



- ☐ Draft Specifications
☐ Preliminary Specifications
☒ Final Specifications

Title	18.5-inches Touch Display Product Specifications
Model Name	F185PET-T32
Version	2

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

Approved By	Prepared By
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2026-05-22	2026-05-22



REVISION HISTORY

Version	ECN No.	Description of Changes	Date	Prepared
0		Preliminary specification first edition	2025-02-06	Allen Fang
1		Modified Label	2025-12-26	Allen Fang
2		Final specification	2026-05-22	Allen Fang

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1. GENERAL DESCRIPTION

1.1.INTRODUCTION

F185PET-T32 is 18.5" AHVA (IPS-like) color active matrix TFT LCD module G185HAN01.0 04 with projected capacitive multi-touch B185PBU-E03 air bonding with Touch Driver ETP-MB-EXC84H4254STAG.

The display format is intended to support the FHD mode (1920(H) x 1080(V)) screen and 16.7M colors (LVDS True 8 bit) with LED backlight driving circuit.

1.2.FEATURES

- FHD (1920x1080) resolution
- Long life LED backlight (50k hrs)
- Industrial application
- RoHS product

1.3.APPLICATION

- TFT LCD monitor
- Industrial application



2. GENERAL SPECIFICATIONS

Parameter	Specification	Unit	Remarks
Active Area Size	18.47	inch	
Display Area	408.96(H) x 230.04 (V)	mm	
Outline Dimension	446.05 (H) x 271.18 (V) x 15.85 (D)	mm	D:PCAP+LCM
Weight	2550	g	Typ.
Driver Element	a-Si TFT active matrix	-	
Display Colors	16,7M, True 8 bit	Colors	
Electrical Interface	Dual LVDS	-	
Number of Pixels	1920 (H) x 1080 (V)	pixels	
Pixel Pitch	213 (H) x 213(W)	um	
Pixel Arrangement	RGB vertical stripe	-	
Display Mode	AHVA / Normal Black	-	
Color Gamut	70	%	
Touch Technology	Projected Capacitive Multi-Touch Panel	-	
Touch Method	Finger or exclusive pen	-	
Numbers of Touch	10	Points	
Touch Driver	ETP-MB-EXC84H4254STAG	-	
Touch Sensor Glass Type	Strengthening Glass	-	
Touch Controller IC	EETI, EXC80H84	-	
Touch Driver Interface	USB	-	
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
Logic/LCD Drive Voltage	V_{DD}	-0.3	+5.5	V
LCD Input Signal Voltage	V_{signal}	-0.3	+5.5	V
LED Input Voltage	LED_V_{DD}	-0.3	+13.2	V
LED Control Signal Voltage	LED_EN, PWM	-0.3	+5.0	V
Operating Temperature	T_{op}	-20	+70	°C
Operating Humidity	H_{op}	10	90	%RH
Storage Temperature	T_{st}	-30	+80	°C
Storage Humidity	H_{st}	10	90	%RH
Touch DC Supply Voltage	USB	-0.3	5.5	V

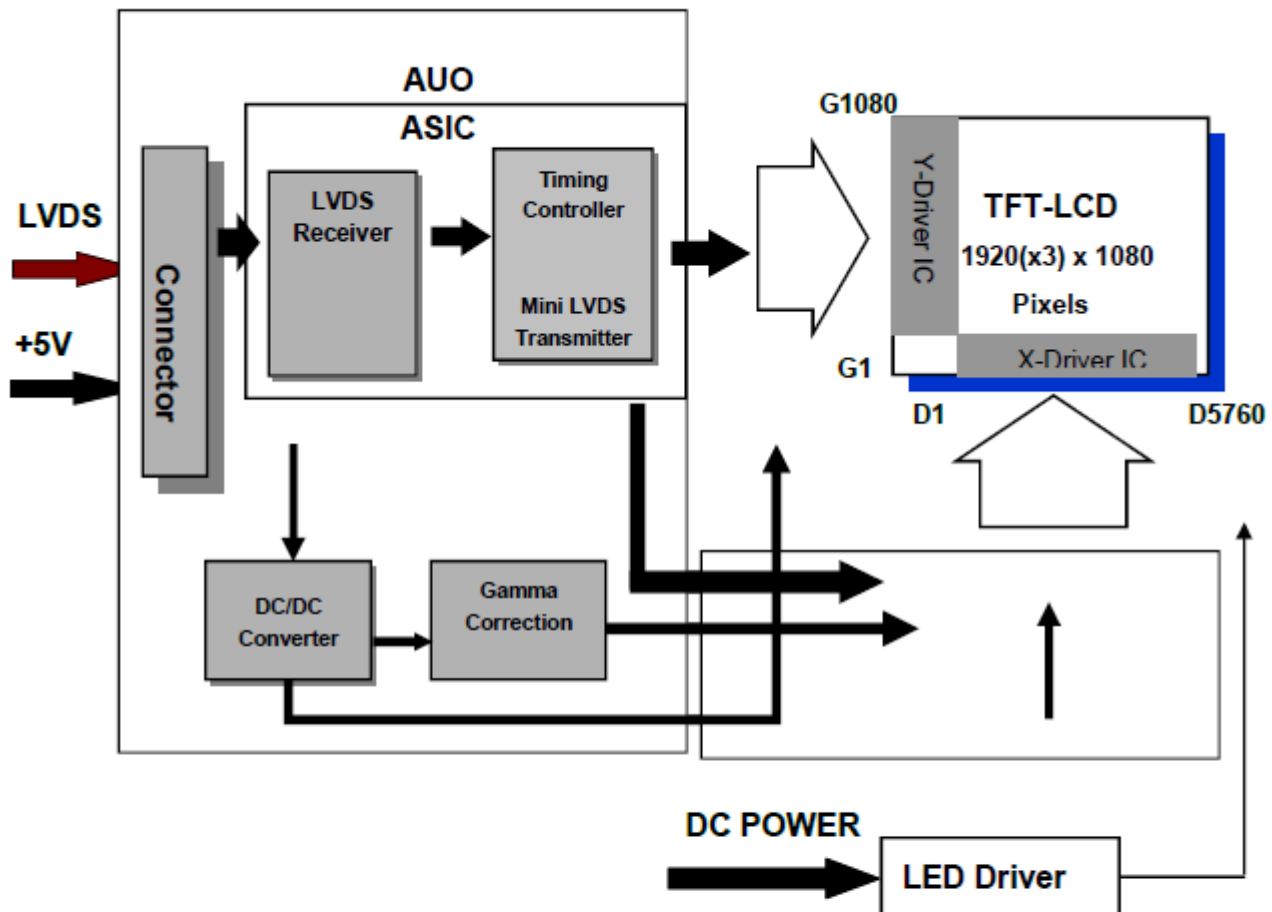
Note: Maximum Wet-Bulb temperature should be 39°C and no condensation.

4. ELECTRICAL CHARACTERISTICS

4.1.LCD MODULE

4.1.1. LCD BLOCK DIAGRAM

The following diagram shows the function block of the 18.5 inches wide Color TFT/LCD module.



I/F PCB Interface:

FI-XB30SSRLA-HF-16-R3500 (JAE)

Mating Type:

FI-X30HL or FI-X30C2L-NPB

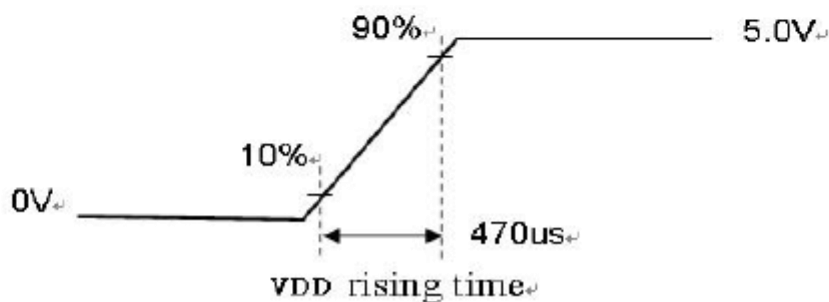
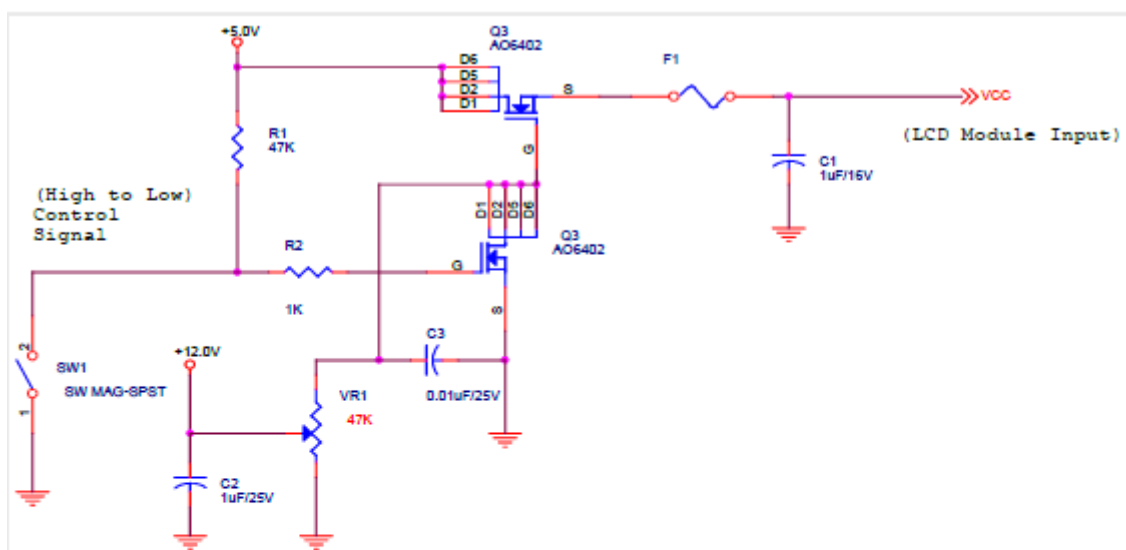
4.1.2. POWER SPECIFICATION

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
VDD	Logic/LCD Drive Voltage	4.5	5	5.5	V	
IDD	IDD Current	-	0.89	1.07	A	All White pattern (VDD=5V, at 60Hz),
PDD	VDD Power	-	4.45	5.35	W	All White pattern (VDD=5V, at 60Hz)
IRush	Inrush Current	-	2	2.5	A	Note 1
VDDrp	Allowable Logic/LCD Drive Ripple Voltage	-	-	300	mV p-p	All White pattern (VDD=5.0V, at 60Hz)

Note 1: Measure Condition



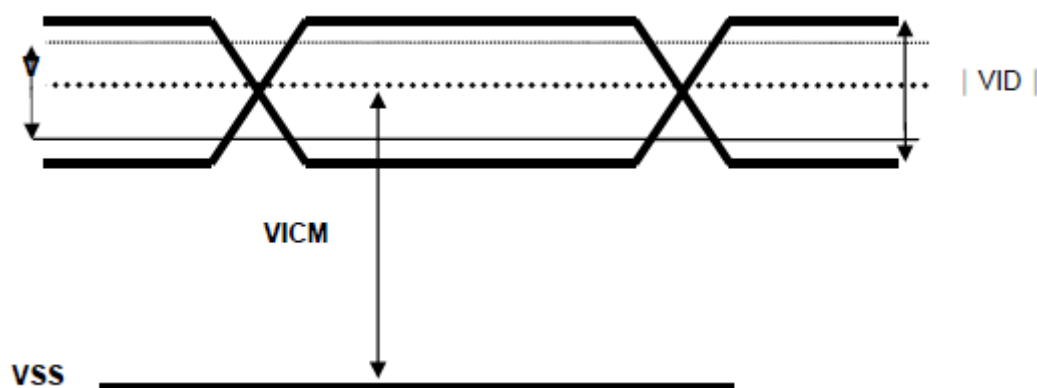
4.1.3. LVDS DC ELECTRICAL CHARACTERISTICS

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

Please refer to specifications of SN75LVDS82DGG (Texas Instruments) in detail.

Symbol	Item	Min.	Typ.	Max.	Unit	Remark
VTH	Differential Input High Threshold			+100	mV	VCM=1.2V Note 1
VTL	Differential Input Low Threshold	-100			mV	VCM=1.2V Note 1
VID	Input Differential Voltage	100	400	600	mV	Note 1
VICM	Differential Input Common Mode Voltage	1.125	-	1.375	V	VTH/VTL=200mV(Max)) Note 1

Note: LVDS Signal Waveform



4.1.4. LCD BACKLIGHT UNIT

Ta=25°C

Parameter	Symbol	Min.	Typ.	Max.	Units	Remark
Input Voltage	VCC	10.8	12	13.2	V	
Input Current	I _{VCC}		1.07		A	VCC=12V, 100% PWM Duty
Power Consumption	P _{VCC}		12.84	15.6	W	VCC=12V, 100% PWM Duty
Inrush Current	I _{rush LED}	-	-	3	A	At rising time=470us
LED Enable Input ON	V _{LED ON/OFF}	3	5	5.5	V	
LED Enable Input OFF				0.8	V	
PWM Logic Input High Level	V _{PWM_EN}	3	3.3	5	V	
PWM Logic Input Low Level			-	0.8	V	
PWM Input Frequency	F _{PWM}	200	-	20K	Hz	
PWM Duty Cycle	200 ~ 5K	5	-	100	%	
	5K ~ 20K	15	-	100	%	
LED Forward Current	I _F		58		mA	Ta=25°C
LED Forward Voltage	V _F		3.0	3.3	V	I _F =58mA, Ta=25°C
LED Power Consumption	P _{LED}			10.72	W	I _F =58mA, Ta=25°C
Operation Lifetime		50,000	-	-	Hour	I _F =58mA, Ta=25°C

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

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

Note 3: I_F, V_F, P_{LED} they are defined for single LED.

Note 4: If G185HAN01.0 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. Min. operating life time is estimated data.

Note 6: Each LED light bar consists of 56 pcs LED package (7 strings x 8 pcs / string)

4.1.5. LCD INPUT TERMINAL PIN ASSIGNMENT

Signal Description

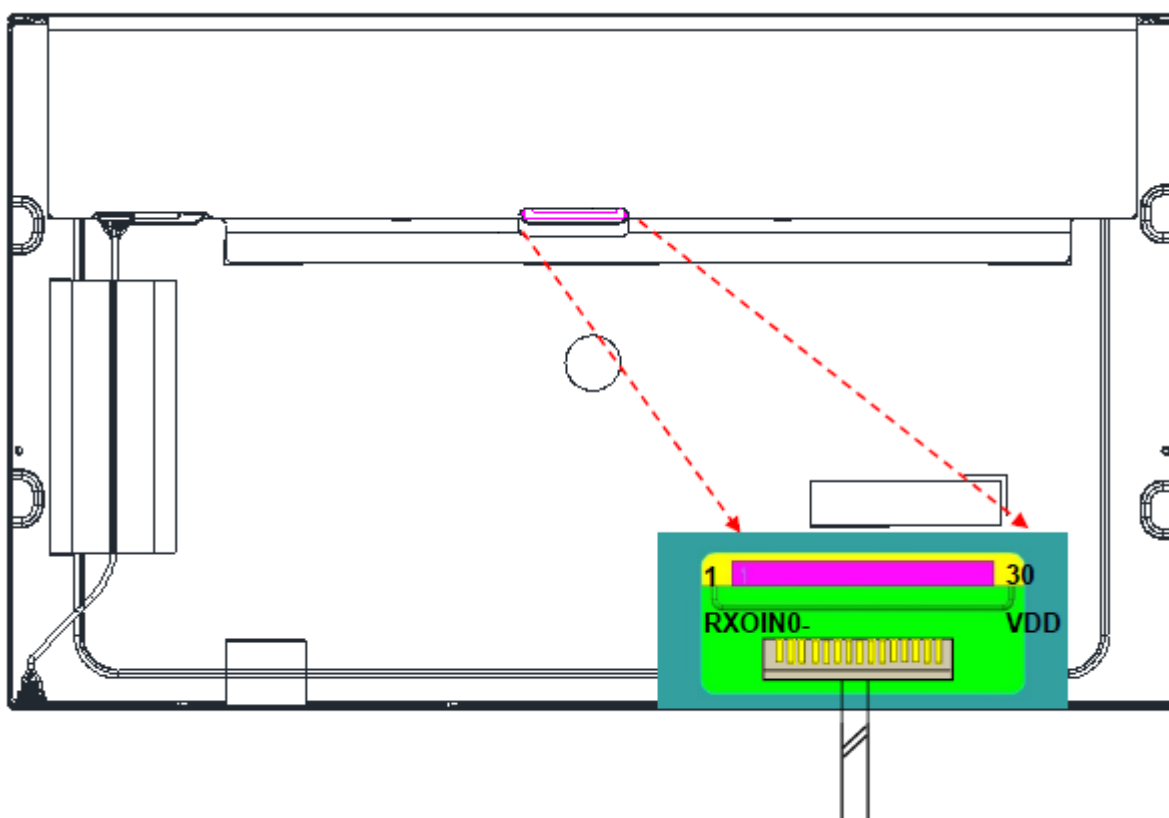
The module using a pair of LVDS receiver: **SN75LVDS82 / SN75LVDS83** (Texas Instruments) or compatible. LVDS is a differential signal technology for LCD interface and high speed data transfer device. Transmitter shall be SN75LVDS83 (negative edge sampling) or compatible. The first LVDS port (RxOxxx) transmits odd pixels while the second LVDS port (RxExxx) transmits even pixels.

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	RXOCLKIN-	Negative LVDS differential clock input (Odd data)
9	RXOCLKIN+	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	RXE0-	Negative LVDS differential data input (Even data)
13	RXE0+	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	RXE2IN-	Negative LVDS differential data input (Even data)
19	RXE2IN+	Positive LVDS differential data input (Even data)
20	RXECLKIN-	Negative LVDS differential clock input (Even data)
21	RXECLKIN+	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	Must connect to ground
25	NC	No connection
26	NC	No connection
27	NC	No connection
28	VDD	Power Supply Input Voltage +5.0 V
29	VDD	Power Supply Input Voltage +5.0 V
30	VDD	Power Supply Input Voltage +5.0 V

Note 1: Start from left side

LVDS Connector

Connector Name / Designation	Interface Connector / Interface card
Manufacturer	JAE
Type Part Number	FI-XB30SSRLA-HF-16-R3500 (JAE)
Mating Housing Part Number	FI-X30HL or FI-X30C2L-NPB



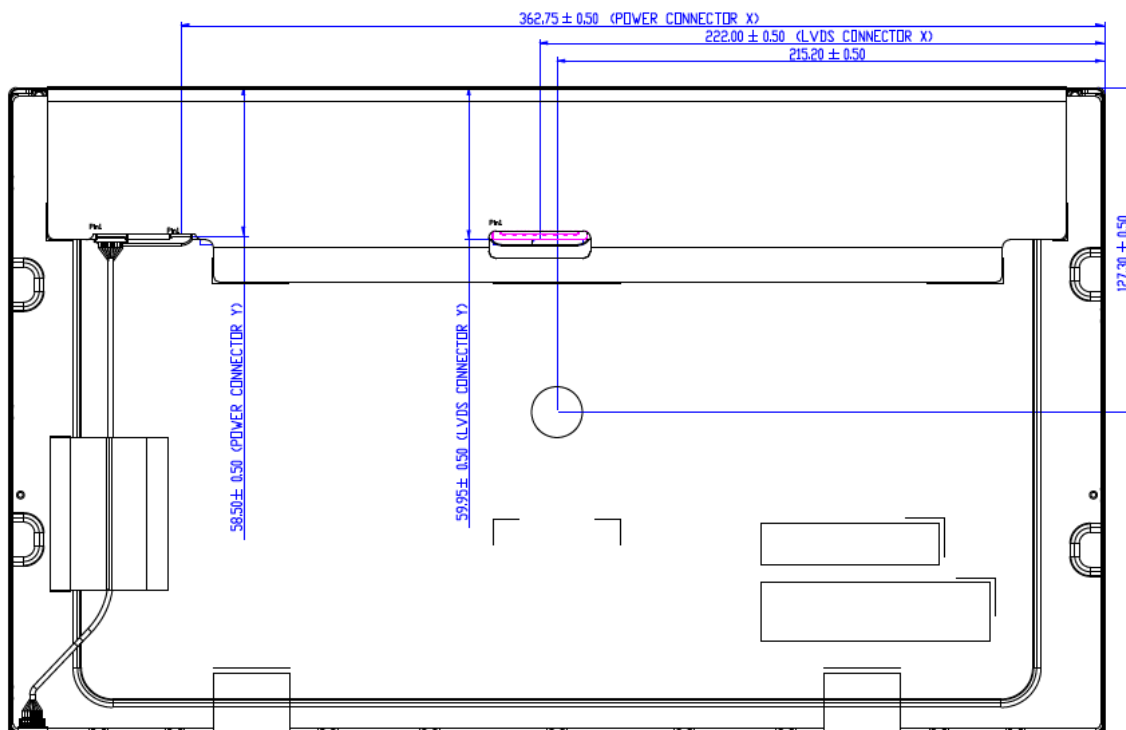
Note 2: Input signals of clock shall be the same timing.

Note 3: Please follow TV VESA Pin Assignment.

4.1.6. LED BACKLIGHT UNIT

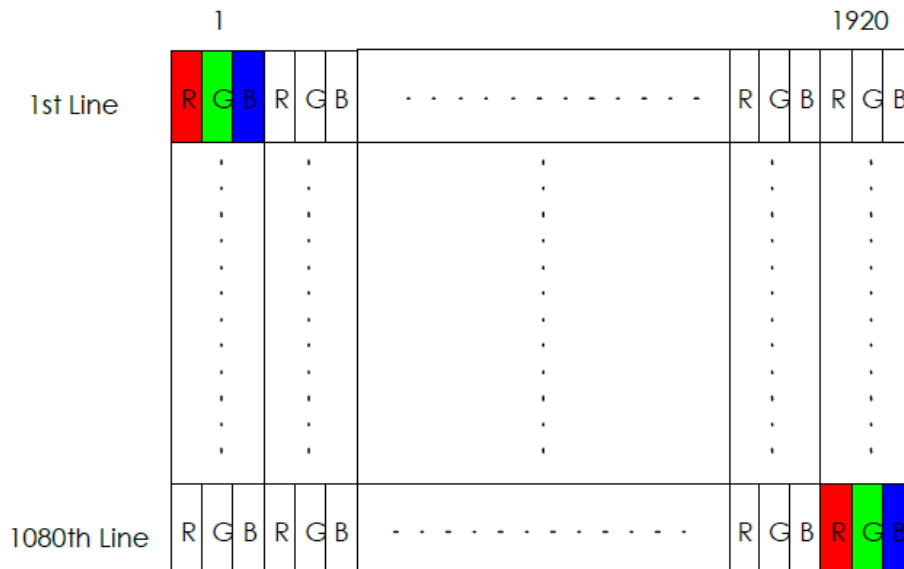
Connector Name / Description	LED Connector
Manufacturer	STM or compatible
Connector Model Number	MSB24038P5D or compatible
Mating Model Number	P24038P5 or compatible

Pin No.	Symbol	Description
Pin1	VCC	12V Input
Pin2	GND	GND
Pin3	Enable	5V-ON, 0V-OFF
Pin4	Dimming	PWM Dimming
Pin5	NC	NC

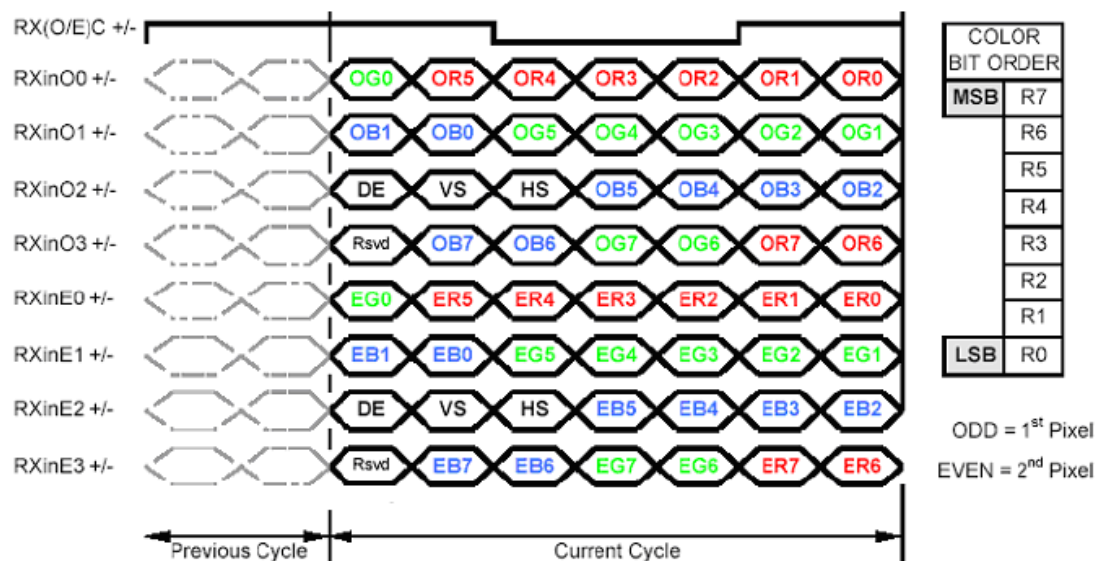


4.1.7. PIXEL FORMAT IMAGE

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



4.1.8. THE LCD INPUT DATA FORMAT



Note 1: Normally DE mode only. VS and HS on EVEN channel are not used.

Note 2: Please follow VESA.

Note 3: 8-bits signal input.

4.1.9. LCD TIMING CHARACTERISTICS

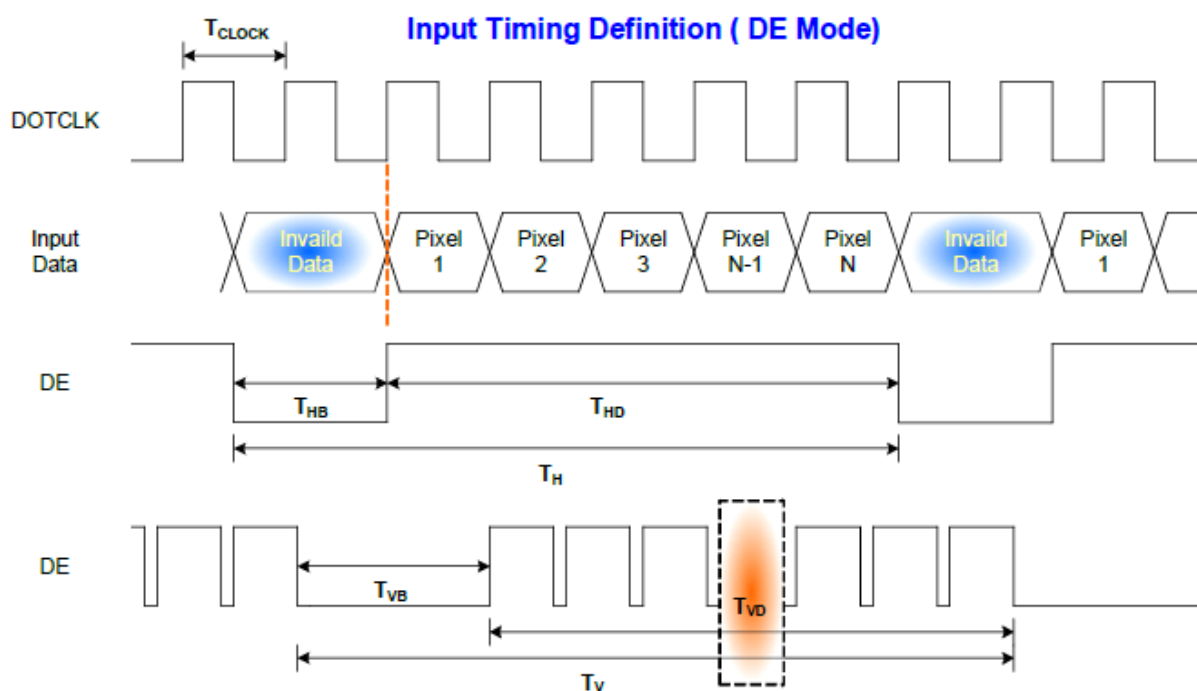
Parameter		Symbol	Min.	Typ.	Max.	Unit
Vertical Section	Period	T _V	1090	1100	1160	T _H
	Active	T _{VD}	1080			
	Blanking	T _{VB}	10	20	80	
Horizontal Section	Period	T _H	1000	1088	1120	T _{CLK}
	Active	T _{HD}	960			
	Blanking	T _{HB}	40	128	160	
Clock	Period	T _{CLK}	11.76	13.89	15.38	ns
	Frequency	Freq.	60	72	87.5	MHz
Frame Rate		1/T _V	50	60	75	Hz

Note 1: Only DE mode operation. The input of Hsync & Vsync signal does not have an effect upon the LCD normal operation.

Note 2: The performance of the electro-optical characteristics may be influenced by variance of the vertical refresh rates.

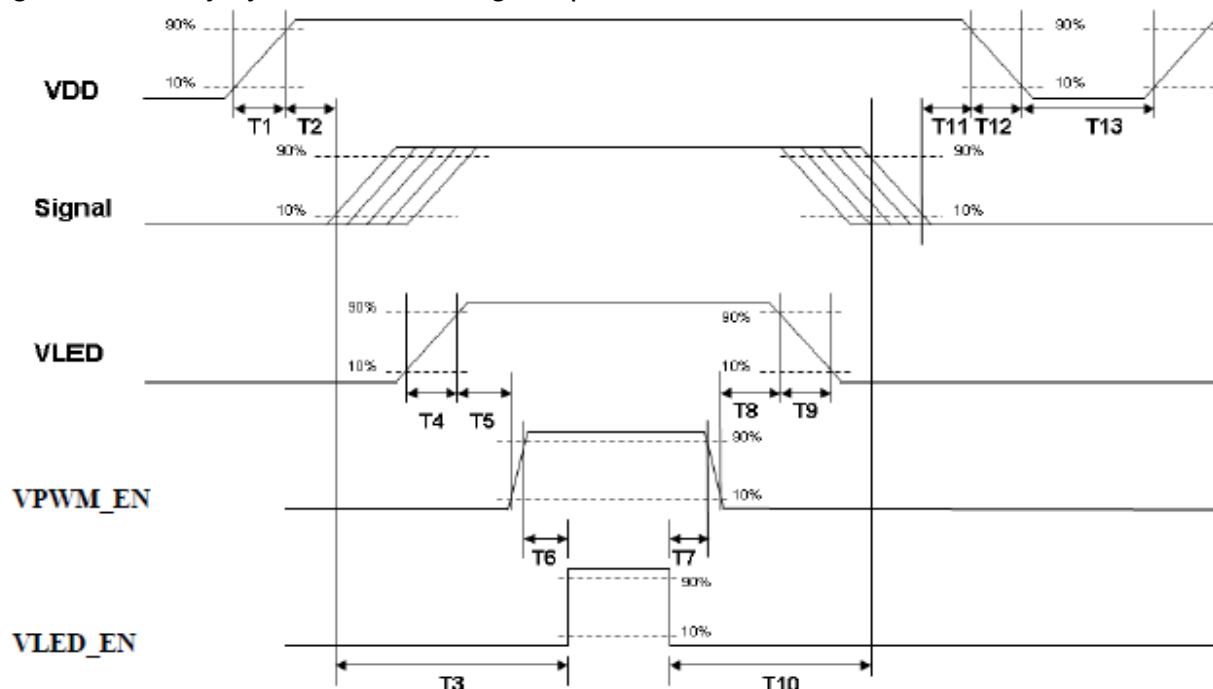
Note 3: Horizontal period should be even.

4.1.10. LCD INPUT TIMING DIAGRAM



4.1.11. 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	0	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	-	-	100	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.

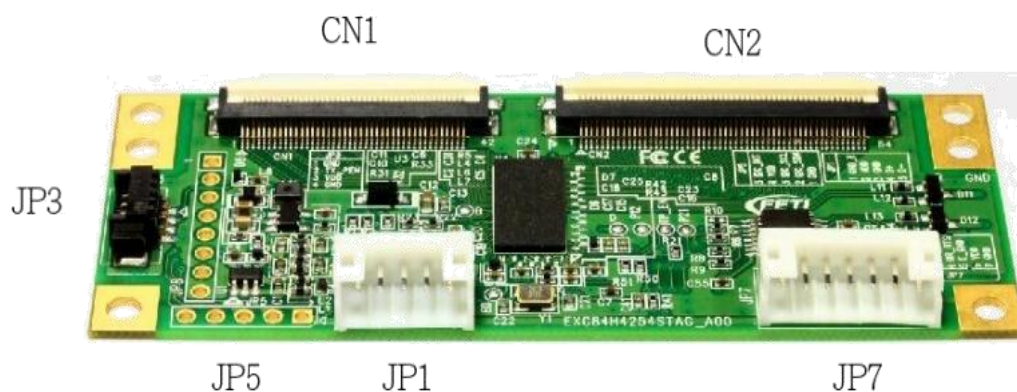
4.2.TOUCH DRIVER

This is a Control Board of USB interface for PCAP

ETP-MB-EXC84H4254STAG

No.	Item	Specification
1	Touch Controller IC	EETI, EXC80H84
2	Number of Support	10 points Finger Touch
3	Interface	USB / RS232

Interface	Symbol	Condition	Min.	Typ.	Max.	Unit
USB	JP1		3.5	5	5.5	V



4.2.1. TOUCH DRIVER PIN ASSIGNMENT

FPC Pin Description

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		

Connector Pin Configuration

JP1 USB connector

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

JP5 I2C connector

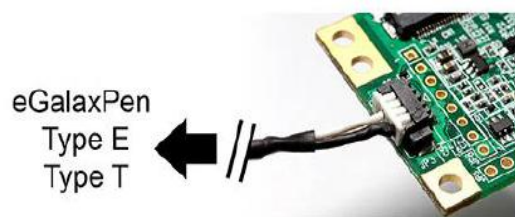
JP5	
1	GND
2	I2C_SDA
3	I2C_SCL
4	VDD
5	I2C_INT

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

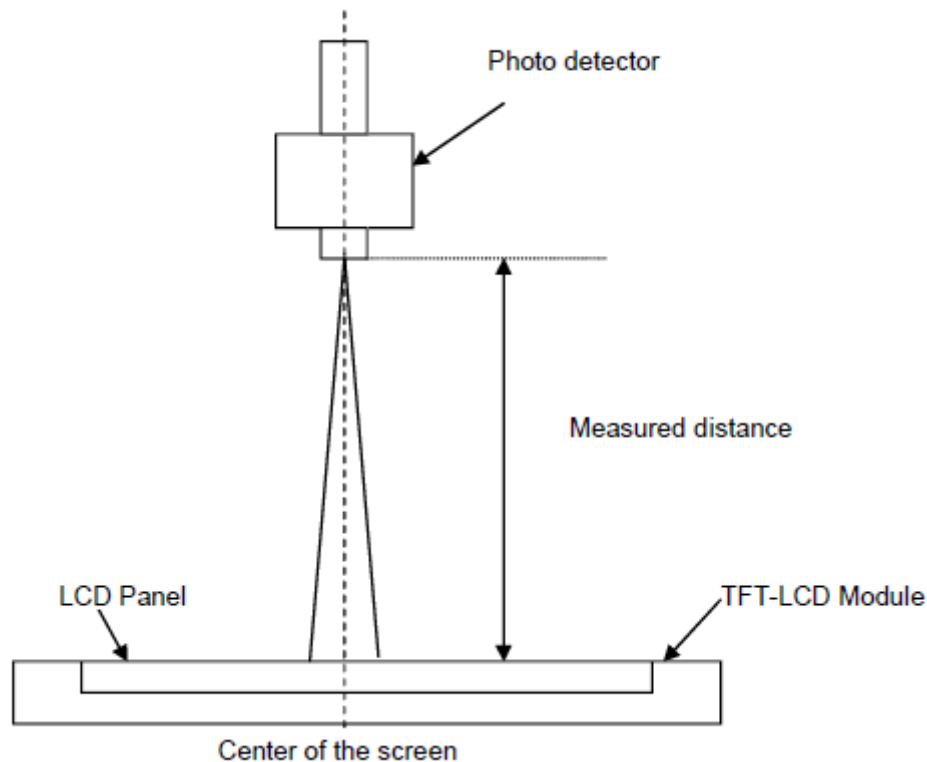
5. OPTICAL CHARACTERISTICS

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		89	-	2
				Left		89	-	
			Vertical CR>10	Upper		89	-	
				Lower		89	-	
Contrast Ratio					800	1000	-	3
Response Time		ms	Raising Time (T _{rR})			10	20	4
			Falling Time(T _{rF})			10	20	
			Rising + Falling			20	40	
Color / Chromaticity Coordinates (CIE)	Red	Rx			0.596	0.644	0.694	5
		Ry			0.282	0.332	0.382	
	Green	Gx			0.244	0.294	0.344	
		Gy			0.556	0.606	0.656	
	Blue	Bx			0.096	0.146	0.196	
		By			0.020	0.070	0.120	
	White	Wx			0.249	0.299	0.349	
		Wy			0.265	0.315	0.365	
Central Luminance		cd/m²			280	350	-	6
Luminance Uniformity		%			80	85	-	7
Color Gamut		%			-	70	-	

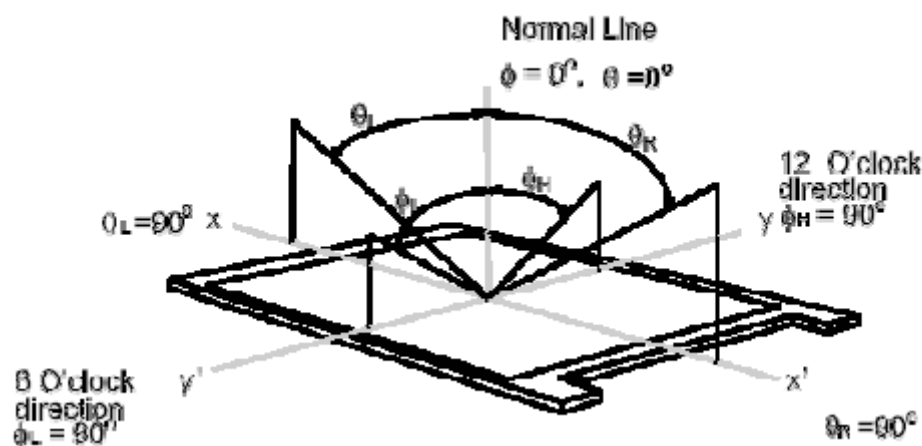
Note 1: Measurement method

The LCD module should be stabilized at given temperature for 30 minutes to avoid abrupt temperature change during measuring (at surface 35°C). 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 2: Definition of view angle measured by ELDIM (EZContrast 88)

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.

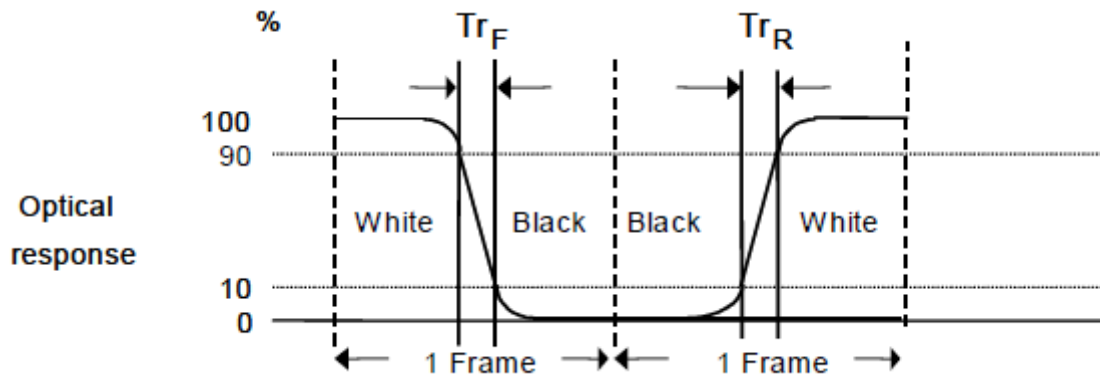


Note 3: Contrast ratio is measured by TOPCON SR-3

Note 4: Definition of Response time measured by Westar TRD-100A

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

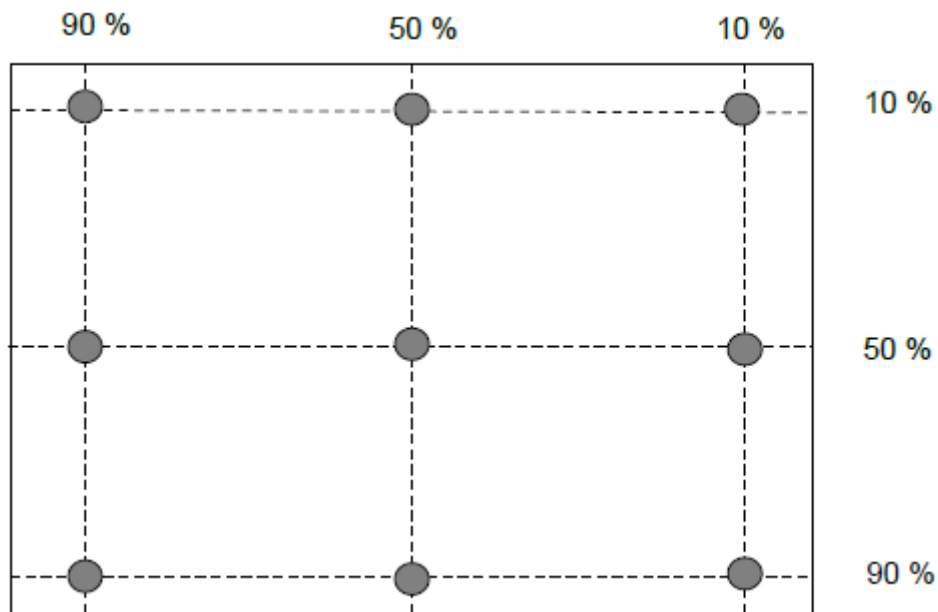
$T_{rR} + T_{rF} = 5 \text{ ms (Typ.)}$



Note 5: Color chromaticity and coordinates (CIE) is measured by TOPCON SR-3

Note 6: Central luminance is measured by TOPCON SR-3

Note 7: Luminance uniformity of these 9 points is defined as below and measured by TOPCON SR-3



$$\text{Uniformity} = \frac{\text{Minimum Luminance of 9 points (1-9)}}{\text{Maximum Luminance of 9 points (1-9)}}$$

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	-20°C(30min)~60°C(30min), 10cycles

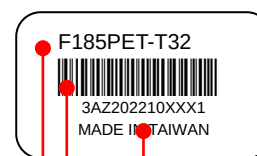
7. LABEL

Model No. **F185PET-T32**

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	446.05	mm	PCAP : B185PBU-E03
	Vertical	271.18	mm	
	Depth (min.)	2.75	mm	
	Horizontal	430.40	mm	LCD : G185HAN01.0 04
	Vertical	254.60	mm	
	Depth (min.)	12.00	mm	
	Horizontal	82.50	mm	Touch Driver : ETP-MB-EXC84H4254STAG
	Vertical	33.00	mm	
	Depth (min.)	1.60	mm	
Weight		2550	g	F185PET-T32
Item		Specification		Remarks
PCAP Viewing Area		410.80 mm x 231.40 mm		
PCAP Sensor Area		429.40 mm x 253.60 mm		
PCAP FPC Length		88.30 mm		
PCAP Input method		Finger or exclusive pen		
PCAP Light Transmission		90%		BYK Gardner, 550nm, ASTM D1003
PCAP Haze		< 4%		BYK Gardner, ASTM D1003
PCAP Operation force		≤10g		Finger Input
PCAP Hardness of surface		≥7H		ASTM D3363 Pressure 750g / 45°test

Front View



Back View



9. ENGINEERING DRAWING

