Product information

To：

Product Name: M133NWN1 R3

Note: 1. Please contact InfoVision Company. before designing your product based on this product.
2. The information contained herein is presented merely to indicate the characteristics and performance of our products. No responsibility is assumed by IVO for any intellectual property claims or other problems that may result from application based on the module described herein.

Revised Record				
Ver.	Date	Revised Content/Summary	Page	Revised By
01	2012/11/28	Tentative	All	魏工钧
02	2013/03/04	Change lable HW:1.1 into HW:1.2	29	谢龙

Contents

1.0 General Descriptions

1.1 Introduction

The M133NWN1 R3 is a color active matrix thin film transistor (TFT) liquid crystal display (LCD) that uses amorphous silicon TFT as a switching device. It is composed of a TFT LCD panel, a timing controller, voltage reference, common voltage, column driver, and row driver circuit. This TFT-LCD has a 13.3-inch diagonally measured active display area with HD resolution (1,366 horizontal by 768 vertical) pixel arrays.

1.2 Features

- 13.3” TFT-LCD Panel
- Supported HD 1,366x768 pixels resolution
- Compatible with RoHS standard
- Supported eDP1.2 Electrical Interface

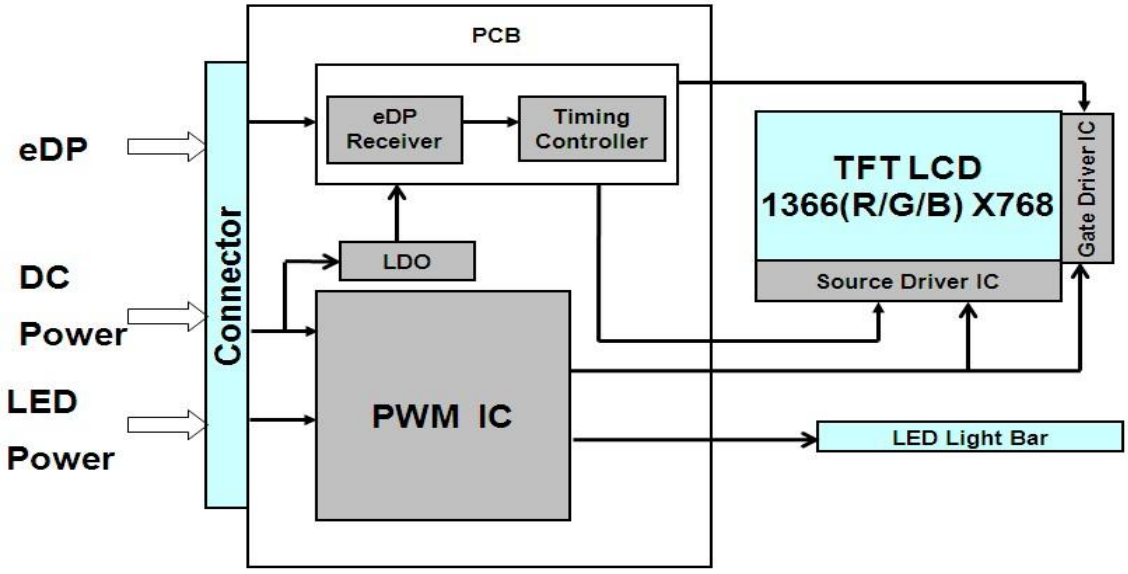
1.3 Product Summary

Items	Specifications	Unit
Screen Diagonal	13.3”	Inch
Active Area	293.4168 (H) x 164.9664 (V)	mm
Pixels (H x V)	1,366 (RGB) x 768	-
Pixel Pitch	0.2148(H)×0.2148(V)	mm
Pixel Arrangement	R.G.B. Vertical Stripe	-
Display Mode	TN, Normally White	-
White Luminance	200 (Typ.)	cd /m^2
Response Time	8 (Typ.), 16 (Max.)	msec
Input Voltage	3.3±0.3	V
Power Consumption	2.5 (Max.)	W
Weight	260(Max)	g
Outline Dimension	306.8(Max.)x189.2(Max.)x3.0(Max.)	mm
Electrical Interface (Logic)	eDP1.2	-
Support Color	262 K	-
NTSC	45	%
Optimum Viewing Direction	6 o’clock	-
Thickness	3.0(Max.)	mm
Surface Treatment	AG,3H	-

1.4 Functional Block Diagram

Figure 1 shows the functional block diagram of the LCD module.

Figure 1 Block Diagram



2.0 Absolute Maximum Ratings

Table 1 Electrical Absolute Rating

Item	Symbol	Min.	Max.	Unit	Note
Logic Supply Voltage	V_{DD}	(-0.3)	(6.0)	V	(1),(2)
Supply V_{LED} Voltage	V_{LED}	(-0.3)	(24)	V	
LED Reverse Voltage	V_R	-	(5)	V	
LED Forward Current	I_F	-	(30)	mA	

Note (1) Permanent damage may occur to the LCD module if beyond this specification. Functional operation should be restricted to the conditions described under normal operating conditions.

(2) Operating temperature 25℃, humidity 55%.

Table 2 Absolute Ratings of Environment

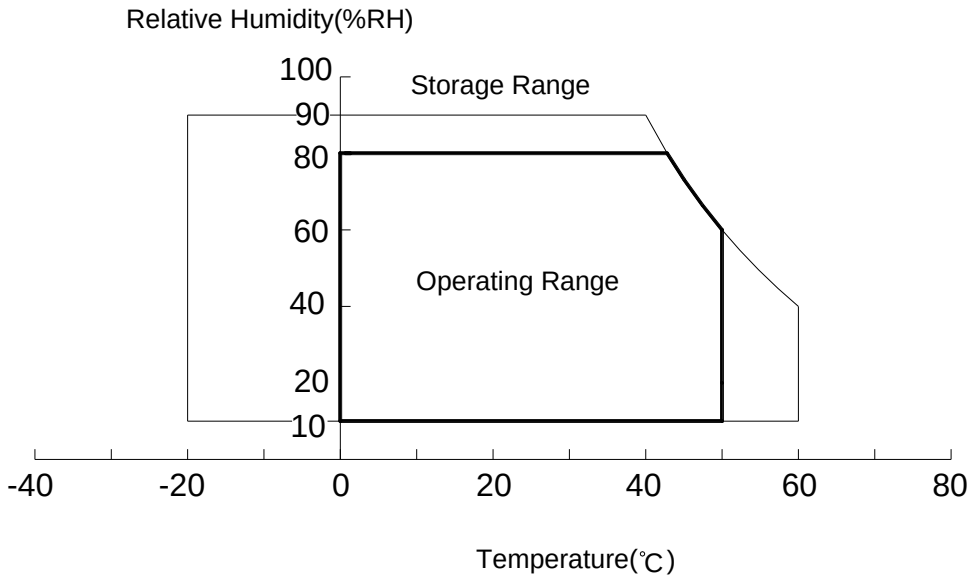
Item	Symbol	Min.	Max.	Unit	Conditions
Operating Temperature	TOP	0	50	℃	(1),(2),(3)
Operating Humidity	HOP	10	80	%RH	
Storage Temperature	TST	-20	60	℃	
Storage Humidity	HST	10	90	%RH	
Vibration(non-operating)	Vnop	-	1.5	G	(4)
Shock(non-operating)	Snop	-	210	G	(5)

Note (1) Maximum Wet-Bulb temperature should be 39 ℃. No condensation of water.

(2) When you apply the LCD module for OA system. Please make sure to keep the temperature of LCD module is less than 60 ℃.

(3) Storage /Operating temperature:

Figure 2 Absolute Ratings of Environment of the LCD Module

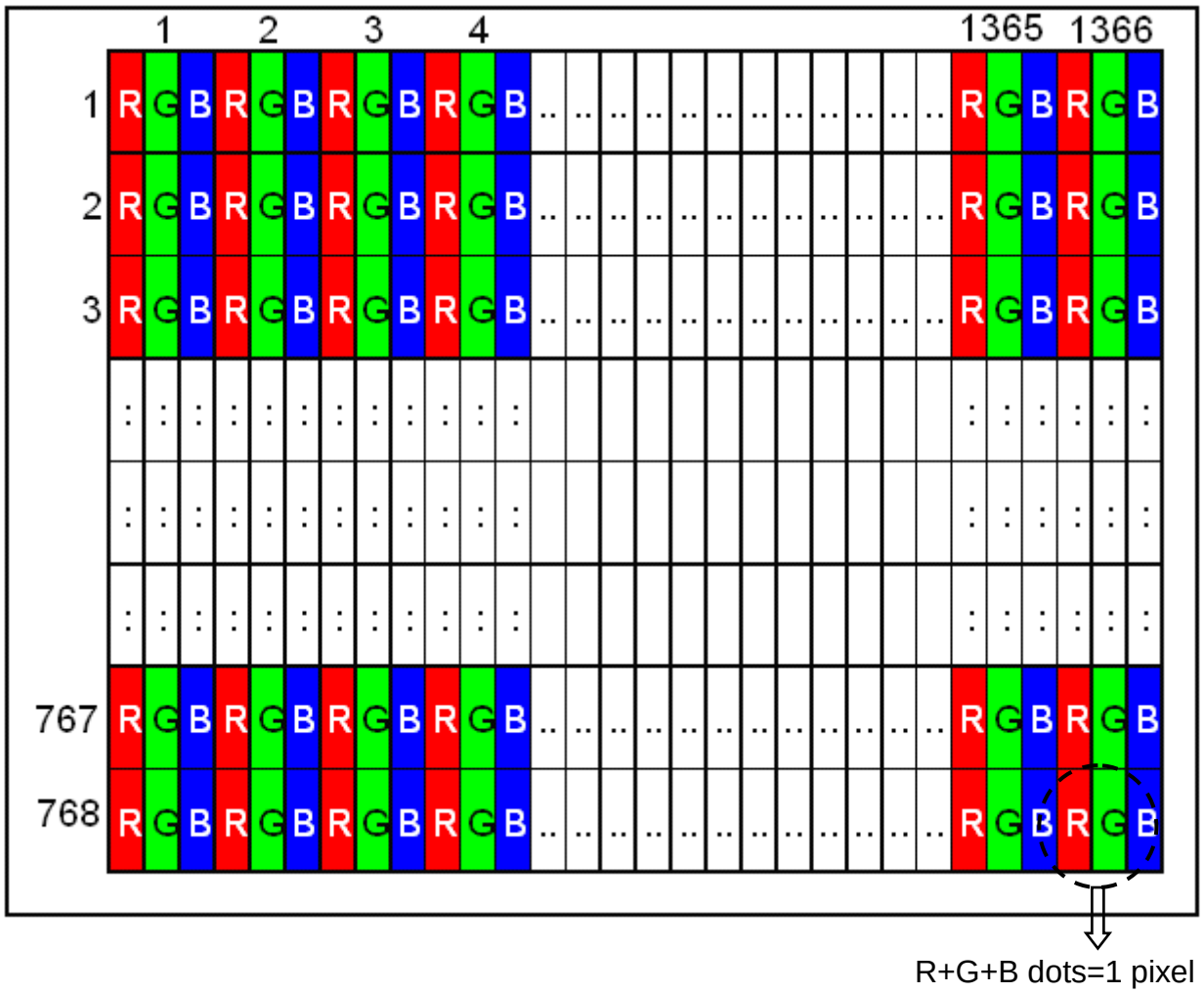


(4) 10-200Hz, random vibration, 30 min for X, Y, Z axis.
(5) 3ms, half sine wave, one time for X, Y, Z axis.

3.0 Pixel Format Image

Figure 3 shows the relationship of the input signals and LCD pixel format image.

Figure 3 Pixel Format



4.0 Optical Characteristics

The optical characteristics are measured under stable conditions as following notes.

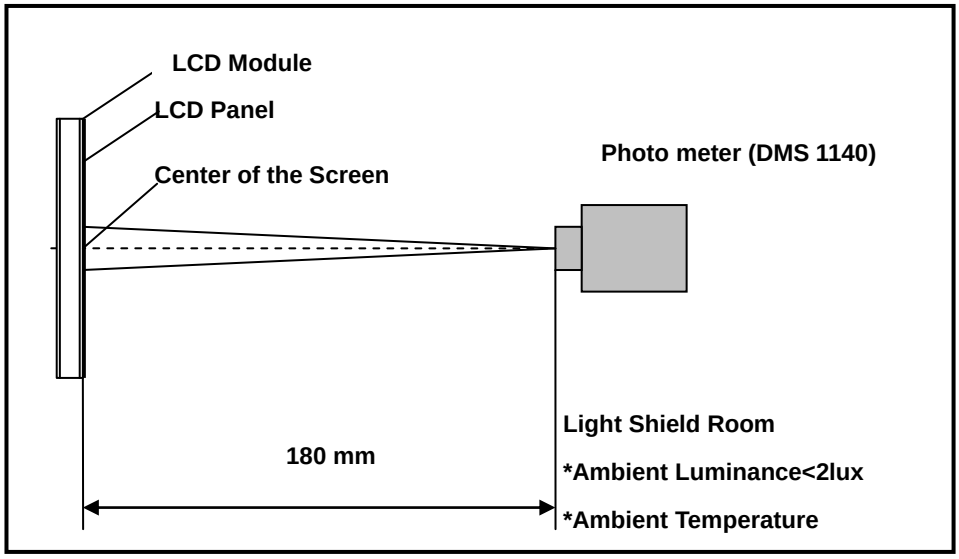
Table 3 Optical Characteristics

Item	Conditions		Min.	Typ.	Max.	Unit	Note
Viewing Angle （CR>10）	Horizontal	θ_L	-	45	-	degree	(1),(2),(3)
		θ_R	-	45	-		
	Vertical	θ_T	-	20	-		
		θ_B	-	40	-		
Contrast Ratio	Center		400	500	-	-	(1),(2),(4)
Response Time	Rising		-	3	-	ms	(1),(2),(5)
	Falling		-	5	-	ms	
	Rising + Falling		-	8	16	ms	
Color Chromaticity (CIE1931)	Red x		−0.03	(0.593)	+0.03	-	(1),(2)
	Red y			(0.345)		-	
	Green x			(0.319)		-	
	Green y			(0.592)		-	
	Blue x			(0.153)		-	
	Blue y			(0.119)		-	
	White x		0.283	0.313	0.343	-	
	White y		0.299	0.329	0.359	-	
NTSC	-		-	45	-	%	-
White Luminance	-		170	200	-	cd/m^2	(1),(2),(6)
Luminance Uniformity	5Points		80	-	-	%	(1),(2),(7)
	13Points		60	-	-	%	

Note (1) Measurement Setup:

The LCD module should be stabilized at given temperature (25℃) for 15 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting backlight for 15 minutes in a windless room.

Figure 4 Measurement Setup



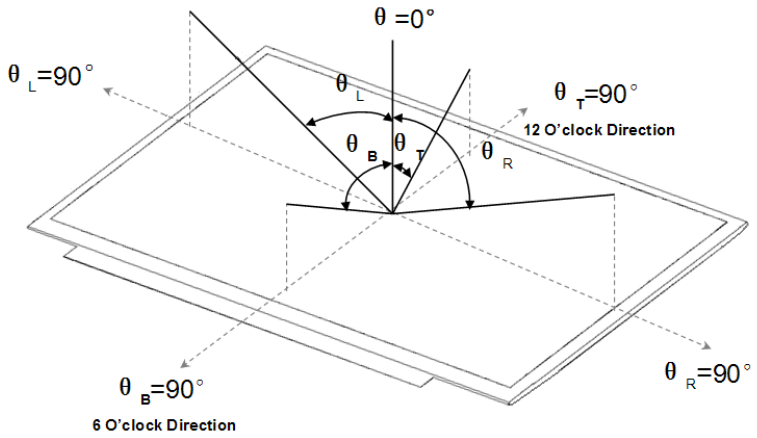
Note (2) The LED input parameter setting as:

V_LED: 12V (±0.1V)

PWM_LED: duty 100 %

Note (3) Definition of Viewing Angle

Figure 5 Definition of Viewing Angle



Note (4) Definition Of Contrast Ratio (CR):

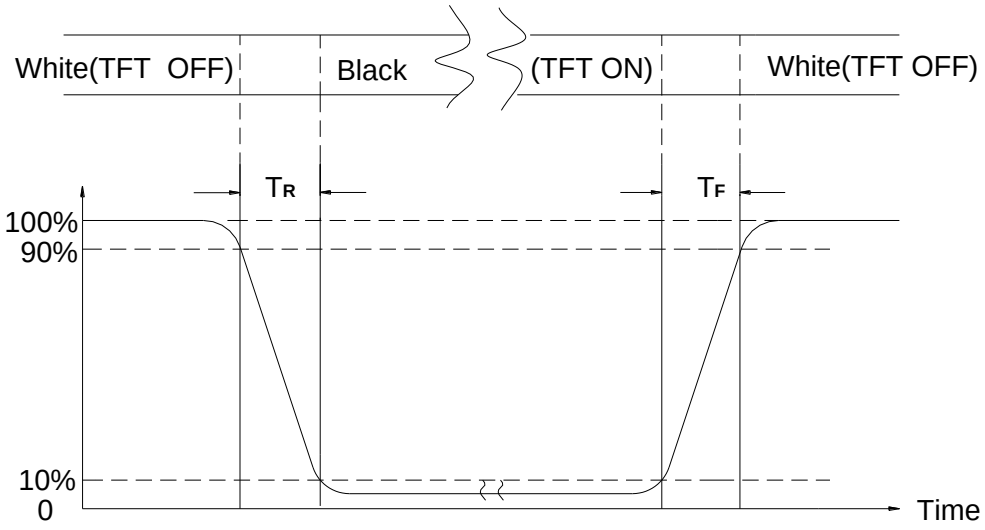
The contrast ratio can be calculated by the following expression

Contrast Ratio (CR) = L63 / L0

L63: Luminance of gray level 63, L0: Luminance of gray level 0

Note (5) Definition Of Response Time (TR, TF)

Figure 6 Definition of Response Time



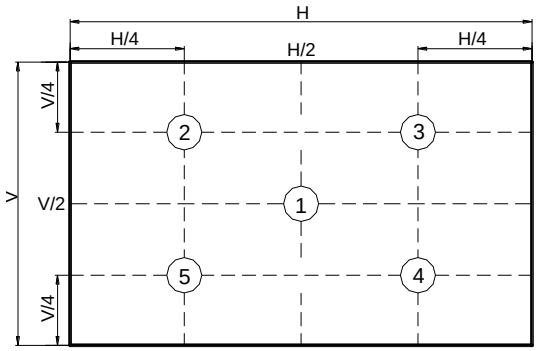
Note (6) Definition Of Luminance White:

Measure the luminance of gray level 63 at center point (Ref: Active area)

Display Luminance=（L1+L2+L3+L4+L5）/5

H—Active area length V—Active area width L—Luminance

Figure 7 Measurement Locations Of 5 Points



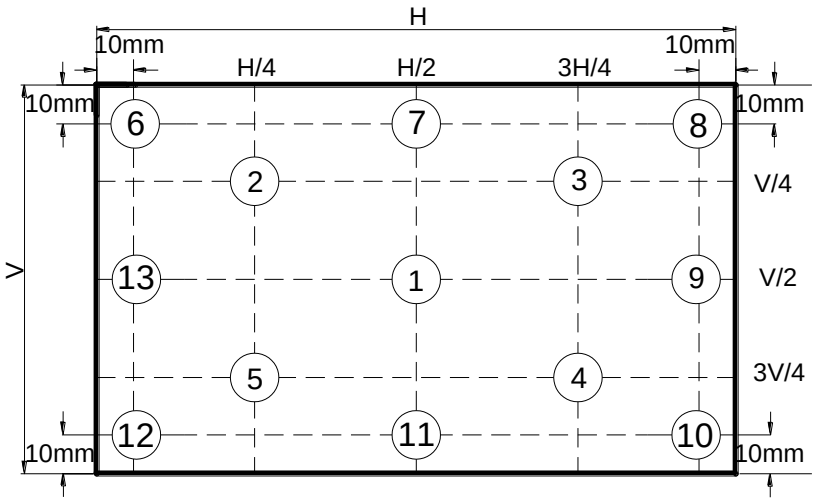
Note (7) Definition Of Luminance Uniformity (Ref: Active area)

Measure the luminance of gray level 63 at 5 points and 13 points.

$$\text{Luminance Uniformity(5 Points)} = \frac{\text{Minimum Brightness of Five Points}}{\text{Maximum Brightness of Five Points}} \times 100\ \%$$

$$\text{Luminance Uniformity(13 Points)} = \frac{\text{Minimum Brightness of Thirteen Points}}{\text{Maximum Brightness of Thirteen Points}} \times 100\ \%$$

Figure 8 Measurement Locations Of 13 Points



5.0 Backlight Characteristics

5.1 Parameter Guideline Of LED Backlight

Table 4 Parameter Guideline for LED Backlight

Item	Symbol		Min.	Typ.	Max.	Units	Note
LED Input Voltage	V_{LED}		5	12	21	V	(2)
LED Power Consumption	P_{LED}		-	-	1.65	W	
LED Forward Voltage	V_F		2.7	3	3.1	V	
LED Forward Current	I_F		-	16	-	mA	
PWM Signal Voltage	V_{PWM_EN}	High	2.0	3.3	3.6	V	
		Low	-	-	0.5		
LED Enable Voltage	V_{LED_EN}	High	2.0	3.3	3.6	V	
		Low	-	-	0.5		
Input PWM Frequency	FPWM		200	-	1,000	Hz	
Duty Ratio	PWM		1	-	100	%	
LED Life Time	LT		15,000	-	-	Hours	(1),(2)

Note (1) The LED life time define as the estimated time to 50% degradation of initial luminous.

Note (2) Operating temperature 25 ℃, humidity 55%.

6.0 Electrical Characteristics

6.1 Interface Connector

Table 5 Connector Name / Designation

Manufacturer	STM（信盛）
Type / Part Number	SMAK24025P30
Mating Receptacle/Part Number	PK24025P30

Table 6 Signal Pin Assignment

Pin #	Signal Name	Description	Remarks
1	DCR	DCR Enable	-
2	H_GND	High Speed Ground	-
3	LAN1_N	Complement Signal Link Lane 1	-
4	LAN1_P	True Signal Link Lane 1	-
5	H_GND	High Speed Ground	-
6	Lane 0_N	Complement Signal Link Lane 0	-
7	Lane 0_P	True Signal Line 0	-
8	H_GND	High Speed Ground	-
9	AUX_CH_P	True Signal Auxiliary Ch.	-
10	AUX_CH_N	Complement Signal Auxiliary Ch.	-
11	H_GND	High Speed Ground	-
12	LCD_VCC	LCD Logic and Driver Power	+3.3V
13	LCD_VCC	LCD Logic and Driver Power	+3.3V
14	LCD Self-test	LCD Panel Self-test Enable	-
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	BL_ENABLE	Backlight On/Off enable	+3.3V
23	BL_PWM_DIM	System PWM Signal Input for Dimming	+3.3V Swing
24	NC	Reserved	-
25	NC	Reserved	-
26	BL_PWR	Backlight Power	+12V
27	BL_PWR	Backlight Power	+12V
28	BL_PWR	Backlight Power	+12V

29	BL_PWR	Backlight Power	+12V
30	NC	Reserved	-

Note : All input signals shall be low or Hi- resistance state when VDD is off.

6.2 Signal Electrical Characteristics

Table 7 Display Port Main Link

Parameter	Description	Min.	Typ.	Max.	Unit
V_{CM}	Differentia Common Mode Voltage	TBD	(0)	TBD	V
$V_{Diff\ P-P}$ Level 1	Differential Peak to Peak Voltage Level 1	0.34	0.40	0.46	V
$V_{Diff\ P-P}$ Level 2	Differential Peak to Peak Voltage Level 2	0.51	0.60	0.68	V
$V_{Diff\ P-P}$ Level 3	Differential Peak to Peak Voltage Level 3	0.69	0.80	0.92	V
$V_{Diff\ P-P}$ Level 4	Differential Peak to Peak Voltage Level 4	1.02	1.20	1.38	V

Note: (1) Input signals shall be low or High-impedance state when VDD is off.

(2) It is recommended to refer the specifications of VESA Display Port Standard V1.1a in detail.

(3) Fallow as VESA display port standard V1.1a at both 1.62 and 2.7Gbps link rates.

Figure 9 Display Port Main Link Signal

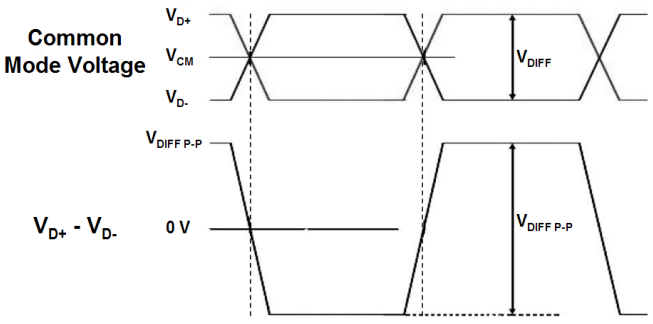


Figure10 Display Port AUX_CH Signal

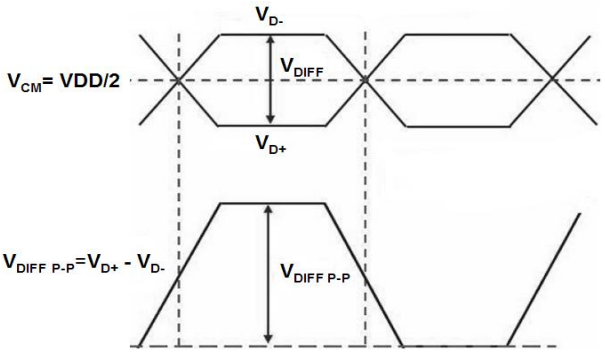


Table 8 Display Port AUX_CH

Parameter	Description	Min.	Typ.	Max.	Unit
V_{CM}	Differentia Common Mode Voltage	0	VDD/2	2	V
$V_{Diff\ P-P}$	Differential Peak to Peak Voltage	0.39	-	1.38	V

Note: Fallow as VESA display port standard V1.1a.

Table 9 Display Port V_{HPD}

Parameter	Description	Min.	Typ.	Max.	Unit
V_{HPD}	HPD Voltage	2.25	-	3.60	V

Note: Fallow as VESA display port standard V1.1a.

Figure 11 Display Port Interface Power Up/Down Sequence, Normal System Operation (Reference)

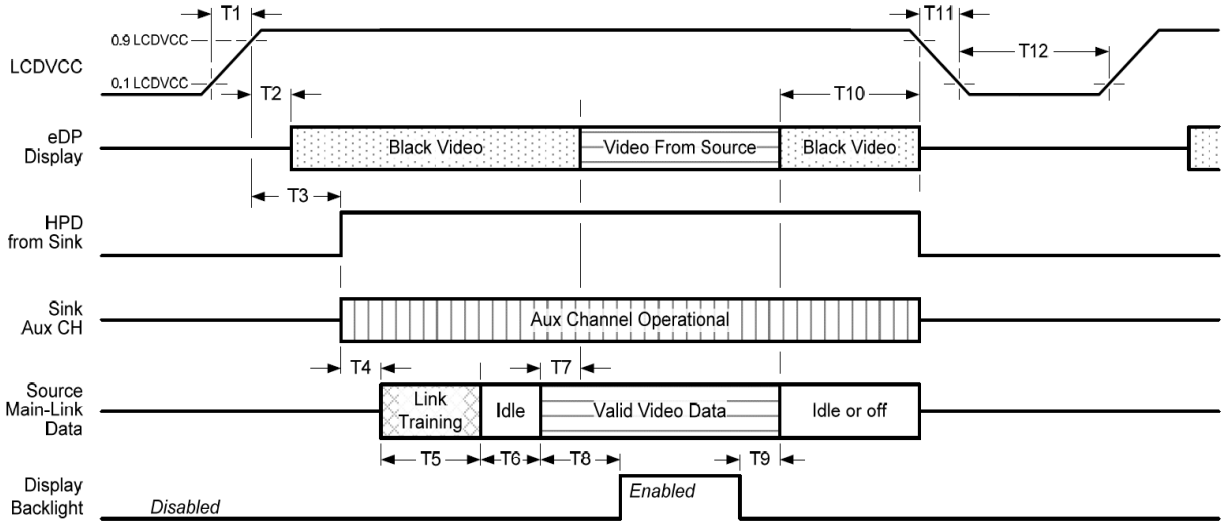


Figure 12 Display Port Interface Power Up/Down Sequence, Aux Channel Transaction Only (Reference)

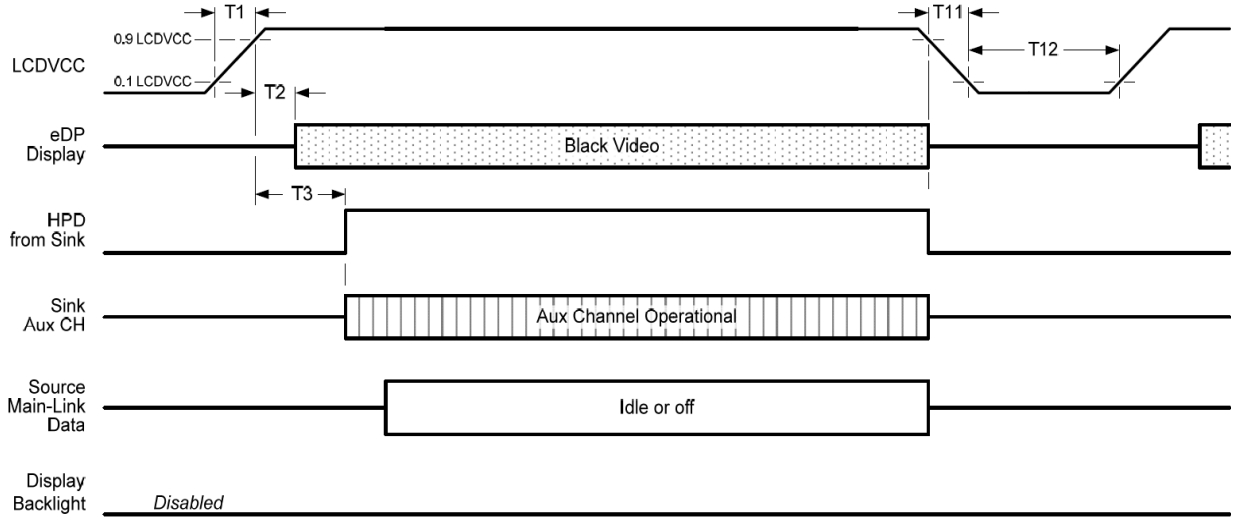


Table 10 eDP Panel Power Sequence Timing Parameters

(Reference)

Timing Parameter	Description	Reqd. By	Limits		Notes
			Min.	Max.	
T1	Power rail rise time, 10% to 90%	Source	0.5 ms	10 ms	-
T2	Delay from LCD VCC to black video generation	Sink	0 ms	200 ms	Prevents display noise until valid video data is received from the Source.(see note 1 below)
T3	Delay from LCD VCC to HPD high	Sink	0 ms	200 ms	Sink Aux Channel 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 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	0 ms	50 ms	Max allows Sink validate video data and timing.
T8	Delay from valid video 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.(see note 1 below)
T10	Delay from end of valid video data from Source to power off	Source	0 ms	500 ms	-
T11	Power rail fall time, 90% to 10%	Source	-	10 ms	-

T12	Power off time	Source	500 ms	-	-

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 LCDVCC 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, is received from the Source. Black video must be displayed within 50ms (max) 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 Notes (1)above, for system development and debugging purposes.

Note (3): The Sink must support Aux Channel polling by the Source immediately following LCDVCC 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 Channel transaction with the time specified within T3 max.

7.0 Interface Timings

7.1 Timing Characteristics

Basically, interface timings should match the 1366 x 768 /60Hz manufacturing guide line timing.

Table 11 Interface Timings

Parameter	Symbol	Unit	Min.	Typ.	Max.
Signal Clock Frequency	f_{dck}	MHz	47.32	73.81	86.60
Frame Rate	V_{sync}	Hz	55	60	65
H Total Time	T_{hp}	clocks	1520	1532	1606
H Active Time	HA	clocks	1366		
H Blanking	T_{hfp}	clocks	-	166	-
V Total Time	T_{vp}	lines	778	803	830
V Active Time	VA	lines	768		
V Blanking	T_{vfp}	lines	-	35	-

8.0 Power Consumption

Input power specifications are as follows.

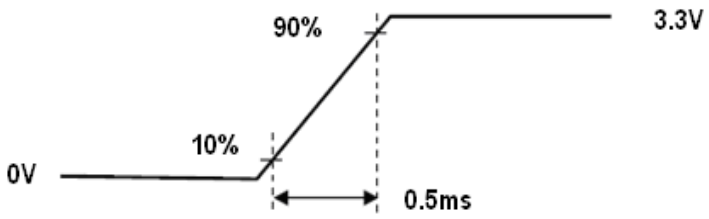
Table 12 Power Consumption

Item		Symbol	Min.	Typ.	Max.	Units	Note
Logic/LCD Drive Voltage		VDD	3.0	3.3	3.6	V	(3), (4)
VDD Current	Black Pattern	IDD	-	0.258	0.283	A	(1),(4)
VDD Power Consumption		PDD_{Black}	-	-	0.85	W	
Rush Current		Irush	-	-	1.5	A	(2),(4)
Allowable Logic/LCD Drive Ripple Voltage		VDDrp	-	-	200	mV	(4)

Note (1) IDD_{Black} measurement condition f_{clk}=75.40 MHz, f_v=60Hz, VDD=3.3V, Black pattern.

Note (2) Measure Condition

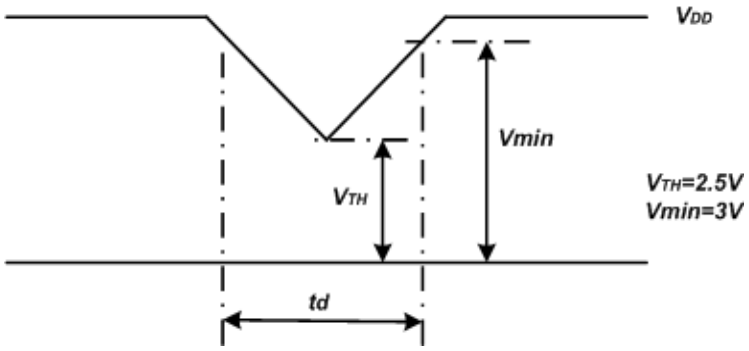
Figure 13 VDD rising time



VDD rising time

Note (3) VDD Power Dip Condition

Figure 14 VDD Power Dip



If $V_{TH} < V_{DD} \leq Vmin$，then $t_d \leq 10ms$；when the voltage return to normal our panel must revive

automatically.

Note (4) Operating temperature 25℃, humidity 55%.

9.0 Power ON/OFF Sequence

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

Figure 15 Power Sequence

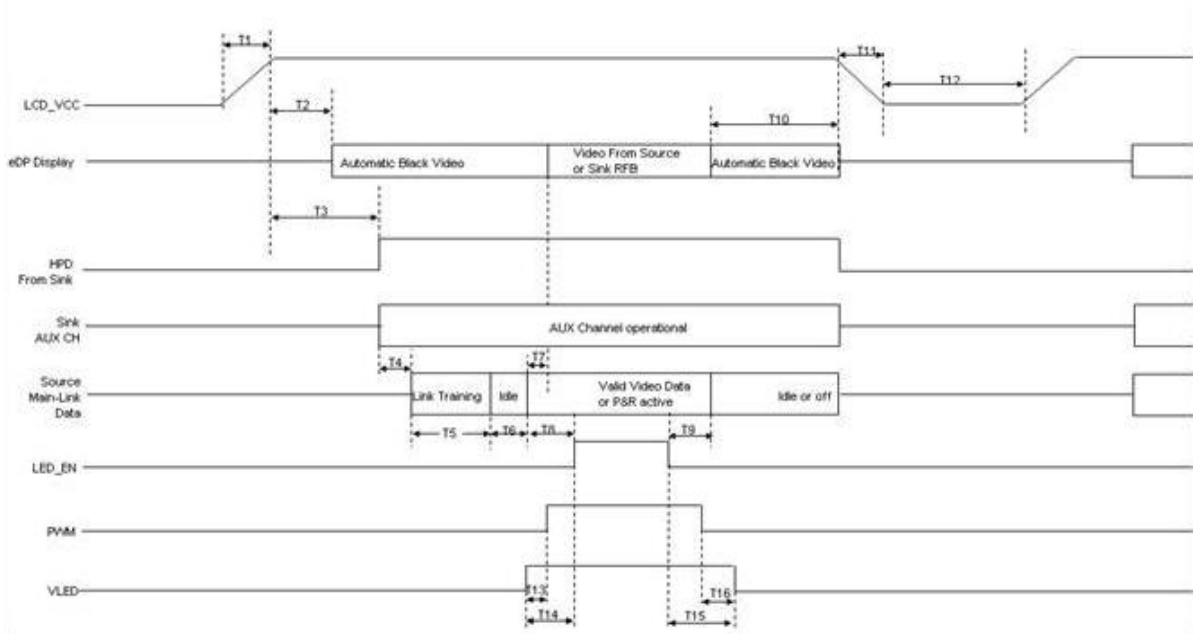


Table 13 Power Sequencing Requirements

Parameter	Unit	Min.	Max.
T1	ms	0.5	10
T2	ms	0	200
T3	ms	0	200
T7	ms	0	50
T10	ms	0	500
T11	ms	0	10
T12	ms	150	-
T13	ms	0	-
T14	ms	0	-
T15	ms	0	-
T16	ms	0	-

10.0 Mechanical Characteristics

10.1Outline Drawing

Figure 16 Reference Outline Drawing (Front Side)

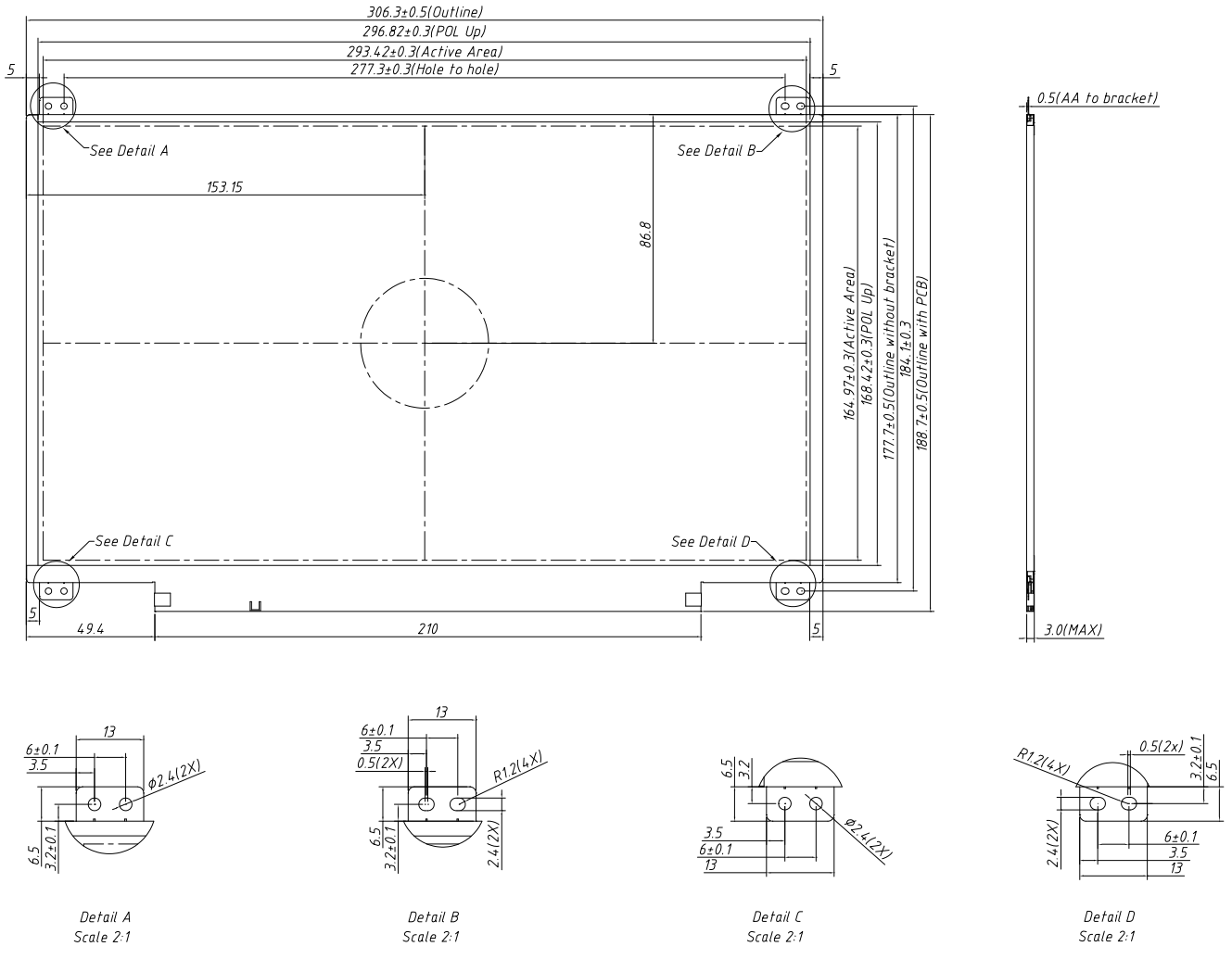
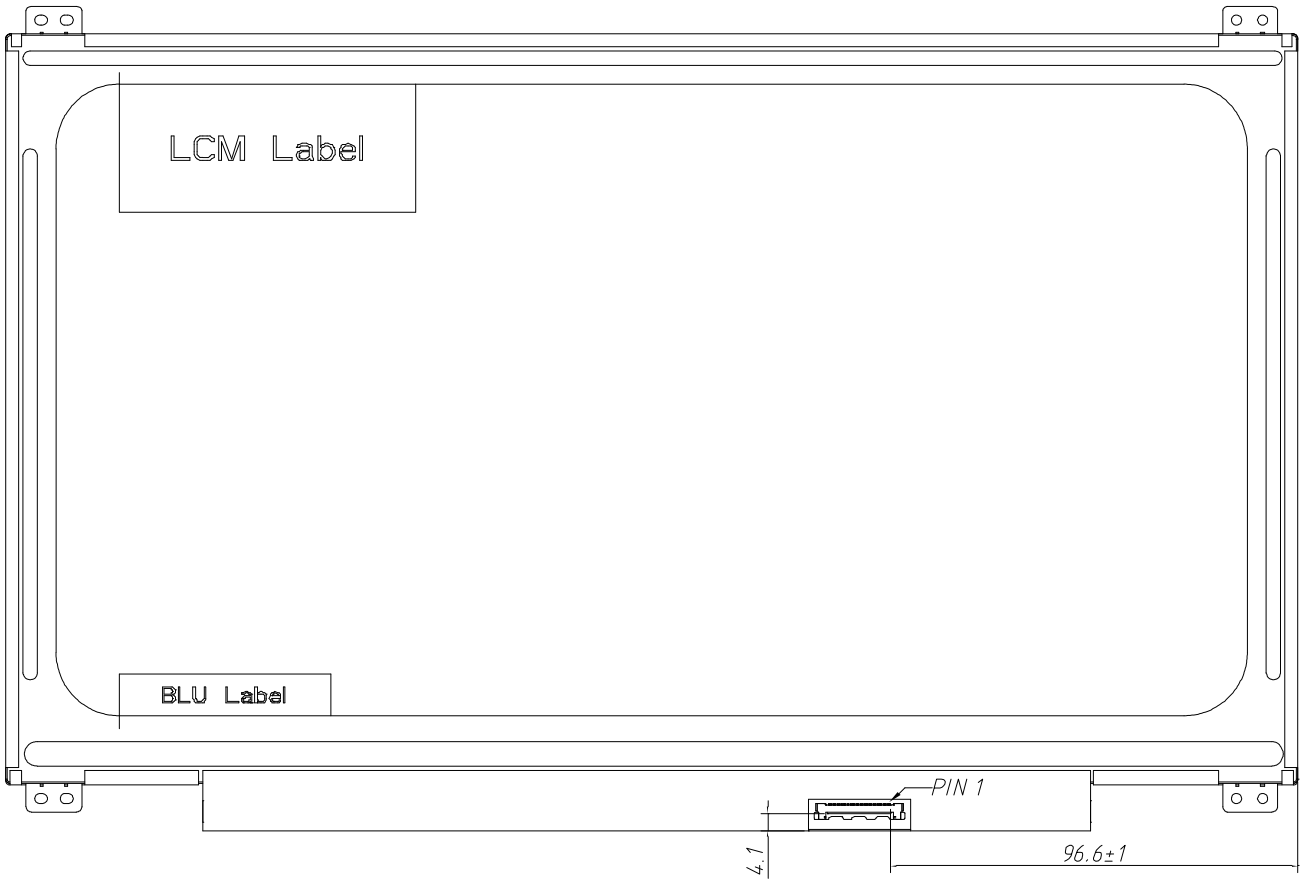


Figure 17 Reference Outline Drawing (Back Side)



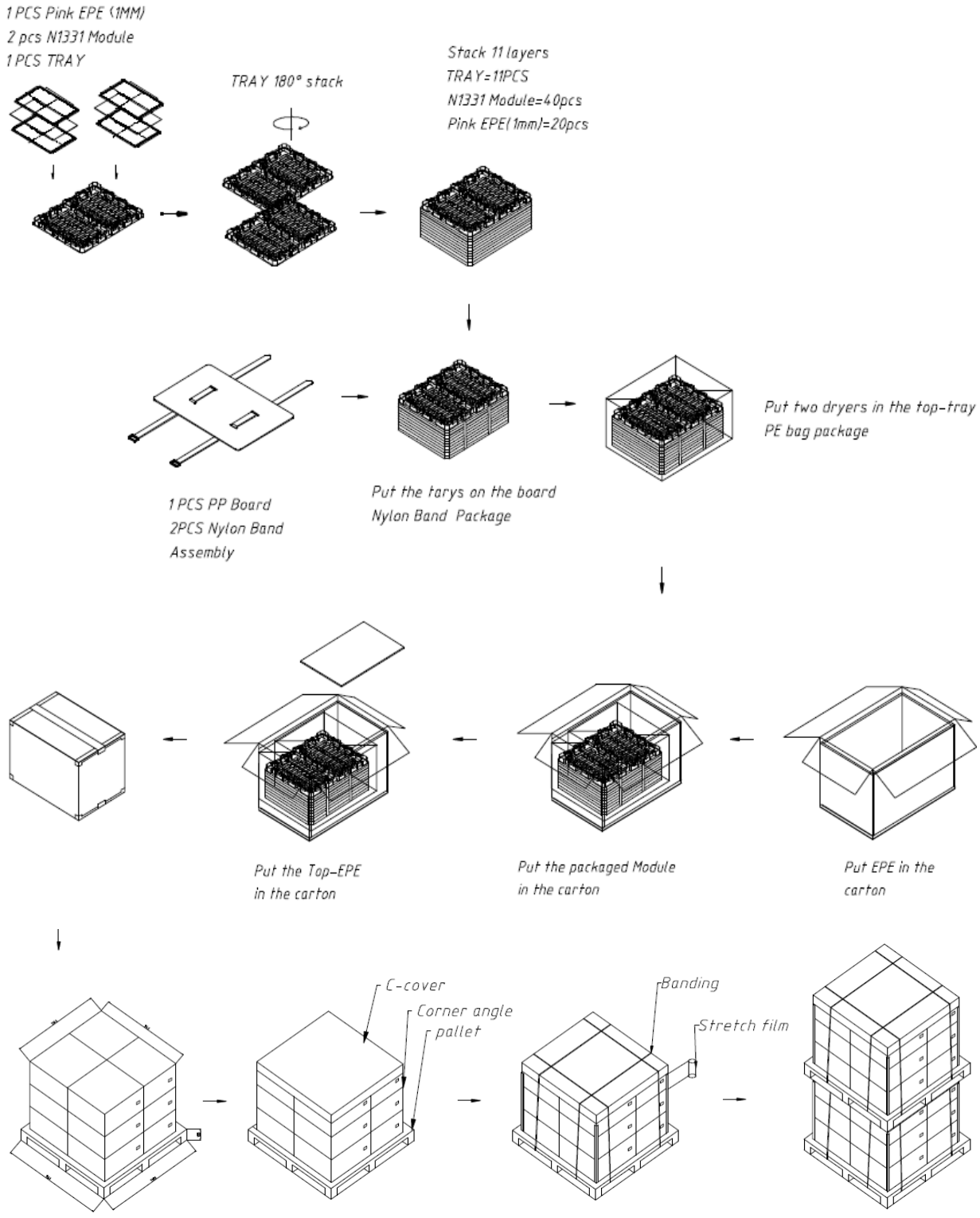
10.2 Dimension Specifications

Table 14 Module Dimension Specifications

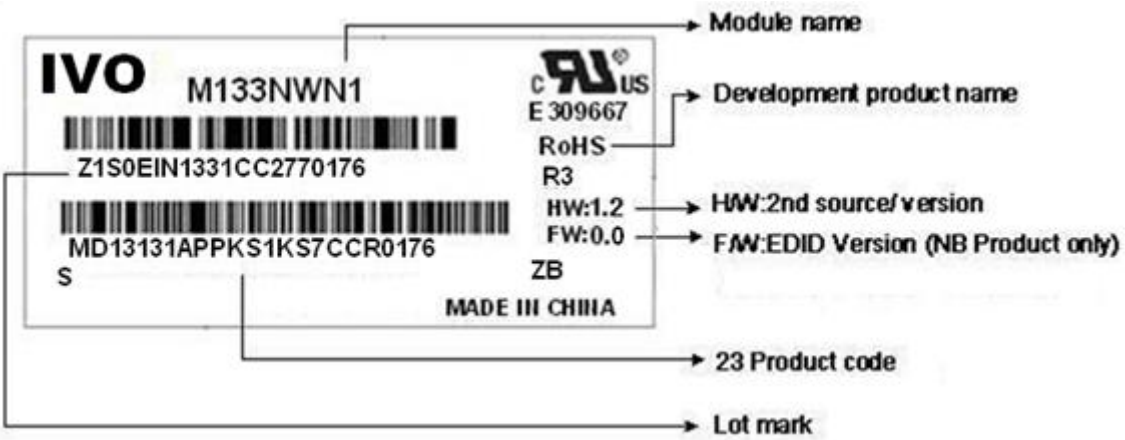
Item	Min.	Typ.	Max.	Units
Width	305.8	306.3	306.8	mm
Length	188.2	188.7	189.2	mm
Thickness	-	2.9	3.0	mm
Weight	-	244.6	260	g

Measure instrument: Vernier caliper

11.0 Package Specification (Tentative)



12.0 Lot Mark



Lot Mark

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

code 1,2,4,5,6,7,8,9,10,11,16: IVO internal flow control code.

code 3: Production location.

code 12: Production year.

code 13: Production month.

code 14,15: Production date.

Code 17,18,19,20: Serial number.

Note (1) Production Year

Year	2,006	2,007	2,008	2,009	2,010	2,011	2,012	2,013	2,014	2,015
Mark	6	7	8	9	A	B	C	D	E	F

Note (2) Production Month

Month	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct	Nov.	Dec.
Mark	1	2	3	4	5	6	7	8	9	A	B	C

1.1 23 Product Barcode

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

code 1,2:Manufacture District

code 3,4,5,6,7: IVO internal module name.

code 8,9,10,13,16: IVO internal flow control code.

code 11,12: Cell location Suzhou defined as “SZ”.

code 14 ,15: Module line kunshan defined as” KS”.

code 17,18,19 : Year, Month, Day Refer to Note(1) and Note(2) of Lot Mark.

code 20~23 : Serial Number.

13.0 General Precaution

13.1 Use Restriction

This product is not authorized for use in life supporting systems, aircraft navigation control systems, military systems and any other application where performance failure could be life-threatening or otherwise catastrophic.

13.2 Handling Precaution

(1) Please mount LCD module by using mounting holes arranged in four corners tightly.

(2) Do not disassemble or modify the module. It may damage sensitive parts inside LCD module, and may cause scratches or dust on the display. IVO does not warrant the module, if customers disassemble or modify the module.

(3) If LCD panel is broken and liquid crystal spills out, do not ingest or inhale liquid Crystal, and do not contact liquid crystal with skin. If liquid crystal contacts mouth or eyes, rinse out with water immediately. If liquid crystal contacts skin or cloths, wash it off immediately with alcohol and Rinse thoroughly with water.

(4) Disconnect power supply before handling LCD module

(5) Refrain from strong mechanical shock and /or any force to the module.

(6) Do not exceed the absolute maximum rating values, such as the supply voltage variation, input voltage variation, variation in parts’ parameters, environmental temperature; etc otherwise LCD module may be damaged. It’s recommended employing protection circuit for power supply.

(7) Do not touch, push or rub the polarizer with anything harder than HB pencil lead. Use fingerstalls of soft gloves in order to keep clean display quality, when Persons handle the LCD module for incoming inspection or assembly.

(8) When the surface is dusty, please wipe gently with absorbent cotton or other soft Material. When cleaning the adhesives, please use absorbent cotton wetted with a little Petroleum benzene or other adequate solvent.

(9) Wipe off saliva or water drops as soon as possible. If saliva or water drops Contact with polarizer for a long time, they may causes deformation or color Fading.

(10) Protection film must remove very slowly from the surface of LCD module to Prevent from electrostatic occurrence.

(11) Because LCD module uses CMOS-IC on circuit board and TFT-LCD panel, it is Very weak to electrostatic discharge, Please be careful with electrostatic Discharge .Persons who handle the module should be grounded through adequate methods.

(12) Do not adjust the variable resistor located on the module.

13.3 Storage Precaution

(1) Please do not leave LCD module in the environment of high humidity and high temperature for a long time.

(2) The module shall not be exposed under strong light such as direct sunlight.Otherwise, Display characteristics may be changed.

(3) The module should be stored in a dark place. It is prohibited to apply sunlight or fluorescent light in storage.

13.4 Operation Precaution

(1) Do not connect or disconnect the module in the "Power On" condition.

(2) Power supply should always be turned on/off by "Power on/off sequence"

(3) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference should be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.

(4) After installation of the TFT Module into an enclosure, do not twist nor bend the TFT Module even momentary. At designing the enclosure, it should be taken into consideration that no bending/twisting forces are applied to the TFT Module from outside. Otherwise the TFT Module may be damaged.

13.5 Others

(1) Ultra-violet ray filter is necessary for outdoor operation.

(2) Avoid condensation of water which may result in improper operation or disconnection of electrode.

(3) If the module keeps displaying the same pattern for a long period of time, the image may be "Sticked" to the screen.

(4) This module has its circuitry PCB's on the rear side and should be handled carefully in order not to be stressed.

13.6 Disposal

When disposing LCD module, obey the local environmental regulations.

14.0 EDID Data Structure

Address (DEC)	Address (HEX)	Field Name & Comments	Value (HEX)	Value (BIN)	Value (DEC)
0	0	Header	00	00000000	0
1	1	Header	FF	11111111	255
2	2	Header	FF	11111111	255
3	3	Header	FF	11111111	255
4	4	Header	FF	11111111	255
5	5	Header	FF	11111111	255
6	6	Header	FF	11111111	255
7	7	Header	00	00000000	0
8	8	manufacture code	26	00100110	38
9	9	manufacture code	CF	11001111	207
10	A	Product Code	33	00110011	51
11	B	Product Code	05	00000101	5
12	C	LCD module Serial No -(“0” if not used)	00	00000000	0
13	D	LCD module Serial No -(“0” if not used)	00	00000000	0
14	E	LCD module Serial No -(“0” if not used)	00	00000000	0
15	F	LCD module Serial No -(“0” if not used)	00	00000000	0
16	10	Week of manufacture	00	00000000	0
17	11	Year of manufacture	16	00010110	22
18	12	EDID Structure Ver # = 1	01	00000001	1
19	13	EDID revision # = 3	04	00000100	4
20	14	Video I/P definition = Digital I/P (80h)	80	10000000	128
21	15	Max H image size = (Rounded to cm)	1D	00011101	29
22	16	Max V image size = (Rounded to cm)	11	00010001	17
23	17	Display Gamma	78	01111000	120

24	18	Feature support (no DPMS, Active off, RGB, timing BLK 1)	0A	00001010	10
25	19	Red/Green Low bits (RxRy/GxGy)	12	00010010	18
26	1A	Blue/White Low bits (BxBy/WxWy)	30	00110000	48
27	1B	Red X Rx	91	10010001	145
28	1C	Red Y Ry	56	01010110	86
29	1D	Green X Gx	53	01010011	83
30	1E	Green Y Gy	92	10010010	146
31	1F	Blue X Bx	28	00101000	40
32	20	Blue Y By	1E	00011110	30
33	21	White X Wx	50	01010000	80
34	22	White Y Wy	54	01010100	84
35	23	Established timings 1 (00h if not used)	00	00000000	0
36	24	Established timing 2 (00h if not used)	00	00000000	0
37	25	Manufacturer@39;s timings (00h if not used)	00	00000000	0
38	26	Standard timing ID1 (01h if not used)	01	00000001	1
39	27	Standard timing ID1 (01h if not used)	01	00000001	1
40	28	Standard timing ID2 (01h if not used)	01	00000001	1
41	29	Standard timing ID2 (01h if not used)	01	00000001	1
42	2A	Standard timing ID3 (01h if not used)	01	00000001	1
43	2B	Standard timing ID3 (01h if not used)	01	00000001	1
44	2C	Standard timing ID4 (01h if not used)	01	00000001	1
45	2D	Standard timing ID4 (01h if not used)	01	00000001	1
46	2E	Standard timing ID5 (01h if not used)	01	00000001	1
47	2F	Standard timing ID5 (01h if not used)	01	00000001	1
48	30	Standard timing ID6 (01h if not used)	01	00000001	1
49	31	Standard timing ID6 (01h if not used)	01	00000001	1
50	32	Standard timing ID7 (01h if not used)	01	00000001	1
51	33	Standard timing ID7 (01h if not used)	01	00000001	1
52	34	Standard timing ID8 (01h if not used)	01	00000001	1

53	35	Standard timing ID8 (01h if not used)	01	00000001	1
54	36	Pixel Clock LSB	D5	11010101	213
55	37	Pixel Clock HSB	1C	00011100	28
56	38	Horizontal Active (lower 8 bits)	56	01010110	86
57	39	Hor blanking (lower 8 bits)	A6	10100110	166
58	3A	Horizontal Active/Horizontal blanking (upper4:4 bits)	50	01010000	80
59	3B	Vertcal active(lower 8 bits)	00	00000000	0
60	3C	Vertical blanking(lower 8 bits)	23	00100011	35
61	3D	Vertical Active : Vertical Blanking (upper4:4 bits)	30	00110000	48
62	3E	Horizontal Sync Offset	28	00101000	40
63	3F	Horizontal Sync Pulse Width	20	00100000	32
64	40	Vertical Sync Offset , Sync Width	3C	00111100	60
65	41	Horizontal Vertical Sync Offset/Width upper 2 bits	00	00000000	0
66	42	Horizontal Image Size	25	00100101	37
67	43	Vertical image Size	A5	10100101	165
68	44	Horizontal Image Size / Vertical image size	10	00010000	16
69	45	Horizontal Border = (0 for Notebook LCD)	00	00000000	0
70	46	Vertical Border = (0 for Notebook LCD)	00	00000000	0
71	47	Non-interlaced, Normal, no stereo, Separate sync, H/V pol Negatives,	19	00011001	25
72	48	Timing Descriptor #2	00	00000000	0
73	49		00	00000000	0
74	4A		00	00000000	0
75	4B		00	00000000	0
76	4C		00	00000000	0
77	4D		00	00000000	0
78	4E		00	00000000	0

79	4F		00	00000000	0
80	50		00	00000000	0
81	51		00	00000000	0
82	52		00	00000000	0
83	53		00	00000000	0
84	54		00	00000000	0
85	55		00	00000000	0
86	56		00	00000000	0
87	57		00	00000000	0
88	58		00	00000000	0
89	59		00	00000000	0
90	5A	Detailed timing/monitor descriptor#3	00	00000000	0
91	5B	Flag	00	00000000	0
92	5C	Flag	00	00000000	0
93	5D	Range limits	FE	11111110	254
94	5E	Flag	00	00000000	0
95	5F	Min. Vertical Freq	49	01001001	73
96	60	Max. Vertical Freq	6E	01101110	110
97	61	Min. Horizontal Freq	66	01100110	102
98	62	Max.Horizontal Freq	6F	01101111	111
99	63	Max. Pixel Clock Freq	56	01010110	86
100	64		69	01101001	105
101	65		73	01110011	115
102	66		69	01101001	105
103	67		6F	01101111	111
104	68		6E	01101110	110
105	69	New line character indicates end of ASCII string	0A	00001010	10
106	6A		20	00100000	32
107	6B		20	00100000	32
108	6C	Detailed timing/monitor descriptor #4	00	00000000	0

109	6D		00	00000000	0
110	6E		00	00000000	0
111	6F	FE (hex) defines ASCII string	FE	11111110	254
112	70	Flag	00	00000000	0
113	71	Manufacture P/N	4D	01001101	77
114	72	Manufacture P/N	31	00110001	49
115	73	Manufacture P/N	33	00110011	51
116	74	Manufacture P/N	33	00110011	51
117	75	Manufacture P/N	4E	01001110	78
118	76	Manufacture P/N	57	01010111	87
119	77	Manufacture P/N	4E	01001110	78
120	78	Manufacture P/N	31	00110001	49
121	79	Manufacture P/N	20	00100000	32
122	7A	Manufacture P/N	52	01010010	82
123	7B	Manufacture P/N	33	00110011	51
124	7C	New line character indicates end of ASCII string	20	00100000	32
125	7D		0A	00001010	10
126	7E	Extension Flag = 00	00	00000000	0
127	7F	Checksum	5E	01011110	94