



XINSUN Display Integration Ltd.

LCD MODULE SHORT FORM

MODEL NO. : XF078UW01A-IMNL

CUSTOMER :

1. General Specifications

XF078UW01A-IMNL is a TFT-LCD module. It is composed of a TFT-LCD panel, driver IC, FPC, a back light unit. The 7.84 inch display area contains 400(RGB) x1280 pixels and can display up to 16.7M colors. This product accords with ROHS environmental criterion.

Item	Contents	Unit	Note
LCD Type	TFT	-	
Display color	16.7M		1
Viewing Direction	ALL	O'Clock	
Operating temperature	-20~+70	℃	
Storage temperature	-30~+80	℃	
Module size	67.80*205.78*4.75	mm	2
Active Area(W×H)	59.40*190.08	mm	
Number of Dots	400×RGB×1280	dots	
Backlight	12-LEDs (white)	pcs	
Brightness(LCM)	450	cd/m ²	TYP
Data Transfer	MIPI	-	

Note 1: Color tune is slightly changed by temperature and driving voltage.

Note 2: Without FPC and Solder.

2. Mechanical Drawing

RoHS

DISPLAY TYPE:	7.84" TFT NORMALLY BLACK TRANSMISSIVE
RESOLUTION:	400 (RGB)*1280
Driver IC:	NV9051F1
Viewing Angle	ALL
LCM BRIGHTNESS:	450cd/m ² typ; 400cd/m ² min
Chromaticity:	(X=0.26±0.06, Y=0.27±0.05)
Homogeneity:	80% TYP
BACKLIGHT:	12pcs, 6S2P (定电流120mA)
Interface:	MPI
OPERATING TEMP:	-20° C ~ 70° C
STORAGE TEMP:	-30° C ~ 80° C
	VCI : 3.3V IOVCC: 1.8V

12pcs, 6S2P
VF=18V TYP ; IF=120mA

NOTE:

- GENERAL TOLERANCE: ±0.2.
- (...) IS REFERENCE DIMENSION.
- * CRITICAL DIMENSION
- COMPLIABLY RoHS.

客户注意: 上偏光片会凸出 胶框0.15mm高度

客户注意: 客户注意空

箭头指向: 客户注意空

黑色马标尺寸: 40x134.4mm (3100-0009)

PIN	FUCTION
1	GND
2	DOP
3	DON
4	GND
5	DIP
6	DIN
7	GND
8	CLKP
9	CLKN
10	GND
11	D2P
12	D2N
13	GND
14	D3P
15	D3N
16	GND
17	GND
18	IOWCC
19	IOWCC
20	NC
21	NC
22	NC
23	NC
24	RSTB
25	NC
26	NC
27	GND
28	K
29	K
30	GND
31	NC
32	GND
33	GND
34	NC
35	A
36	A
37	GND
38	VCI
39	VCI
40	NC

DRAWING NO.		TITLE	SCALE	UNIT	SHEET
		MODULE SPEC.		mm	1 OF 1

REV	DESCRIPTION	DATE	DESIGN	CHECKED	APPROVED
01	First issue	2021.02.20	OYC		

ME. CHECKED

E.E. CHECKED

APPROVED

3. Pin Assignment

Pin No.	Symbol	Function
1	GND	Ground
2	D0P	MIPI Data lane0 input (positive)
3	D0N	MIPI Data lane0 input (negative)
4	GND	Ground
5	D1P	MIPI Data lane1 input (positive)
6	D1N	MIPI Data lane1 input(negative)
7	GND	Ground
8	CLKP	MIPI CLK input (positive)
9	CLKN	MIPI CLK input (negative)
10	GND	Ground
11	D2P	MIPI Data lane2 input (positive)
12	D2N	MIPI Data lane2 input (negative)
13	GND	Ground
14	D3P	MIPI Data lane3 input (positive)
15	D3N	MIPI Data lane3 input (negative)
16-17	GND	Ground
18-19	IOVCC	IO Power Supply(1.8V)
20-23	NC	NC
24	RSTB	global reset pin. Active low to enter reset state. suggest to connecting with an RC reset circuit for stability. Normally pull high.
25	NC	NC
26	NC	NC
27	GND	Ground
28-29	K	Backlight LED Ground
30	GND	Ground
31	NC	NC
32-33	GND	Ground
34	NC	NC
35-36	A	Backlight LED Power
37	GND	Ground
38-39	VCI	Power Supply(3.3V)
40	NC	NC

4. Absolute Maximum Ratings

4.1 Electrical Absolute Maximum Ratings.(V_{ss}=0V ,T_a=25°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Power supply	V _{CI}	T _a =25°C	-0.3	-	6.6	V	
I/O and interface power supply	IOVCC	T _a =25°C	-0.3	-	4.5	V	

Notes:

1. If the module is above these absolute maximum ratings. It may become permanently damaged.
Using the module within the following electrical characteristic conditions are also exceeded, the module will malfunction and cause poor reliability.
2. V_{CI} > V_{ss} must be maintained.
3. Please be sure users are grounded when handing LCD Module

4.2 Environmental Absolute Maximum Ratings.

Item	Storage		Operating		Note
	MIN.	MAX.	MIN.	MAX.	
Ambient Temperature	-30°C	80°C	-20°C	70°C	1,2

1. The response time will become lower when operated at low temperature.
2. Background color changes slightly depending on ambient temperature.
The phenomenon is reversible.

5. Electrical Specifications and Input Timing Table

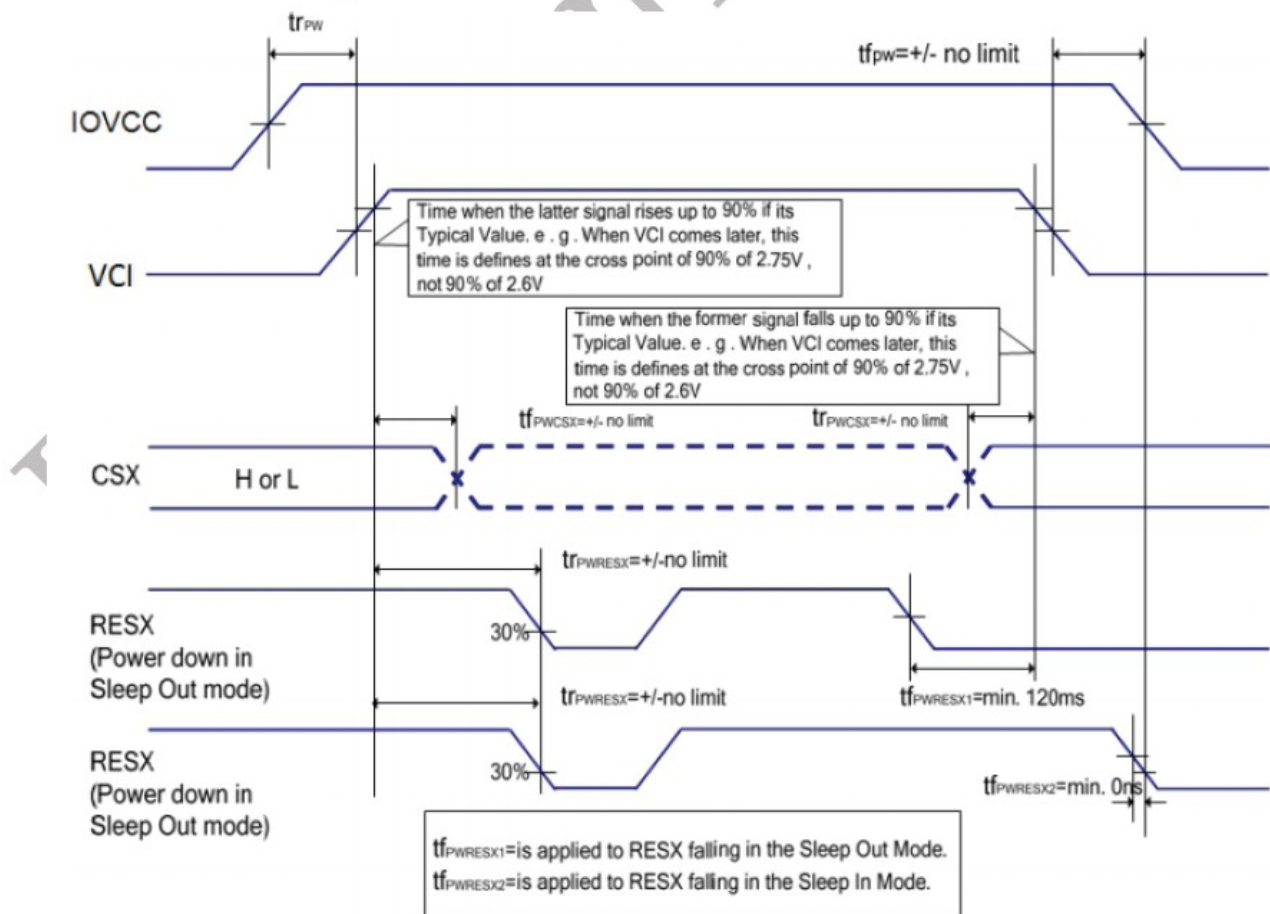
5.1 Electrical characteristics($V_{SS}=0V$, $T_a=25^{\circ}C$)

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Note
Power supply	VCI	$T_a=25^{\circ}C$	2.5	2.8	6.0	V	
Power supply	IOVCC	$T_a=25^{\circ}C$	1.65	1.8	3.6	V	
Input voltage	'H'	V_{IH}	$V_{IOVCC}=1.8V$	$0.7V_{IOVCC}$	-	V_{IOVCC}	V
	'L'	V_{IL}	$V_{IOVCC}=1.8V$	VSS	-	$0.3V_{IOVCC}$	V

Note:

- 1:When an optimum contrast is obtained in transmissive mode.
- 2: Tested in 1×1 chessboard pattern.

5.2.1 Power On/Off Sequence



5.2.2 Input Timing Table

Parameters	Symbols	Min.	Typ	Max.	Unit
MIPI Vedio data-rate (4 lane)	-	-	500	-	Mbps
PCLK Frequency	FPCLK	-	63.92	-	MHz
Horizontal Synchronization	Hsync	-	2	-	PCLK
Horizontal Back Porch	HBP	-	44	-	PCLK
Horizontal Front Porch	HFP	-	46	-	PCLK
Hsync+ HBP+ HFP	-	-	90	-	PCLK
Horizontal Address (Display area)	Hadr	-	720	-	PCLK
Horizontal cycle	-	-	12.703	-	us
Vertical Synchronization	Vsync	-	2	-	Line
Vertical Back Porch	VBP	-	14	-	Line
Vertical Front Porch	VFP	-	16	-	Line
Vsync+ VBP+ VFP	-	-	32	-	Line
Vertical Address (Display area)	Vadr	-	1280	-	Line
Vertical cycle	-	-	16.66	-	ms
Frame-Rate	-	-	60	-	Hz

5.3 LED backlight specification(VSS=0V ,Ta=25°C)

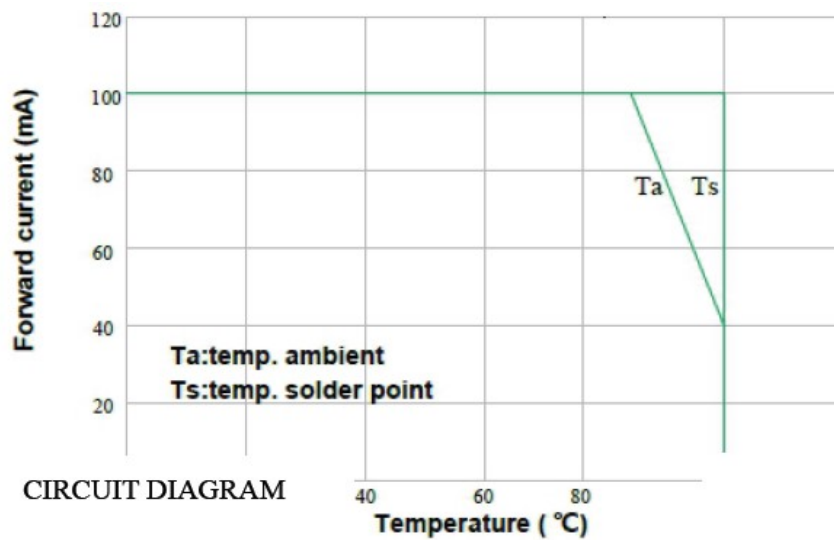
Item	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply voltage	V_f	-	-	18	-	V	1
Supply current	I_f	-	-	120	-	mA	2
Number of LED	-	6Sx2P	-	12	-	Piece	
LED life time	-		20000	-	-	Hr	

Note:

1: $V_{LED} = V_{LED(+)} - V_{LED(-)}$.

2: The current of LED is 60mA.

A LED drive in constant current mode is recommended.



6. Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note	
Brightness	Bp	$\theta=0^{\circ}$	400	450	-	cd/m ²	1	
Uniformity	\triangle Bp	$\Phi=0^{\circ}$	75	80	-	%	1,2	
Viewing Angle	3:00	Cr≥10	-	80	-	Deg	3	
	6:00		-	80	-			
	9:00		-	80	-			
	12:00		-	80	-			
Contrast Ratio	Cr	$\theta=0^{\circ}$ $\Phi=0^{\circ}$	700	900		-	4	
Response Time	T _r +T _f			30	35	ms	5	
Color of CIE Coordinate	W	x	$\theta=0^{\circ}$ $\Phi=0^{\circ}$	-0.05	0.26	+0.05	-	1,6
		y			0.27		-	
	R	x			0.623		-	
		y			0.329		-	
	G	x			0.280		-	
		y			0.599		-	
	B	x			0.148		-	
		y			0.062		-	
NTSC Ratio	S		65	70	-	%		