Tailorpixels

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Manufacturer Certificated

9001 CERT. No.: 282Q19070712006

14001 CERT. No.: 282E19070712007

Product Specification

Model: TTL112XVS-01

11.26 ″TFT Display Module (440*1920)

This module uses RoHS material

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DOCUMENT REVISION HISTORY

Version	DATE	DESCRIPTION	CHANGED BY
V00	2023.7.10	New design	

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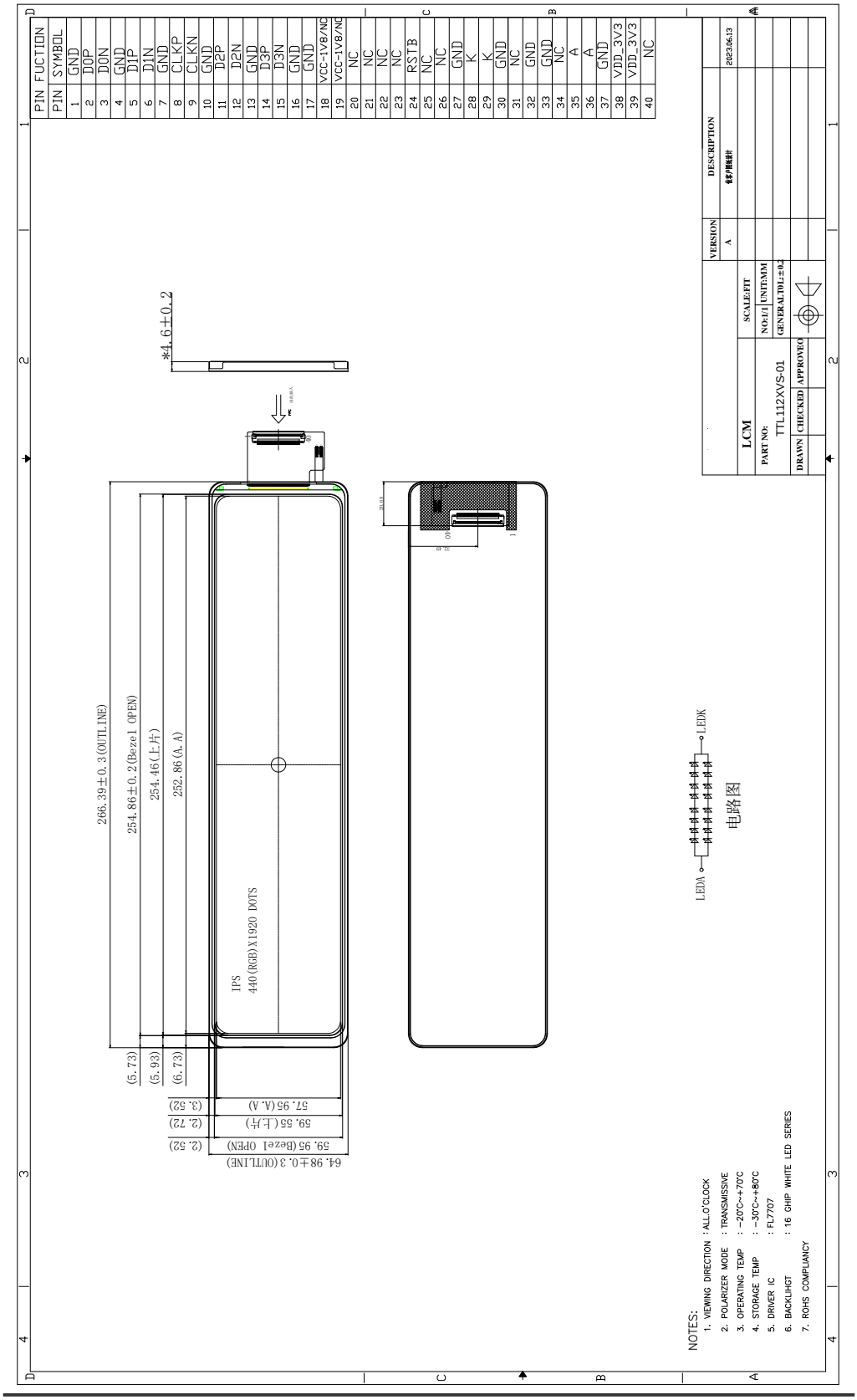
1.Features & Mechanical Specifications

Item	Contents	Unit
	LCD	
Panel Type	IPS	--
Display Mode	Normal Black	--
Number of Colors	16.7M	--
Viewing direction	ALL.O'CLOCK	--
Backlight	White LED x16in Parallel/ Series	--
NTSC	70%	--
Contrast Ratio	1000	--
Interface	MIPI 4Lanes	--
Driver IC	FL7707	--
Driver IC RAM Size	RAM less	bit
Luminance	550	cd/m2
Outline Dimension	64.98(H)×266.39 (V) ×4.6 (D) ±0.2	mm
Active area (W×H)	57.948(H) ×252.864 (V)	mm
Pixel Arrangement	RGB-stripe	--
Weight	TBD	g
Number of Dots	440xRGBx1920	Pixel
Pixel pitch	43.9(H)*3*131.7(V)	um
Operating Temperature	-20 ～ +70	℃
Storage temperature	-30 ～ +80	℃

2.Dimensional Outline



3.Pin Description

PIN No.	SYMBOL	Function
1	GND	Ground
2	DSI-D0P	DSI Data differential signal input pins. (Data lane0)
3	DSI-D0N	DSI Data differential signal input pins. (Data lane 0)
4	GND	Ground
5	DSI-D1P	DSI Data differential signal input pins. (Data lane 1)
6	DSI-D1N	DSI Data differential signal input pins. (Data lane 1)
7	GND	Ground
8	DSI-CLK P	DSI CLOCK differential signal input pins
9	DSI-CLK N	DSI CLOCK differential signal input pins
10	GND	Ground
11	DSI-D2P	DSI Data differential signal input pins. (Data lane 2)
12	DSI-D2N	DSI Data differential signal input pins. (Data lane 2)
13	GND	Ground
14	DSI-D3P	DSI Data differential signal input pins. (Data lane 3)
15	DSI-D3N	DSI Data differential signal input pins. (Data lane 3)
16-17	GND	Ground
18-19	IOVCC (NC)	I/O Power supply (NC)
20-23	NC	NC
24	RESET	Reset Signal pin (“Low” is enable)
25-26	NC	NC
27	GND	Ground
28-29	LEDK	Backlight LED Cathode
30	GND	Ground
31	NC	NC
32-33	GND	Ground
34	NC	NC

35-36	LEDA	Backlight LED Anode.
37	GND	Ground
38-39	VDD	Logic Power supply
40	NC	NC

4.Electrical Characteristics

DC Characteristics

Item	Symbol	Min.	Type.	Max.	Unit
Logic Supply Voltage	VDD	2.8	-	3.3	V
I/O Supply Voltage	IOVCC	-	-	-	V

注：复位电压需与 VDD 保持一致，(IOVCC 未启用）。

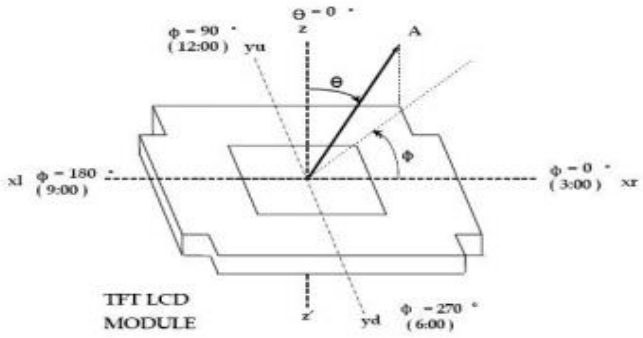
5. Backlight Characteristics

White LED ×16 in Parallel/ Series **(Ta = 25°C)**

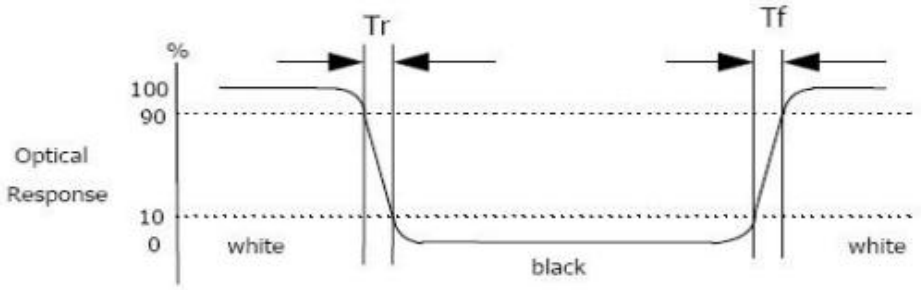
Item	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	VF	IF=120mA	22.5	-	25	V
Uniformity	△Bp	-	80	-	-	%
Luminance for LCD	Lv	IF=120mA	500	550	-	cd/m^2

6. Electro-Optical Characteristics

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle Range	Horizontal	Θ_3	CR > 10	80	85	-	Deg.	Note 4.1
		Θ_9		80	85	-	Deg.	
	Vertical	Θ_{12}		80	85	-	Deg.	
		Θ_6		80	85	-	Deg.	
Contrast Ratio		CR	Θ = 0°	800	1000	-		APF Note 4.2/4.3
Cell Transmittance		Tr		4.7	5.65	-	%	
Reproduction of color		Rx	Θ = 0°	0.630	0.660	0.690	-	CF@C Light Note 4.4
		Ry		0.288	0318	0.348	-	
		Gx		0.232	0.262	0.292	-	
		Gy		0.540	0.570	0.600	-	
		Bx		0.108	0.138	0.168	-	
		By		0.053	0.083	0.113	-	
		Wx		0.274	0.304	0.334	-	
		Wy		0.302	0.332	0.362	-	
Color Gamut			Θ = 0°	65	70	-	%	
Response Time		Tr	Ta= 25° C Θ = 0°	-	**30**	**35**	ms	Note 4.5
		Tf		-			ms	



Viewing angle is the angle at which the contrast ratio is greater than 10.The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface.



Response time is the time required for the display to transition from white to black (Rising time, Tr) and from black to white (Falling time, Tf) for additional information.

Contrast Ratio (CR) is defined mathematically as:

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

Surface luminance is the center point across the LCD surface 500mm from the surface with all pixels displaying white.

7. Instruction Description

Please refer to ICN9707

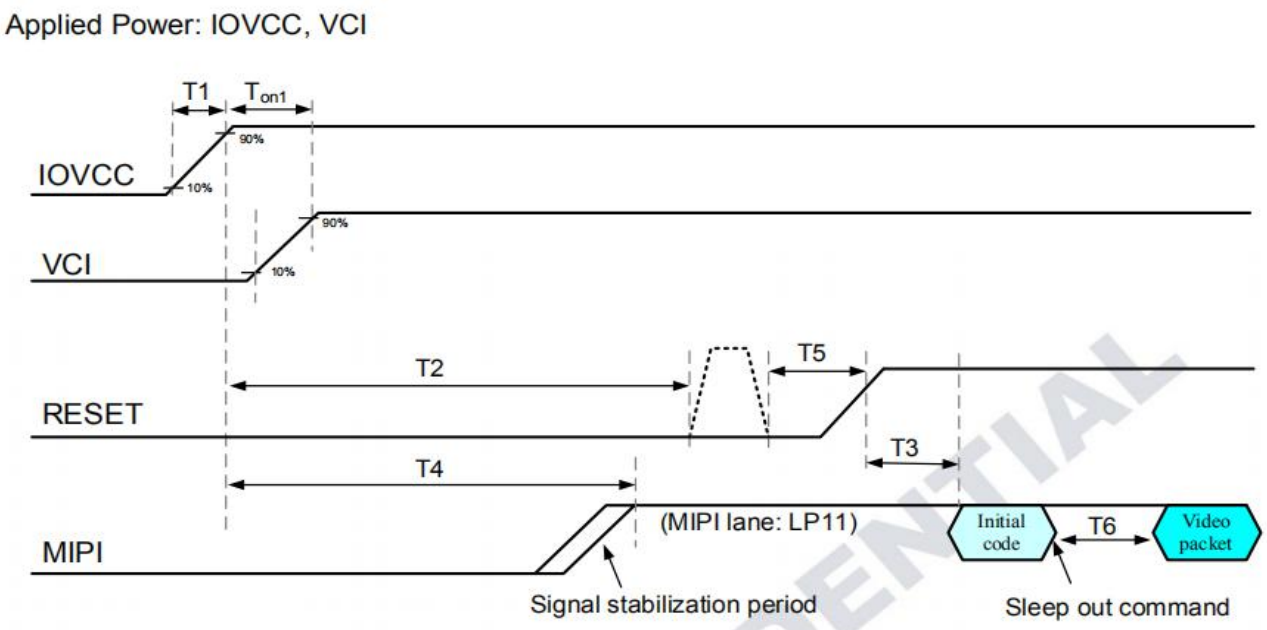


Figure 7-1 Power on sequence at PCCS[1:0]=[1,0] mode

Note1: Unless otherwise specified, timings herein show cross point at 50% of signal/power level.

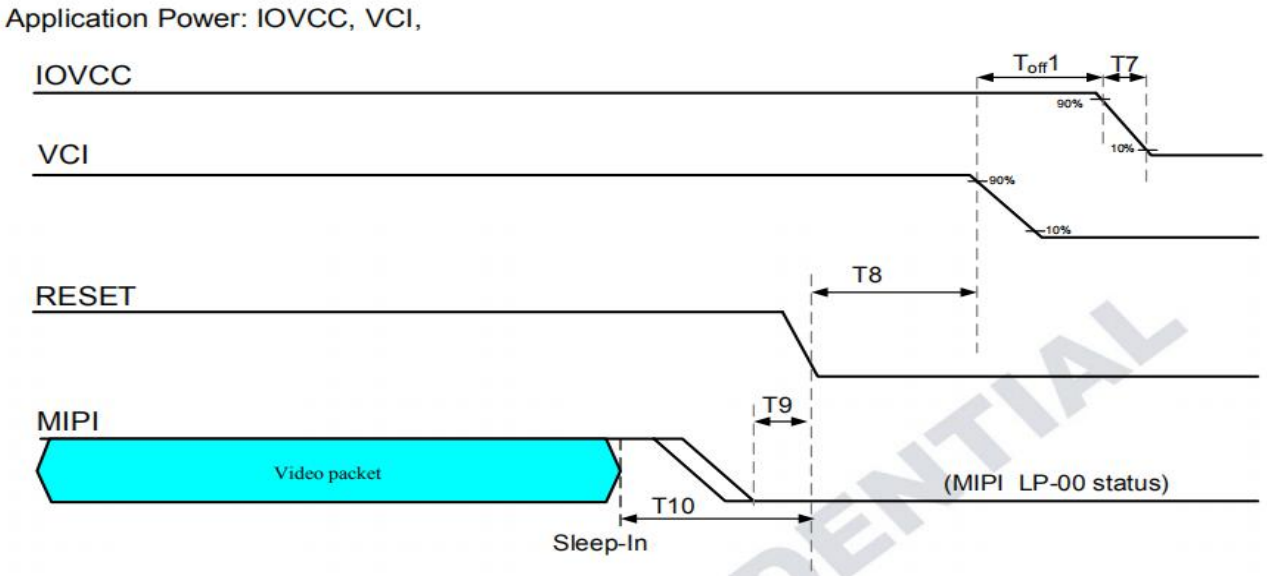


Figure 7-3 Power off sequence at PCCS[1:0]=[1,0] mode

Note1: Unless otherwise specified, timings herein show cross point at 50% of signal/power level.

8. AC Characteristics

4.5.1 High Speed Mode - Clock Timings

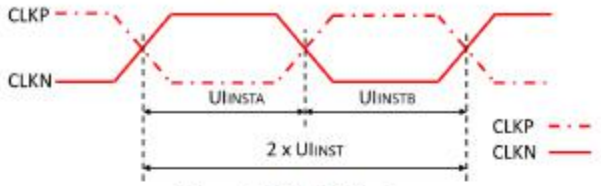


Figure 4-5 Clock Timing

Signal	Symbol	Parameter	Specification			Unit	Notes
			MIN	TYP	MAX		
CLK P/N	2xUIINST	Double UI instantaneous	2.5		12.5	ns	
CLK P/N	UIINSTA, UIINSTB	UI instantaneous Half	1.25		6.25	ns	1,2

Note 1: UI = UIINSTA = UIINSTB

Note 2: ICNL9707 can support max 600Mbps/lane at 4 lane and max 800Mbps/lane at 3 lane application

4.5.2 High Speed Mode - Clock / Data Timings

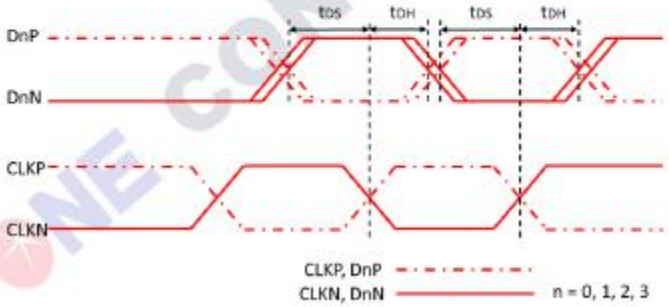


Figure 4-6 DSI Clock / Data Timings

Signal	Symbol	Parameter	Specification			Unit	Notes
			MIN	TYP	MAX		
Dn P/N (n=0,1,2 and 3)	tDS	Data to Clock Setup time	0.15*UI			UI	
	tDH	Clock to Data Hold time	0.15*UI			UI	

9. Reliability of LCM

Reliability test condition:

Item	Condition	Time (hrs)	Assessment
Item	Condition	Time (hrs)	Assessment
High temp. Storage	80°C	48	
High temp. Operating	70°C	48	
Low temp. Storage	-30°C	48	No abnormalities in functions and appearance
Low temp. Operating	-20°C	48	
Humidity	60°C/ 90%RH	48	
Temp. Cycle	-30°C ← 25°C →80°C (60 min ← 5 min → 60min)	10cycles	
Electro Static Discharge(Operation)	C=150pF,R=330 Ω ,5points/panel Air:±8KV;Contrct:±4KV	5times	

Recovery time should be 24 hours minimum. Moreover, functions, performance and appearance shall be free from remarkable deterioration within 50,000 hours under ordinary operating and storage conditions room temperature (20±8°C), normal humidity (below 65% RH), and in the area not exposed to direct sun light.

10.Precaution for using LCD/LCM

LCD/LCM is assembled and adjusted with a high degree of precision. Do not attempt to make any alteration or modification. The followings should be noted.

General Precautions:

A. LCD panel is made of glass. Avoid excessive mechanical shock or applying strong pressure onto the surface of display area.
B. The polarizer used on the display surface is easily scratched and damaged. Extreme care should be taken when handling. To clean dust or dirt off the display surface, wipe gently with cotton, or other soft material soaked with isoproply alcohol, ethyl alcohol or trichlorotriflorothane, do not use water, ketone or aromatics and never scrub hard.
C. Do not tamper in any way with the tabs on the metal frame.
D. Do not made any modification on the PCB without consulting SUNYEE.
E. When mounting a LCM, make sure that the PCB is not under any stress such as bending or twisting. Elastomer contacts are very delicate and missing pixels could result from slight dislocation of any of the elements.
F. Avoid pressing on the metal bezel, otherwise the elastomer connector could be deformed and lose contact, resulting in missing pixels and also cause rainbow on the display.
G. Be careful not to touch or swallow liquid crystal that might leak from a damaged cell. Any liquid crystal adheres to skin or clothes, wash it off immediately with soap and water.

Static Electricity Precautions:

H. CMOS-LSI is used for the module circuit; therefore operators should be grounded whenever he/she comes into contact with the module.
I. Do not touch any of the conductive parts such as the LSI pads; the copper leads on the PCB and the interface terminals with any parts of the human body.
J. Do not touch the connection terminals of the display with bare hand; it will cause disconnection or defective insulation of terminals.
K. The modules should be kept in anti-static bags or other containers resistant to static for storage.
L.Only properly grounded soldering irons should be used.
M.If an electric screwdriver is used, it should be grounded and shielded to prevent sparks.
N. The normal static prevention measures should be observed for work clothes and working benches.
O. Since dry air is inductive to static, a relative humidity of 50-60% is recommended.

Soldering Precautions:

P. Soldering should be performed only on the I/O terminals.
Q. Use soldering irons with proper grounding and no leakage.
R. Soldering temperature: 280°C±10°C
S. Soldering time: 3 to 4 second.
T. Use eutectic solder with resin flux filling.
U. If flux is used, the LCD surface should be protected to avoid spattering flux.
V. Flux residue should be removed.

Operation Precautions:

W. The viewing angle can be adjusted by varying the LCD driving voltage Vo.
X. Since applied DC voltage causes electro-chemical reactions, which deteriorate the display, the applied pulse waveform should be a symmetric waveform such that no DC component remains. Be sure to use the specified operating voltage.
Y. Driving voltage should be kept within specified range; excess voltage will shorten display life.
Z. Response time increases with decrease in temperature.
AA. Display color may be affected at temperatures above its operational range.
6. Keep the temperature within the specified range usage and storage. Excessive temperature and humidity could cause polarization degradation, polarizer peel-off or generate bubbles.
7. For long-term storage over 40°C is required, the relative humidity should be kept below 60%, and avoid direct sunlight.

Limited Warranty

SUNYEE LCDs and modules are not consumer products, but may be incorporated by SUNYEE's customers into consumer products or components thereof, SUNYEE does not warrant that its LCDs and components are fit for any such particular purpose.

AB. The liability of SUNYEE is limited to repair or replacement on the terms set forth below. SUNYEE will not be responsible for any subsequent or consequential events or injury or damage to any personnel or user including third party personnel and/or user. Unless otherwise agreed in writing between SUNYEE and the customer, SUNYEE will only replace or repair any of its LCD which is found defective electrically or visually when inspected in accordance with SUNYEE general LCD inspection standard. (Copies available on request)
AC. No warranty can be granted if any of the precautions state in handling liquid crystal display above has been disregarded. Broken glass, scratches on polarizer mechanical damages as well as defects that are caused accelerated environment tests are excluded from warranty.
AD. In returning the LCD/LCM, they must be properly packaged; there should be detailed description of the failures or defect.