



**SeeYA 0.49" FHD (1920×1080 SPR) Mono-Green
20000nits Micro-OLED Specification
Model Name: SY049LDM02**

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Revision

Version	Date	Description
V0.0	2021.8.30	Initial release



Contents

1	General Description	4
2	General Feature	5
3	Optical	6
4	Pixel Arrangement	7
5	System block	7
6	Module Diagram	8
7	Pin Description	9
7.1	Pin Description	9
7.2	Application circuit	11
8	Electrical Characteristics	12
8.1	Absolute Maximum Ratings	12
8.2	DC Characteristic	12
8.3	DSI DC/AC Characteristic	13
8.4	Timing Characteristics	15
8.5	Reset Timing Characteristics	18
9	Power Generation	19
9.1	Power Generation Scheme	19
9.2	Power Sequence	19
10	Interface	21
10.1	I2C Interface	21
10.1.1	I2C-Bus Protocol	21
10.1.2	Write Sequence	22
10.1.3	Read Sequence	22
10.2	MIPI Interface	22
10.2.1	DSI System Configuration	23
11	User Command	24
	Command list	24
	SWRESET(0100h): Software Reset	25
	CMODE(0300h): Compression Mode	26
	SLPIN (1000h): Sleep In	27
	SLPOUT (1100h): Sleep Out	28
	ALLPOFF (2200h): All Pixels OFF	29
	ALLPON (2300h): All Pixel ON	30
	DISPOFF (2800h): Display OFF	31
	DISPON (2900h): Display ON	32
	CASET (2A00h): Column Address Set	33
	RASET (2B00h): Row Address Set	34
	RAMWR(2C00h):Memory Write	35
	REMRD(2E00h):Memory Read	36
	MADCTL (3600h): Set Address Mode	37
	IDMOFF (3800h): Idle Mode Off	39
	IDMON (3900h): Idle Mode On	40
	COLMOD (3A00h): Interface Pixel Format	41
	WRDISBV (5100h): Write Display Brightness	42
	SCACTRL (6900h): Scaling Up Control	43
	IFCONF (6B00h): Interface Configure	44
	ANCTRL1 (9000h): Display Anchor On/Off	45
	ANCTRL2 (9100h): Display Anchor CTRL	46



1 General Description

This display is a 0.49 inch diagonal, 1920 × 1080 resolution active mono-green OLED panel module based on single-crystal silicon transistors. This panel integrates panel driver and logic driver, and realizes small size, light weight, low power consumption and high resolution.

- Peak Brightness:20000nits
- 1920 x 1080 SPR Resolution
Multi-Resolution (4*M, M=160~480) x RGB x (4*N, N=120~270)
- Frame rate: 1920x1080 up to 90Hz
- Support 8bits or 10bits color depth
- Interface
 - MIPI+ I2C
 - MIPI DPHY v1.2 with one port (4 lanes), 1.0Gbps/Lane
 - MIPI DSI v1.01 R11 Video mode
 - Support VESA-DSC v1.1 in-chip decoder (3X and 3.75X compression ratio)
 - Support scaling up 1.33x(e.g., 1440x810 to 1920x1080), 1.5x (e.g., 1280x720 to 1920x1080) and 2x (e.g., 960x540 to 1920x1080)
- Scan direction selection, up or down and right or left
- Orbit supported
- Wide range Brightness adjustment
- Sequential/Global emission
- Temperature compensation
- Image Anchoring



2 General Feature

Parameter	Specification
Resolution	1920(H) x 1080 (V)
Pixel Size	5.616μm x 5.616μm
Active Area	10.783mm x 6.065mm / 0.49" diagonal
Luminance	20000cd/m ² typical
Contrast Ratio	50000:1
Operating Voltage	AVDD: 6v~6.5v AVEE: -4~-5.5v VDDI: 1.65~1.95v
Power Consumption (60hz,20000nits, DSC off, Rolling mode)	320mW
Gray Levels	256 or 1024
Interface	MIPI
Frame Rate	Max. 90HZ
Weight	~1g
Operating Temperature	-20°C to +70°C
Storage Temperature	-40°C to +80°C

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3 Optical

Symbol	Parameter	Min.	Typ.	Max.	Unit
Brightness			20000		cd/m ²
CR	white to Black Contrast Ratio		50000:1		
Chromaticity	CIE-x		0.23		
	CIE-y		0.73		
Frame rate				90	HZ
Viewing Angle		Refer to Note4			
Power consumption	3 power mode, 60hz, 20000nits, DSC off, Rolling mode		320		mW

Note1: The specification of optical is specified at 30 degree Celsius.

Note2: Definition of optical measurement system.

The optical characteristics should be measured in dark room. Brightness is measured as peak luminance at full white pattern (Gray level=255 or 1024);

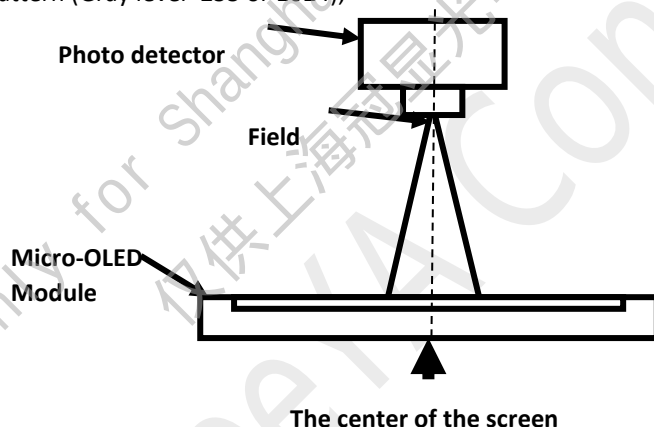
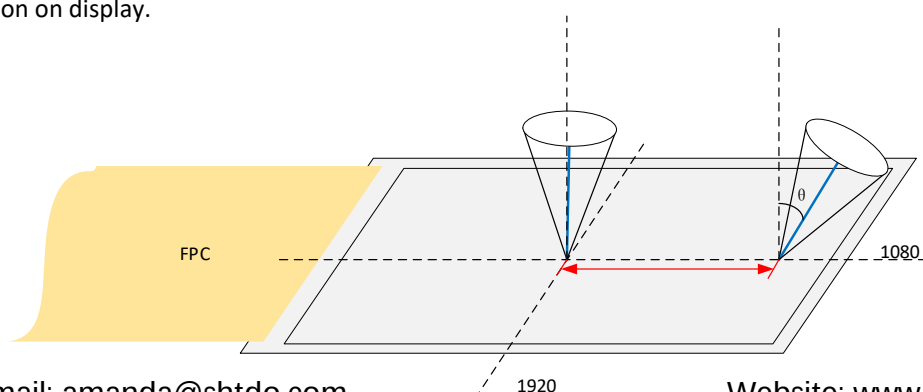


Fig.1

Note3: This product has Chief Ray Angle design, the following picture shows the Chief Ray Angle variation versus the position on display.



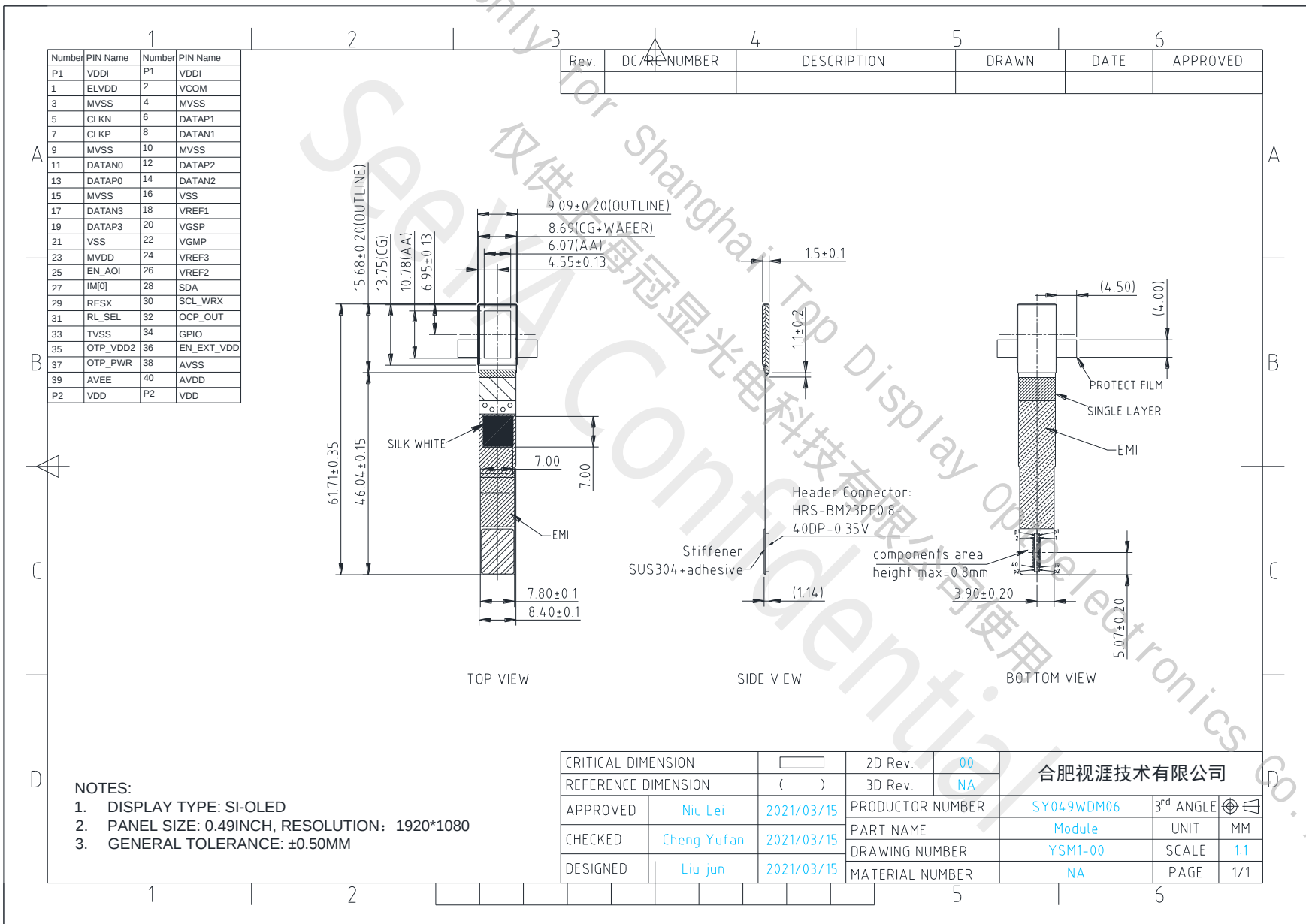
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6 Module Diagram



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7 Pin Description

7.1 Pin Description

Pin No.	Symbol	Type	Description
P1	VDDI	Power	Power supply for interface system except for the interface.
P1	VDDI	Power	Power supply for interface system except for the interface.
1	ELVDD	Output	Power supply for OLED cell. connect a capacitor for stabilization.
2	VCOM	Output	Regulator output for common electrode voltage. connect a capacitor for stabilization, connect a TVS diode to GND.
3	MVSS	Power	System GND for MIPI interface.
4	MVSS	Power	System GND for MIPI interface.
5	CLKN	Input	This pin is DSI CLK- signal if MIPI interface is used. CLKP/N is differential small amplitude signals. If not used, please keep it open.
6	DATAP1	Input/Output	This pin is DSI D1+ signal if MIPI interface is used. DATA1P/N is differential small amplitude signals. If not used, please keep it open.
7	CLKP	Input	This pin is DSI CLK+ signal if MIPI interface is used. CLKP/N is differential small amplitude signals. If not used, please keep it open.
8	DATAN1	Input/Output	This pin is DSI D1- signal if MIPI interface is used. DATA1P/N is differential small amplitude signals. If not used, please keep it open.
9	MVSS	Power	System GND for MIPI interface.
10	MVSS	Power	System GND for MIPI interface.
11	DATAN0	Input/Output	This pin is DSI D0- signal if MIPI interface is used. DATA0P/N is differential small amplitude signals. If not used, please keep it open.
12	DATAP2	Input/Output	This pin is DSI D2+ signal if MIPI interface is used. DATA2P/N is differential small amplitude signals. If not used, please keep it open.
13	DATAP0	Input/Output	This pin is DSI D0+ signal if MIPI interface is used. DATA0P/N is differential small amplitude signals. If not used, please keep it open.
14	DATAN2	Input/Output	This pin is DSI D2- signal if MIPI interface is used. DATA2P/N is differential small amplitude signals. If not used, please keep it open.
15	MVSS	Power	System GND for MIPI interface.
16	VSS	Power	System GND for internal digital system.
17	DATAN3	Input/Output	This pin is DSI D3- signal if MIPI interface is used. DATA3P/N is differential small amplitude signals. If not used, please keep it open.
18	VREF1	Power	Regulator output for internal reference voltage. Connect a capacitor for stabilization.
19	DATAP3	Input/Output	This pin is DSI D3+ signal if MIPI interface is used. DATA3P/N is differential small amplitude signals. If not used, please keep it open.
20	VGSP	Output	Regulator output for gamma low voltage generation. Connect a capacitor for stabilization.
21	VSS	Power	System GND for internal digital system.
22	VGMP	Output	Regulator output for gamma high voltage generation. Connect a capacitor for stabilization.
23	MVDD	Output	Regulator output for MIPI digital system power. Connect a capacitor for stabilization.
24	VREF3	Output	Regulator output for internal reference voltage. Connect a capacitor for stabilization. Connect a Schottky diode to GND
25	EN_AOI	Input	AOI mode enable. EN_AOI =0, AOI mode disable, EN_AOI =1, AOI mode enable
26	VREF2	Output	Regulator output for internal reference voltage. Connect a capacitor for stabilization.

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27	IM[0]	Input	Use to select the Interface type.		
			IM[0]	Command	Display Data
			0V	MIPI	MIPI
			1.8V	I2C or MIPI	MIPI
28	SDA	Input/ Output	Bi-direction data PIN in I2C I/F. If this pin is not used, please connect to VDDI.		
29	RESX	Input	This signal will reset the device and must be applied to properly initialize the chip. Signal is active low.		
30	SCL_WRX	Input	Synchronous clock signal in I2C I/F. If this pin is not used, please connect to VDDI.		
31	RL_SEL	Input	Use to select I2C slave address. RL_SEL = 0v: slave address = 0x4C or 0x4E. RL_SEL = 1.8v: slave address = 0x4D or 0x4E.		
32	OCP_OUT	Output	Over current protect output flag.		
33	V_TEST	Output	Connect to VCOM.		
34	GPIO	Input/ Output	Digital global purpose in/out test pin.		
35	OTP_VDD2	Output	Regulator output for MTP analog system power. Connect a capacitor for stabilization.		
36	EN_EXT_VDD	Input	Connect to GND.		
37	OTP_PWR	Input	Connect to GND.		
38	AVSS	Power	System GND for analog system.		
39	AVEE	Power	-4.0V~-5.5V Power supply for OLED cell. connect a capacitor for stabilization.		
40	AVDD	Power	6V~6.5V Power supply for analog system. connect a capacitor for stabilization.		
P2	VDD	Output	Regulator output for logic system power. Connect a capacitor for stabilization.		
P2	VDD	Output	Regulator output for logic system power. Connect a capacitor for stabilization.		