



- ☒ Draft Specifications
☐ Preliminary Specifications
☐ Final Specifications

Title	8.4-inches Touch Display Product Specifications
Model Name	F084PET-T42
Version	0

Customer	
Approved by	Date
Notice: This Specification is subject to change without notice.	

Approved By	Prepared By
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2026-06-22	2026-06-22



REVISION HISTORY

Version	ECN No.	Description of Changes	Date	Prepared
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1. GENERAL DESCRIPTION

1.1. INTRODUCTION

F084PET-T42 is an 8.4" a-Si TFT LCD module G084SAN01.0 with projected capacitive multi-touch B084PBU-E01 air bonding with Touch Control Board EXC80W462838SMAG.

The display format is intended to support the SVGA mode (800(H) x 600(V)) screen and 16.7M colors (RGB 8-bits) and LED backlight with driving circuit.

1.2. FEATURES

- SVGA (800x600) resolution
- High contrast ratio (1000:1)
- Brightness (450 cd/m²)
- 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	170.4 (H) x 127.8 (V)	mm	
Outline Dimension	210.90 (H) x 168.30 (V) x 11.04 (D)	mm	D:PCAP+LCM
Weight	283	g	Typ.
Driver Element	a-Si TFT active matrix	-	
Display Colors	16,7M (RGB 8 bits)	Colors	
Electrical Interface	LVDS	-	
Number of Pixels	800 (H) x 600 (V)	pixels	
Pixel Pitch	0.213 (H) x 0.213 (W)	mm	
Pixel Arrangement	RGB vertical stripe	-	
Display Mode	AHVA, Normal Black	-	
Color Gamut	45	%	
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	3.6	V	Note 1
LED Input Voltage	LED_V _{DD}	-0.3	12.6	V	
Operating Temperature	T _{OP}	-20	70	°C	
Operation Humidity	H _{OP}	20	80	%RH	
Storage Temperature	T _{ST}	-30	80	°C	
Storage Humidity	H _{ST}	20	90	%RH	
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.

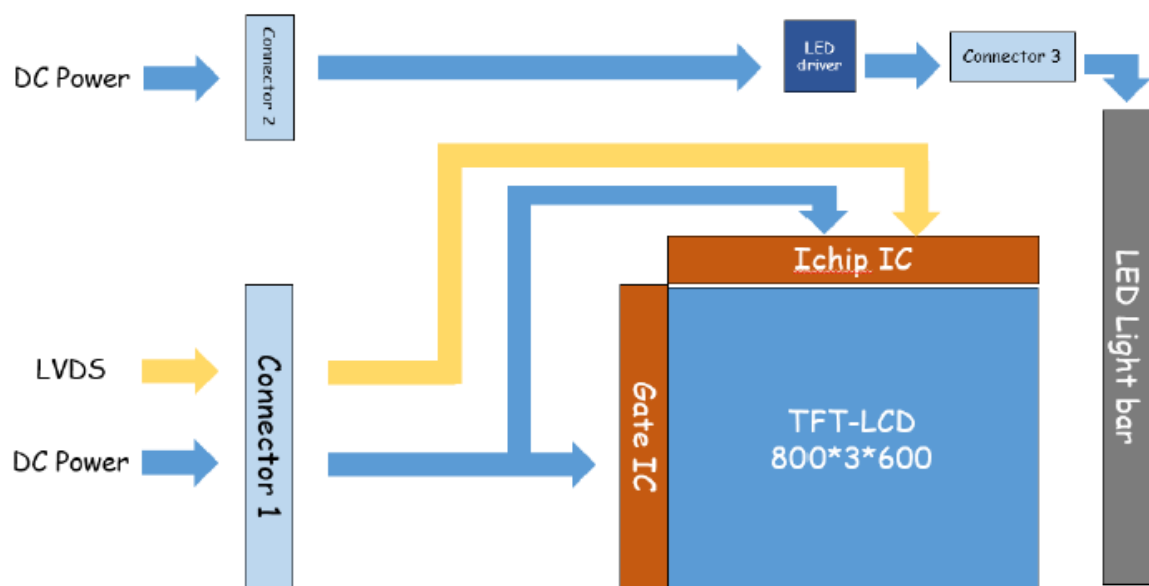
It is necessary to limit the relative humidity to the specified temperature range.

Condensation on the module is not allowed.

4. ELECTRICAL CHARACTERISTICS

4.1. LCD MODULE

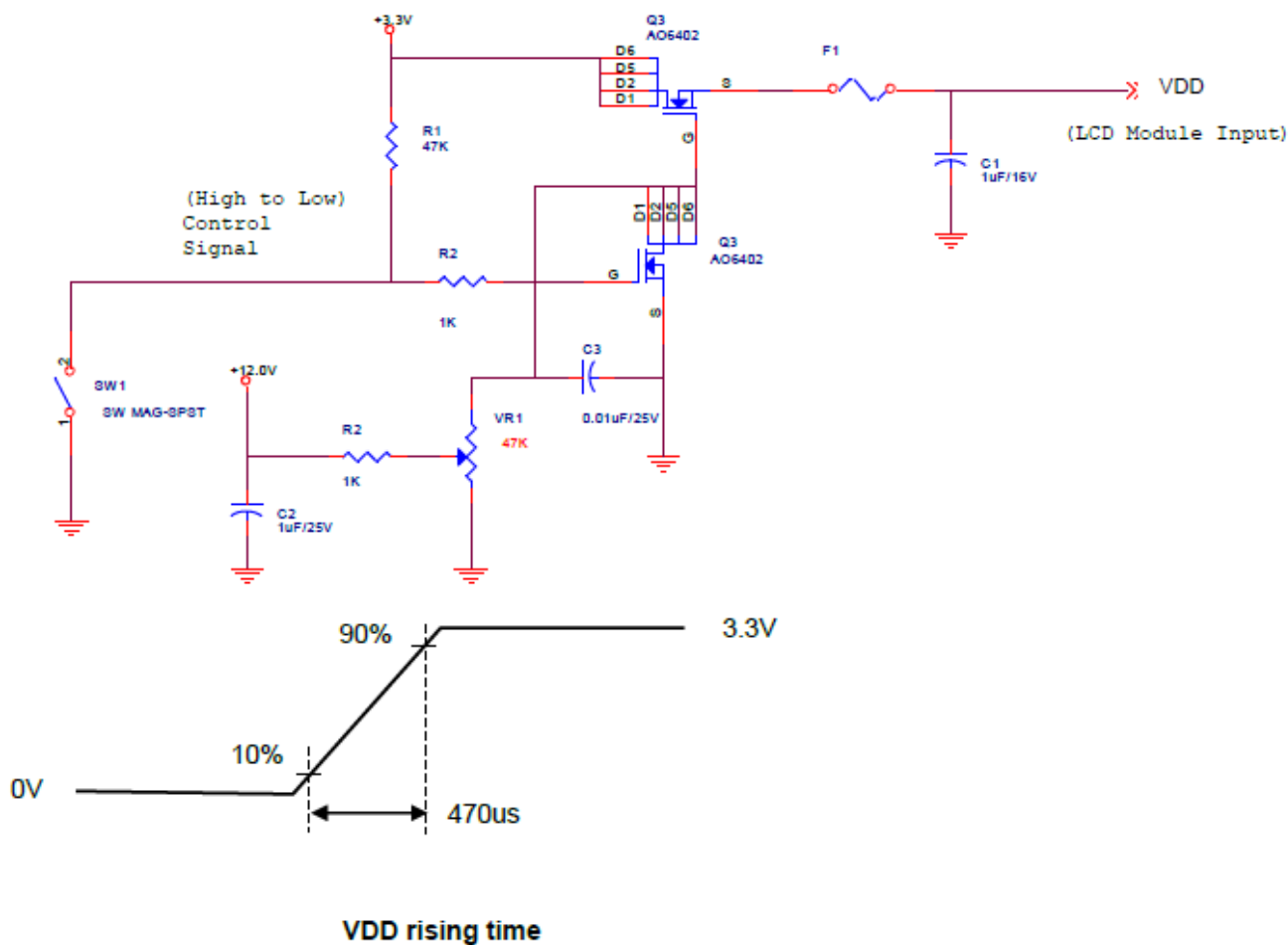
4.1.1. LCD BLOCK DIAGRAM



4.1.2. LCD DRIVING SPECIFICATIONS

Parameter	Symbol	Min.	Typ.	Max.	Units	Remark
Logic/LCD Drive Voltage	VDD	3.0	3.3	3.6	V	±10%
VDD Current	I _{VDD}	-	100	120	mA	64 Gray Bar Pattern (VDD=3.3V, at 60Hz)
VDD Power	P _{VDD}	-	0.3	0.4	Watt	64 Gray Bar Pattern (VDD=3.3V, at 60Hz)

Note 1: Measurement condition:

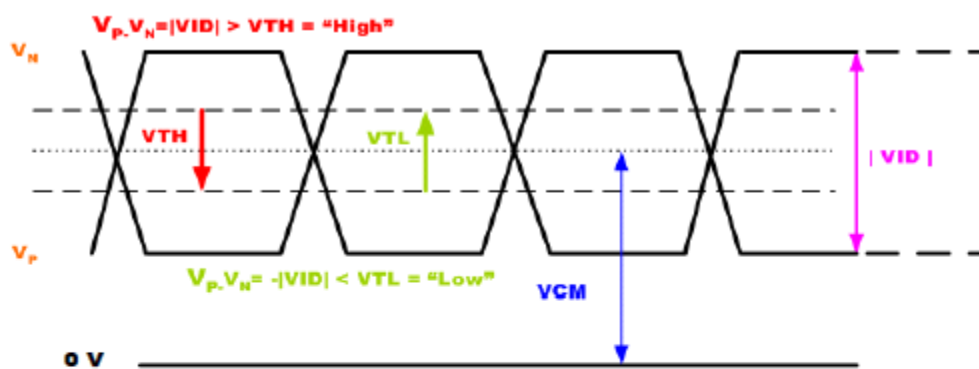


4.1.3. LCD SIGNAL ELECTRICAL CHARACTERISTICS

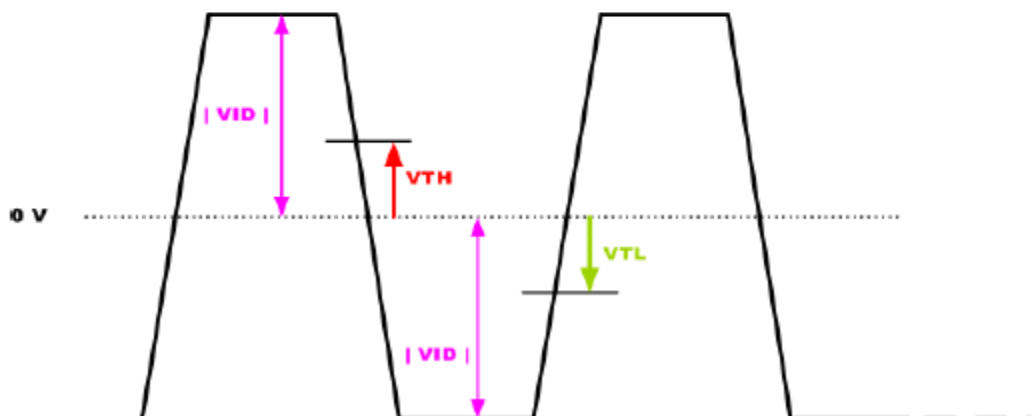
Parameter	Symbol	Min.	Typ.	Max.	Units	Remark
Differential Input High Threshold	VTH	-	-	100	mV	VICM=12V
Differential Input Low Threshold	VTL	-100	-	-	mV	VICM=12V
Input Differential Voltage	VID	200	400	600	mV	
Differential Input Common Mode Voltage	VICM	1.1		1.6	V	VTH/VTl=±100mV

Note: LVDS Signal Waveform

Single-end Signal



Differential Signal



4.1.4. LCD BACKLIGHT UNIT DRIVING CONDITION

Following characteristics are measured under a stable condition using an inverter at 25°C (Room Temperature) :

Parameter	Symbol	Min.	Typ.	Max.	Units	Remark
Input voltage	VCC	10.8	12	12.6	V	
Input Current	I _{VCC}	-	1.8	-	A	100% PWM Duty
Power Consumption	P _{VCC}	-	2.2	2.64	W	100% PWM Duty
Dimming Frequency	F _{PWM}	200	-	20K	Hz	
Swing Voltage		3	3.3	5.5	V	
Dimming Duty Cycle		5	-	100	%	
LED Forward Current	I _F	-	50	-	mA	Ta=25°C
LED Forward Voltage	V _F		17.7	18.6	V	I _F =50mA, Ta=25°C
LED Power Consumption	P _{LED}	-	-	1.86	W	I _F =50mA, Ta=25°C (total power)
Operation Lifetime		50,000			Hrs	

Note 1: Ta means ambient temperature of TFT-LCD module.

Note 2: V_{CC} , I_{VCC} , P_{VCC} , are defined for LED B/L. (100% duty of PWM dimming)

Note 3: I_F , V_F , are defined for each channel of LED Light Bar. There are two LED channels (AN1-CA1-CA2) in back light unit.

Note 4: If LCD module is driven by high current or at high ambient temperature & humidity condition. The operating life will be reduced.

Note 5: Operating life means brightness goes down to 50% initial brightness. Minimum operating life time is estimated data.

4.1.5. LCD SIGNAL PIXEL FORMAT IMAGE

Following figure shows the relationship between input signal and LCD pixel format.

	1			2															799			800		
1st Line	R	G	B	R	G	B	.												R	G	B	R	G	B
	.	.	.	.	.	.	.												.	.	.	.	.	.
	.	.	.	.	.	.	.												.	.	.	.	.	.
600th Line	R	G	B	R	G	B	.												R	G	B	R	G	B

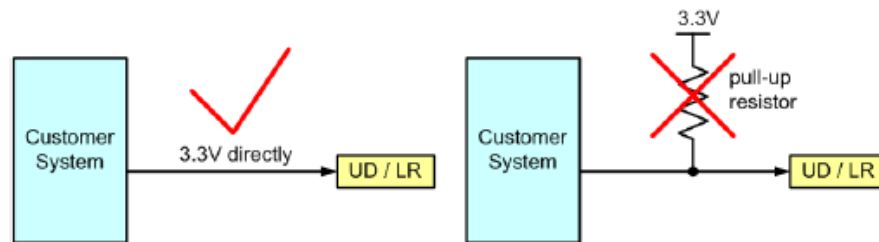
4.1.6. LCD INTERFACE PINS

LVDS is a differential signal technology for LCD interface and high speed data transfer device. The connector pin definition is as below.

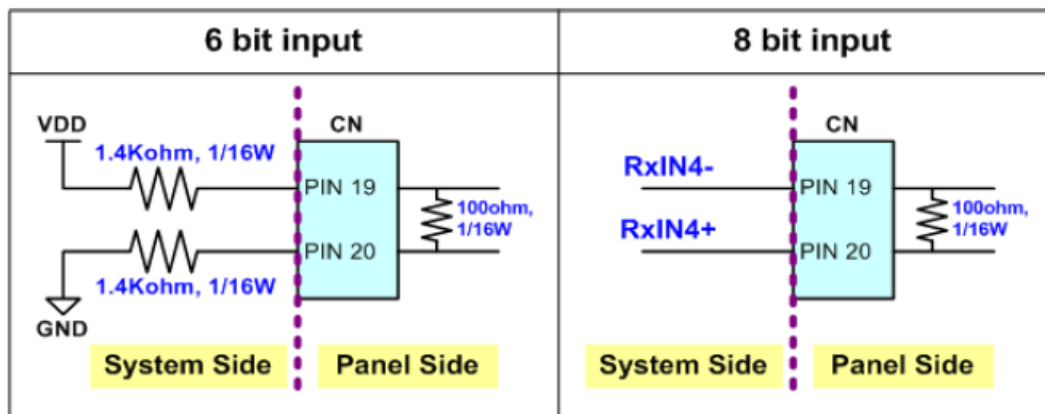
Pin	Symbol	Description	Remark
1	VCC	+3.3V input voltage	
2	VCC	+3.3V input voltage	
3	UD	Vertical Reverse Scan Control, When UD=Low or NC → Normal Mode. When UD=High → Vertical Reverse Scan,	Note 1, 2
4	LR	Horizontal Reverse Scan Control, When LR=Low or NC → Normal Mode. When LR=High → Horizontal Reverse Scan,	Note 1, 2
5	RxIN1-	Negative LVDS differential data input	
6	RxIN1+	Positive LVDS differential data input	
7	GND	Ground	Note 2
8	RxIN2-	Negative LVDS differential data input	
9	RxIN2+	Positive LVDS differential data input	
10	GND	Ground	Note 2
11	RxIN3-	Negative LVDS differential data input	
12	RxIN3+	Positive LVDS differential data input	
13	GND	Ground	Note 2
14	RxCKIN-	Negative LVDS differential data input	
15	RxCKIN+	Positive LVDS differential data input	
16	GND	Ground	
17	SEL 68	LVDS 6/8 bit select function control, Low or NC → 6 bit input Mode. High → 8 bit Input Mode.	
18	NC	NC	
19	RxIN4-	Negative LVDS differential data input Pin19: VDD for 6 bit Input Mode.	Note 3
20	RxIN4+	Positive LVDS differential data input Pin20: GND for 6 bit Input Mode.	Note 3

Note 1: "Low" stands for 0V. "High" stands for 3.3V. "NC" stands for "No Connected".

Note 2: For reverse scan mode, please connect to 3.3V directly. A pull-up resistor on the input side will cause abnormal reverse scan.



Note 3:



4.1.7. SCANNING DIRECTIN

The following figures show the image seen from the front view. The arrow indicates the direction of scan.

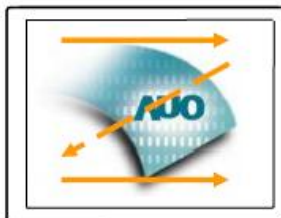


Fig. 1



Fig. 2



Fig. 3



Fig. 4

Fig. 1 Normal scan (Pin3, UD = Low or NC ; Pin4, RL = Low or NC)

Fig. 2 Reverse scan (Pin3, UD = Low or NC ; Pin4, RL = High)

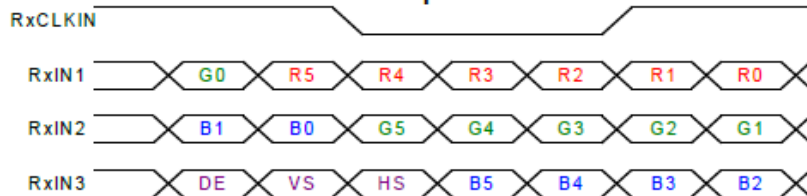
Fig. 3 Reverse scan (Pin3, UD = High ; Pin4, RL = Low or NC)

Fig. 4 Reverse scan (Pin3, UD = High ; Pin4, RL = High)

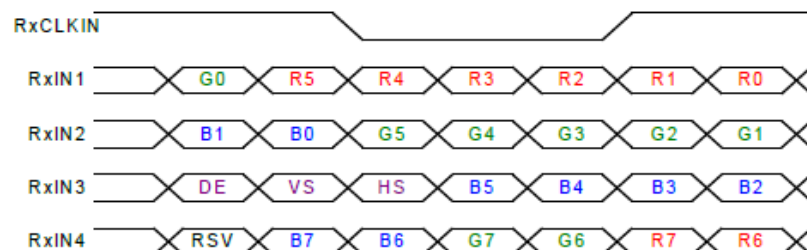
4.1.8. THE INPUT DATA FORMAT

SEL68

SEL68 = "Low" or "NC" for 6 bits LVDS Input



SEL68 = "High" for 8 bits LVDS Input



Note1: Please follow PSWG.

Note2: R/G/B data 7:MSB, R/G/B data 0:LSB

Signal Name	Description	Remark
R7 R6 R5 R4 R3 R2 R1 R0	Red Data 7 (MSB) Red Data 6 Red Data 5 Red Data 4 Red Data 3 Red Data 2 Red Data 1 Red Data 0 (LSB)	Red-pixel Data Each red pixel's brightness data consists of these 8 bits pixel data.
G7 G6 G5 G4 G3 G2 G1 G0	Green Data 7 (MSB) GreenData 6 GreenData 5 GreenData 4 GreenData 3 GreenData 2 GreenData 1 GreenData 0 (LSB)	Green-pixel Data Each green pixel's brightness data consists of these 8 bits pixel data.
B7 B6 B5 B4 B3 B2 B1 B0	Blue Data 7 (MSB) Blue Data 6 Blue Data 5 Blue Data 4 Blue Data 3 Blue Data 2 Blue Data 1 Blue Data 0 (LSB)	Blue-pixel Data Each blue pixel's brightness data consists of these 8 bits pixel data.
RxCLKIN+ RxCLKIN-	LVDS Clock Input	
DE	Display Enable	
VS	Vertical Sync	
HS	Horizontal Sync	

Note: Output signals from any system shall be low or Hi-Z state when VDD is off.

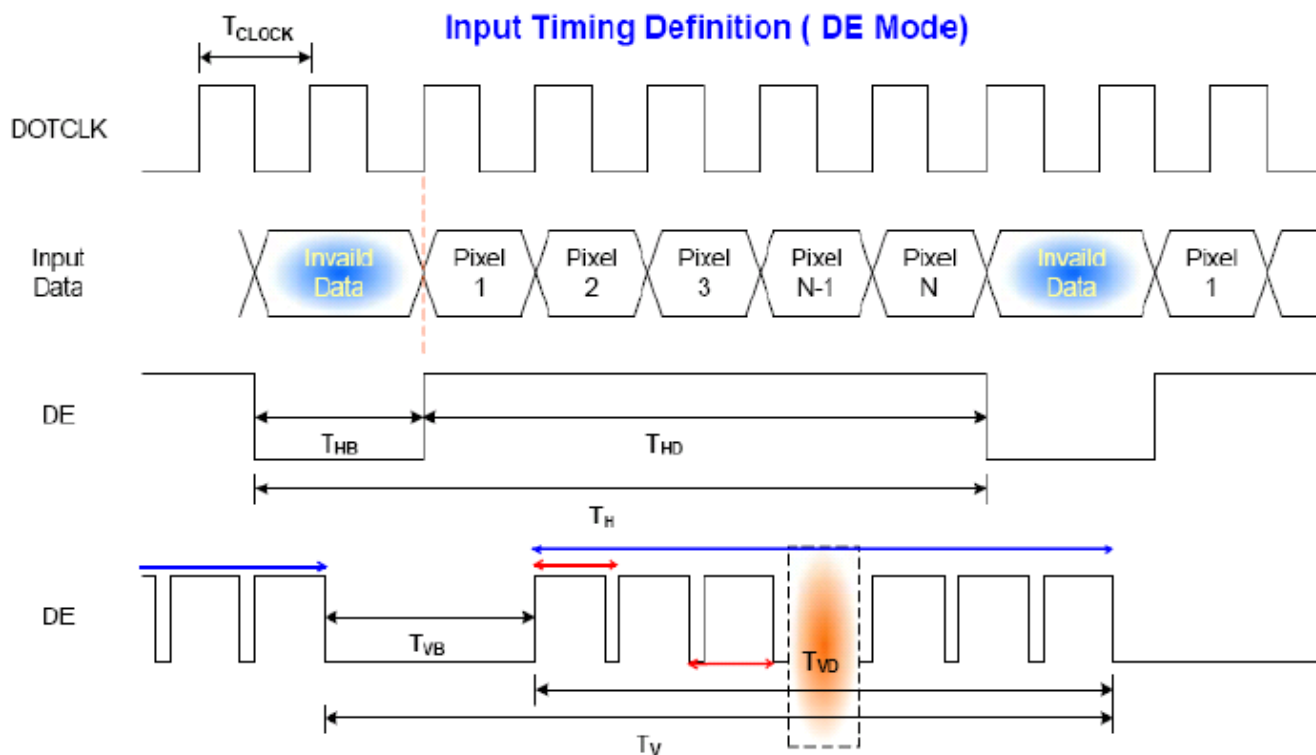
4.1.9. LCD TIMING CHARACTERISTICS

DE Mode only

Parameter		Symbol	Min.	Typ.	Max.	Unit
Clock frequency		$1/T_{\text{Clock}}$	33.6	39.8	48.36	MHz
Vertical Section	Period	T_V	608	628	650	T_H
	Active	T_{VD}	600	600	600	
	Blanking	T_{VB}	8	28	50	
Horizontal Section	Period	T_H	920	1056	1240	T_{Clock}
	Active	T_{HD}	800	800	800	
	Blanking	T_{HB}	120	256	440	

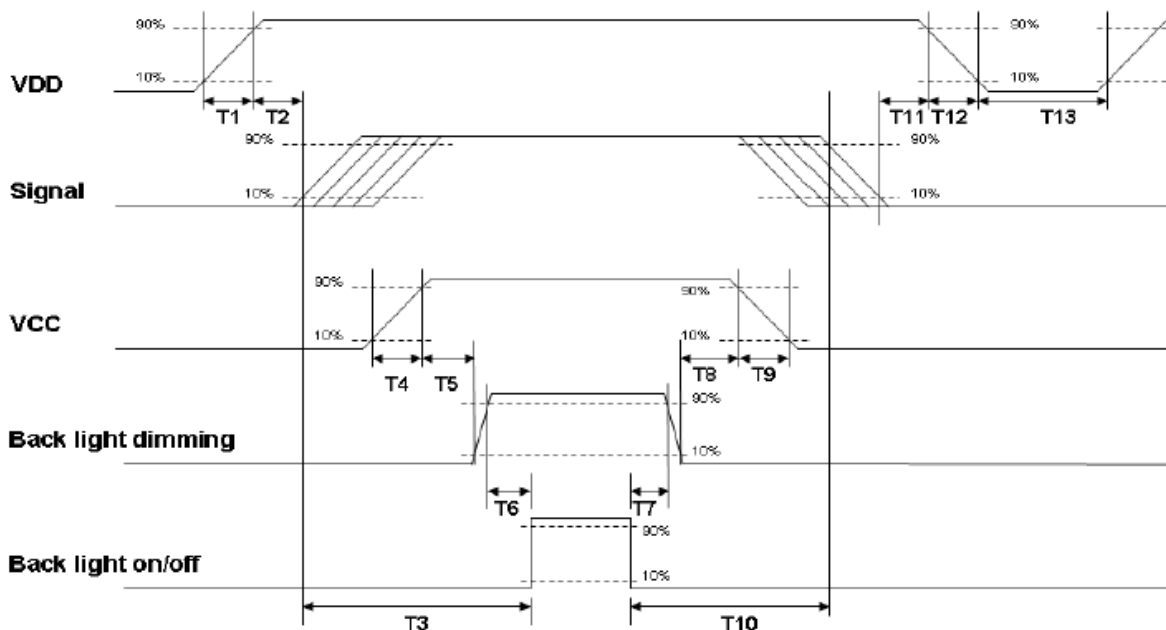
Note: Frame rate is 60 Hz.

4.1.10. LCD INPUT TIMING DIAGRAM



4.1.11. LCD POWER ON/OFF SEQUENCE

VDD power and Backlight on/off sequence is as below. Interface signals are also shown in the chart. Signals from any system shall be Hi-Z state or low level when VDD is off.



Power ON/OFF sequence timing

Parameter	Value			Units
	Min.	Typ.	Max.	
T1	0.5	--	10	[ms]
T2	30	40	50	[ms]
T3	200	--	--	[ms]
T4	0.5	--	10	[ms]
T5	10	--	--	[ms]
T6	10	--	--	[ms]
T7	0	--	--	[ms]
T8	10	--	--	[ms]
T9	--	--	10	[ms]
T10	110	--	--	[ms]
T11	0	16	50	[ms]
T12	--	--	10	[ms]
T13	1000	--	--	[ms]

The above on/off sequence should be applied to avoid abnormal function in the display. Please make sure to turn off the power when you plug the cable into the input connector or pull the cable out of the connector.

4.1.12. LCD SIGNAL (CN1): LVDS CONNECTOR

Connector Name / Description	Signal Connector
Manufacturer	STM or compatible
Connector Model Number	STM-MSB24013P20HA or compatible
Mating Model Number	STM-P240132P20 or compatible

Pin #	Signal Name	Pin #	Signal Name
1	VDD	2	VDD
3	UD	4	LR
5	PxIN1-	6	RxIN1+
7	GND	8	RxIN2-
9	RxIN2+	10	GND
11	RxIN3-	12	RxIN3+
13	GND	14	RxCKIN-
15	RxCKIN+	16	GND
17	SEL 68	18	NC
19	RxIN4-	20	RxIN4+



4.1.13. LCD BACKLIGHT (CN2): LED DRIVER CONNECTOR

Connector Name / Description	Signal Connector
Manufacturer	STM or compatible
Connector Model Number	STM-MSB24038P4D or compatible
Mating Model Number	STM-P24038P4 or compatible

Pin	Symbol	Description
1	VCC	12V Input
2	GND	GND
3	Display ON/OFF	+5.0V or +3.3V: ON, 0V: OFF
4	Dimming	PWM

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-

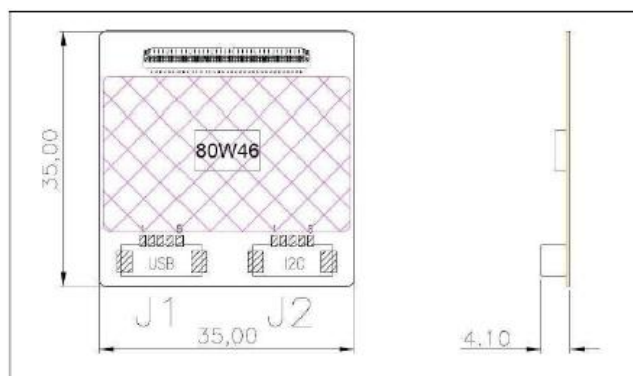
J2 I2C	
PIN	DEFINE
1	GND
2	I2C_SDA
3	I2C_SCL
4	VDD
5	I2C_INT

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			350	450	-	1
Uniformity		%	9 Points		70	75	-	1, 2, 3
Contrast Ratio					800	1000	-	4
Response Time		ms	Rising		-	15	20	5
			Falling		-	10	15	
			Rising + Falling		-	25	35	
View Angle		degree	Horizontal CR≥10	Right	80	89	-	6
				Left	80	89	-	
			Vertical CR≥10	Upper	80	89	-	
				Lower	80	89	-	
Color / Chromaticity Coordinates (CIE 1931)	Red	Rx				0.588		
		Ry				0.347		
	Green	Gx				0.324		
		Gy				0.564		
	Blue	Bx				0.152		
		By				0.146		
	White	Wx				0.313		
		Wy				0.329		
Color Gamut		%			-	45	-	

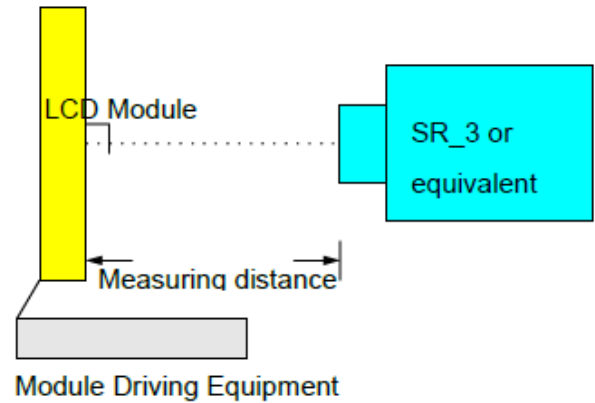
Note 1: Measurement method

Equipment: Pattern Generator, Power Supply, Digital Voltmeter, Luminance meter (SR_3 or equivalent)

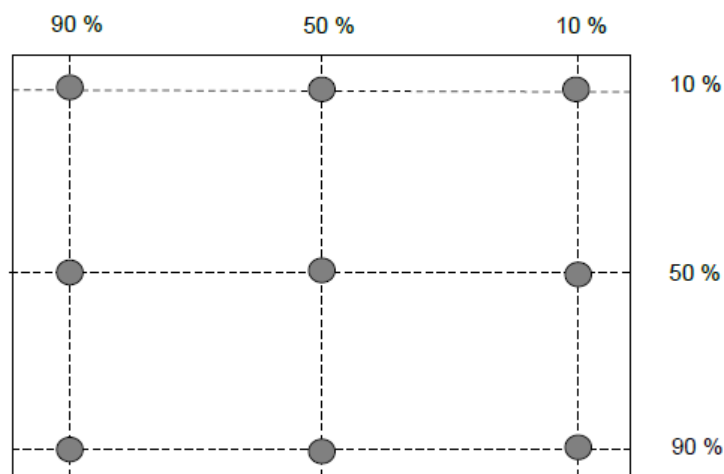
Aperture 1" with 50cm viewing distance

Test Point Center

Environment < 1 lux



Note 2: Definition of 9 points position (display active area)



Note 3: the luminance uniformity of 9 points is defined by dividing the minimum luminance value by the maximum test point luminance

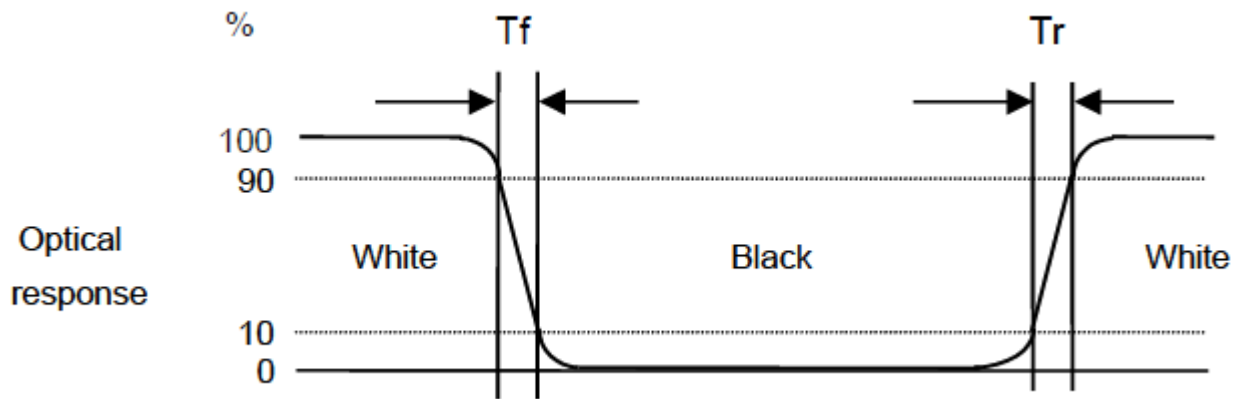
$$\delta_{w9} = \frac{\text{Minimum Brightness of nine points}}{\text{Maximum Brightness of nine points}}$$

Note 4: Definition of the contrast ratio (CR):

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

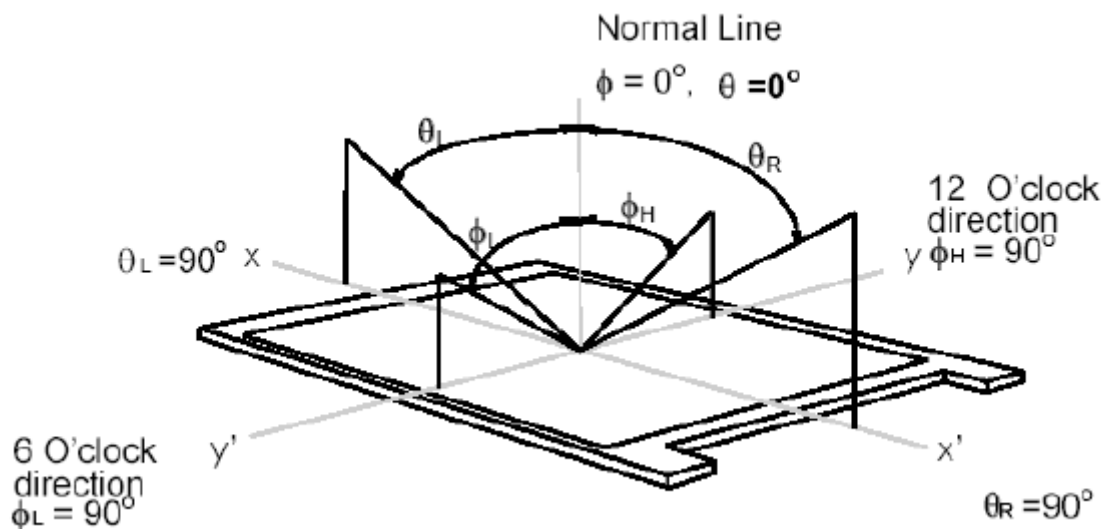
Note 5: Definition of response time

The output signals of photo detector are measured when the input signals are changed from "White" to "Black" (falling time) and from "Black" to "White" (rising time), respectively. The response time interval is between 10% and 90% of amplitudes. Please refer to the figure as below.



Note 6: definition of viewing angle

Viewing angle is the measurement of contrast ratio ≥ 10 , at the screen center, over a 180° horizontal and 180° vertical range (off-normal viewing angles). The 180° viewing angle range is broken down as below: 90° (θ) horizontal left and right, and 90° (ϕ) vertical high (up) and low (down). The measurement direction is typically perpendicular to the display surface with the screen rotated to its center to develop the desired measurement viewing angle.



6. RELIABILITY TEST ITEMS

Test Item		Condition
1	High temperature/Humidity Bias	+40°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	-20°C(30min)~60°C(30min), 10cycles

7. LABEL

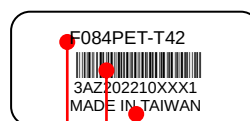
Model NO. **F084PET-T42**

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	203.00	mm	LCD : G084SAN01.0
	Vertical	142.50	mm	
	Depth	7.70	mm	
	Horizontal	35.00	mm	CONTROL BOARD : ETP-MB-EXC80W462838MAG
	Vertical	35.00	mm	
	Depth	4.10	mm	
Weight		283	g	F084PET-T42
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-T42

9. ENGINEERING DRAWING

