm)	λ P (nm)	View Angle	I_E Typ. (mW/sr) ($I_F=1000\text{mA}$)	Φ_e Typ. (mW) ($I_F=1000\text{mA}$)	V_F Typ. (V) ($I_F=1000\text{mA}$)
 Conventional Dome Lens	HE1616F85CQ00	1.60 x 1.60 x 1.69	850	80°	310	600	1.70
	HE1616F85CQ01	1.60 x 1.60 x 1.69	850	80°	600	1100	3.30
	HE1616F94CQ00	1.60 x 1.60 x 1.69	940	80°	310	600	1.70
	HE1616F94CQ01	1.60 x 1.60 x 1.69	940	80°	600	1100	3.20
 Flat	HL1616F85CQ00	1.60 x 1.60 x 0.82	850	120°	200	570	1.75
	HL1616F85CQ01	1.60 x 1.60 x 0.82	850	120°	365	1100	3.30
	HL1616F94CQ00	1.60 x 1.60 x 0.82	940	120°	200	570	1.75
	HL1616F94CQ01	1.60 x 1.60 x 0.82	940	120°	400	1100	3.30

Product Appearance	Part No.	Dimension (mm)	λ_P (nm)	View Angle	I_E Typ. (mW/sr) ($I_F=1000mA$)	Φ_e Typ. (mW) ($I_F=1000mA$)	V_F Typ. (V) ($I_F=1000mA$)
 Conventional Dome Lens	SF3838F85CQ00	3.85 x 3.85 x 2.98	850	40°	730	770	1.70
	SF3838F85CQ01	3.85 x 3.85 x 2.98	850	50°	1050	1300	3.25
	SF3838F94CQ00	3.85 x 3.85 x 2.98	940	50°	650	800	1.80
	SF3838F94CQ01	3.85 x 3.85 x 2.98	940	50°	1050	1300	3.25
 Conventional Dome Lens	SH3838F85CQ00	3.85 x 3.85 x 2.21	850	80°	430	770	1.70
	SD3838F85CQ00	3.85 x 3.85 x 2.21	850	90°	650	1300	3.25
	SD3838F94CQ01	3.85 x 3.85 x 2.21	940	90°	350	800	1.80
	SD3838F94CQ00	3.85 x 3.85 x 2.21	940	90°	650	1300	3.25
 Conventional Dome Lens	SJ3838F85CQ00	3.85 x 3.85 x 1.51	850	150°	200	770	1.70
	SJ3838F85CQ01	3.85 x 3.85 x 1.51	850	150°	350	1300	3.25
	SJ3838F94CQ00	3.85 x 3.85 x 1.51	940	150°	215	800	1.80
	SJ3838F94CQ01	3.85 x 3.85 x 1.51	940	150°	350	1300	3.10

Product Appearance	Part No.	Dimension (mm)	λ P (nm)	View Angle	I_E Typ. (mW/sr) ($I_F=1000mA$)	Φ_e Typ. (mW) ($I_F=1000mA$)	V_F Typ. (V) ($I_F=1000mA$)
 Asymmetric Dome Lens	SK3838F85CQ00	3.85 x 3.85 x 3.30	850	45° x 25°	1700	1200	3.40
	SK3838F94CQ00	3.85 x 3.85 x 3.30	940	45° x 25°	1700	1200	3.20
 Asymmetric Dome Lens	SL3838F85CQ00	3.85 x 3.85 x 1.90	850	130° x 80°	250	770	1.70
	SL3838F85CQ01	3.85 x 3.85 x 1.90	940	150° x 90°	400	1300	3.25
	SL3838F94CQ00	3.85 x 3.85 x 1.90	850	150° x 90°	245	800	1.80
	SL3838F94CQ01	3.85 x 3.85 x 1.90	940	150° x 90°	400	1300	3.10

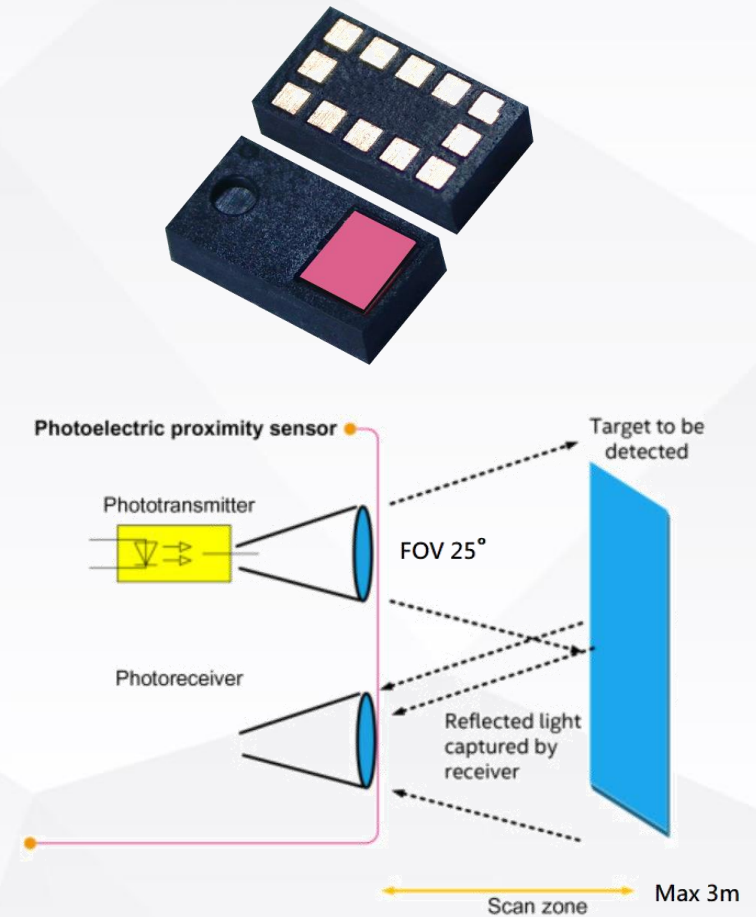
Introduction – 1D(1x1) iToF Module






Target PN : MA4424 (Effective Working Range up to 3m, IR 940nm)

Application : Avoidance, Object Detection, Safety & Security, Sensor Fusion

Key Feature :

- Field of View Covered is FOV=25°
- I2C interface (Fast Speed Mode at 400kHz)
- Infrared Emission Peak Wavelength 940 nm
- Low power consumption by optimal VCSEL control, 18mA(Max)
- Auto calibration cross-talk
- Providing the absolute accuracy for a reference of 2D, 2.5D Sensing
- Effective Working Range : 2 -300 cm (Long Distance Applications)

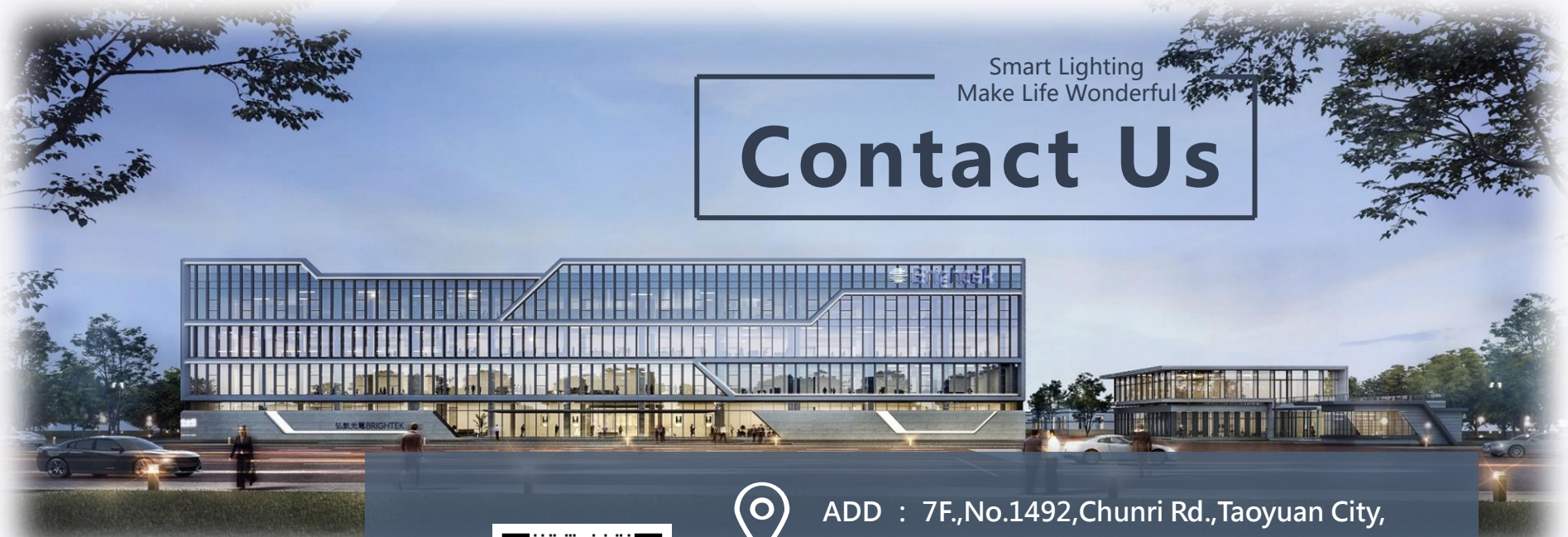


	Spectroradiometer	Luminous Intensity Measurement Adapters	Integrating Spheres	Lightproof Goniophotometer	Thermal Transient Tester
Model					
Where Use	Collocation with Luminous Intensity / Measurement Adapters Integrating Spheres / Lightproof Goniophotometer	Forward voltage / Spectral bandwidth / Peak wavelength / Radiant intensity measurement	Forward voltage / Spectral bandwidth / Peak wavelength / Total radiant power measurement	View angle measurement	Thermal resistance measurement

	Software CODE V	Software Light Tools	Hardware Rigo-801
Model	<p>CODE V[®]</p> 	<p>LightTools[®]</p> 	
Where Use	<p>Imaging Optical Design</p>	<p>Lighting Design</p>	<p>LED Near-Field Goniophotometer</p>

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