



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

Title	17.0-inches Touch Display Product Specifications
Model Name	F170PET-T81
Version	0

Customer

Approved by

Date

Notice: This Specification is subject to change without notice.

Approved By	Prepared By
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2025-12-30	2025-12-30



REVISION HISTORY

Version	ECN No.	Description of Changes	Date	Prepared
0		Draft specification first edition	2023-03-21	Allen Fang
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1. GENERAL DESCRIPTION

1.1.INTRODUCTION

F170PET-T81 is a 17.0" color active matrix TFT LCD module G170ETN02.1 with projected capacitive multi-touch B170PBU-E06 air bonding, with touch driving board ETP-MB-EXC84H4254STAG.

The display format is intended to support the SXGA mode (1280(H) x 1024(V)) screen and 16.7M colors, 2 channel 30 pins LVDS interface with white LEDs backlight.

1.2.FEATURES

- SXGA (1280x1024) resolution
- LVDS Interface with 2pixel/clock
- High-speed response
- 8-bit color depth, display 16.2M colors
- DE (Data Enable) only
- RoHS / Halogen Free

1.3.APPLICATION

- TFT LCD monitor
- Industrial application



2. GENERAL SPECIFICATIONS

Parameter	Specification	Unit	Remarks
Active Area Size	17.0	inch	
Display Area	337.920(H) x 270.336 (V)	mm	
Outline Dimension	358.50 (H) x 296.50 (V) x 15.79 (D)	mm	D:PCAP+LCM
Weight	2250	g	Typ.
Driver Element	a-Si TFT active matrix	-	
Display Colors	16.7M (RGB 8-bits)	Colors	
Electrical Interface	2-ch LVDS	-	
Number of Pixels	1280 (H) x 1024 (V)	pixels	
Pixel Pitch	0.264 (H) x 0.264(W)	mm	
Pixel Arrangement	RGB vertical stripe	-	
Display Mode	Normal White	-	
Touch Technology	Projected Capacitive Multi-Touch Panel	-	
Touch Method	Finger or exclusive pen	-	
Numbers of Touch	10	Points	
Touch Driver	ETP-MB-EXC84H4254STAG : USB	-	
Touch Sensor Glass Type	Strengthening Glass	-	
Touch Controller IC	EETI, EXC80H84	-	
Touch Driver Interface	USB 2.0	-	
Support OS	Windows (Embedded/CE/XP/2000/Vista/7/8/10) / Linux / Android / MAC	-	

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	Remarks
Logic/LCD Drive Voltage	V_{IN}	-0.3	6.0	V	Note 1
Converter Voltage	V_I	-0.3	35	V	
Enable Voltage	EN	-0.3	5.5	V	
Dimming Voltage	PWM	-0.3	5.5	V	
Operating Temperature	T_{op}	-20	70	°C	Note 2
Operating Humidity	H_{op}	20	90	%RH	
Storage Temperature	T_{st}	-30	80	°C	
Storage Humidity	H_{st}	20	90	%RH	
Touch DC Supply Voltage	USB	-0.3	6.0	V	

Note:

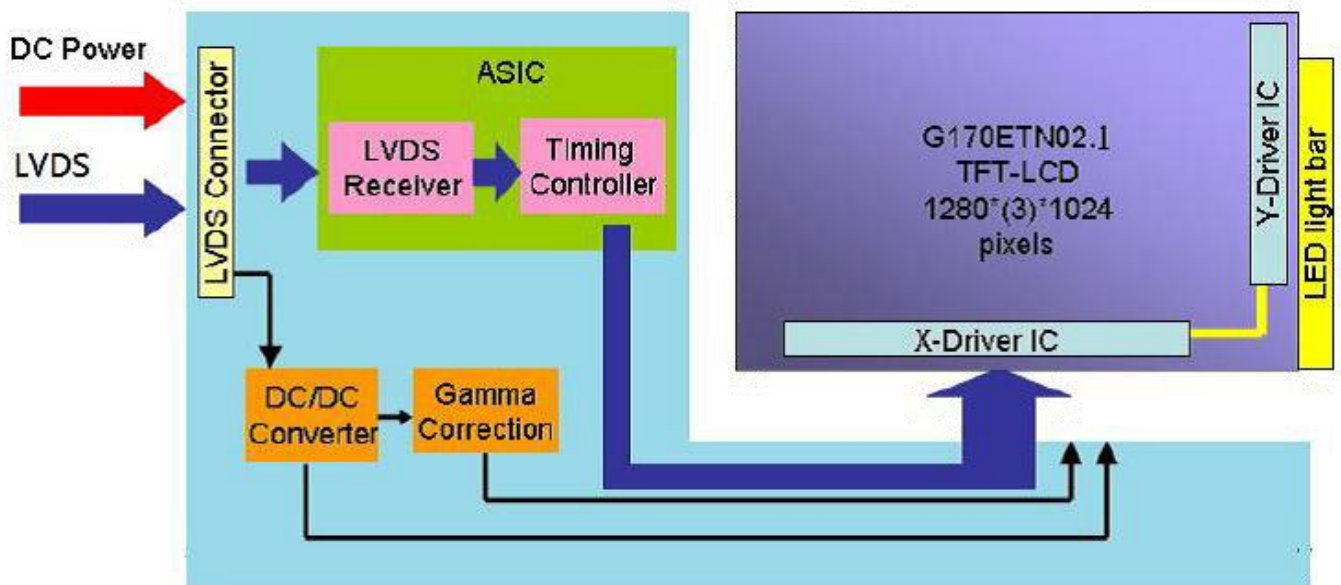
1. Permanent damage to the device may occur if maximum values are exceeded. Function operation should be restricted to the conditions described under Normal Operating Conditions.
2. Maximum Wet-Bulb temperature should be 39°C and no condensation. The relative humidity must not exceed 90% non-condensing at temperatures of 40°C or less. At temperatures greater than 40°C, the wet bulb temperature must not exceed 39°C.

4. ELECTRICAL CHARACTERISTICS

4.1.LCD MODULE

4.1.1. LCD BLOCK DIAGRAM

The following diagram shows the function block of the 17.0 inches wide Color TFT/LCD module.



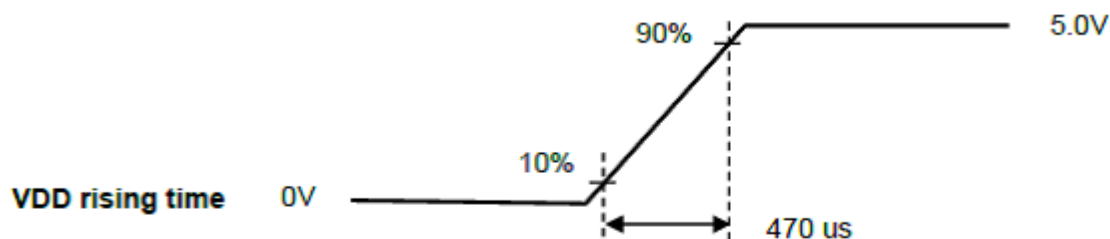
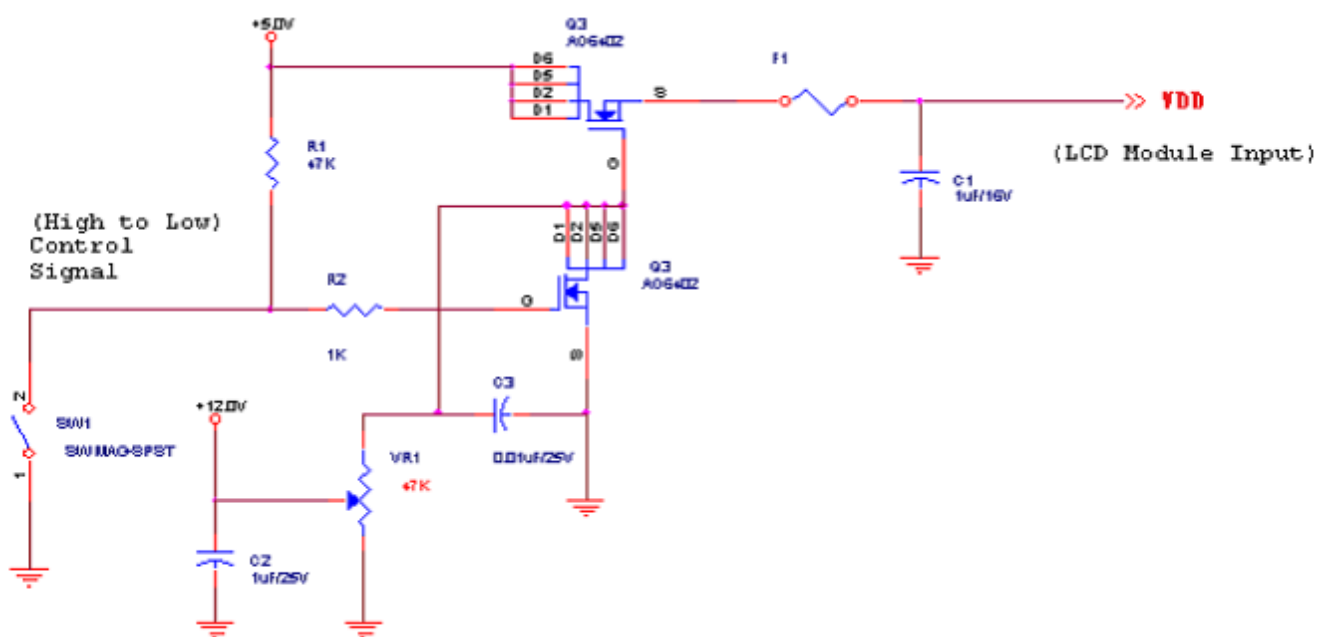
4.1.2. POWER SPECIFICATION

LCD Input power specifications are as below;

The power specifications are measured under 25°C and frame frequency under 60Hz.

Symbol	Parameter	Min.	Typ.	Max.	Units	Remark
V _{DD}	Logic/LCD Drive Voltage	4.5	5.0	5.5	V	±10%
I _{DD}	Input Current	-	0.8	1.0	A	All Black pattern (VDD=5V, at 60Hz)
I _{RUSH}	In-Rush Current	-	-	2.5	A	Note
P _{DD}	V _{DD} Power	-	4	4.5	W	All Black pattern (VDD=5V, at 60Hz)
V _{DDrp}	Allowable Logic/LCD Drive Ripple Voltage	-	-	200	mV p-p	All Black pattern (VDD=5V, at 60Hz)

Note : Measure conditions



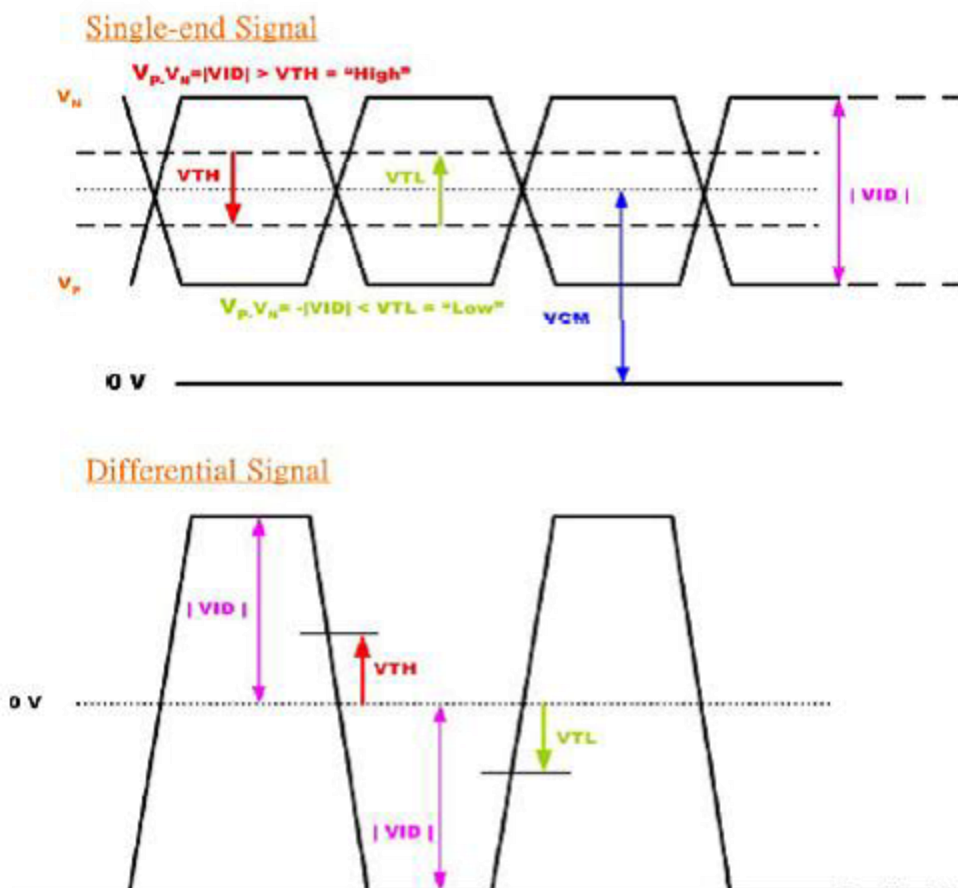
4.1.3. LVDS DC ELECTRICAL CHARACTERISTICS

Input signals shall be low or High-impedance state when VDD is off.

It is recommended to refer the specification of SN75LVDS82DGG (Texas Instruments) in detail.

Symbol	Item	Min.	yp.	Max.	Unit	Remark
VTH	Differential Input High Threshold			+100	mV	VCM=1.2V
VTL	Differential Input Low Threshold	-100			mV	VCM=1.2V
VID	Input Differential Voltage	100	400	600	mV	
VICM	Differential Input Common Mode Voltage	1.0	1.2	1.5	V	VTH/VTL=200mV (Max.)

Note: LVDS Signal Waveform



4.1.4. LED BACKLIGHT UNIT

Following characteristics are measured under stable condition at 25°C (Room Temperature)

Symbol	Parameter	Min.	Typ.	Max.	Units	Remark
V _{LB}	Light Bar Operation Voltage (for reference)	-	31	34	V	Note 2
I _{RLED}	LED Operation Current	-	100	-	mA	Note 1
P _{BLU}	BLU Power Consumption (for reference)	-	12.4	13.6	W	
LT _{LED}	Operating Life-Time (Typical)	50,000	-	-	Hrs	Note 3

Operating with fixed driving current

Note :

1. The specified current is input LED chip 100% duty current.
2. The value shows in the table is one light bar's operation voltage.
3. Definition of life time: brightness becomes 50% of its original value.
4. Each LED light bar consists of 40pcs LED package (4 strings x 10 pcs/string).

Pin Assignment of LED Light bar connector

Pin No.	Symbol	Description
1	IRLED1	LED current sense for string1
2	IRLED2	LED current sense for string2
3	VLED	LED Power Supply
4	VLED	LED Power Supply
5	IRLED3	LED current sense for string3
6	IRLED4	LED current sense for string4

LED Light bar Connector (CN2)

Connector Name / Description	Lamp Connector
Manufacturer	CviLux or compatible
Connector Model Number	CI1406M1HRY-NH or compatible

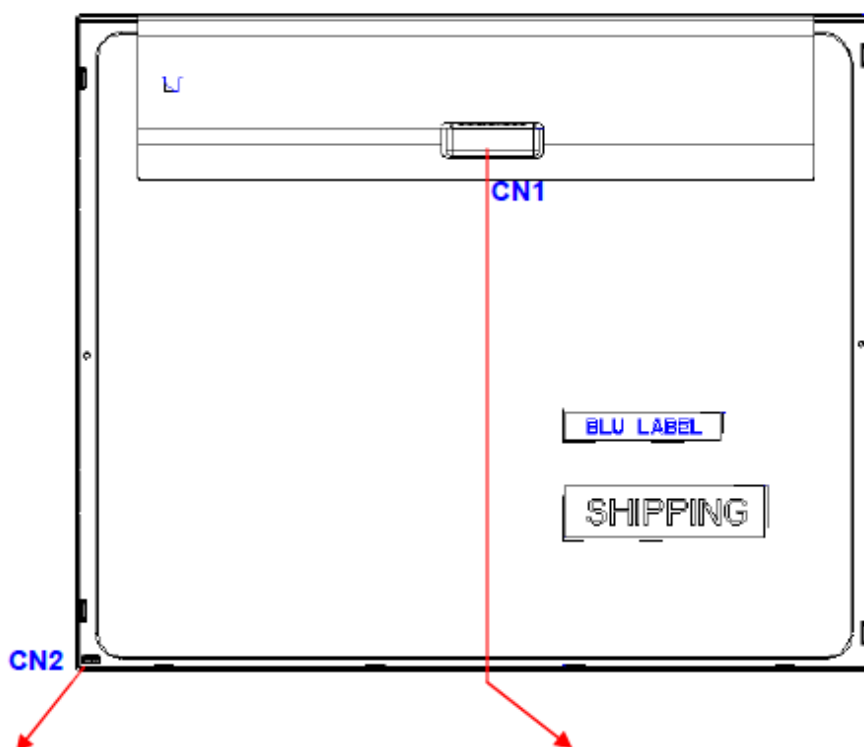
4.1.5. LCD INPUT TERMINAL PIN ASSIGNMENT

LVDS Connector Pin Assignment (CN1)

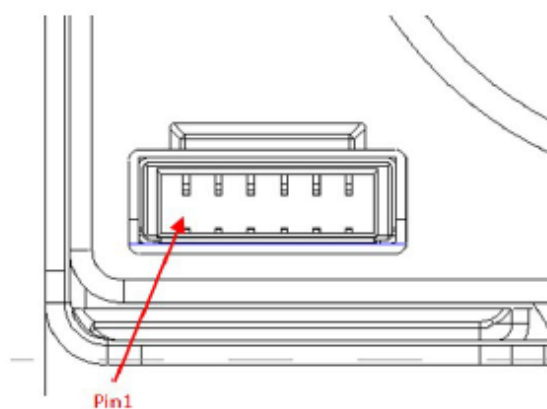
Pin	Symbol	Description
1	RXOIN0-	Negative LVDS differential data input (Odd data)
2	RXOIN0+	Positive LVDS differential data input (Odd data)
3	RXOIN1-	Negative LVDS differential data input (Odd data)
4	RXOIN1+	Positive LVDS differential data input (Odd data)
5	RXOIN2-	Negative LVDS differential data input (Odd data)
6	RXOIN2+	Positive LVDS differential data input (Odd data)
7	GND	Ground
8	RXOINCLK-	Negative LVDS differential clock input (Odd data)
9	RXOINCLK+	Positive LVDS differential clock input (Odd data)
10	RXOIN3-	Negative LVDS differential data input (Odd data)
11	RXOIN3+	Positive LVDS differential data input (Odd data)
12	RXEIN0-	Negative LVDS differential data input (Even data)
13	RXEIN0+	Positive LVDS differential data input (Even data)
14	GND	Ground
15	RXEIN1-	Negative LVDS differential data input (Even data)
16	RXEIN1+	Positive LVDS differential data input (Even data)
17	GND	Ground
18	RXEIN2-	Negative LVDS differential data input (Even data)
19	RXEIN2+	Positive LVDS differential data input (Even data)
20	RXEINCLK-	Negative LVDS differential clock input (Even data)
21	RXEINCLK+	Positive LVDS differential clock input (Even data)
22	RXEIN3-	Negative LVDS differential data input (Even data)
23	RXEIN3+	Positive LVDS differential data input (Even data)
24	GND	Power Ground
25	GND (AGMODE)	Power Ground (For AUO test Aging mode)
26	GND	Power Ground
27	GND	Power Ground
28	VCC	+5.0V Power Supply
29	VCC	+5.0V Power Supply
30	VCC	+5.0V Power Supply

Connector

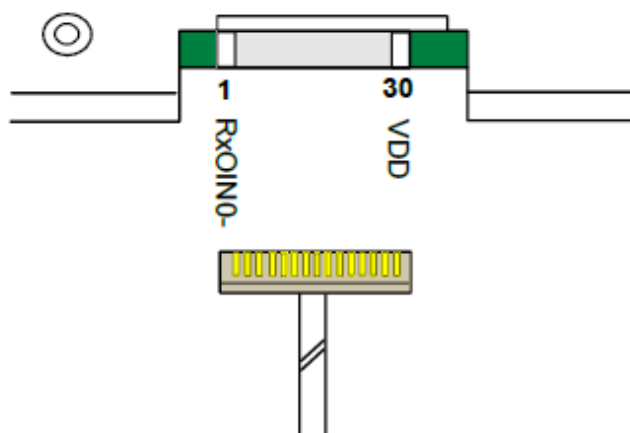
Connector Name / Designation	Interface Connector
Manufacturer	PTWO or compatible
Type Part Number	AL230F-A0G1D-P or compatible
Mating Housing Part Number	287130-403029-1 or compatible



LED Driver Connector (CN2)

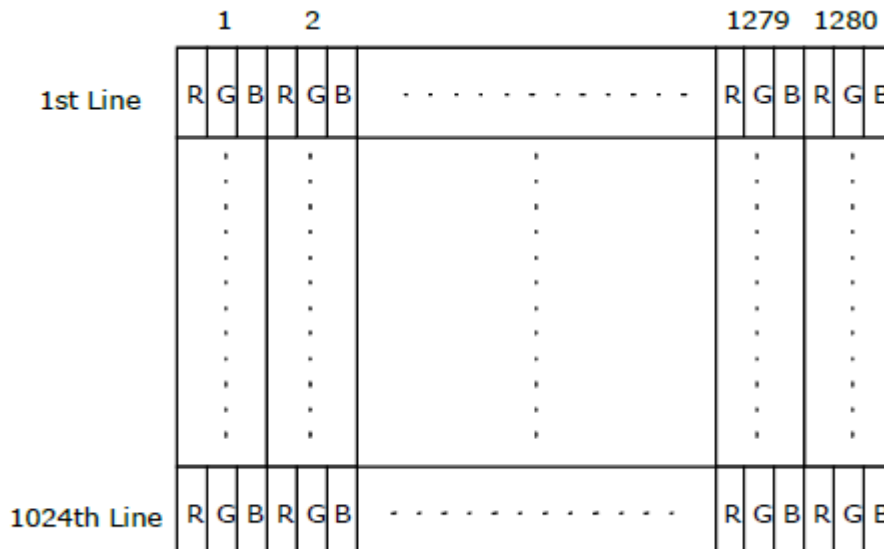


LVDS Connector (CN1)

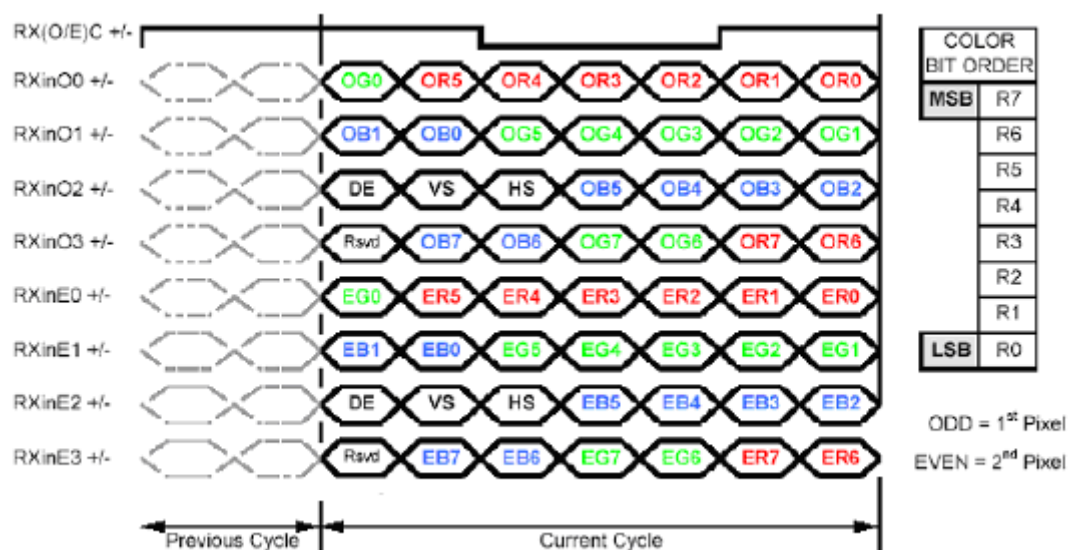


4.1.6. PIXEL FORMAT IMAGE

Following figure shows the relationship of the input signals and LCD pixel format.



4.1.7. THE LCD INPUT DATA FORMAT



Note 1: Normally, DE, VS, HS on EVEN channel are not used.

Note 2: Please follow PSWG

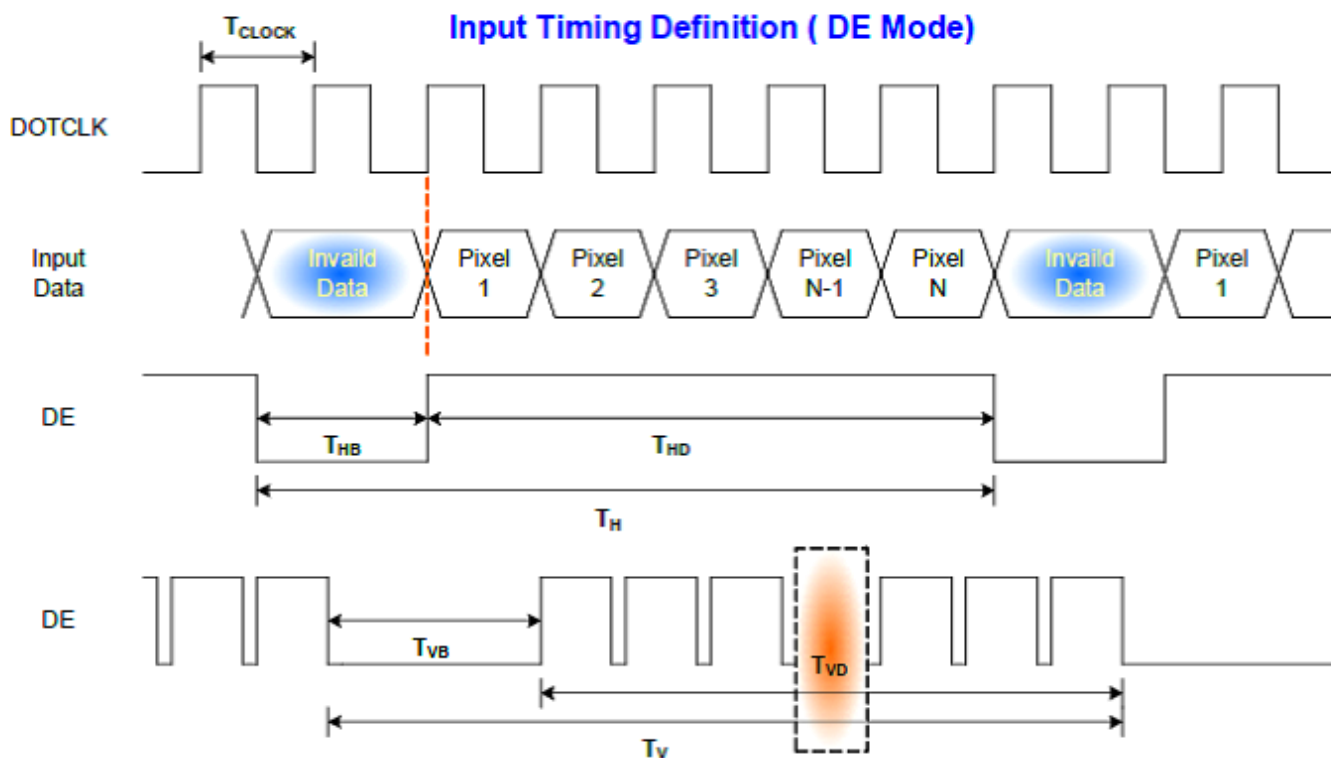
Note 3: 8-bit in

4.1.8. LCD TIMING CHARACTERISTICS

DE mode only

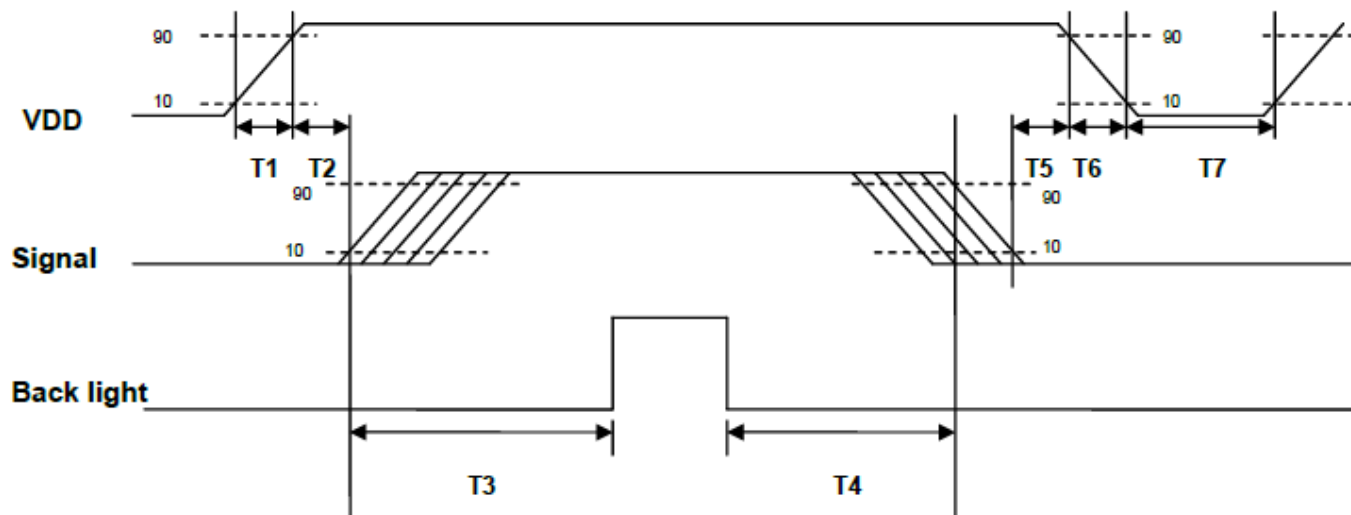
Parameter		Symbol	Min.	Typ.	Max.	Unit
Vertical Section	Period	T _V	1034	1066	1150	T _H
	Active	T _{VD}	1024			
	Blanking	T _{VB}	10	42	126	
Horizontal Section	Period	T _H	750	844	2048	T _{CLOCK}
	Active	T _{HD}	640			
	Blanking	T _{HB}	110	204	400	
Clock	Period	T _{CLOCK}	25	18.52	11	ns
	Frequency	Freq	40	54	91	MHz
Frame Rate		F	51	60	76	Hz

4.1.9. LCD INPUT TIMING DIAGRAM



4.1.10. POWER SEQUENCE FOR LCD

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



Power ON/OFF sequence timing

Parameter	Value			Unit
	Min.	Typ.	Max.	
T1	0.5	-	10	ms
T2	30	40	50	ms
T3	200	-	-	ms
T4	110	-	-	ms
T5	0	16	50	ms
T6	-	-	10	ms
T7	1000	-	-	ms



4.2. TOUCH PANEL

4.2.1. TOUCH PIN ASSIGNMENT

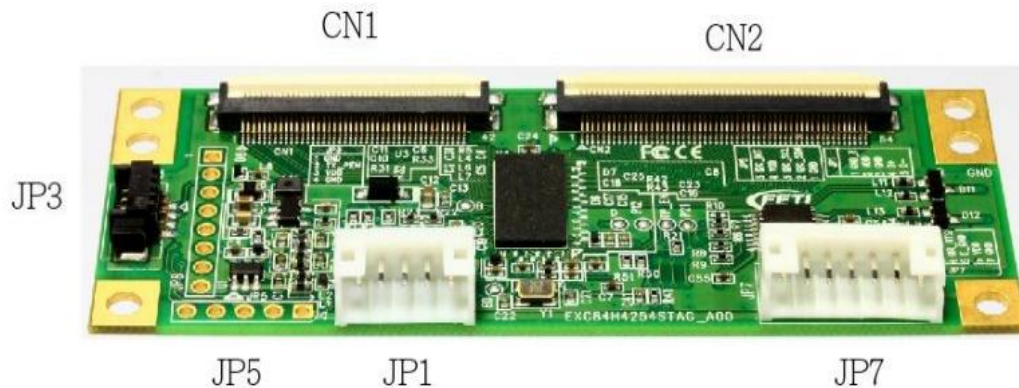
CN1						CN2					
PIN	SYMBOLS	PIN	SYMBOLS	PIN	SYMBOLS	PIN	SYMBOLS	PIN	SYMBOLS	PIN	SYMBOLS
1	TX_S2	21	TX20	41	TX0	1	RX_S1	21	RX32	41	RX12
2	TX39	22	TX19	42	TX_S0	2	RX51	22	RX31	42	RX11
3	TX38	23	TX18			3	RX50	23	RX30	43	RX10
4	TX37	24	TX17			4	RX49	24	RX29	44	RX9
5	TX36	25	TX16			5	RX48	25	RX28	45	RX8
6	TX35	26	TX15			6	RX47	26	RX27	46	RX7
7	TX34	27	TX14			7	RX46	27	RX26	47	RX6
8	TX33	28	TX13			8	RX45	28	RX25	48	RX5
9	TX32	29	TX12			9	RX44	29	RX24	49	RX4
10	TX31	30	TX11			10	RX43	30	RX23	50	RX3
11	TX30	31	TX10			11	RX42	31	RX22	51	RX2
12	TX29	32	TX9			12	RX41	32	RX21	52	RX1
13	TX28	33	TX8			13	RX40	33	RX20	53	RX0
14	TX27	34	TX7			14	RX39	34	RX19	54	RX_50
15	TX26	35	TX6			15	RX38	35	RX18		
16	TX25	36	TX5			16	RX37	36	RX17		
17	TX24	37	TX4			17	RX36	37	RX16		
18	TX23	38	TX3			18	RX35	38	RX15		
19	TX22	39	TX2			19	RX34	39	RX14		
20	TX21	40	TX1			20	RX33	40	RX13		

4.2.2. TOUCH DRIVER

Control Board : ETP-MB-EXC84H4254STAG

No.	Item	Specification
1	Touch Controller IC	EXC80H84
2	Number Of Support	10 Fingers Touch
3	FPC Type / Interface	USB / RS232

Interface	Symbol	Condition	Min.	Typ.	Max.	Unit
JP1/JP7	VDD	DC	3.5	5	5.5	V



Connector Pin Configuration

JP1 USB connector

JP1	
1	GND_E
2	VDD
3	GND
4	D+
5	D-

JP5 I2C connector

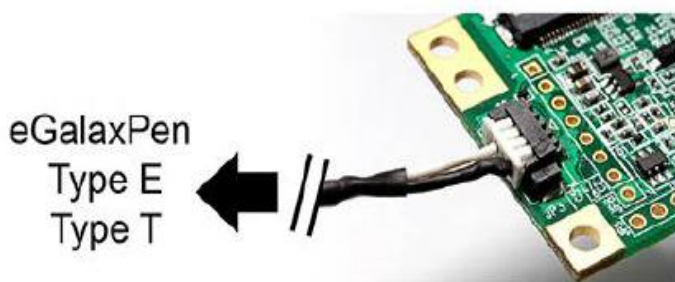
JP5	
1	GND
2	I2C_SDA
3	I2C_SCL
4	VDD
5	I2C_INT

JP7 RS232 connector

JP7	
1	UR_CTS
2	UR_TX
3	UR_RX
4	UR_RTS
5	GND_E
6	VDD
7	GND

JP3 Tethered active stylus connector

JP3	
1	GND_D
2	TX_PEN
3	VDD
4	GND_D



*JP3 connector is reserved for EETI tethered active stylus:

Type E: Entry-type active stylus

Type T: Tethered USB active stylus

5. OPTICAL CHARACTERISTICS

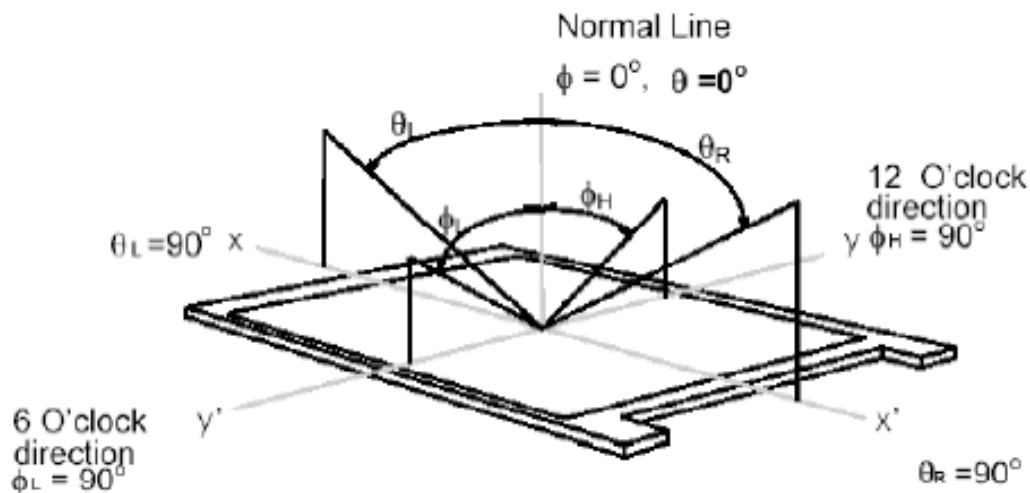
The optical characteristics are measured under stable conditions of 25°C (Room Temperature)

Item		Unit	Conditions		Min.	Typ.	Max.	Note
View Angle		degree	Horizontal CR=10	Right	70	80	-	1
				Left	70	80	-	
			Vertical CR=10	Upper	50	70	-	
				Lower	60	70	-	
Luminance Uniformity		%	9 points		75	80	-	2, 3
Contrast Ratio		-			500	700	-	4
White Luminance		cd/m²	At LED=100mA		640	800	-	4
Optical Response Time		ms	Rising		-	15	-	5
		ms	Falling		-	5	-	
		ms	Rising + Falling		-	20	-	
Color / Chromaticity Coordinates (CIE 1931)	Red	Rx			0.590	0.640	0.690	
		Ry			0.293	0.343	0.393	
	Green	Gx			0.274	0.324	0.374	
		Gy			0.577	0.627	0.677	
	Blue	Bx			0.106	0.156	0.206	
		By			0.016	0.066	0.116	
	White	Wx			0.263	0.313	0.363	
		Wy			0.279	0.329	0.379	
NTSC		%			-	72	-	

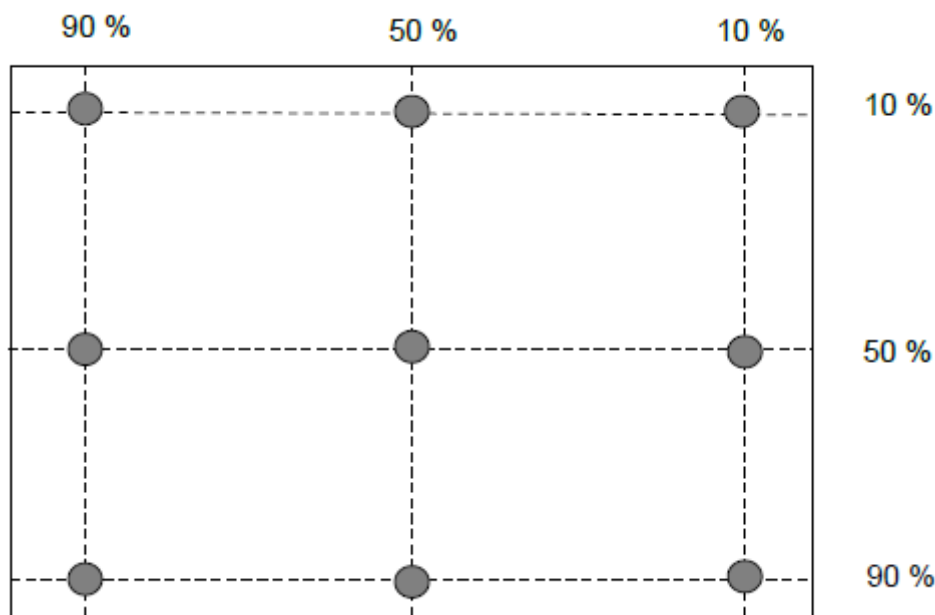
Optical Equipment: BM-5A, BM-7, PR880, or equipment

Note 1: 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 follows; 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 about its center to develop the desired measurement viewing angle.



Note 2: The 9 points position

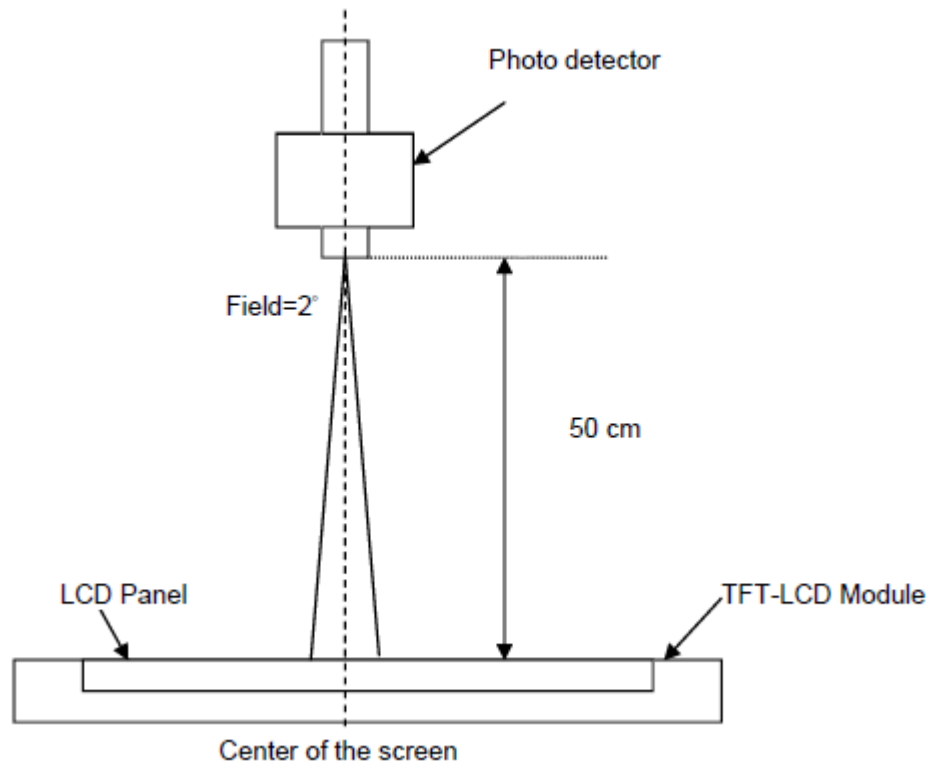


Note 3: The luminance uniformity of 9 points is defined by dividing the maximum luminance values by the minimum test point luminance.

$$\delta_{w9} = \frac{\text{Minimum Luminance of 9 points}}{\text{Maximum Luminance of 9 points}}$$

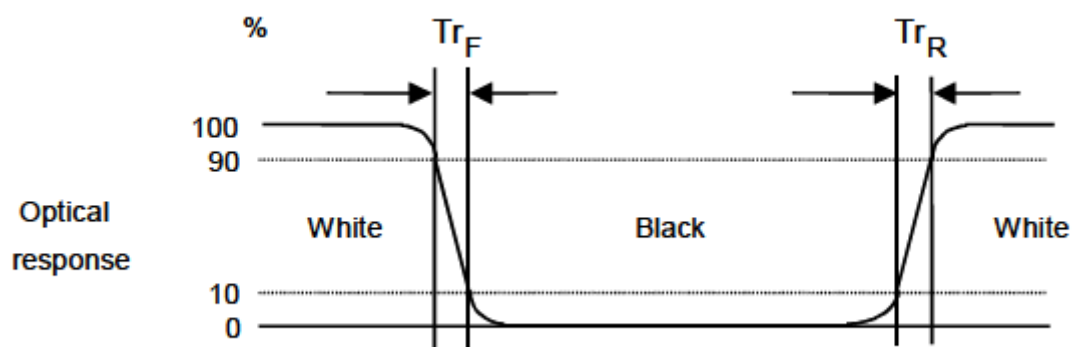
Note 4: Measurement method

The LCD module should be stabilized at given temperature for 30 minutes to avoid about temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 30 minutes in a stable, windless and dark room.



Note 5: Definition of response time:

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



6. RELIABILITY TEST ITEMS

Test Item		Condition
1	High temperature/Humidity Bias	50°C, 80% 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. F170PET-T81

條碼

SN 3A Z 20 2 21 0 XXX1

W=14mm



L=32mm

字型:Arial (6)

Code: 128

字型 : Arial(8)

Code1, 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

8. MECHANICAL CHARACTERISTICS

Item		Dimension	Unit	Note
Outline Dimension	Horizontal	357.00	mm	PCAP : B170PBU-E06
	Vertical	287.50	mm	
	Depth	2.70	mm	
	Horizontal	358.50	mm	LCD : G170ETN02.1
	Vertical	296.50	mm	
	Depth	12.45	mm	
	Horizontal	82.50	Mm	Touch Driver : ETP-MB-EXC84H4254STAG
	Vertical	33.00	Mm	
	Depth	7.50	mm	
Weight		2250	g	F170PET-T81
Item		Specification		Remarks
PCAP Viewing Area		341.92 mm x 274.34 mm		
PCAP Sensor Area		356.00 mm x 286.50 mm		
PCAP FPC Length		96.70 mm		
PCAP Input method		Finger or exclusive pen		
PCAP Light Transmission		$\geq 90\% \pm 3\%$		
PCAP Operation force		$\leq 10g$		Finger Input
PCAP Hardness of surface		$\geq 7H$		Pressure 500gf test
PCAP Surface Treatment		Haze <4%		BYK Gardner , ASTM D1003



Front View

(TBD)

Product Specification

F170PET-T81

Back View

(TBD)

9. ENGINEERING DRAWING

