

SeeYA Optics Module Preliminary Specification

Model name:

Revision

Version	Date	Description
V0.0	2021.07.13	Initial release

SeeYa Only

Contents

1	General Description.....	4
2	Technical Specification	4
3	Module Diagram.....	7
4	Reliability	8
5	Handling Precautions.....	9
	Mounting Method	9
	Caution of Handling and Cleaning	9
	Caution of Against Static Charge	9
	Packing 9	
	Caution for Operation	9
	Storage 10	
	Safety Precautions.....	10
	Precautions before use.....	10
6	Packing	11

1 General Description

This module consists of two displays, optical lens, mechanical parts. Display source is the 1.03 inch MicroOLED with the Highest Luminance 1800 nits and rendered resolution of 2560*2560.

- Display resolution: 2560 x 2560
- Field of View: 90° at 0D
- Diopter adjustable from 0D to -5D

2 Technical Specification

Parameter	Specification
Optical Data:	
Diopter Range	0 D ~ 5 D
FOV (inscribed circle)	90 degree
Eyebox	8 mm
Eye Relief	12 mm
TV Distortion	12 %
Lateral Chromatic Aberration	6.2 um
Longitudinal Chromatic Aberration	40.2 um
MTF	MTF > 0.1 @70lp/mm (whole field)
Light Efficiency	8 %
Physical Data:	
Lens Structure	5G
Lens Weight	< 25 g
Module Weight (include lens)	< 64 g
Module Length (total track length)	17 mm
Diameter (lens only max.)	30 mm

* The parameters above are under 0D conditions in multi-diopter module.

Note1: FOV

FOV of optical module is the circular field of view for the visual image as the schematic shown.

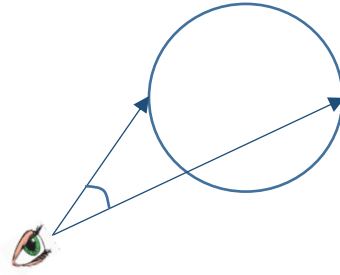


Fig. 1

Note2: Eyebox and Eye Relief

Eyebox is the pupil range where the full virtual image could be caught. Eye relief is the distance between the optical lens to the pupil.

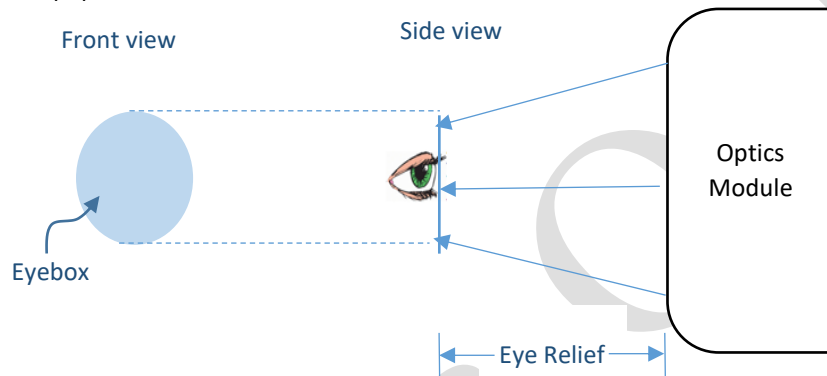


Fig. 2

Note3: TV Distortion

$$TV \text{ Distortion} = \text{Max} \left(\frac{\Delta H_{\text{horizontal}}}{H_{\text{horizontal}}}, \frac{\Delta H_{\text{vertical}}}{H_{\text{vertical}}} \right) \times 100\%$$

The test area is inside the circle with 45 degrees FOV, and aspect ratio is 16:9.

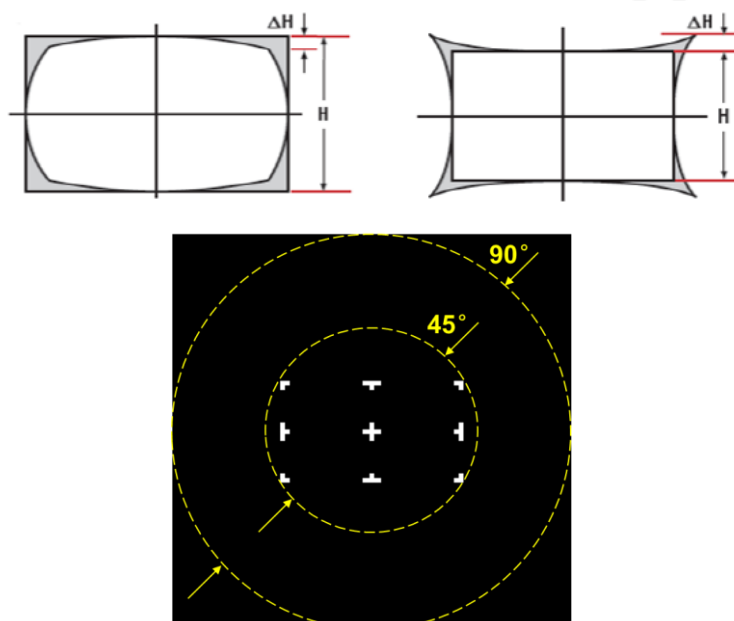


Fig. 3

Note4: MTF

MTF formula: $M = \frac{(L_{\max} - L_{\min})}{(L_{\max} + L_{\min})}$, $L_{\max}$ and $L_{\min}$ is the brightness of the jointed black and white line.

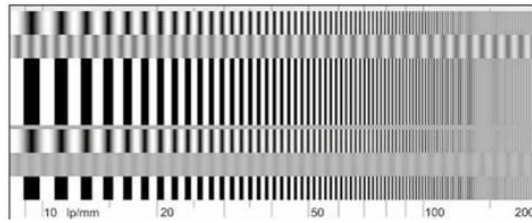
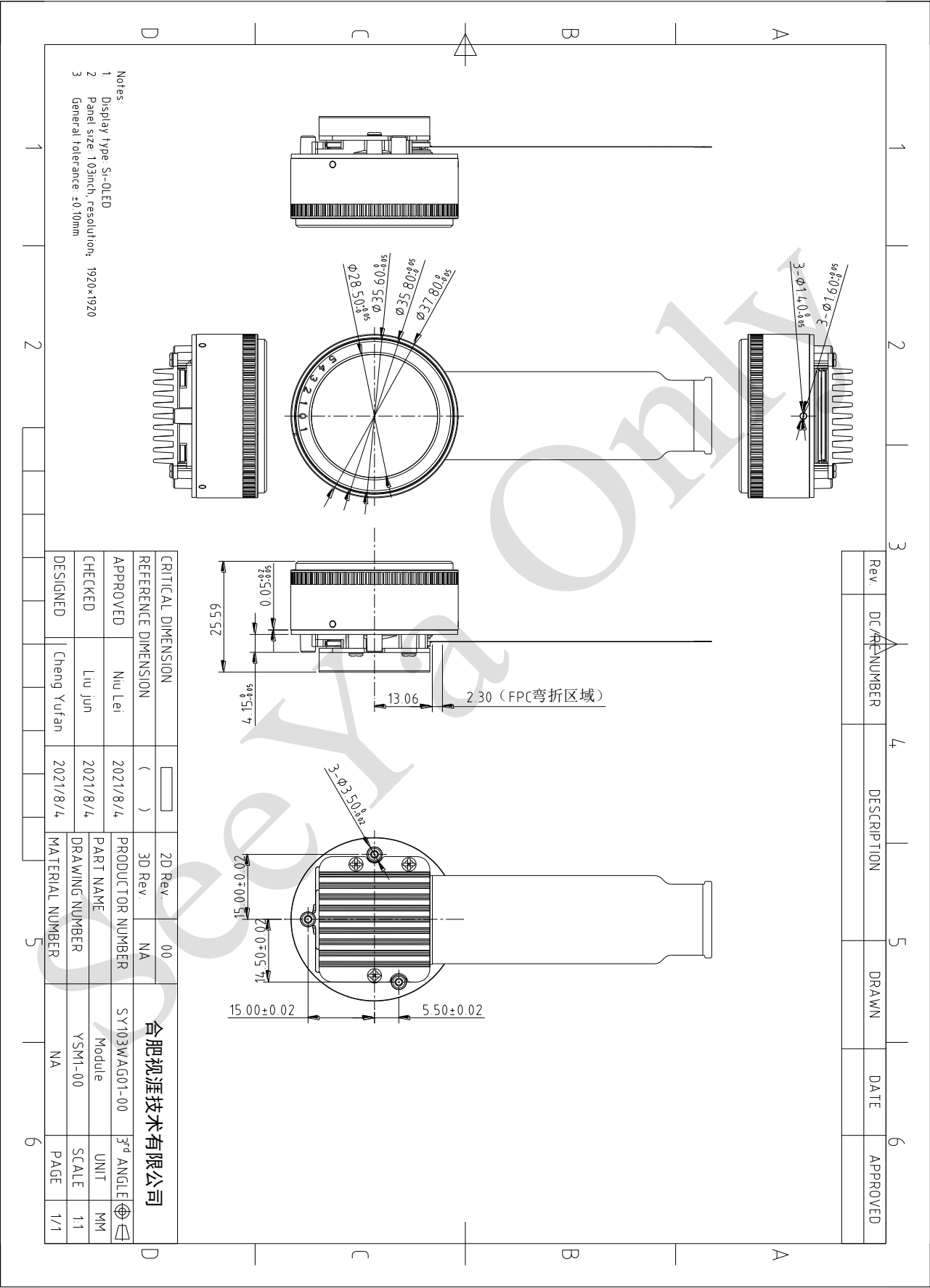


Fig. 4

3 Module Diagram



4 Reliability

No.	Test Item	Test Condition
1	High Temperature High Humidity Work	60°C, 90%RH, 48 h
2	Low Temperature Work	-10°C, 48h
3	High Temperature High Humidity Storage	65°C, 95%RH, 24h
4	Low Temperature Storage	-20°C, 24h
5	Temperature Shock Test	-20°C, 30 min $\leftrightarrow$ -60°C, 30 min, 48cycle
6	IP5X Dust—Proof	1. Talc 2. Steel wire diameter; 50 μ m 3. Mesh size; 35 μ m 4. Talc capacity; 2 kg/m ³ 5. Air velocity; 2 m/s 6. Test time; 8 hours
7	IPX2 Water-Proof	1. Put the sample to be tested on the 15° inclined platform of the rain test chamber
8	Slight Drop Test	1. Height:10 cm 2. Front and Back Side, each 500 times 3. Other side, each 100 times
9	Sinusoidal vibration Test	1. Vibration Frequency: 10~100 Hz 2. Acceleration: 1g 3. Vibration Direction: X_1h, Y_1h, Z_1
10	Diopter Tuning Durability	5000cycle
11	Screw Tuning Durability	Torque 1.5Kgf, drawing speed; 55-65mm/min. Self-tapping screw: 5 times. Machine screw: 10 times
12	Package Drop Test	1corner, 2edges, 6sides
13	Package Shock Test	GB/T 2423.5-2019

5 Handling Precautions

Mounting Method

SeeYA module consists of display and optical lens, which can easily get damage. Since the module is constructed as to be fixed by utilizing fitting holes in the printed circuit board. Extreme care should be used when handling the module.

Caution of Handling and Cleaning

When cleaning the optical surface, use soft solvent as recommended isopropyl alcohol and wipe gently, don't wipe the surface with dry or hard materials that will damage the polarizer surface, don't use the following solvent, Water, Ketone, Aromatics.

Caution of Against Static Charge

For OLED module, use C-MOS drivers, therefore we recommend that you, connect any unused input terminal to VCI or VSS, do not input and signals before power is turned on, and ground your body, work/assembly areas, assembly equipment to protect against static electricity. It could occur static electricity when taping off the film which protects OLED. Against static charge, you should make sure that the product is safe or not by experiment in advance.

Packing

The packing principle is that OLED module should keep its packing condition at the time of delivery. For safety & avoiding the module damage, Carton box must stack the below 4 boxes.

When storing the OLED after unpacking, note the followings. OLED module is consisted of GLASS and assemblies. It should avoid pressure, strong impact, and being dropped from a height.

To prevent modules from degradation, do not operate or store them in a place where they are directly exposed to sunlight or high temperature/humidity

Caution for Operation

If you do not follow normal POWER ON, OFF sequence or abnormal operating, then MOLED module can be damaged electro-optically and does not recover. Do not change software without SeeYA confirmation.

Response time may extremely delay at a temperature lower than operating range, OLED does not normally operate at a high temperature, but this may recover at a proper temperature.

When you set optimal operating voltage to OLED module, you can see the optimal contrast of MOLED. So, add voltage controllable function at SET Module.

OLED module may not display normally when twisting power or pressing power is added. Therefore, you should secure OLED module maximum thickness at set assembly not to have any pressure affect MOLED module.

Electro-chemical reaction may occur when there is humidity on pad, therefore, you should use OLED Module below maximum operating humidity

OLED Module Power VDD should be designed to protect surge current at SET Module. You should not damage connector and cable for OLED module assembly by force folding or by applying extreme power.

OLED may not display normally when it is interfered by surrounding elements, therefore you should consider setting. design not to damage OLED module by surrounding elements.

Storage

Place in a dark place where neither exposure to direct sunlight or any fluorescent light is permitted and keep at room temperature & room humidity. It is recommended to store them as they have been contained in the inner container when we delivered them.

Safety Precautions

Disassembly or modification may cause electric shock, damages to sensitive part inside of the AMOLED module, dust adhesion, or scratches on the display part. In the event that the contents of AMOLED module are on skin, wipe them with a paper towel or gauze and wash the part well, and receive medical attention if necessary. Do not use the AMOLED module for the special purpose besides display units. Be careful of the glass chips that may cause injury to fingers of skin, when the display part is broken. For keeping safe quality from outer exposure or contamination, modules should be consumed within 2 months after unpacking.

Precautions before use

You should discuss the following case with SeeYA:

- in case of any questions about contents of this "Specification for Approval".
- in case of occurring new problems not mentioned at this "Specification for Approval".
- in case of your request about income inspection specification change.
- in case of occurring new problem at your driving test.

*If SeeYA has to change the conditions specified in the specification, previously shall be held and decided.

6 Packing

