



- ☒ Draft Specifications
- ☐ Preliminary Specifications
- ☐ Final Specifications

Title	8.4-inches Touch Display Product Specifications
Model Name	F084PET-TA1
Version	0

Customer

Approved by

Date

Notice: This Specification is subject to change without notice.

Approved By	Prepared By
ZOE NIEN	ALLEN FANG
2025-11-27	2025-11-27



REVISION HISTORY

Version	ECN No.	Description of Changes	Date	Prepared
0		Preliminary specification first edition	2025-11-27	Allen Fang



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1. GENERAL DESCRIPTION

1.1. INTRODUCTION

F084PET-TA1 is an 8.4" a-Si TFT LCD module P0840XGF1MA00 with projected capacitive multi-touch B084PBU-E01 air bonding with Touch Control Board EXC80W462838SMAG.

The display format is intended to support the XGA mode (1024(H) x 768(V)) screen and 262K / 16.7M colors (LVDS RGB 6 / 8 bits) and LED backlight without driving circuit.

1.2. FEATURES

- XGA (1024x768) resolution
- Ultra-wide viewing angle (Super Fine TFT (SFT))
- High contrast ratio (1000:1)
- High Brightness (1000 cd/m²)
- LED driver integrated
- RoHS product

1.3. APPLICATION

- TFT LCD monitor
- Industrial Application



2. GENERAL SPECIFICATIONS

Parameter	Specification	Unit	Remarks
Active Area Size	8.4	inch	
Display Area	170.496 (H) x 127.872 (V)	mm	
Outline Dimension	210.90 (H) x 168.30 (V) x 13.04 (D)	mm	D:PCAP+LCM
Weight	TBD	g	Typ.
Driver Element	a-Si TFT active matrix	-	
Display Colors	262K / 16,7M (RGB 6 / 8 bits)	Colors	
Electrical Interface	LVDS	-	
Number of Pixels	1024 (H) x 768 (V)	pixels	
Pixel Pitch	0.1665 (H) x 0.1665(W)	mm	
Pixel Arrangement	RGB vertical stripe	-	
Display Mode	SFT/ Normal Black	-	
Color Gamut	70	%	
Touch Technology	Projected Capacitive Multi-Touch Panel	-	
Touch Method	Finger or exclusive pen	-	
Numbers of Touch	10	Points	
Touch FPC Type	COB		
Touch Sensor Glass Type	Strengthening Glass		
Touch Control Board	EETI, EXC80W462838SMAG	-	
Touch Driver Interface	USB & I ² C	-	
Support OS	Android, Linux, Win7, Win8, Win10, XP	-	

3. ABSOLUTE MAXIMUM RATINGS

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit.

Parameter	Symbol	Min.	Max.	Unit	Remark
Input Voltage	V _{CC}	-0.3	5	V	Note 1
LED Input Voltage	LED_V _{DD}	-0.3	22.4	V	
Operating Temperature	T _{op}	-20	70	°C	
Storage Temperature	T _{st}	-30	80	°C	
Relative Humidity Note 2	RH	--	≤ 95	%	Ta ≤ 40°C
		--	≤ 85	%	40°C < Ta ≤ 50°C
		--	≤ 55	%	50°C < Ta ≤ 60°C
		--	≤ 36	%	60°C < Ta ≤ 70°C
		--	≤ 24	%	70°C < Ta ≤ 80°C
		--	≤ 70	g/m ³	Ta > 70°C
Touch DC Supply Voltage	I ² C	-0.3	3.6	V	
Touch DC Supply Voltage	USB	-0.3	6.0	V	

Note 1: Input voltage including MODE, SC, Link0-/+, Link1-/+, Link2-/+, Link3-/+, VCC.

Note 2: Ta means the ambient temperature.

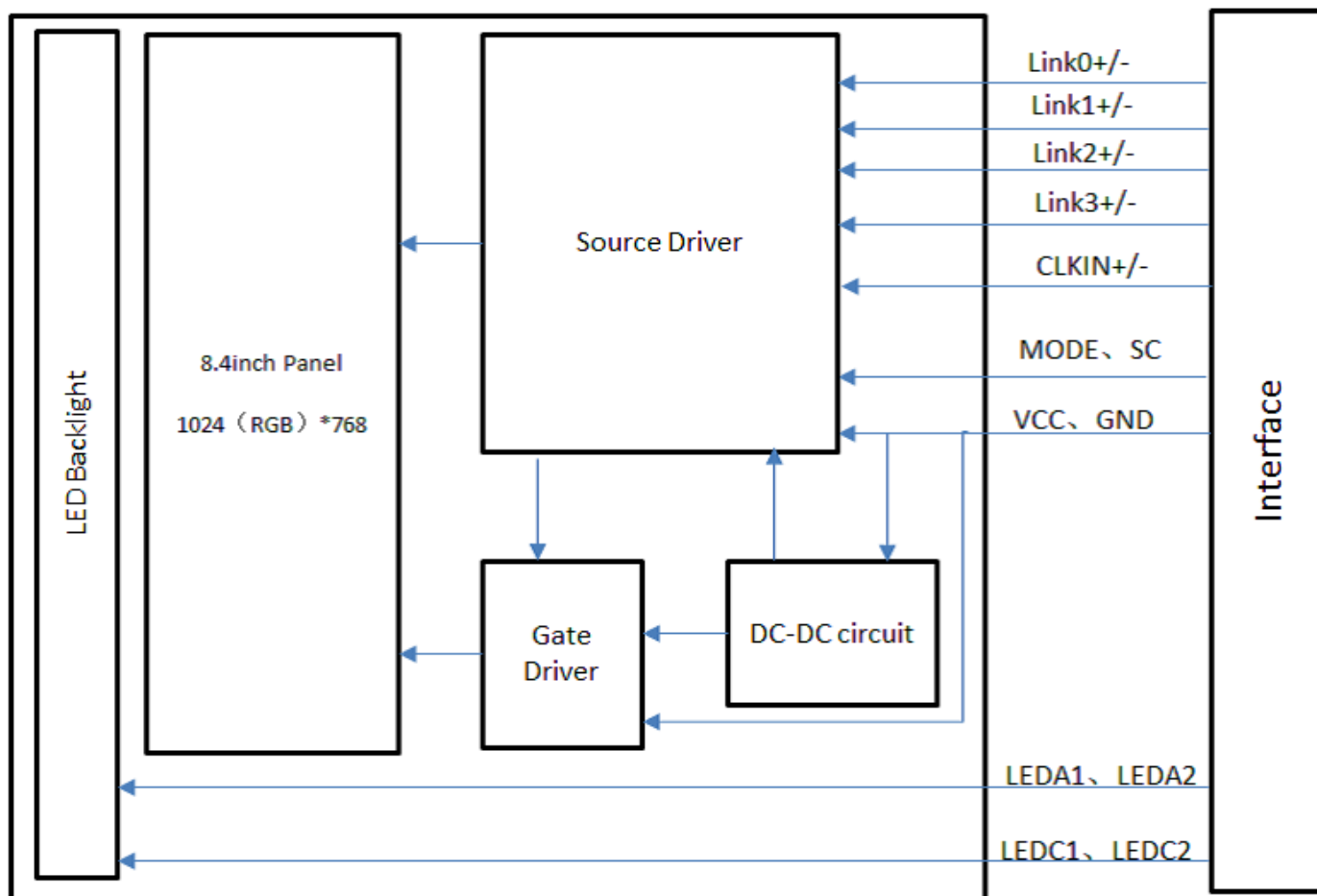
It is necessary to limit the relative humidity to the specified temperature range.

Condensation on the module is not allowed.

4. ELECTRICAL CHARACTERISTICS

4.1. LCD MODULE

4.1.1. LCD BLOCK DIAGRAM



4.1.2. LCD DRIVING SPECIFICATIONS

VCC=3.3V, GND=0V, Ta=25°C

Parameter	Symbol	Min.	Typ.	Max.	Units	Remark
Power supply voltage	VCC	(3.0)	3.3	(3.6)	V	Note 1
Power Ground	GND	-	0	-	V	
Input High Voltage	V _{IH}	0.7xVCC		VCC	V	Note 1
Input Low Voltage	V _{IL}	GND		0.3xVCC	V	
LVDS differential input high threshold voltage	RxVTH	-	-	+200	mV	Note 2
LVDS differential input high threshold voltage	RxVTL	-200	-	600	mV	
Differential input voltage	V _{ID}	200	-	600	mV	
Differential input common mode voltage	RxVCM	1.0	1.2	$1.7 \cdot V_{ID} / 2$	V	
Current of VCC Power supply	IVCC	-	310	-	mA	Note 3
Power consumption	P	-	1023	-	mW	
Inrush current of VCC	I _{rush}	-	TBD	TBD	A	Note 4

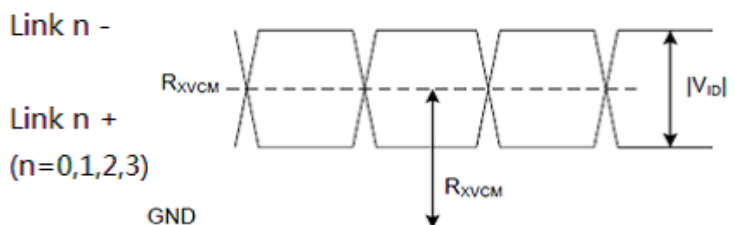
Note 1: Including MODE, SC.

Note 2: Refers to the LVDS waveform as shown below:

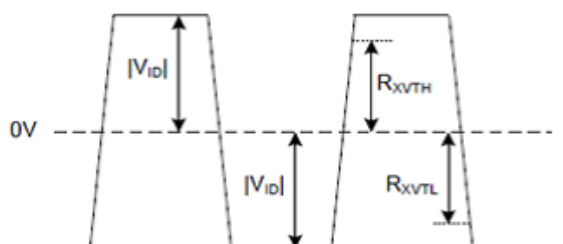
Note 3: Test in white pattern.

Note 4: VCC rising time > 1 ms

Single-end Signal



Differential Signal



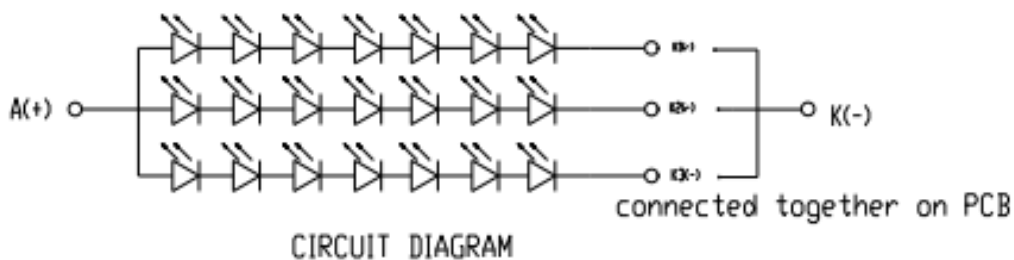
4.1.3. LCD BACKLIGHT UNIT DRIVING CONDITION

GND=0V, Ta=25°C

Parameter	Symbol	Min.	Typ.	Max.	Units	Remark
Power supply voltage	VF	18.9	21	22.4	V	Ta=25°C, If=300mA
		18.27	-	-		Ta=85°C, If=300mA
		-	-	22.89		Ta=-30°C, If=300mA
		-	-	25.55		Ta=-30°C, If=300mA
Power supply current	IF	-	300	330	mA	
Power consumption of Backlight	P	-	6300	-	mW	
LED Life time	LT	-	100000	-	Hrs	

Note 1: The figure below shows the connection of backlight LED.

Note 2: K1, K2, K3 connected together on the PCB.





4.1.4. LCD INTERFACE PINS

Matching Connector : FI-SEB20P-HFE

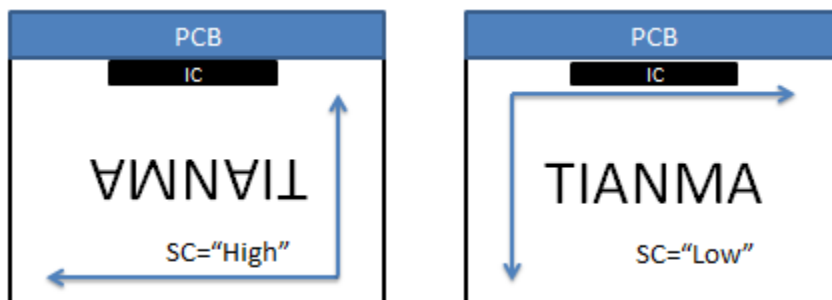
Pin	Symbol	I/O	Description	Remark
1	VCC	P	+3.3V input voltage	
2	VCC	P	+3.3V input voltage	
3	GND	P	Ground	Note 2
4	GND	P	Ground	Note 2
5	Link0-	I	Negative LVDS differential data input	
6	Link0+	I	Positive LVDS differential data input	
7	GND	P	Ground	Note 2
8	Link1-	I	Negative LVDS differential data input	
9	Link1+	I	Positive LVDS differential data input	
10	GND	P	Ground	Note 2
11	Link2-	I	Negative LVDS differential data input	
12	Link2+	I	Positive LVDS differential data input	
13	GND	P	Ground	Note 2
14	CLKIN-	I	Negative LVDS differential data input	
15	CLKIN+	I	Positive LVDS differential data input	
16	GND	P	Ground	
17	Link3-	I	Negative LVDS differential data input	Note 3
18	Link3+	O	Positive LVDS differential data input	Note 3
19	MODE	I	6-bit / 8-bit input select for LVDS interface. High : 8-bit Low : 6-bit	
20	SC	I	Reverse Scan control Low or Open : Normal scan High : Reverse scan	Note 4

Note 1: I---Input, O---Output, P---Power/Ground

Note 2: All of GND pins should be connected to the system ground.

Note 3: Please set to GND if pin is NOT in use.

Note 4: The function of the SC. The figure below is a front view.



4.1.5. LCD BACKLIGHT INTERFACE

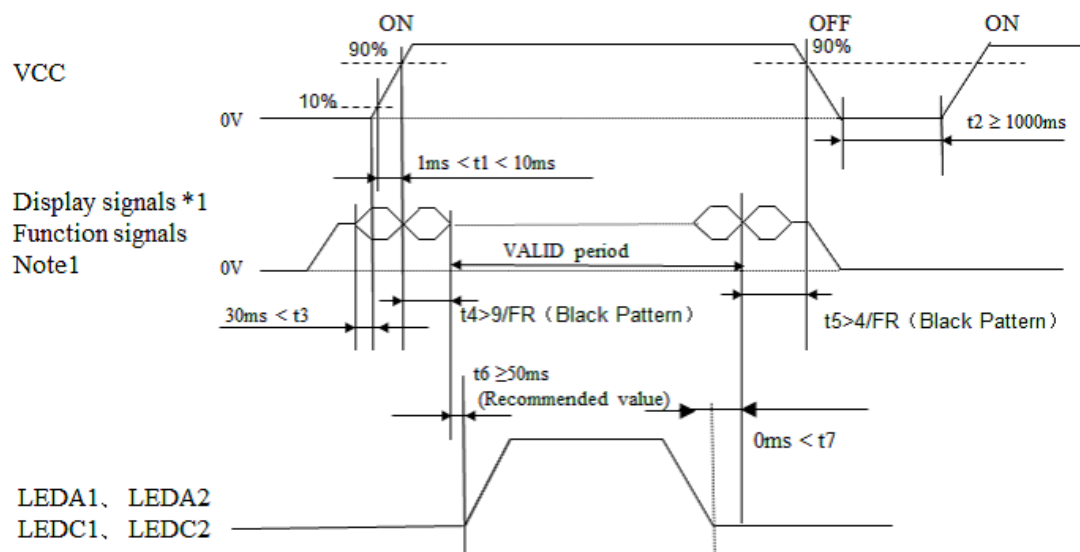
Matching Connector : FI-SEB20P-HFE

Pin	Symbol	I/O	Description	Remark
1	NC	-	This pin should be open.	-
2	NC	-	This pin should be open.	-
3	LED C1	P	LED cathode 1	Note 1
4	LED A1	P	LED anode 1	Note 2
5	LED A2	P	LED anode 2	Note 2
6	LED C2	P	LED cathode 2	Note 1

Note 1: LED C1, LED C2 connected together on the PCB and then connected with K of the backlight.

Note 2: LED A1, LED A2 connected together on the PCB and then connected with A of the backlight.

4.1.6. LCD POWER ON/OFF SEQUENCE



*1: Link0+/-, Link1+/-, Link2+/-, Link3+/-, CLKIN+/-

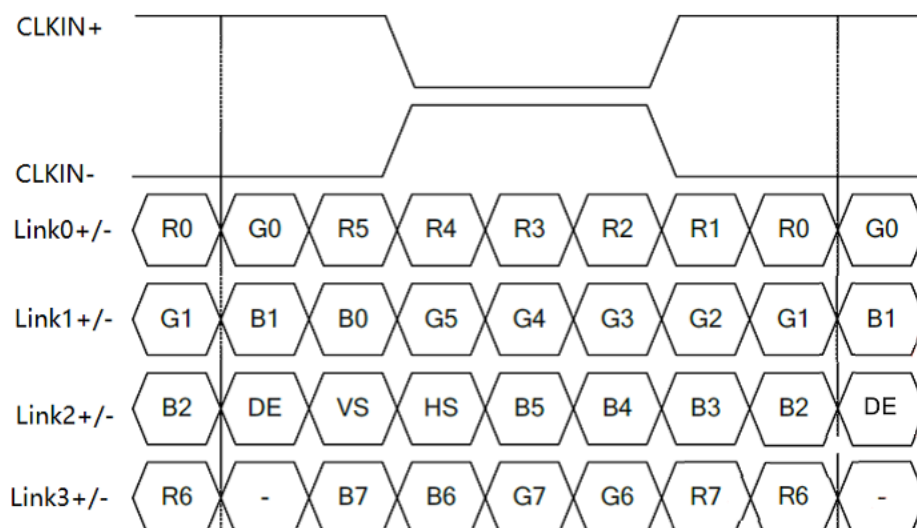
Note1: If some of display and function signals of this product are cut while this product is working, even if the signal input to it once again, it might not work normally. If a customer stops the display and function signals, VCC also must be shut down.

Note2: The backlight should be turned on within the valid period of display and function signals, in order to avoid unstable data display.

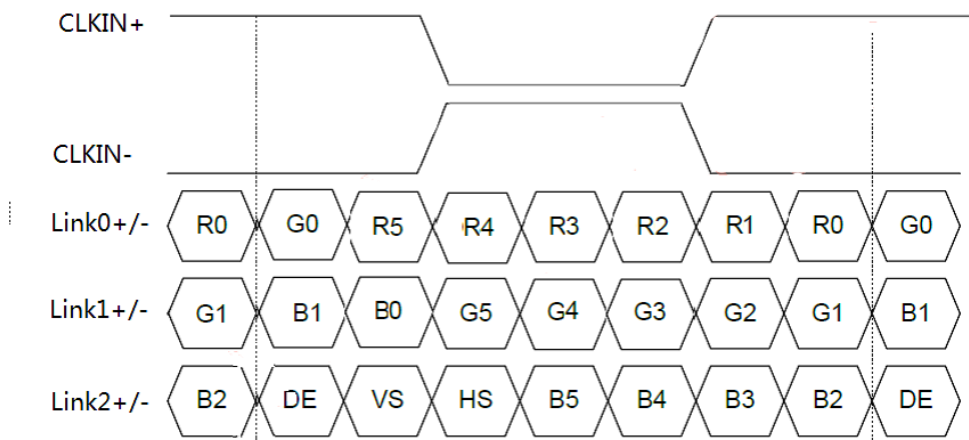
Note3: FR=Frame rate=60Hz.

4.1.7. LCD TIMING CHARACTERISTICS

LVDS Input Data Format 8-bits LVDS VESA



LVDS Input Data Format 6-bits LVDS VESA

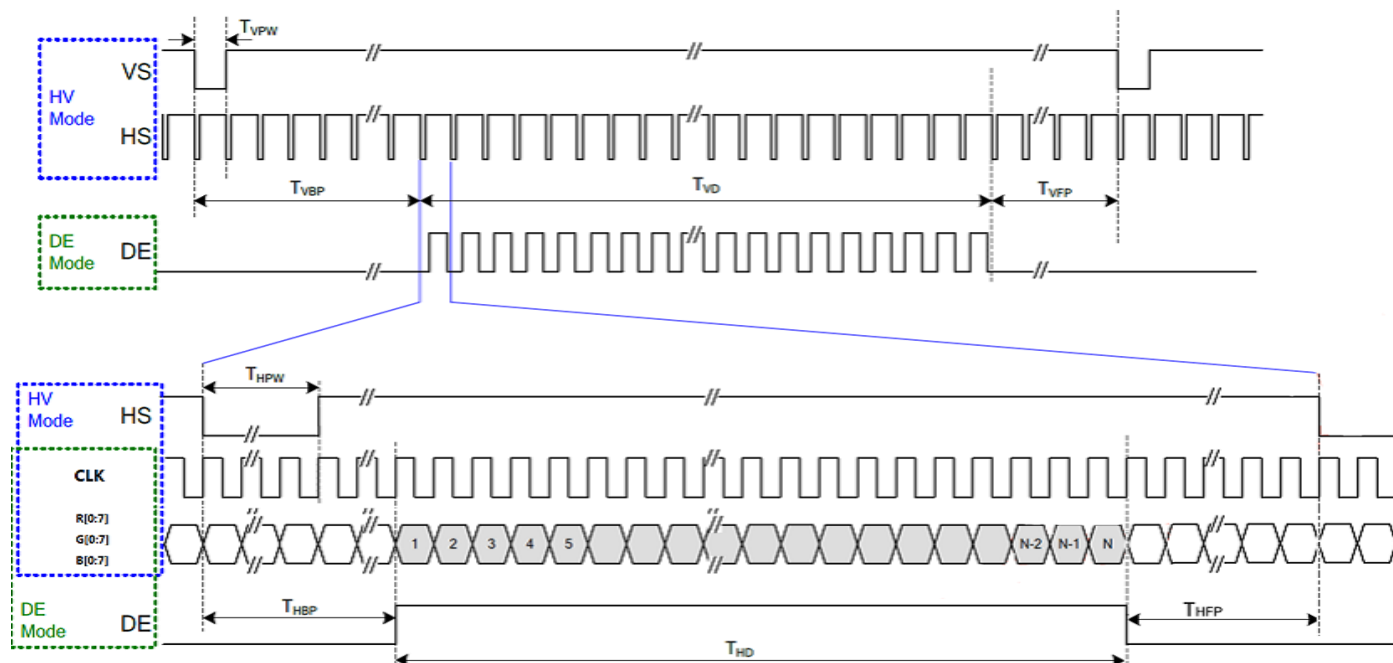


4.1.8. LCD INPUT TIMING TABLE

DE Mode for 1024RGB*768

Parameter	Symbol	Min.	Typ.	Max.	Unit
CLKIN+/- frequency	FCLK	50.3	50.7	65.3	MHz
Horizontal display area	THD	1024			CLK
HS period time	TH	1084	1088	1214	CLK
HS blanking	THFP+THBP	60	64	190	CLK
Vertical display area	TVD	768			H
VS period area	TV	774	776	897	H
VS blanking	TVBP+TVFP	6	8	129	H

4.1.9. LVDS Input Timing Format

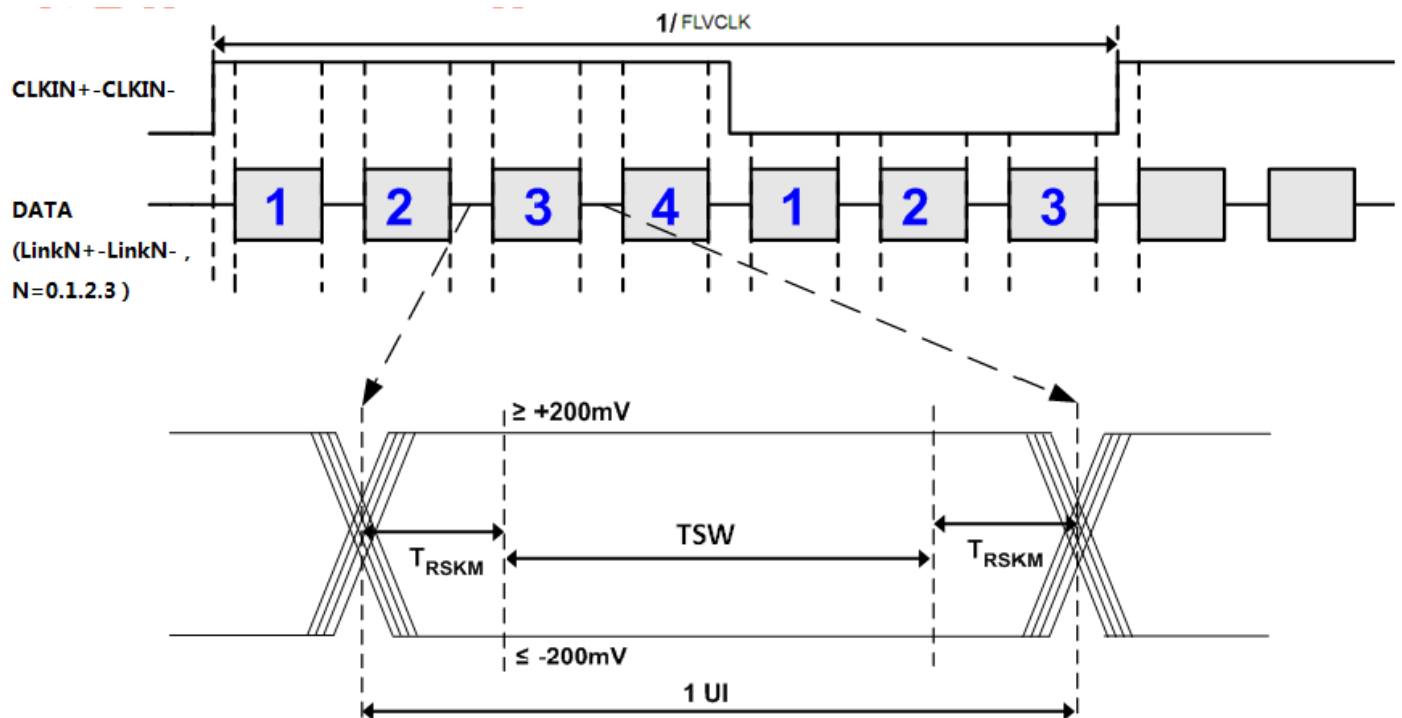


Note1 : As shown in the figure above, the customer only needs to look at the DE mode section , instead of the SYNC section.

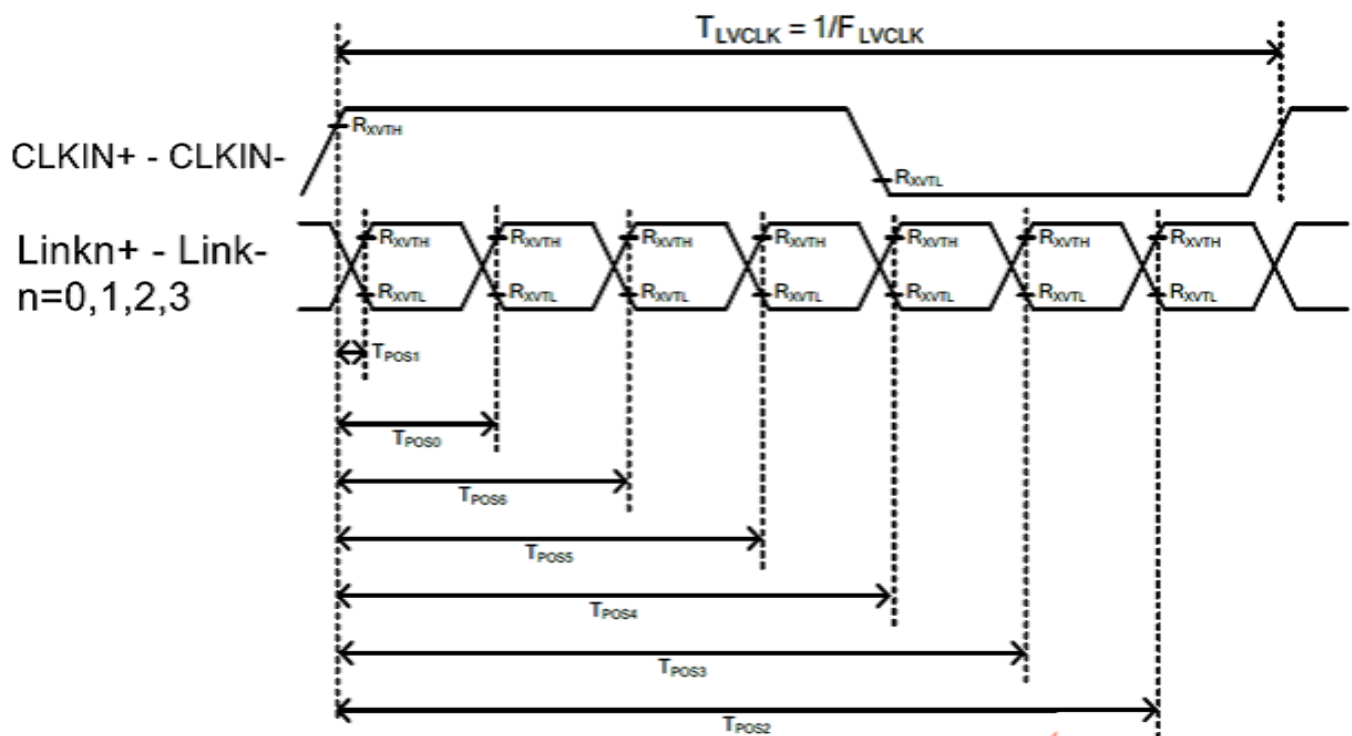
4.1.10. LVDS interface AC characteristic

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Clock frequency	FLVCLK	25	-	85	MHz	Refer to input timing table for each display resolution.
Clock Period	TLVCLK	11.76	-	40	nsec	
Clock high time	TLVCH	-	$4/(7 \times \text{RXFCLK})$	-	ns	
Clock low time	TLVCL	-	$3/(7 \times \text{RXFCLK})$	-	ns	
Input data skew margin	TRSKM	-	-	0.25	UI	$V_{CC_IF}=1.8V$ w/o SSC
Strobe width	TSW	0.5	-	-	UI	
1 data bit time	UI	-	1/7	-	TLVCLK	
Position 1	TPOS1	-0.25	0	0.25	UI	
Position 0	TPOS0	0.75	1	1.25	UI	
Position 6	TPOS6	1.75	2	2.25	UI	
Position 5	TPOS5	2.75	3	3.25	UI	
Position 4	TPOS4	3.75	4	4.25	UI	
Position 3	TPOS3	4.75	5	5.25	UI	
Position 2	TPOS2	5.75	6	6.25	UI	

LVDS Data Skew



LVDS input timing



4.2. TOUCH CONTROL

EXC80W462838MAG



No.	Item	Specification
1	Touch Controller IC	EXC80W46
2	Firmware Version	eGalaxWorks80H46~20240611-TWS_Touch-2838-v065003V1PA
3	Number Of Support	10 Fingers Touch
4	Interface	FPC/ USB / I ² C

Interface	Symbol	Condition	Min.	Typ.	Max.	Unit
I ² C	JP2	DC		3.3	3.5	V
USB	JP1	DC		5	5.5	V

Connector Pin Configuration

J1 USB	
PIN	DEFINE
1	GND_E
2	VDD
3	GND
4	D+
5	D-

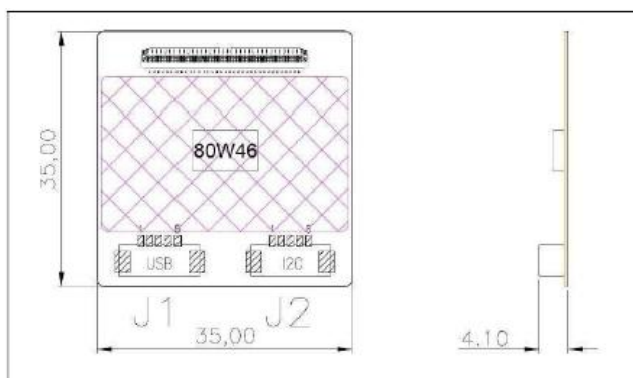
J2 I2C	
PIN	DEFINE
1	GND
2	I2C_SDA
3	I2C_SCL
4	VDD
5	I2C_INT

Connector Type: 50271-00501-001

FPC Pin Description

PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	RX_S1	21	RX 19	41	N/A	61	TX 10
2	RX 38	22	RX 18	42	TX_S1	62	TX 9
3	RX 37	23	RX 17	43	TX 28	63	TX 8
4	RX 36	24	RX 16	44	TX 27	64	TX 7
5	RX 35	25	RX 15	45	TX 26	65	TX 6
6	RX 34	26	RX 14	46	TX 25	66	TX 5
7	RX 33	27	RX 13	47	TX 24	67	TX 4
8	RX 32	28	RX 12	48	TX 23	68	TX 3
9	RX 31	29	RX 11	49	TX 22	69	TX 2
10	RX 30	30	RX 10	50	TX 21	70	TX 1
11	RX 29	31	RX 9	51	TX 20	71	TX_S0
12	RX 28	32	RX 8	52	TX 19		
13	RX 27	33	RX 7	53	TX 18		
14	RX 26	34	RX 6	54	TX 17		
15	RX 25	35	RX 5	55	TX 16		
16	RX 24	36	RX 4	56	TX 15		
17	RX 23	37	RX 3	57	TX 14		
18	RX 22	38	RX 2	58	TX 13		
19	RX 21	39	RX 1	59	TX 12		
20	RX 20	40	RX_S0	60	TX 11		

FPC Connector : 51607-0710M-001





5. OPTICAL CHARACTERISTICS

The optical characteristics are measured under stable conditions of 25°C (Room Temperature)

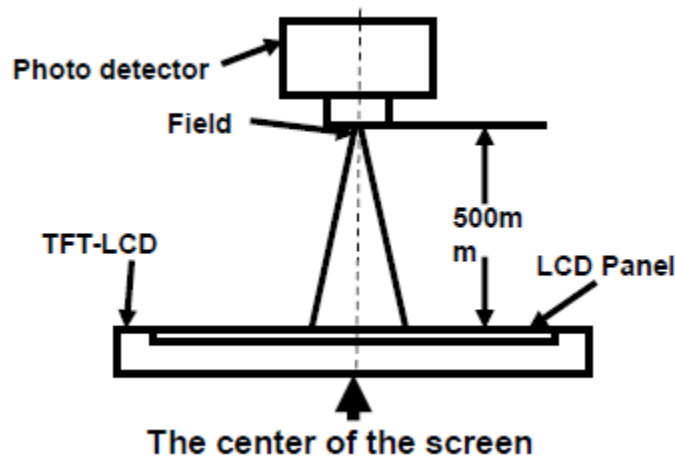
Item		Unit	Conditions		Min.	Typ.	Max.	Note
White Luminance		cd/m²			800	1000	-	7
Luminance Uniformity		%			75	80	-	6
Contrast Ratio		-	Θ=0°		800	1000	-	3
Response Time		ms	Rising + Falling		-	25	30	4
View Angle		degree	Horizontal	Right	80	88	-	2, 3
			CR≥10	Left	80	88	-	
			Vertical	Upper	80	88	-	
			CR≥10	Lower	80	88	-	
Chromaticity	Red	Rx	Backlight is ON		0.257	0.307	0.357	1, 5
		Ry			0.283	0.333	0.383	
	Green	Gx			0.580	0.630	0.680	
		Gy			0.284	0.334	0.384	
	Blue	Bx			0.266	0.316	0.366	
		By			0.580	0.630	0.680	
	White	Wx			0.107	0.157	0.207	
		Wy			0.016	0.166	0.116	
NTSC		%			65	70	-	5

Test Condition :

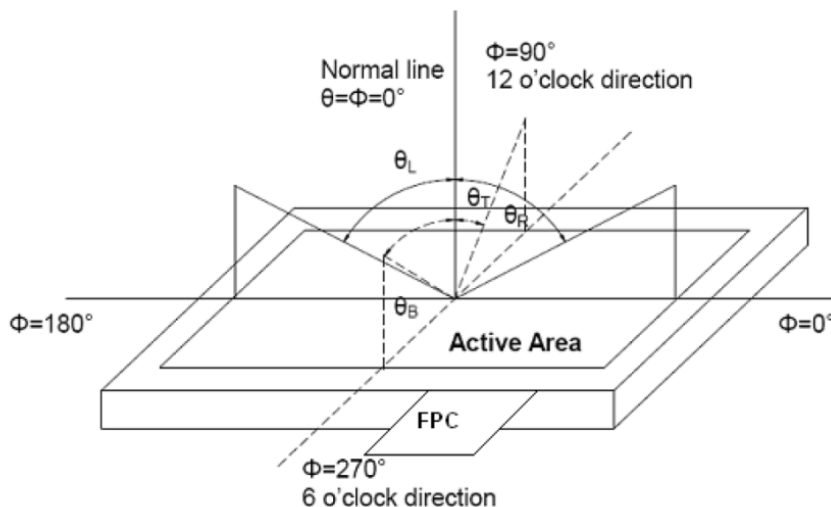
1. $I_F = 100$ mA, and the ambient temperature is 25°C.
2. The test systems refer to Note 1 and Note 2.

Note 1: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 5 minutes operation, the optical characteristics are measured at center point of the LCD screen.



Note 2: Definition of viewing angle range and measurement system. Viewing angle is measured at the center point of the LCD.



Note 3: Definition of contrast ratio

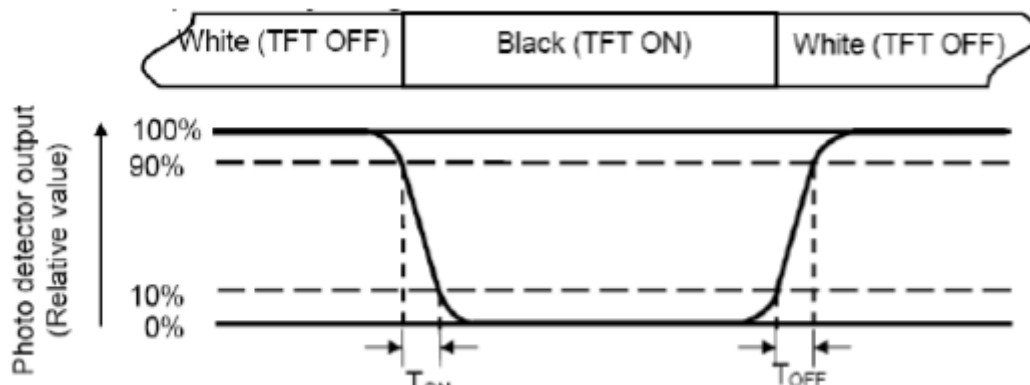
$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "White" state}}{\text{Brightness on the "Black" state}}$$

"White State": The state is that the LCD should drive by V_{white} .

"Black State": The state is that the LCD should drive by V_{black} .

Note 4: Definition of response time

The response time is defined as the LCD optical switching time interval between "White" state and "Black" state. Rise time (T_r) is the time between photo detector output intensity changed from 90% to 10%. And fall time (T_f) is the time between photo detector output intensity changed from 10% to 90%.



Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note 6: Definition of Luminance Uniformity

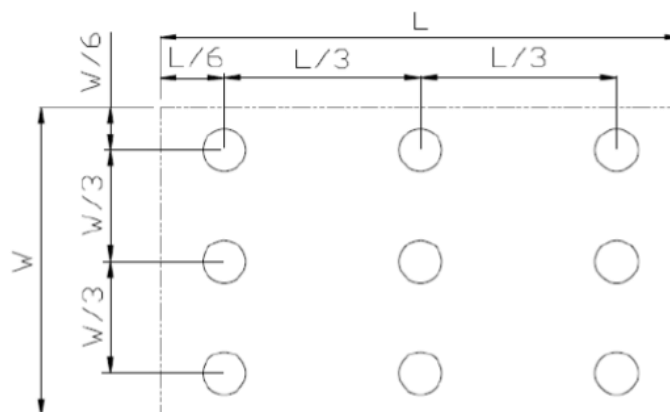
Active area is divided into 9 measuring areas. Every measuring point is place at the center of each measuring area.

Luminance Uniformity (U) = L_{min} / L_{max}

L_{max} : The measured Maximum luminance of all measurement position.

L_{min} : The measured Minimum luminance of all measurement position.

L-----Active area length ; W-----Active area width



Note 7: Definition of Luminance

Measure the luminance of white state at center point.

6. RELIABILITY TEST ITEMS

Test Item		Condition
1	High temperature/Humidity Bias	+60°C, 90% 240hrs
2	High temperature storage test	+80°C, 240hrs
3	Low temperature storage test	-30°C, 240hrs
4	High temperature operation test	+70°C, 240hrs
5	Low temperature operation test	-20°C, 240hrs
6	Thermal Cycle storage test	-30°C(30min)~80°C(30min), 10cycles

7. LABEL

Model NO. **F084PET-TA1**

條碼

SN **3A Z 20 2 21 0 XXX1**

code 1,2 Production location
 code 3 Production version
 code 4,5 Production year
 code 6 Production month
 code 7,8 Production day
 code 9 Production code
 code 10,11,12,13 Serial number

L=32mm



W=14mm

字型:Arial (6)

code:128

字型:Arial (8)

8. MECHANICAL CHARACTERISTICS

Item		Dimension	Unit	Note
Outline Dimension	Horizontal	210.90	mm	PCAP : B084PBU-E01
	Vertical	168.30	mm	
	Depth	2.70	mm	
	Horizontal	199.50	mm	LCD : P0840XGF1MA00
	Vertical	149.00	mm	
	Depth	9.70	mm	
	Horizontal	35.00	mm	CONTROL BOARD : ETP-MB-EXC80W462838SMAG
	Vertical	35.00	mm	
	Depth	4.10	mm	
Weight		340	g	F084PET-TA1
Item		Specification		Remarks
PCAP Viewing Area		170.90 mm x 128.30 mm		
PCAP Sensor Area		174.20 mm x 131.20 mm		
PCAP FPC Length		24.25 mm		
PCAP Input method		Finger or exclusive pen		
PCAP Light Transmission		≥ 90%		
PCAP Operation force		≤ 10g		Finger Input
PCAP Hardness of surface		≥ 7H		ASTM D3363, pressure 750g/45°
PCAP Surface Treatment		Haze < 4%		BYK Gardner, ASTM D1003



Front View

TBD

Back View

TBD

Product Specification

F084PET-TA1

9. ENGINEERING DRAWING

