



Product Specification

F270PET-T31

- ☐ Draft Specifications
☒ Preliminary Specifications
☐ Final Specifications

Title	27.0-inches Touch Display Product Specifications
Model Name	F270PET-T31
Version	1

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

Approved By	Prepared By
ZOE NIEN	ALLEN FANG
2026-01-05	2026-01-05



REVISION HISTORY

Version	ECN No.	Description of Changes	Date	Prepared
0		Preliminary specification first edition	2023-07-17	Allen Fang
1		Modified Label	2026-01-05	Allen Fang



CONTENTS

1. GENERAL DESCRIPTION.....	4
1.1. INTRODUCTION.....	4
1.2. FEATURES.....	4
1.3. APPLICATION.....	4
2. GENERAL SPECIFICATIONS	5
3. ABSOLUTE MAXIMUM RATINGS	6
4. ELECTRICAL CHARACTERISTICS.....	7
4.1. LCD MODULE	7
4.2. LCD BACKLIGHT UNIT	8
4.3. LCD BLOCK DIAGRAM.....	9
4.4. LCD INPUT TERMINAL PIN ASSIGNMENT.....	10
4.5. LCD BACKLIGHT UNIT (LED LIGHT BAR CONNECTOR PIN).....	12
4.6. TOUCH CONTROL BOARD	14
4.7. Touch Control Board Pin Assignment.....	15
4.8. SIGNAL TIMING SPECIFICATION.....	16
4.8.1. PIXEL FORMAT IMAGE.....	16
4.8.2. THE INPUT DATA FORMAT	17
4.9. LCD COLOR INPUT DATA REFERENCE	17
4.10. LCD INPUT TIMING SPECIFICATION	20
4.11. POWER SEQUENCE FOR LCD.....	22
5. OPTICAL CHARACTERISTICS	23
6. RELIABILITY TEST ITEMS.....	27
7. LABEL.....	27
8. MECHANICAL CHARACTERISTICS.....	28
9. ENGINEERING DRAWING	30

1. GENERAL DESCRIPTION

1.1. INTRODUCTION

F270PET-T31 is a 27.0" wide color TFT LCD module M270HVN02.0 (ES7.0 from 00B) with projected capacitive multi-touch B270PBU-E03 air bonding, with touch driver ETP-MB-EXC84H5680STAG.

The display format is intended to support the FHD mode (1920(H) x 1080(V)) screen and 2 channel 30 pins LVDS interface, 16.7M colors (RGB 8-bit data input), with white LEDs backlight. This module doesn't contain a driver for backlight.

1.2. FEATURES

- FHD (1920 x 1080 pixels) resolution
- LVDS Interface with 2 pixel / clock
- 8-bit color depth, display 16.7M colors
- DE (Data Enable) only
- RoHS / Halogen Free

1.3. APPLICATION

- Desktop Type of PC & Workstation Use
- Slim-Size Display for Stand-alone Monitor
- Display Terminals for Control System
- Monitors for Process Controller

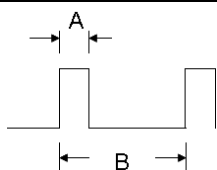
2. GENERAL SPECIFICATIONS

Parameter	Specification	Unit	Remarks
Active Area Size	27.0	inch	
Display Area	597.60 x 336.15(V)	mm	
Outline Dimension	629.00 (H) x 372.00 (V) x 15.50 (D)	mm	D:PCAP+LCM
Weight	4500	g	Typ.
Driver Element	a-Si TFT active matrix	-	
Display Colors	16.7M	Colors	
Number of Pixels	1920 (H) x 1080 (V)	pixels	
Pixel Pitch	0.31125 (H) x 0.31125 (W)	mm	
Pixel Arrangement	RGB vertical stripe	-	
Display Mode	VA Mode, Normal Black	-	
Touch Technology	Projected Capacitive Multi-Touch Panel	-	
Touch Method	Finger or exclusive pen	-	
Numbers of Touch	10	Points	
Touch Driver	ETP-MB-EXC84H5680STAG : 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 / QNX	-	

3. ABSOLUTE MAXIMUM RATINGS

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. [Ta=25°C]

Parameter	Symbol	Min.	Max.	Unit	Remarks
Power Supply Voltage	V _{DD}	-0.3	6.0	V	
LED String Current	I _S	0	150	mA	100% duty
			300	mA	Duty ratio ≤10% Pulse time =10ms
Operating Temperature	T _{op}	0	50	°C	Note 2
Operating Humidity	H _{op}	20	90	%RH	
Storage Temperature	T _{st}	-20	60	°C	
Storage Temperature	H _{st}	20	90	%RH	
Touch DC Supply Voltage	USB_V _{DD}	-0.3	6.0	V	



Duty ratio= (A / B) X 100%; (A: Pulse time, B: Period)

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.

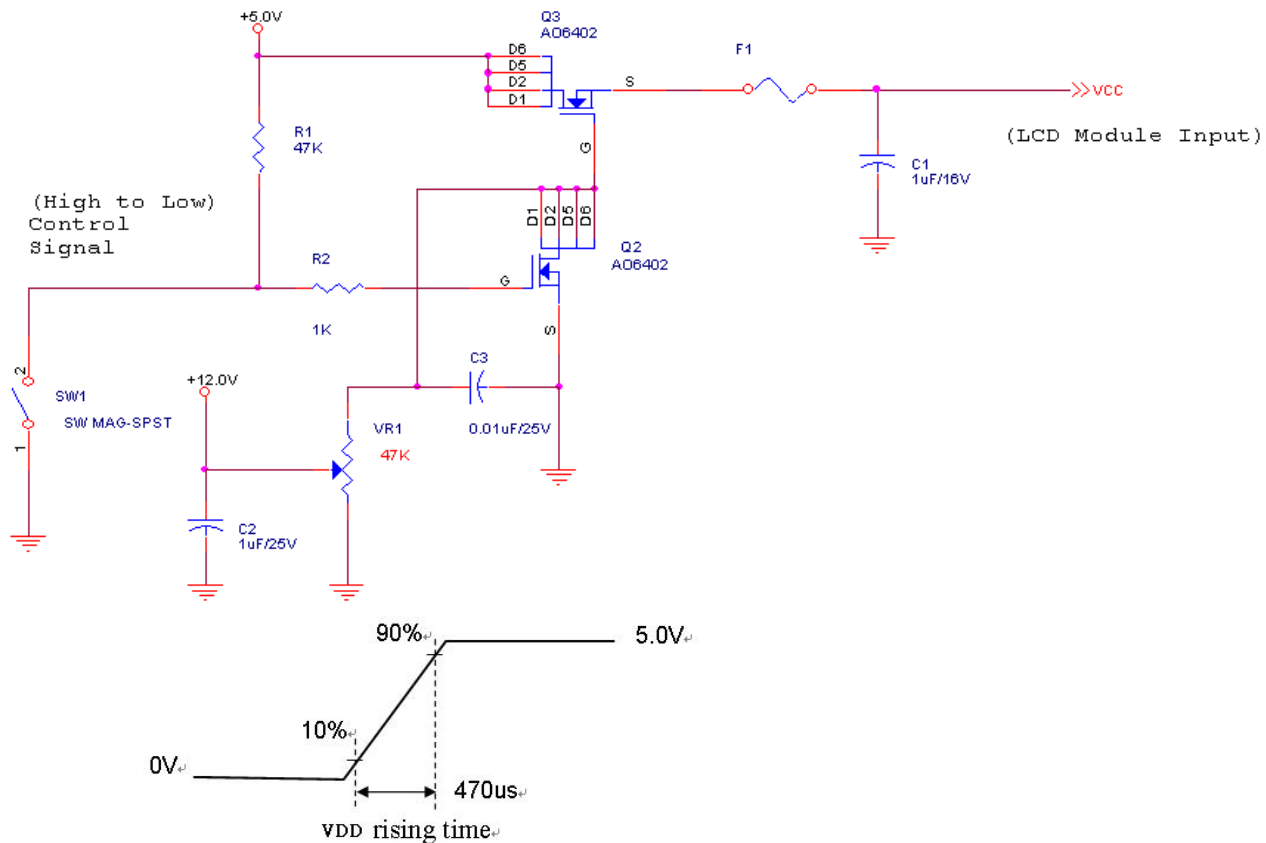
4.ELECTRICAL CHARACTERISTICS

4.1. LCD MODULE

[Ta=25°C]

Parameter	Symbol	Values			Unit	Notes
		Min.	Typ.	Max.		
Power Supply Voltage	V _{DD}	4.5	5.0	5.5	V	+/-10%
Power Supply Current	I _{DD}	-	0.93	1.22	A	V _{DD} =5.0V, All White pattern at 60Hz
		-	1.22	1.46	A	V _{DD} =5.0V, All White pattern at 75Hz
V _{DD} Power Consumption	P _{DD}	-	4.65	5.58	W	V _{DD} =5.0V, All White pattern at 60Hz
		-	6.10	7.30	W	V _{DD} =5.0V, All White pattern at 75Hz
In-Rush Current	I _{RUSH}	-	-	3.0	A	1
Permissible Input Ripple Voltage	V _{DDrp}	-	-	500	mV	V _{DD} =5.0V, All White pattern at 75Hz

Note1. Measurement conditions:



The duration of rising time of power input is 470us.

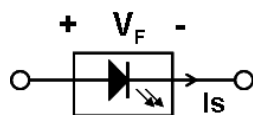
4.2. LCD BACKLIGHT UNIT

Description	Symbol	Min.	Typ.	Max.	Unit	Remark
LED String Current	I_S	-	80	84	mA	100% duty ratio of LED chip
LED String Voltage	V_S	43.5	46.5	51	V	$I_F=80\text{mA}$ @100% duty ratio
Maximum V_S Voltage Deviation of light bar	ΔV_S	-	-	3	V	$I_F=80\text{mA}$ @100% duty ratio
LED Light Bar Power Consumption	P_{BLU}		14.88	16.32	W	$I_F=80\text{mA}$,
LED Life time	LT_{LED}	40,000	-	-	Hrs	$I_F=80\text{mA}$
Over Voltage Protection in system board	OVP	110% VSMAX	-	-	V	

Note1. $V_S(\text{Typ.}) = V_F(\text{Typ.}) \times \text{LED No. (One string)}$;

a. V_F : LED chip forward voltage, $V_F(\text{Min.})=2.8\text{V}$, $V_F(\text{Typ.})=3.1\text{V}$, $V_F(\text{Max.})=3.4\text{V}$

b. The same equation to calculate $V_S(\text{Min.})$ & $V_S(\text{Max.})$ for respective $V_F(\text{Min.})$ & $V_F(\text{Max.})$;



LED chip

Note2. $\Delta V_S(\text{Max.}) = \Delta V_F \times \text{LED No. (One string)}$;

a. ΔV_F : LED chip forward voltage deviation; (0.2V, each Bin of LED V_F)

Note3. $P_{BLU}(\text{Typ.}) = V_S(\text{Typ.}) \times I_S(\text{Typ.}) \times 4$; (4 is total String No. of LED Light bar)

$P_{BLU}(\text{Max.}) = V_S(\text{Max.}) \times I_S(\text{Typ.}) \times 4$;

Note4. Definition of life time:

a. Brightness of LED becomes to 50% of its original value

b. Test condition: $I_S = 80\text{mA}$ and 25°C (Room Temperature)

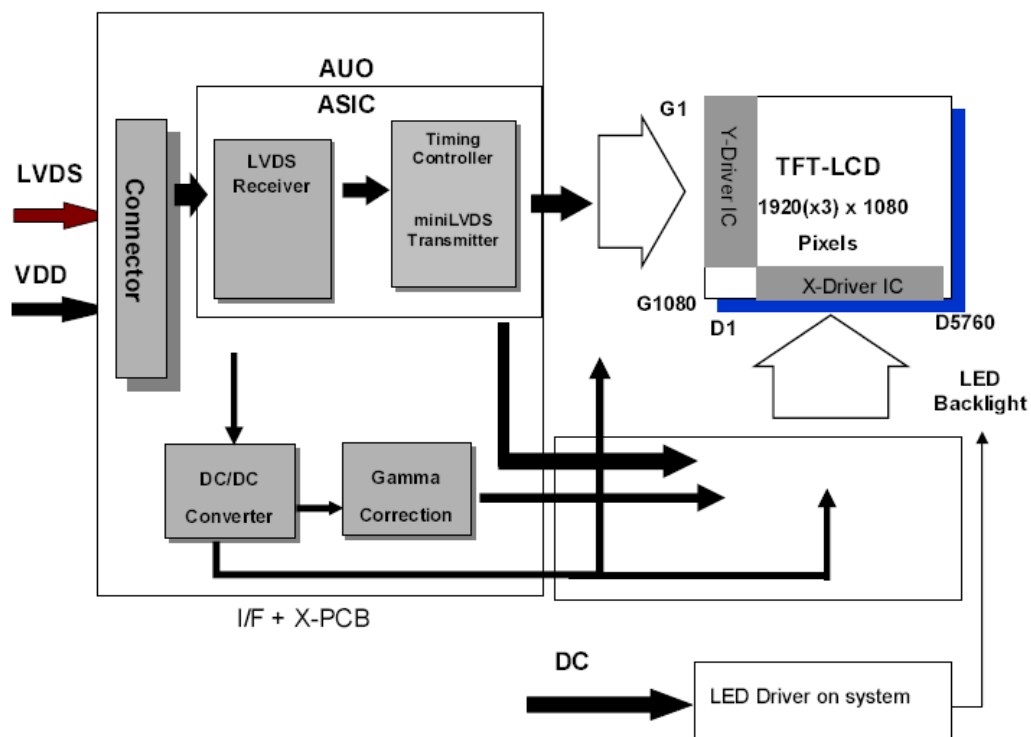
Note5. Recommendation for LED driver power design:

Due to there are electrical property deviation in LED & monitor set system component after long time operation. AUO strongly recommend the design value of LED driver board OVP (over voltage protection) should be 10% higher than max. value of LED string voltage (V_S) at least.

Note6. AUO strongly recommend "Analog Dimming" method for backlight brightness control for Wavy Noise Free. Otherwise, recommend that Dimming Control Signal (PWM Signal) should be synchronized with Frame Frequency.

Note7. Ensure that the LED light bar is not subjected either forward or reverse voltage while monitor set is on standby mode or not in use.

4.3. LCD BLOCK DIAGRAM

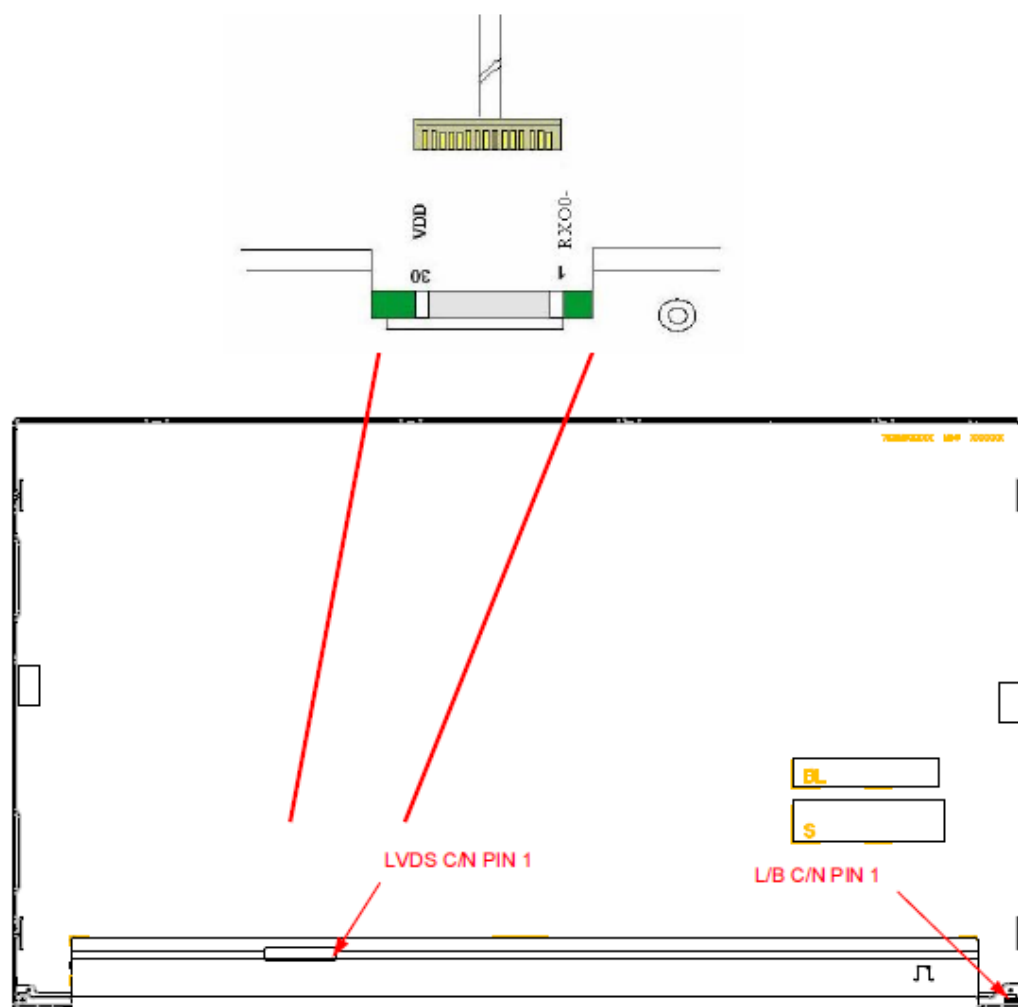


4.4. LCD INPUT TERMINAL PIN ASSIGNMENT

Pin	Symbol	Description	Note
1	RXO0-	Negative LVDS differential data input Channel O0 (odd)	
2	RXO0+	Positive LVDS differential data input Channel O0 (odd)	
3	RXO1-	Negative LVDS differential data input Channel O1 (odd)	
4	RXO1+	Positive LVDS differential data input Channel O1 (odd)	
5	RXO2-	Negative LVDS differential data input Channel O2 (odd)	
6	RXO2+	Positive LVDS differential data input Channel O2 (odd)	
7	GND	Ground	
8	RXOC-	Negative LVDS differential clock input (odd)	
9	RXOC+	Positive LVDS differential clock input (odd)	
10	RXO3-	Negative LVDS differential data input Channel O3 (odd)	
11	RXO3+	Positive LVDS differential data input Channel O3 (odd)	
12	RXE0-	Negative LVDS differential data input Channel E0 (even)	
13	RXE0+	Positive LVDS differential data input Channel E0 (even)	
14	GND	Ground	
15	RXE1-	Negative LVDS differential data input Channel E1 (even)	
16	RXE1+	Positive LVDS differential data input Channel E1 (even)	
17	GND	Ground	
18	RXE2-	Negative LVDS differential data input Channel E2 (even)	
19	RXE2+	Positive LVDS differential data input Channel E2 (even)	
20	RXEC-	Negative LVDS differential clock input (even)	
21	RXEC+	Positive LVDS differential clock input (even)	
22	RXE3-	Negative LVDS differential data input Channel E3 (even)	
23	RXE3+	Positive LVDS differential data input Channel E3 (even)	
24	GND	Ground	
25	NC	No connection (for AUO test only. Do not connect)	
26	NC	No connection (for AUO test only. Do not connect)	
27	NC	No connection (for AUO test only. Do not connect)	
28	V _{CC}	+5.0V power supply	
29	V _{CC}	+5.0V power supply	
30	V _{CC}	+5.0V power supply	

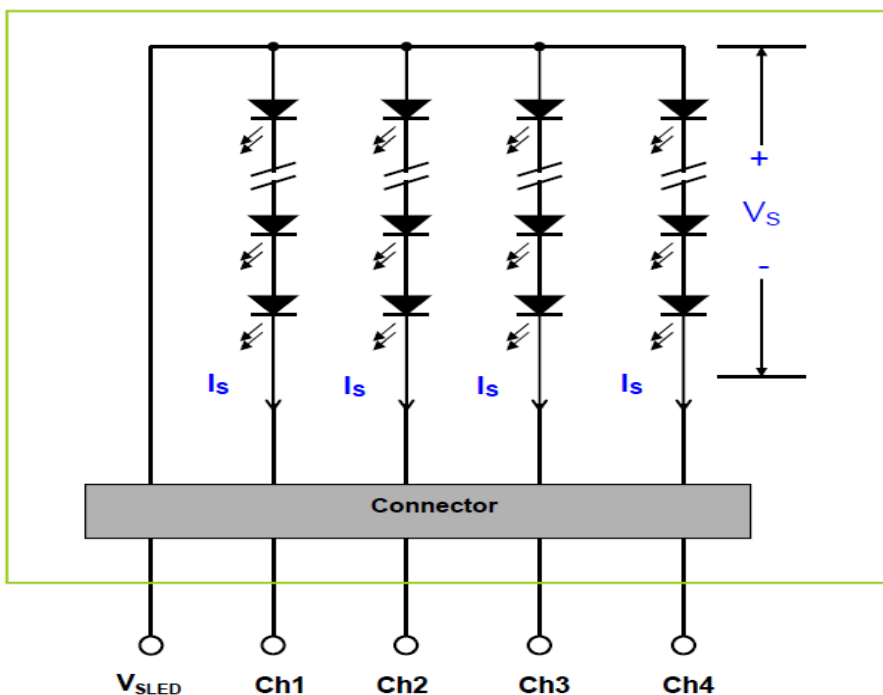
Connector Type

TFT-LCD Connector	Manufacturer	P-TWO	STM	STARCONN
	Part Number	AL230F-A0G1D-P	MSCKT2407P30HB	093G30-02001A-M4
Mating Connector	Manufacturer	JAE or Compatible		
	Part Number	FI-X30HL (Locked Type)		



4.5. LCD BACKLIGHT UNIT (LED LIGHT BAR CONNECTOR PIN)

The following shows the block diagram of the 27 inch Backlight Unit. And it includes 60pcs LED in the LED light bar. (4 strings and 15 pcs LED of one string.)

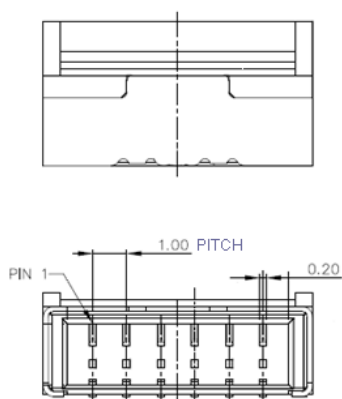


Connector Type

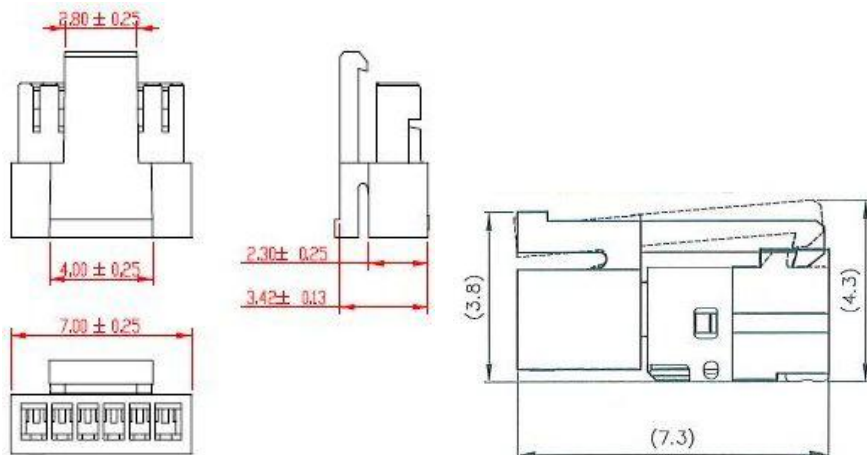
Connector Name / Designation	LED Connector
Manufacturer	ENTERY
Connector Model Number	3707K-S06N-21R
Mating Connector Model Number	H112K-P06N-13B (Locking type)

Backlight Connector dimension:

H x V x D=13.9 x 3.00 x 4.25, Pitch=1.0 (unit=mm)

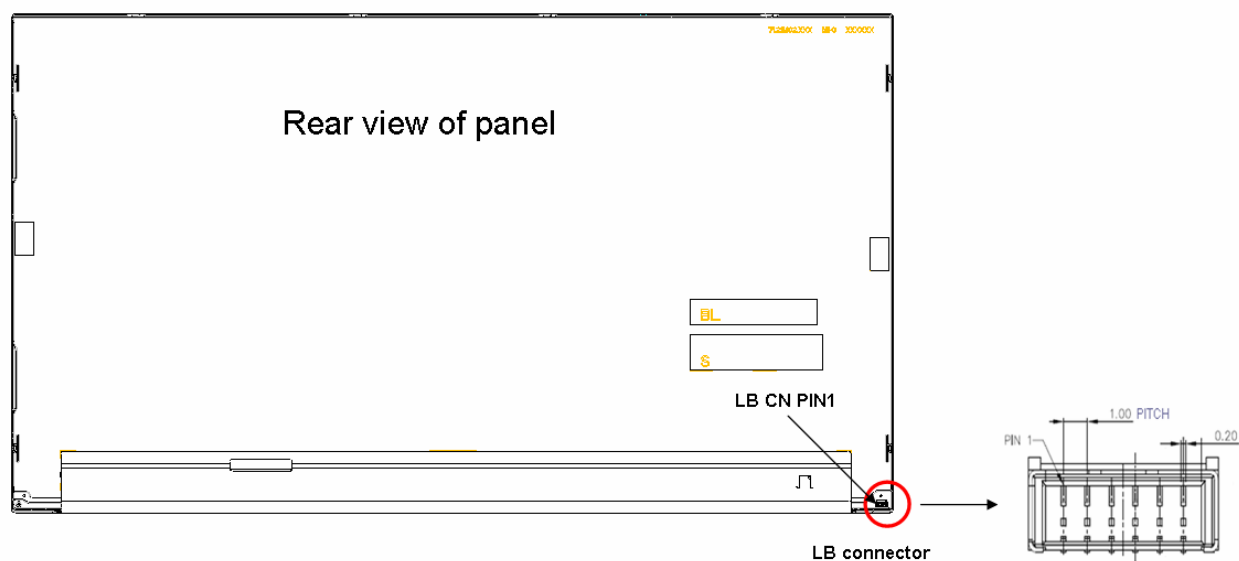


Mating Connector dimension:



Connector Pin Assignment

Pin	Symbol	Function
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

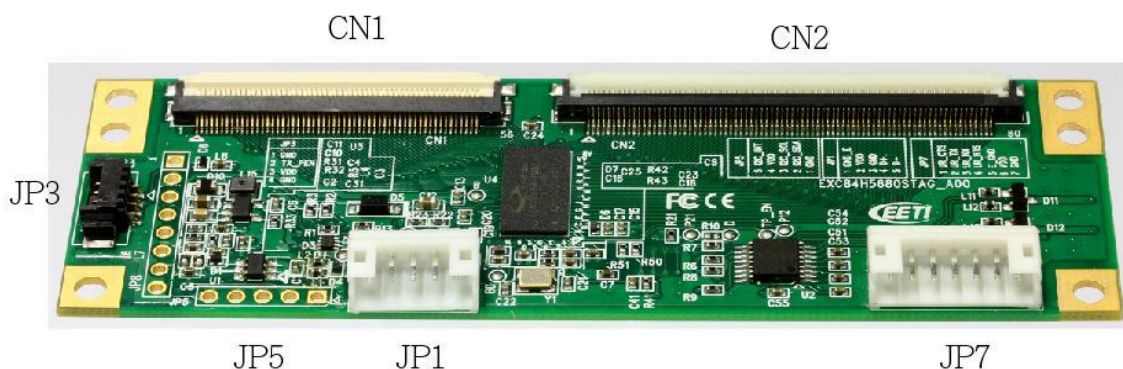


4.6. TOUCH CONTROL BOARD

ETP-MB-EXC84H5680STAG

Parameter	Values			Unit	Notes
	Min.	Typ.	Max.		
Input Voltage	3.5	5	5.5	V	
Interface	USB:2.0			-	
Max Resolution	16384 x 16384 resolution			-	
Channels of panel	Max. TX: 48 Rx:80 channels			mm	Including shielding pin
Linearity	Line drawing accuracy: 1pt +/- 1 mm offset /10 mm Touch (point) accuracy: 1pt +/- 1mm			mm	
Power consumption (mA)	Active Mode: <90 mA Idle Mode: depends on firmware			mA	
Report rate (points/sec)	≥100			Hz	
Response time	Average <25			ms	

4.7. Touch Control Board Pin Assignment



FPC Pin Description

CN1					
PN		PN		PN	
1	NC	21	TX34	41	TX14
2	NC	22	TX33	42	TX13
3	NC	23	TX32	43	TX12
4	NC	24	TX31	44	TX11
5	NC	25	TX30	45	TX10
6	NC	26	TX29	46	TX9
7	NC	27	TX28	47	TX8
8	NC	28	TX27	48	TX7
9	TX_S1	29	TX26	49	TX6
10	TX45	30	TX25	50	TX5
11	TX44	31	TX24	51	TX4
12	TX43	32	TX23	52	TX3
13	TX42	33	TX22	53	TX2
14	TX41	34	TX21	54	TX1
15	TX40	35	TX20	55	TX0
16	TX39	36	TX19	56	TX_S0
17	TX38	37	TX18		
18	TX37	38	TX17		
19	TX36	39	TX16		
20	TX35	40	TX15		

CN2					
PN		PN		PN	
1	RX_S1	21	RX58	41	RX38
2	RX77	22	RX57	42	RX37
3	RX76	23	RX56	43	RX36
4	RX75	24	RX55	44	RX35
5	RX74	25	RX54	45	RX34
6	RX73	26	RX53	46	RX33
7	RX72	27	RX52	47	RX32
8	RX71	28	RX51	48	RX31
9	RX70	29	RX50	49	RX30
10	RX69	30	RX49	50	RX29
11	RX68	31	RX48	51	RX28
12	RX67	32	RX47	52	RX27
13	RX66	33	RX46	53	RX26
14	RX65	34	RX45	54	RX25
15	RX64	35	RX44	55	RX24
16	RX63	36	RX43	56	RX23
17	RX62	37	RX42	57	RX22
18	RX61	38	RX41	58	RX21
19	RX60	39	RX40	59	RX20
20	RX59	40	RX39	60	RX19
				80	RX_S0

Connector Pin Configuration

JP1 USB connector

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

JP5 I2C connector

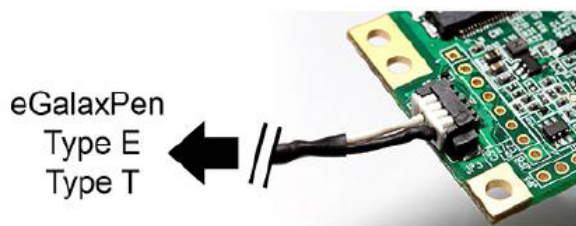
JP5	
1	GND
2	I2C_SDA
3	I2C_SCL
4	VDD
5	I2C_INT

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

JP1 : USB

Brand: JST

Part number: SM05B-SRSS-TB or equivalence

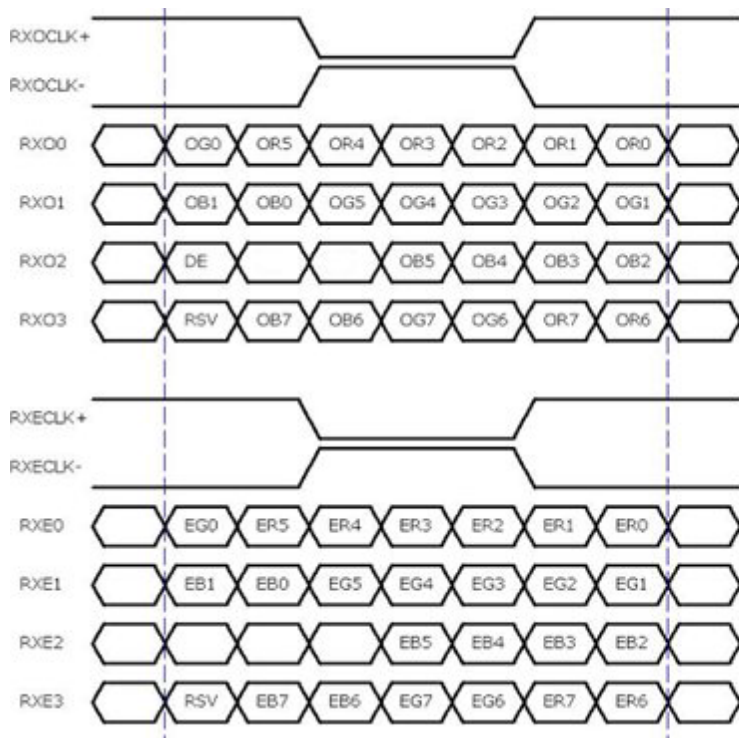
4.8. SIGNAL TIMING SPECIFICATION

4.8.1. PIXEL FORMAT IMAGE

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

	1			2															1919			1920		
1st Line	R	G	B	R	G	B													R	G	B	R	G	B
	.	.	.	.	.	.	.												.	.	.	.	.	.
	.	.	.	.	.	.	.												.	.	.	.	.	.
	.	.	.	.	.	.	.												.	.	.	.	.	.
	.	.	.	.	.	.	.												.	.	.	.	.	.
	.	.	.	.	.	.	.												.	.	.	.	.	.
	.	.	.	.	.	.	.												.	.	.	.	.	.
	.	.	.	.	.	.	.												.	.	.	.	.	.
	.	.	.	.	.	.	.												.	.	.	.	.	.
	.	.	.	.	.	.	.												.	.	.	.	.	.
1200 Line	R	G	B	R	G	B													R	G	B	R	G	B

4.8.2. THE INPUT DATA FORMAT



8 Bit Color Bit Order			
MSB	R7	G7	B7
	R6	G6	B6
	R5	G5	B5
	R4	G4	B4
	R3	G3	B3
	R2	G2	B2
	R1	G1	B1
LSB	R0	G0	B0

- O = "Odd Pixel Data" E = "Even Pixel Data"
- The 1st data is 1 (Odd Pixel Data), the 2nd data is 2 (Even Pixel Data) and the last data is 1920 (Even Pixel Data).
-

4.9. LCD COLOR INPUT DATA REFERENCE

Color	Gray Level	Color Input Data																										Remark
		RED data (MSB:R7, LSB:R0)								GREEN data (MSB:G7, LSB:G0)								BLUE data (MSB:B7, LSB:B0)										
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0			
Black	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
White	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Gray 127	-	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1			
Red	L0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Black		
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:			
	L255	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Green	L0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Black		
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:			
	L255	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0			
Blue	L0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Black		
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:			
	L255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1			

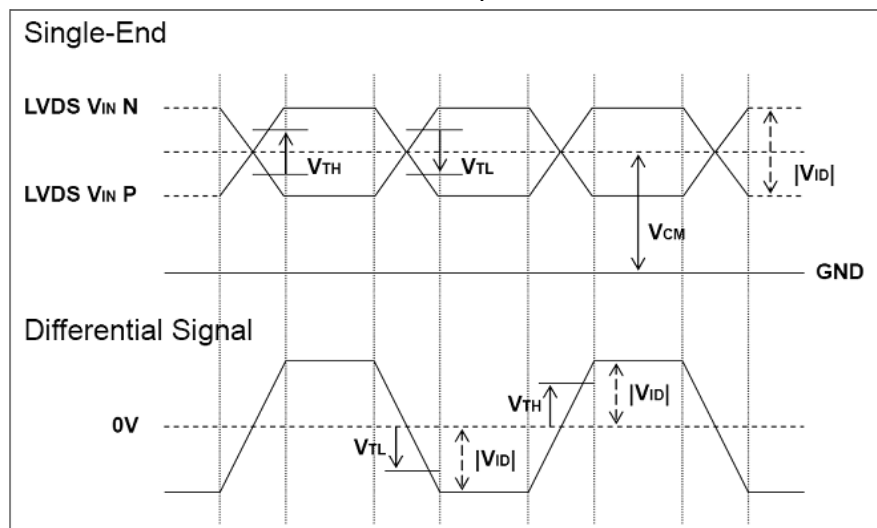
LVDS Specification

a. DC Characteristics :

Description	Symbol	Min.	Typ.	Max.	Unit	Condition
High Level Differential Input Threshold Voltage	V_{TH}	-	-	100	mV	$V_{ICM}=1.2V$ 2
Low Level Differential Input Threshold Voltage	V_{TL}	-100	-	-	mV	$V_{ICM}=1.2V$ 2
Differential input voltage	$ V_{ID} $	100		600	mV	2
Differential input common mode voltage	V_{ICM}	1.0	1.2	1.5	V	$V_{TH}-V_{TL}=200mV(max)$ 2

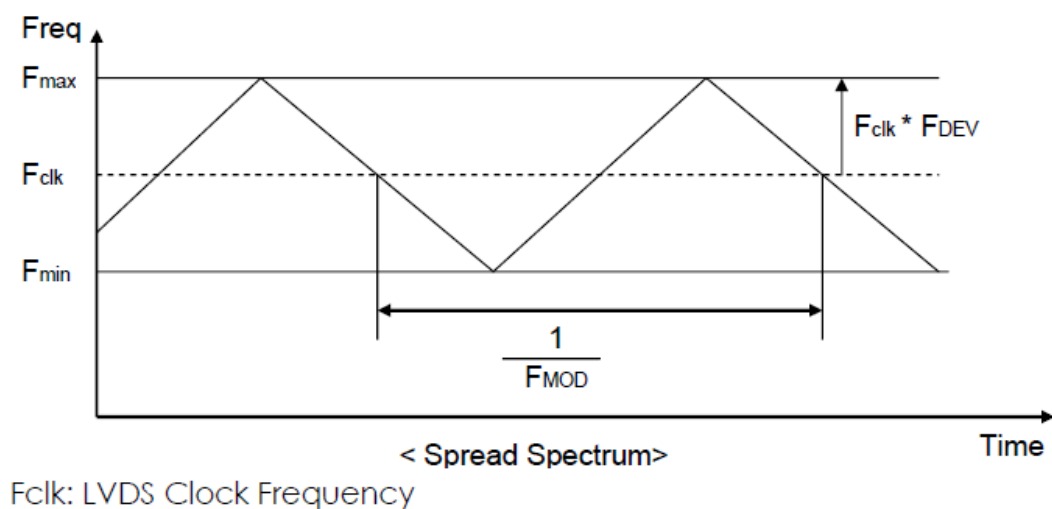
LVDS Signal Waveform

Use RxOCLK- & RxOCLK+ as example.



b. AC Characteristics :

Description	Symbol	Min.	Max.	Unit	Remark
Maximum deviation of input clock frequency during Spread Spectrum	F_{DEV}	-	± 3	%	
Maximum modulation frequency of input clock during Spread Spectrum	F_{MOD}	-	200	KHz	



4.10. LCD INPUT TIMING SPECIFICATION

It only support DE mode, and the input timing are shown as the following table.

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
Vertical Display Term	Total	T_v	1092	1130	1793	T_h	$T_v = T_{vd} + T_{vb}$
	Active Display	T_{vd}	1080	1080	1080	T_h	
	Blank	T_{vb}	12	50	713	T_h	
	Frame Rate	F_r	50	60	76	Hz	
Horizontal Display Term	Total	T_h	1004	1050	1100	T_c	$T_h = T_{hd} + T_{hb}$
	Active Display	T_{hd}	960	960	960	T_c	
	Blank	T_{hb}	44	90	140	T_c	
	Frame Rate	F_h	55	68	90	KHz	
LVDS Clock	Period	T_c	11.1	14.0	18.2	ns	
	Frequency	F_c	54.8	71.2	90	MHz	

Note1. The equation is listed as following. Please don't exceed the above recommended value.

$$F_h (\text{Min.}) = F_{clk} (\text{Min.}) / T_h (\text{Min.});$$

$$F_h (\text{Typ.}) = F_{clk} (\text{Typ.}) / T_h (\text{Typ.});$$

$$F_h (\text{Max.}) = F_{clk} (\text{Max.}) / T_h (\text{Min.});$$

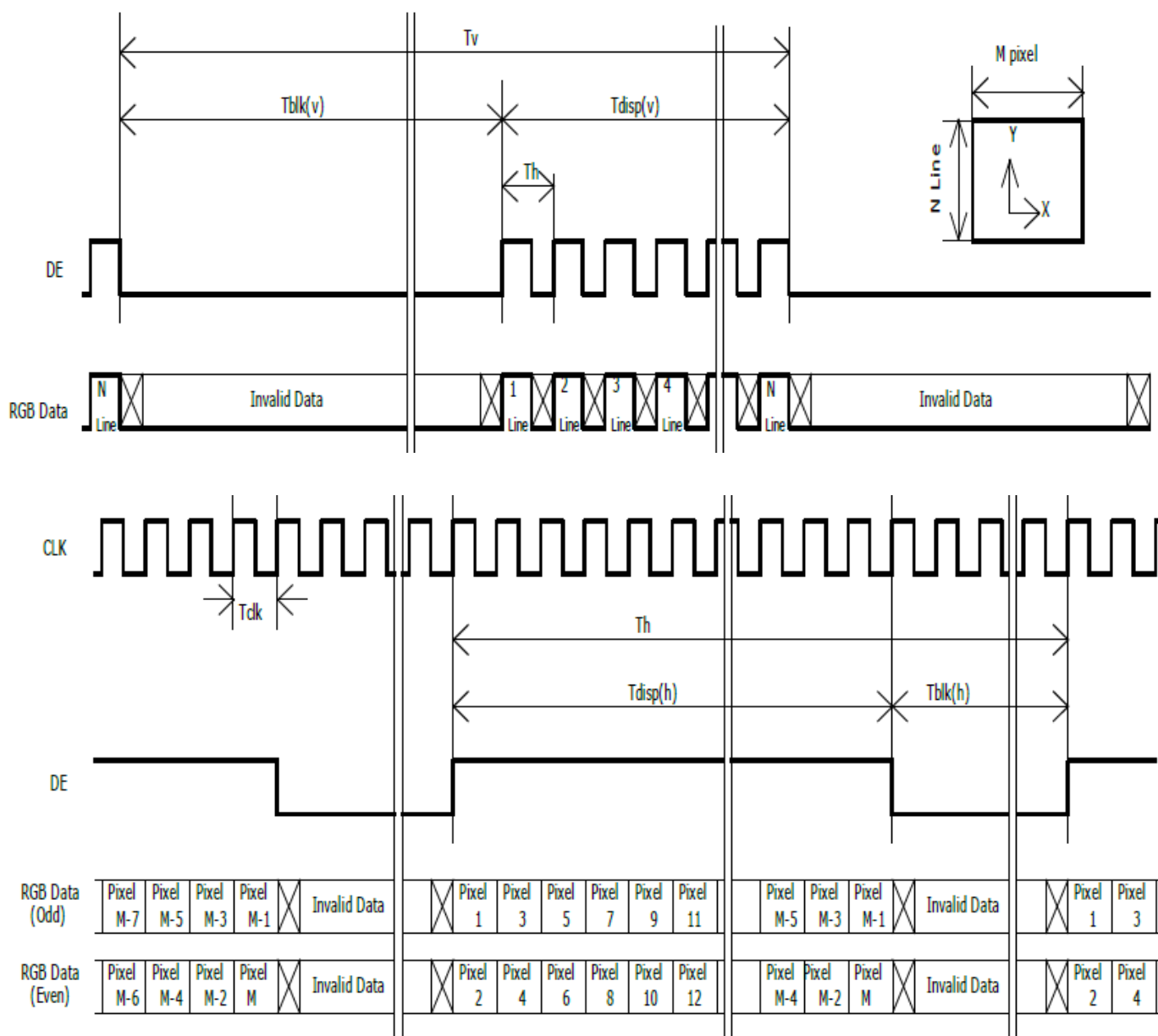
Note2. The equation is listed as following. Please don't exceed the above recommended value.

$$F_{clk} (\text{Min.}) = F_v (\text{Min.}) \times T_h (\text{Min.}) \times T_v (\text{Min.});$$

$$F_{clk} (\text{Typ.}) = F_v (\text{Typ.}) \times T_h (\text{Typ.}) \times T_v (\text{Typ.});$$

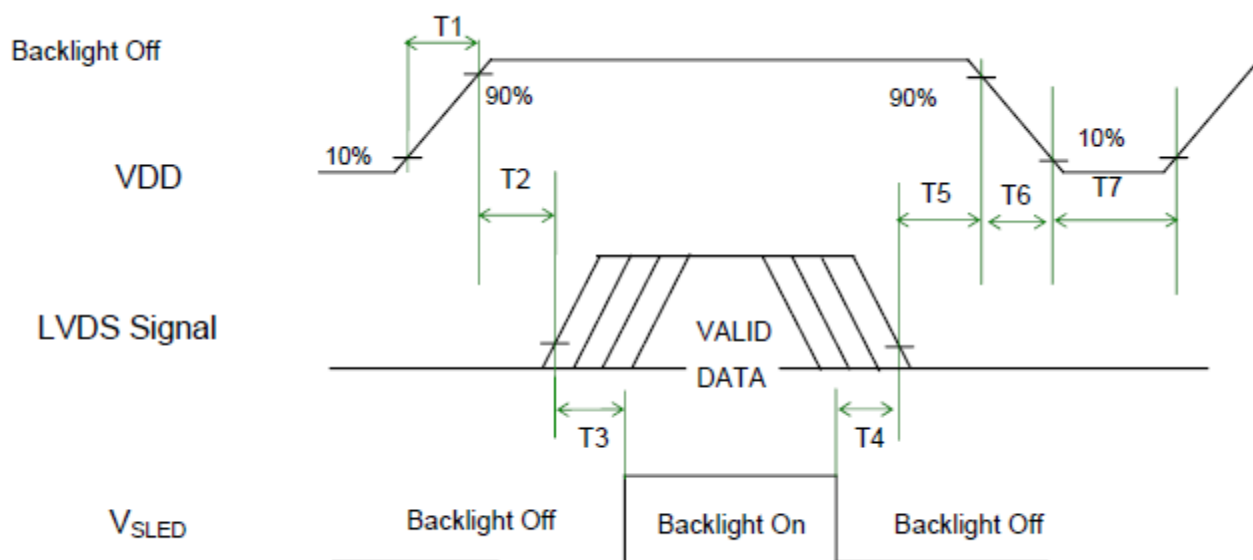
$$F_{clk} (\text{Max.}) = F_v (\text{Max.}) \times T_h (\text{Typ.}) \times T_v (\text{Typ.});$$

Input Timing Diagram



4.11. POWER SEQUENCE FOR LCD

VDD power and LED on/off sequence are as follows. 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	Remark
	Min.	Typ.	Max.		
T1	0.5	-	10	ms	
T2	0	-	50	ms	
T3	500	-	-	ms	
T4	100	-	-	ms	
T5	0	-	50	ms	Note 1, 2
T6	0	-	200	ms	Note 2, 3
T7	1000	-	-	ms	

Note:

1. Recommend setting T5=0ms to avoid electronic noise when VDD is off.
2. During T5 and T6 period, please keep the level of input LVDS signals with Hi-Z state.
3. Voltage of VDD must decay smoothly after power-off. (customer system decide this value)

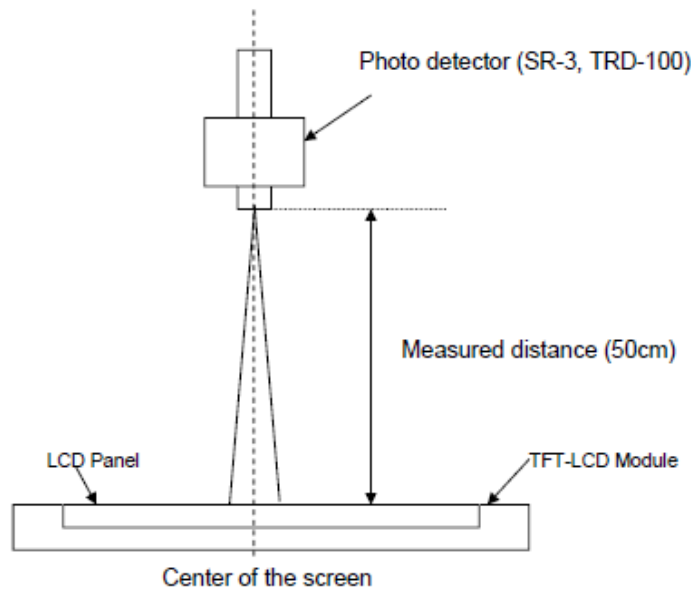
5. OPTICAL CHARACTERISTICS

Test Condition:

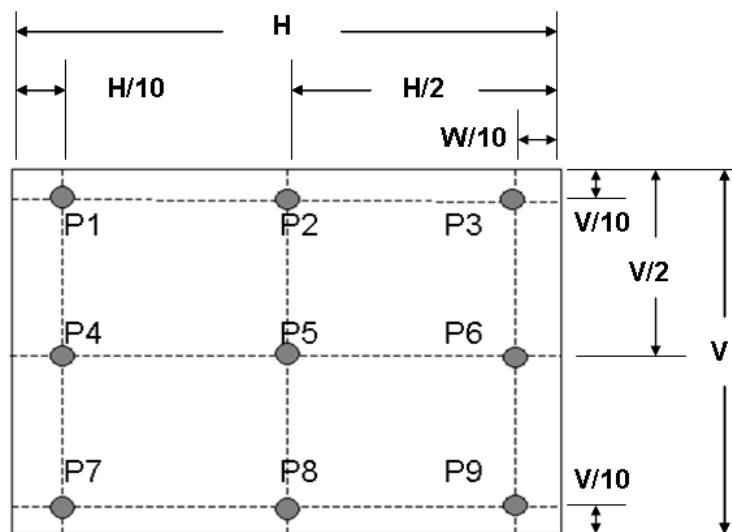
1. Equipment setup: Please refer to Note.
2. Panel Lighting time: 30 minutes
3. VDD = 5.0V, Fv= 60Hz, Is= 80mA, Ta =25°C

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
White Luminance		L _W	Center of screen	240	300	-	Cd/m ²	1
Luminance Uniformity		δ _{W9}	9 points	75	80	-	%	2, 3
Contrast Ratio		CR	Center of screen	1800	3000	-		4
Viewing Angle	Horizontal	θ _r	CR = 10	75	89	-	Degree	6
		θ _l		75	89	-		
	Vertical	Φ _H		75	89	-		
		Φ _L		75	89	-		
Response Time		T _{rR}	Raising		7	17	ms	5
		T _{rF}	Falling		5	7		
		T _{rR} +T _{rF}	Raising + Falling		12	24		
Color Coordinates	Red	R _x	CIE 1931	0.610	0.640	0.670	-	
		R _y		0.303	0.333	0.363		
	Green	G _x		0.290	0.320	0.350		
		G _y		0.590	0.620	0.650		
	Blue	B _x		0.126	0.156	0.186		
		B _y		0.025	0.055	0.085		
	White	W _x		0.283	0.313	0.343		
		W _y		0.299	0.329	0.359		
Crosstalk		CT				1.5	%	6
Flicker		F _{dB}	Center of screen	-	-	-20	dB	7

Note 1: Equipment setup:



Note 2: Definition of 9 points position



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

$$\delta_{W9} = \frac{\text{Minimum Brightness of 9 points (P1~P9)}}{\text{Maximum Brightness of 9 points (P1~P9)}}$$

a. Test pattern: White Pattern

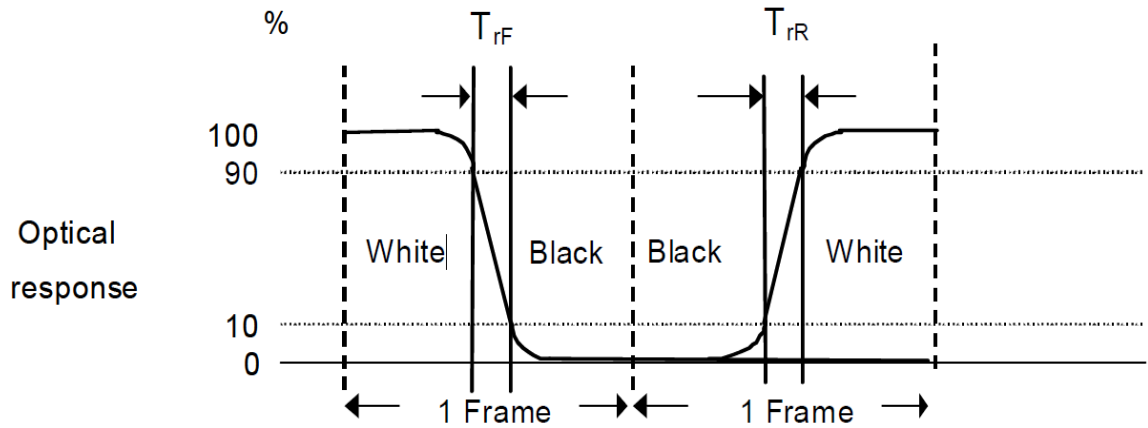
Note 4: Definition of contrast ratio (CR)

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

a. Measured position: Center of screen (P5) & perpendicular to the screen ($\theta = \Phi = 0^\circ$)

Note 5: Definition of response time:

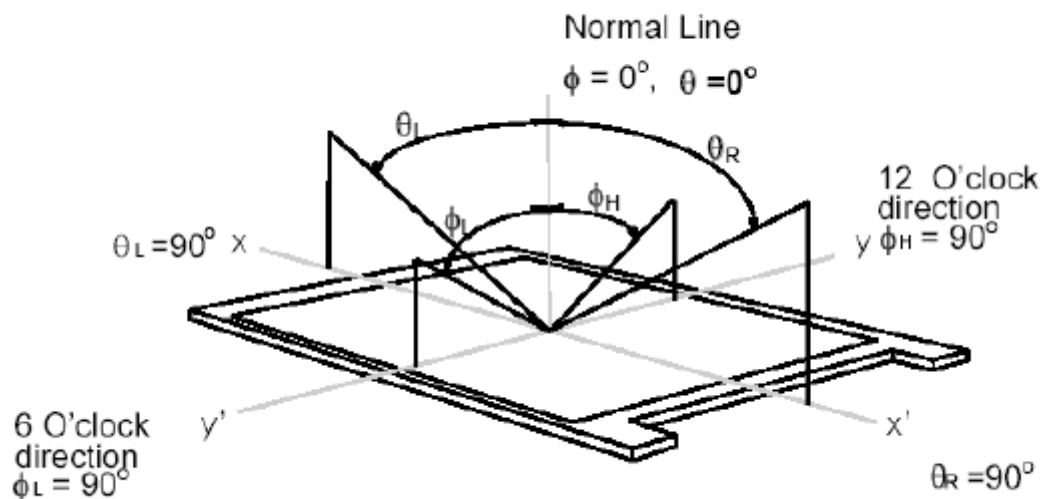
The output signals of photo detector are measured when the input signals are changed from “White” to “Black” (falling time) and from “Black” to “White” (rising time), respectively. The response time interval is between 10% and 90% (1 frame at 60 Hz) of amplitudes.



$$T_{rR} + T_{rF} = 12 \text{ msec (typ.)}$$

Note 6: Definition of view 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.



Note 7: Crosstalk measurement

Definition:

$$CT = \text{Max. } (CT_H, CT_V);$$

Where

- a. Maximum Horizontal Crosstalk:

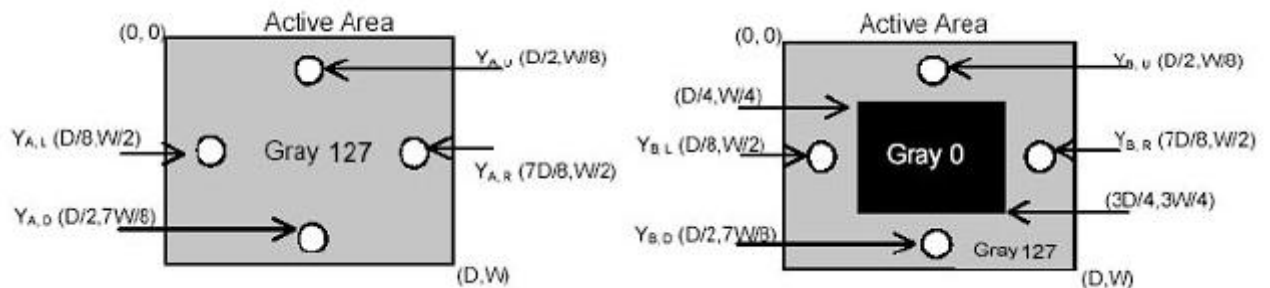
$$CT_H = \text{Max. } (|Y_{BL} - Y_{AL}| / Y_{AL} \times 100\%, |Y_{BR} - Y_{AR}| / Y_{AR} \times 100\%);$$

Maximum Vertical Crosstalk:

$$CT_V = \text{Max. } (|Y_{BU} - Y_{AU}| / Y_{AU} \times 100\%, |Y_{BD} - Y_{AD}| / Y_{AD} \times 100\%);$$

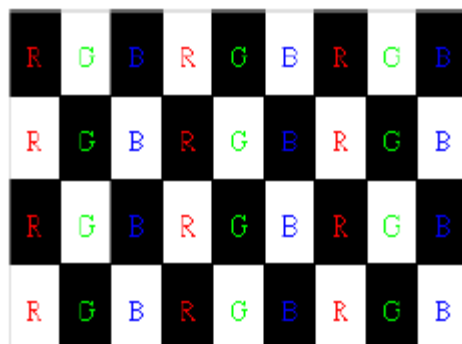
- b. Y_{AU} , Y_{AD} , Y_{AL} , Y_{AR} = Luminance of measured location without Black pattern

Y_{BU} , Y_{BD} , Y_{BL} , Y_{BR} = Luminance of measured location with Black pattern



Note 8: Flicker measurement

- a. Test pattern: It is listed as following.



Gray level = L0



Gray level = L127

R: Red, G: Green, B: Blue

- b. Measured position: Center of screen (P5) & perpendicular to the screen ($\theta = \Phi = 0^\circ$)

6. RELIABILITY TEST ITEMS

Test Item		Condition
1	Temperature Humidity Bias (THB)	Ta = 50°C, 80%RH, 240hrs
2	High Temperature Operation (HTO)	Ta = 50°C, 50%RH, 240hrs
3	Low Temperature Operation (LTO)	Ta = 0°C, 240hrs
4	High Temperature Storage (HTS)	Ta = 60°C, 240hrs
5	Low Temperature Storage (LTS)	Ta = -20°C, 240hrs
6	Thermal Shock Test (TST)	-20°C(30min)~60°C(30min), 10cycles

7. LABEL

Model NO. F270PET-T31

條碼

SN 3A Z 20 2 21 0 XXX1

L=32mm



W=14mm

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

字型:Arial (6)

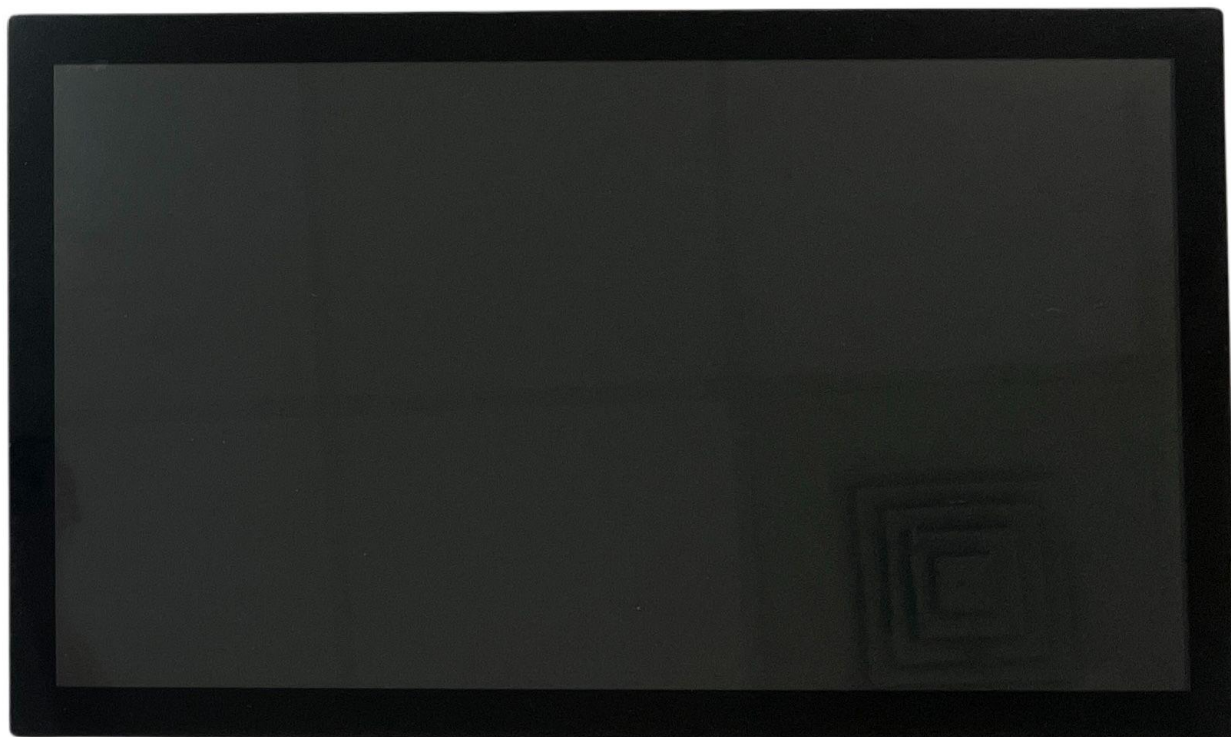
code:128

字型:Arial (8)

8. MECHANICAL CHARACTERISTICS

Item		Dimension	Unit	Note
Outline Dimension	Horizontal	629.00	mm	PCAP : B270PBU-E03
	Vertical	372.00	mm	
	Depth	4.40	mm	
	Horizontal	613.6	mm	LCD : M270HVN02.0
	Vertical	356.85	mm	
	Depth	10.00	mm	
	Horizontal	100.00	mm	Touch Driver : ETP-MB-EXC84H5680STAG
	Vertical	33.00	mm	
	Depth	7.20	mm	
Weight		4500	g	F270PET-T31
Item		Specification		Remarks
PCAP Viewing Area		599.00 mm x 337.70 mm		
PCAP Sensor Area		613.00 mm x 357.50 mm		
PCAP FPC Length		121.10 mm		
PCAP Input method		Finger or exclusive pen		
PCAP Light Transmission		≥85%		
PCAP Operation force		≤10g		Finger Input
PCAP Hardness of surface		≥6H		Pressure 500gf test
PCAP Surface Treatment		Clear Type		

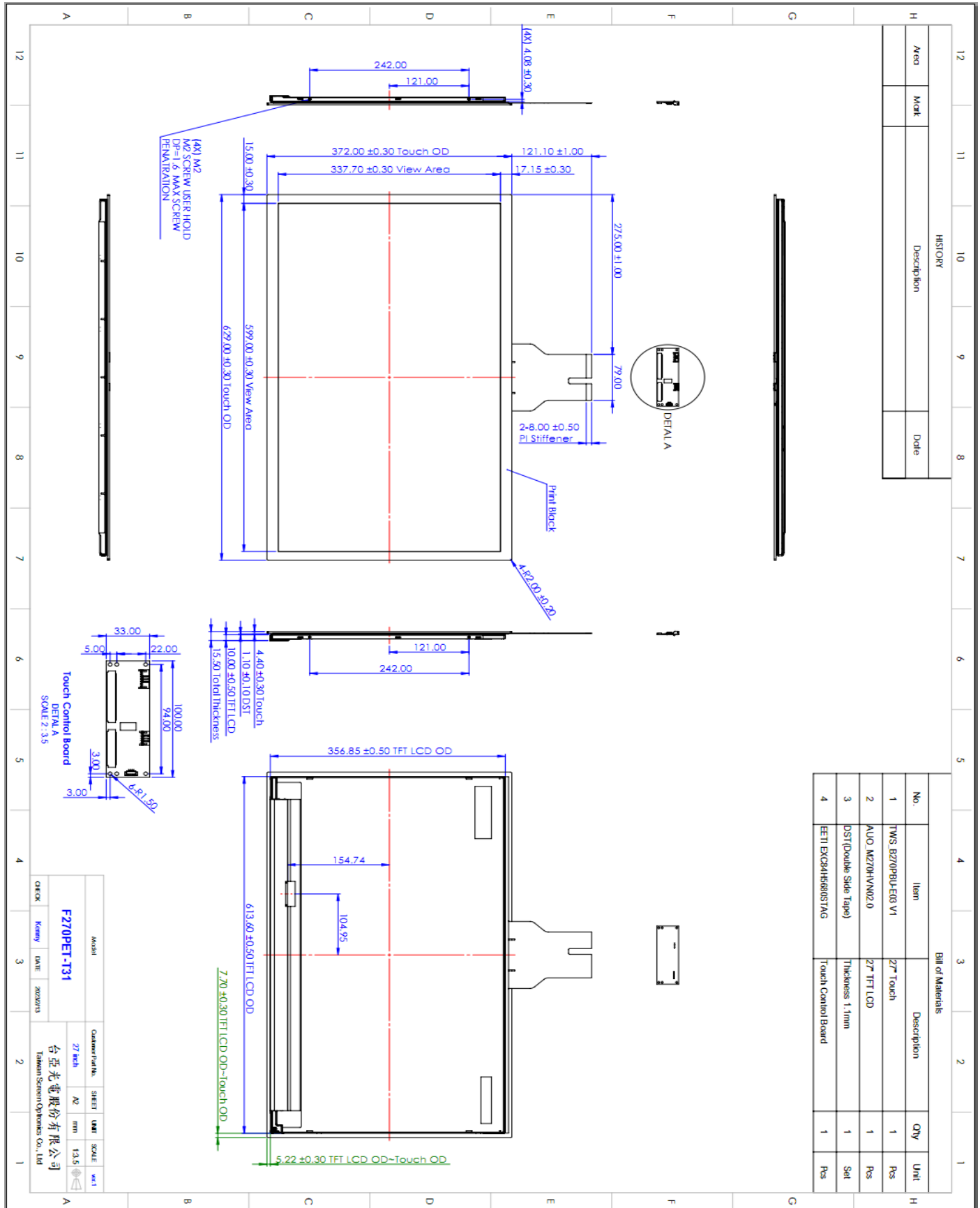
Front View



Back View



9. ENGINEERING DRAWING



Touch Driving Board :

