



- ☐ Draft Specifications
☒ Preliminary Specifications
☐ Final Specifications

Title	10.1-inches Touch Display Product Specifications
Model Name	F101PET-Z05
Version	1

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

Approved By	Prepared By
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2026-01-12	2026-01-12



REVISION HISTORY

Version	ECN No.	Description of Changes	Date	Prepared
0		Draft specification first edition	2022-12-30	Allen Fang
1		Preliminary Specification	2025-11-28	Allen Fang
2		Modified Drawing	2026-01-12	Allen Fang



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1. GENERAL DESCRIPTION

1.1. INTRODUCTION

F101PET-Z05 is a 10.1" color active matrix TFT LCD module G101UAN01.0 with projected capacitive multi-touch B101PFU-E03 air bonding.

The display format is intended to support the 16:10 WUXGA, 1920(H) x 1200(V) screen and 16.7M colors (eDP1.2 RGB 6-bits+Hi-FRC) with LED backlight driving circuit.

1.2. FEATURES

- 16:10 Wide view angle
- WUXGA, 1920(H) x 1200(V) screen
- RoHS product

1.3. APPLICATION

- TFT LCD monitor

1.4. GENERAL SPECIFICATIONS

Parameter	Specification	Unit	Remarks
Active Area Size	10.1	inch	
Display Area	216.81 x 135.5 (V)	mm	
Physical Size	247.76 (H) x 166.40 (V) x 7.39 (D)	mm	D:PCAP+LCM
Weight	350	g	Typ.
Driver Element	a-Si TFT active matrix	-	
Display Colors	16.7M (RGB 6-bits+Hi-FRC)	Colors	
Electrical Interface	eDP1.2	-	
Number of Pixels	1920 (H) x 1200 (V)	pixels	
Pixel Pitch	0.11292 (H) x 0.11292(W)	mm	
Pixel Arrangement	RGB vertical stripe	-	
Display Mode	AHVA, Normal Black	-	
Color Gamut	50	%	
Touch Technology	Projected Capacitive Multi-Touch Panel	-	
Touch Method	Finger or exclusive pen	-	
Numbers of Touch	10	Points	
Touch FPC Type	COF	-	
Touch Sensor Glass Type	Strengthening Glass	-	
Touch Controller IC	EETI, EXC80W46	-	
Touch Driver Interface	USB / I2C	-	
Support OS	Windows (Embedded/CE/XP/2000/Vista/7/8/10) / Linux / Android	-	

2. 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	4.0	V
LCD Input Signal Voltage	V_{signal}	-0.3	$V_{DD}+0.3$	V
LED Input Voltage	LED_V_{DD}	-0.3	33	V
Operating Temperature	T_{op}	-10	+60	°C
Operating Humidity	H_{op}	5	90	%RH
Storage Temperature	T_{st}	-20	+60	°C
Storage Humidity	H_{st}	5	90	%RH
Touch DC Supply Voltage	I2C	-0.3	3.6	V
Touch DC Supply Voltage	USB	-0.3	6.0	V

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

Operating Temperature : -10°C to +60°C (Front and rear surface)

3. ELECTRICAL CHARACTERISTICS

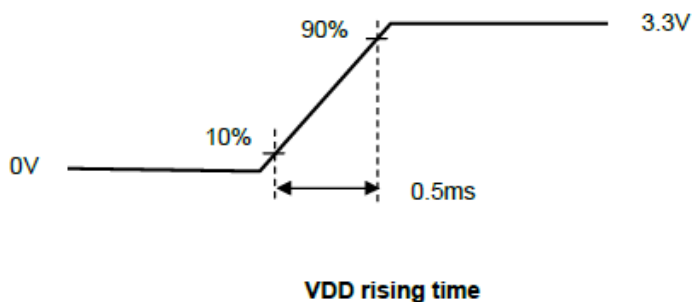
3.1. LCD MODULE

3.1.1. POWER SPECIFICATION

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Logic/LCD Drive Voltage	VDD	3.0	3.3	3.6	V	
V _{DD} Current	I _{VDD}	-	200	240	mA	White Pattern (VDD=3.3V at 60Hz)
LCD Inrush Current	I _{rush}	-	-	1500	mA	Note 1
V _{DD} Power	P _{VDD}	-	0.66	0.79	W	White Pattern (VDD=3.3V at 60Hz)
Allowable Logic/LCD Drive Ripple Voltage	VDDrp	-	-	100	mV p-p	White Pattern (VDD=3.3V at 60Hz)

Note 1: Maximum Measurement condition: White pattern at 3.3V driving voltage. ($P_{max}=V_{3.3} \times I_{white}$)

Note 2: Measure Condition



3.1.2. SIGNAL ELECTRICAL CHARACTERISTICS

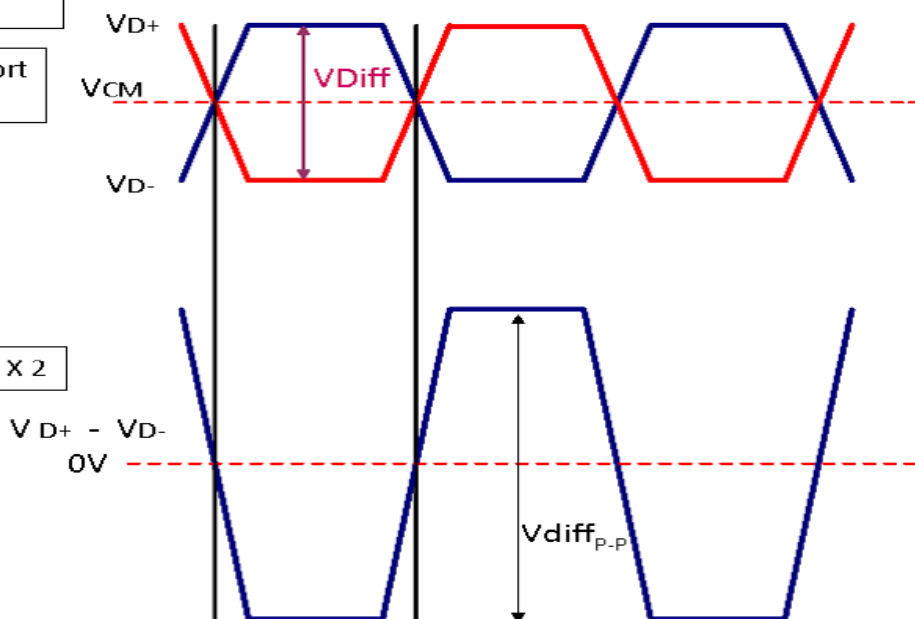
Signal electrical characteristics are as follows:

Display Port main link signal:

Differential pair VD+ , VD-
Which is one Display port
Main link

VCM of Display port
Main link

$$V_{diffP-P} = [(VD+) - (VD-)] \times 2$$



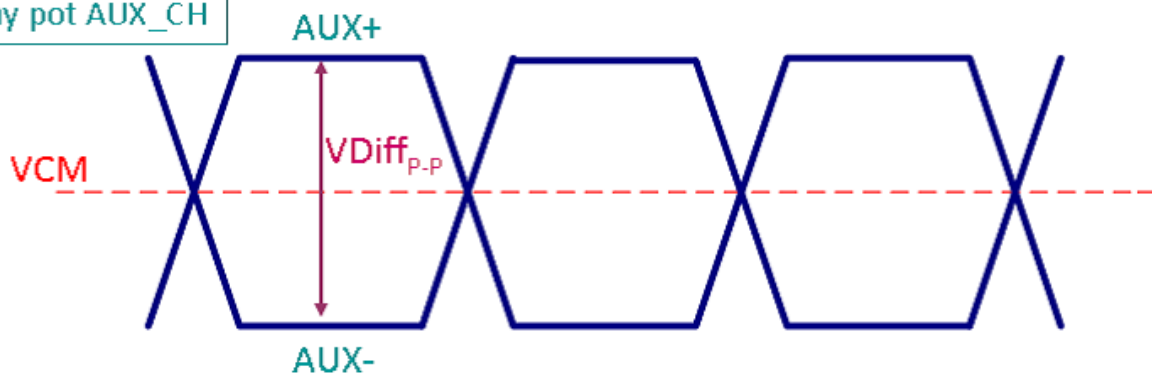
Display port main link

Item	Symbol	Min.	Typ.	Max.	Unit
RX input DC Common Mode Voltage	VCM		0		V
Peak-to-Peak Voltage at a receiving Device	$V_{DiffP-P}$	150		1320	mV

Follow as VESA display port standard V1.1a

Display Port AUX_CH signal:

Differential AUX+ , AUX-
Which is Display port AUX_CH



Display port AUX_CH					
Item	Symbol	Min.	Typ.	Max.	Unit
AUX DC Common Mode Voltage	VCM		0		V
AUX Peak-to-Peak Voltage at a receiving Device	VDiff _{P-P}	0.4	0.6	0.8	mV

Follow as VESA display port standard V1.1a

Display Port VHPD signal:

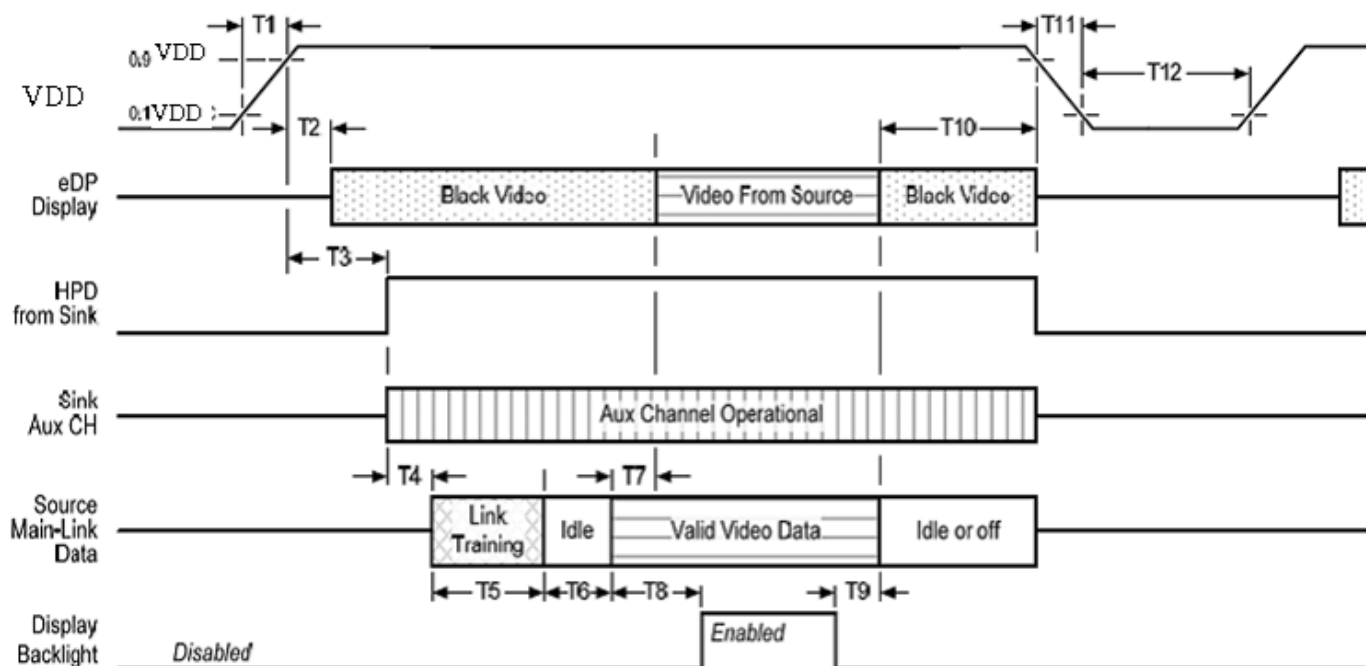
Display port VHPD					
Item	Symbol	Min.	Typ.	Max.	Unit
HPD Voltage	VHPD	2.25	--	2.75	V

Follow as VESA display port standard V1.1a.

3.1.3. POWER ON/OFF SEQUENCE

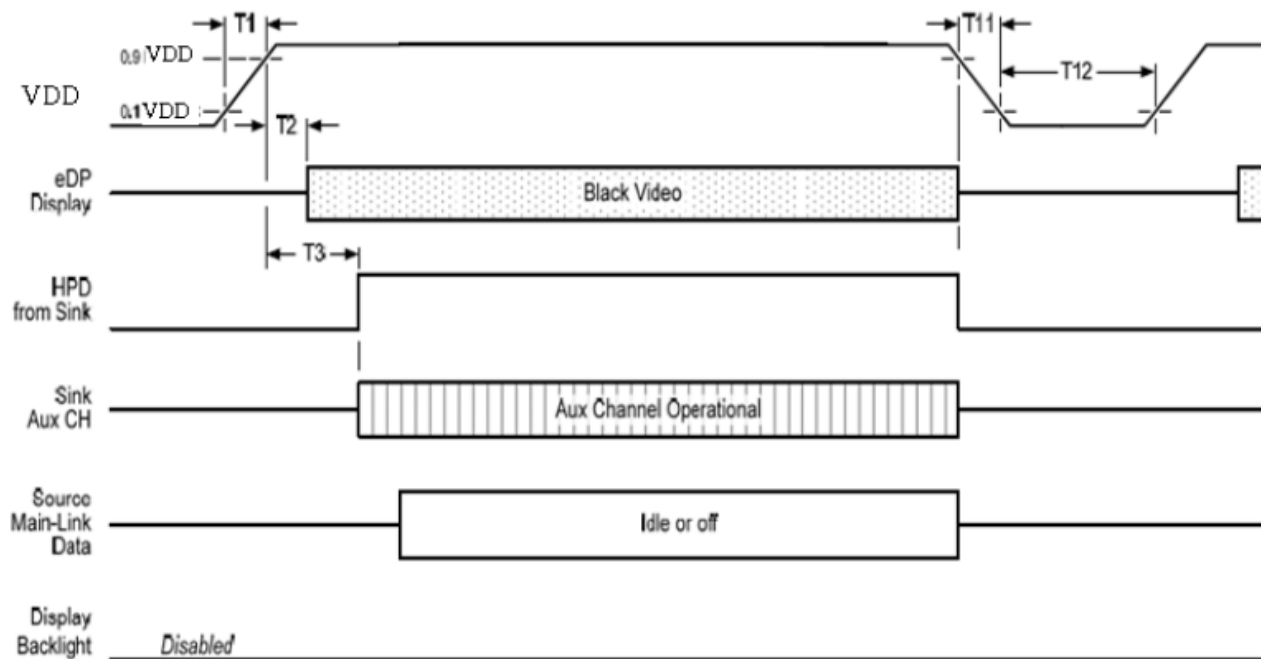
VDD power and backlight on/off sequence is as below. Interface signals are also shown in the chart. Signals from any system shall be Hi-Z state or low level when VDD is off.

Display Port panel power sequence:



Display port interface power up/down sequence, normal system operation

Display Port AUX_CH transaction only :



Display port interface power up/down sequence, AUX_CH transaction only

Display Port panel power sequence timing parameter:

Timing parameter	Description	Reqd. by	Limits			Notes
			Min.	Typ.	Max.	
T1	power rail rise time, 10% to 90%	source	0.5ms		10ms	
T2	delay from LCDVDD to black video generation	sink	0ms		200ms	prevents display noise until valid video data is received from the source
T3	delay from LCDVDD to HPD high	sink	0ms		200ms	sink AUX_CH must be operational upon HPD high.
T4	delay from HPD high to link training initialization	source				allows for source to read link capability and initialize.
T5	link training duration	source				dependant on source link to read training protocol.
T6	link idle	source				Min accounts for required BS-Idle pattern. Max allows for source frame synchronization.
T7	delay from valid video data from source to video on display	sink	0ms		50ms	max allows sink validate video data and timing.
T8	delay from valid video data from source to backlight enable	source				source must assure display video is stable.
T9	delay from backlight disable to end of valid video data	source				source must assure backlight is no longer illuminated.
T10	delay from end of valid video data from source to power off	source	0ms		500ms	
T11	power rail fall time, 90% to 10%	source			10ms	
T12	power off time	source	500ms			

Note 1: The sink must include the ability to generate black video autonomously. The sink must automatically enable black video under the following conditions:

- upon LCDVDD power on (within T2 max)-when the "Novideostream_Flag" (VB-ID Bit 3) is received from the source (at the end of T9).
- when no main link data, or invalid video data, it is received from the source. Black video must be displayed within 64ms (typ.) from the start of either condition. Video data can be deemed invalid based on MSA and timing information, for example.

Note 2: The sink may implement the ability to disable the black video function, as described in Note 1, above, for system development and debugging purpose.

Note 3: The sink must support AUX_CH polling by the source immediately following LCDVDD power on without causing damage to the sink device (the source can re-try if the sink is not ready). The sink must be able to respond to an AUX_CH transaction with the time specified within T3 max.

3.2. LCD BACKLIGHT UNIT

Parameter	Symbol	Values			Unit	Notes
		Min.	Typ.	Max.		
Input Voltage	V_{LED}	10.8	12	13.2	V	
Input Current	I_{VLED}	---	152	180	mA	100% Brightness ($V_{LED} = 12V$)
Power Consumption	P_{VLED}	---	1.82	2.16	W	100% Brightness ($V_{LED} = 12V$)
LED Forward Current	I_F	---	19.6	---	mA	$T_a = 25^\circ C$
LED Enable Input High Level	V_{EN}	1.8	----	5.5	V	
LED Enable Input Low Level		-		0.8	V	
PWM Logic Input High Level	V_{PWM}	1.8	--	5.5	V	
PWM Logic Input Low Level		-		0.8	V	
PWM Input Frequency	$FPWM$	200		20K	Hz	
PW Logic Input Ratio	Duty	10		100	%	
LED Life Time	LT_{LED}	20,000	30,000	-	Hrs	$T_a = 25^\circ C$, Note 2 $I_F = 19.6mA$

Note:

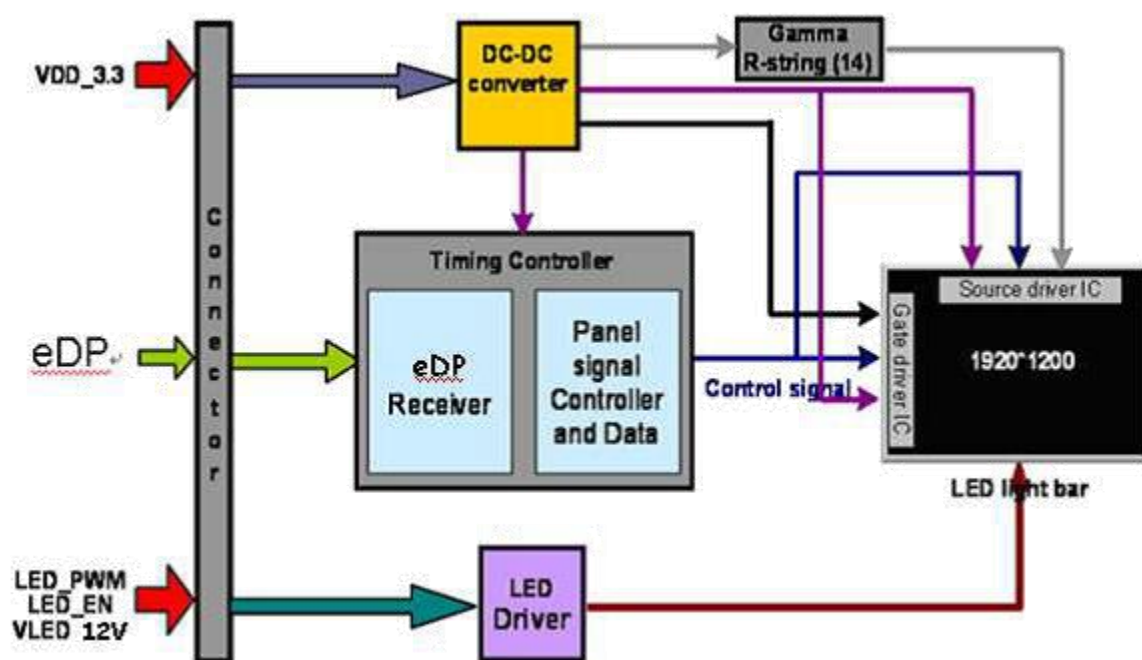
1. T_a , means ambient temperature of TFT-LCD module.
2. V_{LED} typical value is defined for LED backlight. (100% duty of PWM dimming)
3. If G101UAN01.0 module is driven by high current or at high ambient temperature & humidity condition. The operating life will be reduced.
4. Operating life means brightness goes down to 50% initial brightness. Minimum operating life time is estimated data.

3.3. TOUCH CONTROL

Parameter	Values			Unit
	Min.	Typ.	Max.	
I2C Input Voltage	-	3.3	-	V
USB Input Voltage	-	5	-	V
FPC Type / Interface	COF / USB & I2C			-
Touch Controller IC	EXC80W46			-
Max Resolution	4096 x 4096			-
Precision	≤2.5			mm
Two points separate distance	≥15 (pitch of finger center)			mm
Touch point	1~10 points			-
Power consumption (mA)	Active Mode: About 50mA			mA
Report rate (points/sec)	≥120			Hz
Response time	15			ms

3.4. LCD BLOCK DIAGRAM

The following diagram shows the function block of the 10.1 inch color TFT/LCD module.



3.5. INPUT TERMINAL PIN ASSIGNMENT

The module uses eDP1.2 receiver embedded in AUO's ASIC. eDP 1.2 is a differential signal technology for LCD interface and a high-speed data transfer device.

Pin	Symbol	Description
1	N.C.	No connection
2	H_GND	High Speed Ground
3	Lane 1_N	Comp Signal Link Lane 1
4	Lane 1_P	True Signal Link Lane 1
5	H_GND	High Speed Ground
6	Lane 0_N	Comp Signal Link Lane 0
7	Lane 0_P	True Signal Link Lane 0
8	H_GND	High Speed Ground
9	AUX_CH_P	True Signal Auxiliary Ch.
10	AUX_CH_N	Comp Signal Auxiliary Ch.
11	H_GND	High Speed Ground
12	VDD	LCD Logic and driver power
13	VDD	LCD Logic and driver power
14	N.C.	No connection
15	LCD GND	LCD Logic and driver Ground
16	LCD GND	LCD Logic and driver Ground
17	HPD	HPD Signal pin
18	BL_GND	Backlight Ground
19	BL_GND	Backlight Ground
20	BL_GND	Backlight Ground
21	BL_GND	Backlight Ground
22	VEN	Backlight On/Off
23	VPWM	System PWM signal Input
24	N.C.	No connection
25	N.C.	No connection

26	VLED	Backlight power (10.8V~13.2V)
27	VLED	Backlight power (10.8V~13.2V)
28	VLED	Backlight power (10.8V~13.2V)
29	VLED	Backlight power (10.8V~13.2V)
30	N.C.	No connection

Note1. LCD connector: IPEX 20455-03E-12 or compatible

Note2. Mating Housing: IPEX 20455-030T-11 or compatible

Note3. Pin Assignment (2 Lane), eDP lane is a differential signal technology for LCD interface and high speed data transfer device.

3.6. TOUCH CONTROL PIN ASSIGNMENT

J1 : I2C

Brand: Centenary Materials

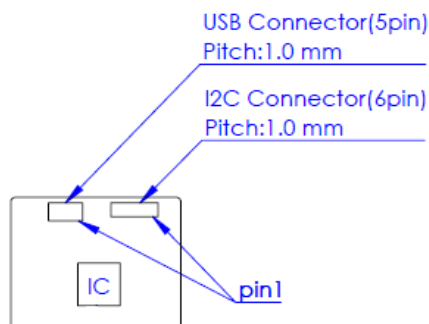
Part number: SM06B-SRSS-TB or equivalence

J2 : USB

Brand: JST

Part number: SM05B-SRSS-TB or equivalence

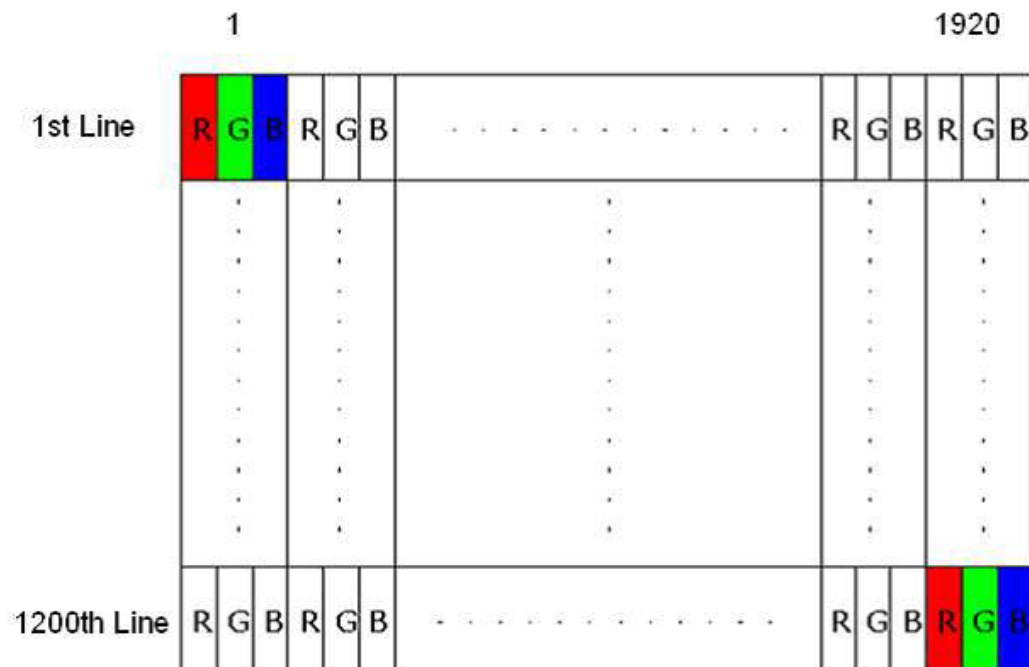
J1 I2C	Pin Definition	J2 USB	Pin Definition
1	RST	1	GND
2	VDD (3.3 V)	2	VDD (5V)
3	GND	3	GND
4	INT	4	D+
5	SDA	5	D-
6	SCL		



4. LCD SIGNAL CHARACTERISTIC

4.1. PIXEL FORMAT IMAGE

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



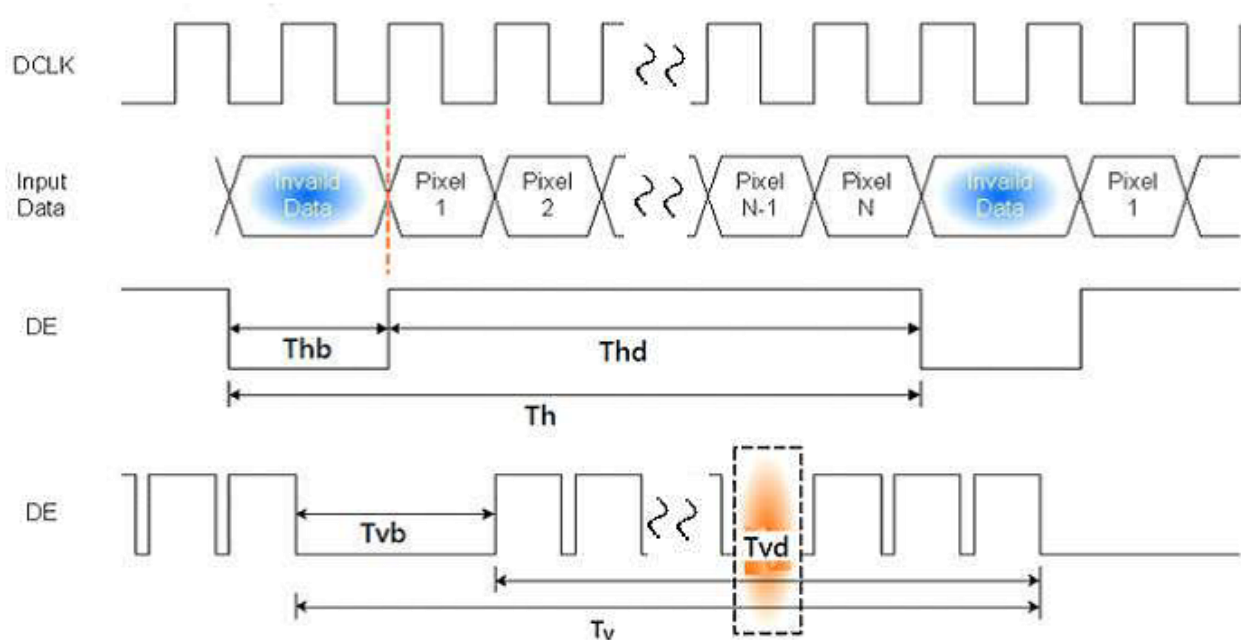
4.2. LCD INTERFACE TIMING

4.2.1. LCD TIMING CHARACTERISTICS

Signal		Symbol	Min.	Typ.	Max.	Unit
Clock Frequency		T _{dclk}	155.43	157.08	158.73	MHz
Vertical Section	Period	T _V	1206	1212	1218	T _{Line}
	Active	T _{VD}	1200			
	Blanking	T _{VB}	6	12	18	
Horizontal Section	Period	T _H	2148	2160	2172	T _{dclk}
	Active	T _{HD}	1920			
	Blanking	T _{HB}	228	240	252	
Frame Rate		F	--	60	--	Hz

Note: DE mode.

4.2.2. LCD INPUT TIMING DIAGRAM



5. OPTICAL CHARACTERISTICS

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

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
White Luminance		L _{WH}	I _{LED} =19.6mA (5p average)	320	380	--	Cd/m ²	1
Uniformity		δ _{W5p}	5 points	70	--	--	%	2, 3
Contrast Ratio		CR		600	800	--		4
Response Time		T _R +T _F		--	25	35	ms	
Viewing Angle	Horizontal	θ _r	CR≥10	80	89	--	degree	6
		θ _l		80	89	--	degree	
	Vertical	θ _u		80	89	--	degree	
		θ _d		80	89	--	degree	
Color Coordinates	Red	R _x	θ _x =0°, θ _y =0° Grayscale Maximum	0.543	0.593	0.643		
		R _y		0.291	0.341	0.391		
	Green	G _x		0.292	0.342	0.392		
		G _y		0.539	0.589	0.639		
	Blue	B _x		0.104	0.154	0.204		
		B _y		0.073	0.123	0.173		
	White	W _x		0.263	0.313	0.363		
		W _y		0.279	0.329	0.379		
Color Gamut				--	50	--	%	

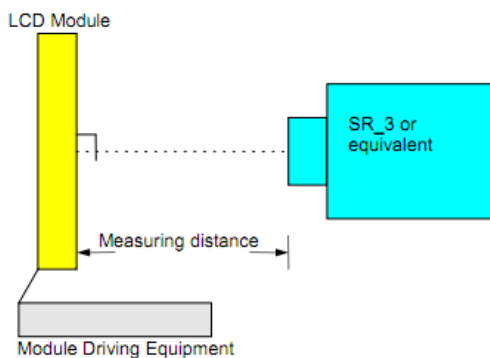
Note 1: Measurement method

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

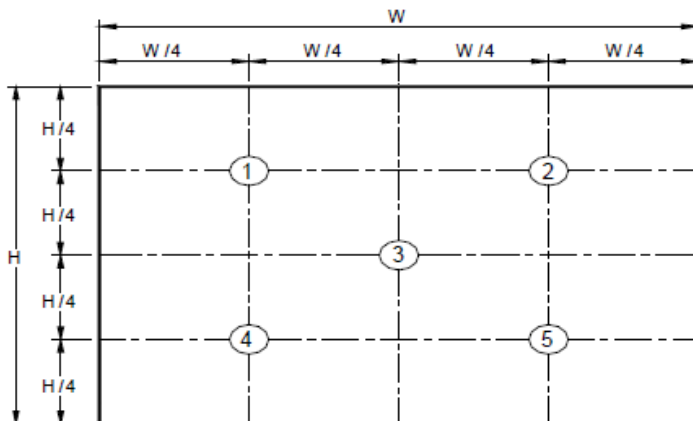
Aperture 1" with 50cm viewing distance

Test Point Center

Environment < 1 lux



Note 2: Definition of 5 points position



Note 3: The luminance uniformity of 5 points is defined by dividing the minimum luminance values by the maximum test point luminance

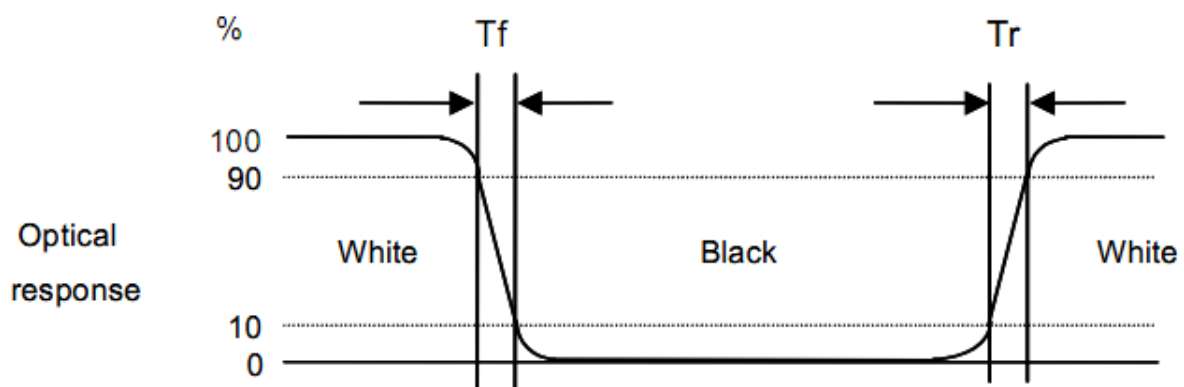
$$\delta_{w5} = \frac{\text{Minimum Brightness of five points}}{\text{Maximum Brightness of five points}}$$

Note 4: Definition of contrast ratio (CR)

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

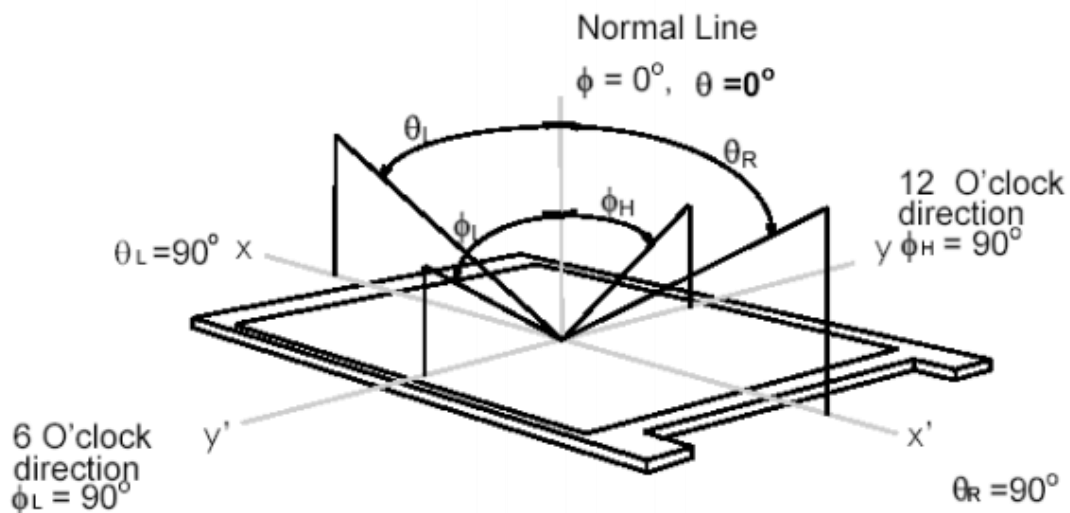
Note 5: Definition of Response Time (T_R , T_F)

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 view 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	Temperature Humidity Bias	40°C / 90% 240hrs
2	High Temperature Operation	60°C, 240hrs
3	Low Temperature Operation	-10°C, 240hrs
4	Hot Storage	60°C, 240hrs
5	Cold Storage	-20°C, 240hrs
6	Thermal Shock Test	-10°C(30min)~60°C(30min), 10cycles

7. LABEL

Model NO. F101PET-Z05

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	247.76	mm	PCAP : B101PFU-E03
	Vertical	166.40	mm	
	Depth (min.)	2.05	mm	
	Horizontal	227.72	mm	LCD : G101UAN01.0
	Vertical	147.80	mm	
	Depth (min.)	4.33	mm	
Weight		350	g	F101PET-Z05
Item		Specification		Remarks
PCAP Viewing Area		217.56 mm x 136.20 mm		
PCAP Sensor Area		232.56 mm x 155.01 mm		
PCAP FPC Length		60 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

