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NV116WHM-N41

Final Product Specification

Rev. P0

HEFEI XINSHENG OPTOELECTRONICS TECHNOLOGY CO.,LTD

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REV.	ECN No.	DESCRIPTION OF CHANGES	DATE	PREPARED
P0	-			
P1	-		2015.09.23	郭威

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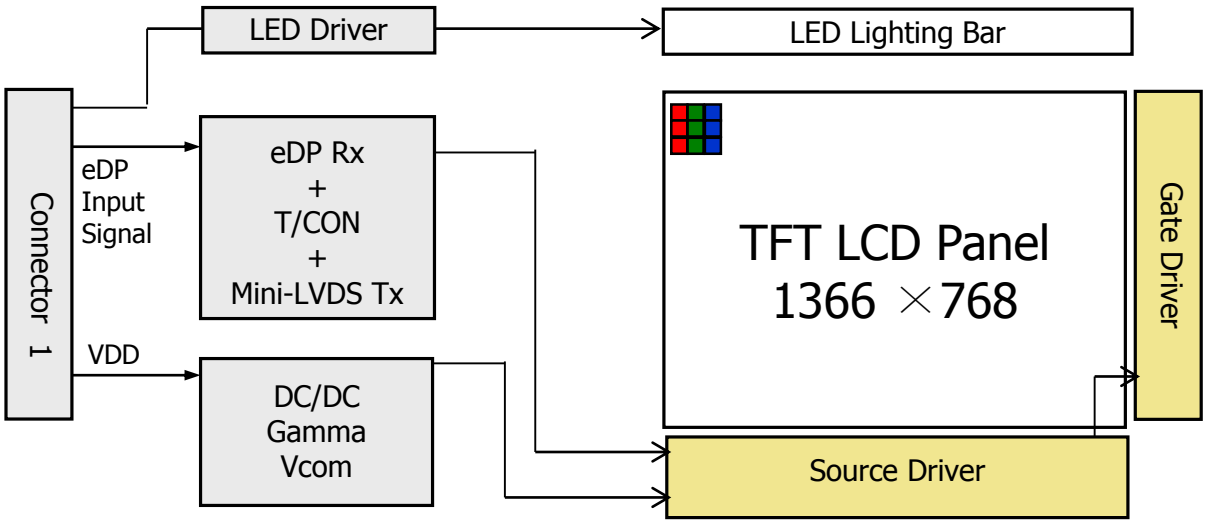
1.0 GENERAL DESCRIPTION

1.1 Introduction

NV116WHM-N41‘s TFT LCD module uses amorphous silicon TFT‘s (Thin Film Transistors) as an actives witching devices. This module has a 11.6 inch diagonally measured active area with W XGA resolutions (1366 horizontal by 768 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical Stripe and this module can display 262,144 colors. The TFT-LCD panel used for this module is a low re-flection and higher color type. Therefore, this module is suitable for Notebook PC. The LED Driver for back-light driving is built in this model. All input signals are eDP interface compatible.



1.2 Features

- 1 lane eDP1.2 Interface with embedded clock
- Thin and light weight
- 6-bit color depth, display 262K colors
- Green Product (RoHS & Halogen free product)
- On board LED Driving circuit
- Low driving voltage and low power consumption
- On board EDID chip

1.3 Application

- Notebook PC (Wide type) with touch function

1.4 General Specification

The followings are general specifications at the model NV116WHM-N41. (listed in Table 1.)

<Table 1. General Specifications>

Parameter	Specification	Unit	Remarks
Active area	256.125(H) ×144.0(V)	mm	
Number of pixels	1366 (H) ×768 (V)	pixels	
Pixel pitch	0.1875(H) ×0.1875 (V)	mm	
Pixel arrangement	RGB Vertical stripe		
Display colors	262K	colors	
Display mode	Normally Black		
Dimensional outline	278(H)*168(V)*3.0(Max)	mm	
Weight	200 (max)	g	
Surface treatment	7H		
Back-light	Upper edge side, 1-LED Lighting Bar type		Note 1
Power consumption	P_D : 0.8 (max)	W	Note 2
	P_{BL} : 1.68 (max)	W	
	P_{total} : 2.68 (max)	W	

Notes : 1. LED Lighting Bar (24*LED Array)
Notes: 2. Max power is measured under 32x36 checkboard pattern

2.0 ABSOLUTE MAXIMUM RATINGS

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table 3.

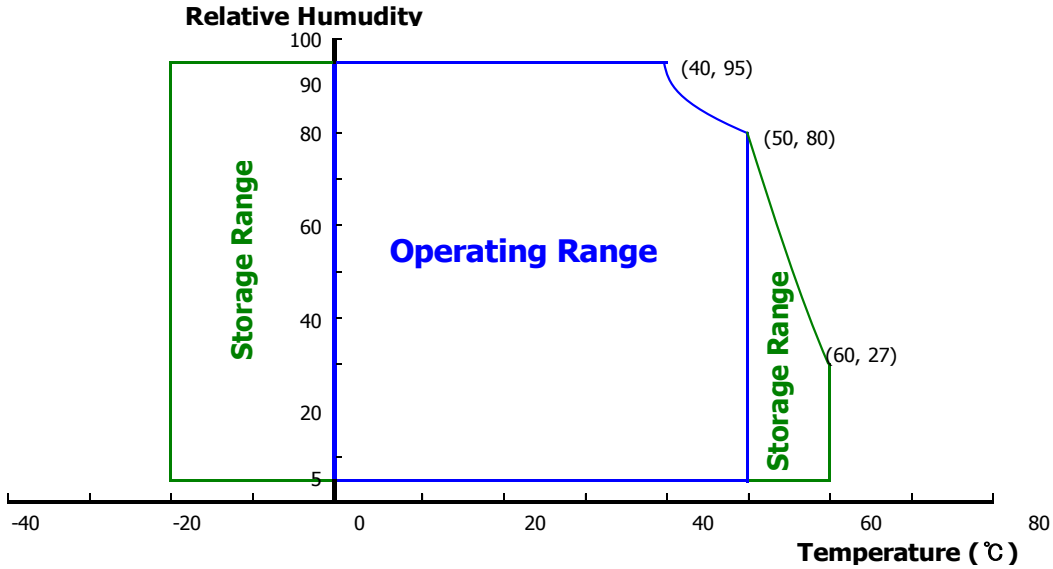
< Table 3. Absolute Maximum Ratings>

Ta=25+/-2˚C

Parameter	Symbol	Min.	Max.	Unit	Remarks
LCM Power Supply Voltage	V_{DD}	-0.3	4.0	V	Note 1
LCM Logic Supply Voltage	V_{IN}	V_{ss}-0.3	V_{DD}+0.3	V	
Operating Temperature	T_{OP}	0	+50	℃	Note 2
Storage Temperature	T_{ST}	-20	+60	℃	

Notes : 1. Permanent damage to the device may occur if maximum values are exceeded functional operation should be restricted to the condition described under normal operating conditions.

2. Temperature and relative humidity range are shown in the figure below.
   95 % RH Max. (40 ^{O}C ≥ Ta)
   Maximum wet - bulb temperature at 39 ^{O}C or less. (Ta > 40 ^{O}C) No condensation.



3.0 ELECTRICAL SPECIFICATIONS

3.1 Electrical Specifications

< Table 4. Electrical specifications > Ta=25+/-2°C

Parameter		Min.	Typ.	Max.	Unit	Remarks
Power Supply Voltage	V_{DD}	3.0	3.3	3.6	V	Note 1
Permissible Input Ripple Voltage	V_{RF}	-	-	300	mV	At V_{DD} = 3.3V
Power Supply Current	I_{DD}	-	242	300	mA	Note 1
Positive-going Input Threshold Voltage	V_{IT+}	-	-	100	mV	V_{cm} = 1.2V typ.
Negative-going Input Threshold Voltage	V_{IT-}	-100	-	-	mV	
Differential Input Voltage	V_{ID}	-	-	600	mV	
Power Consumption	P_D	-	0.8	1.0	W	Note 1
	P_{BL}	-	-	1.68	W	
	P_{total}	-	-	2.68	W	

Notes : 1. The supply voltage is measured and specified at the interface connector of LCM. The current draw and power consumption specified is for 3.3V 60Hz at 25℃. (Max: 8*6 Mosiacpattern)

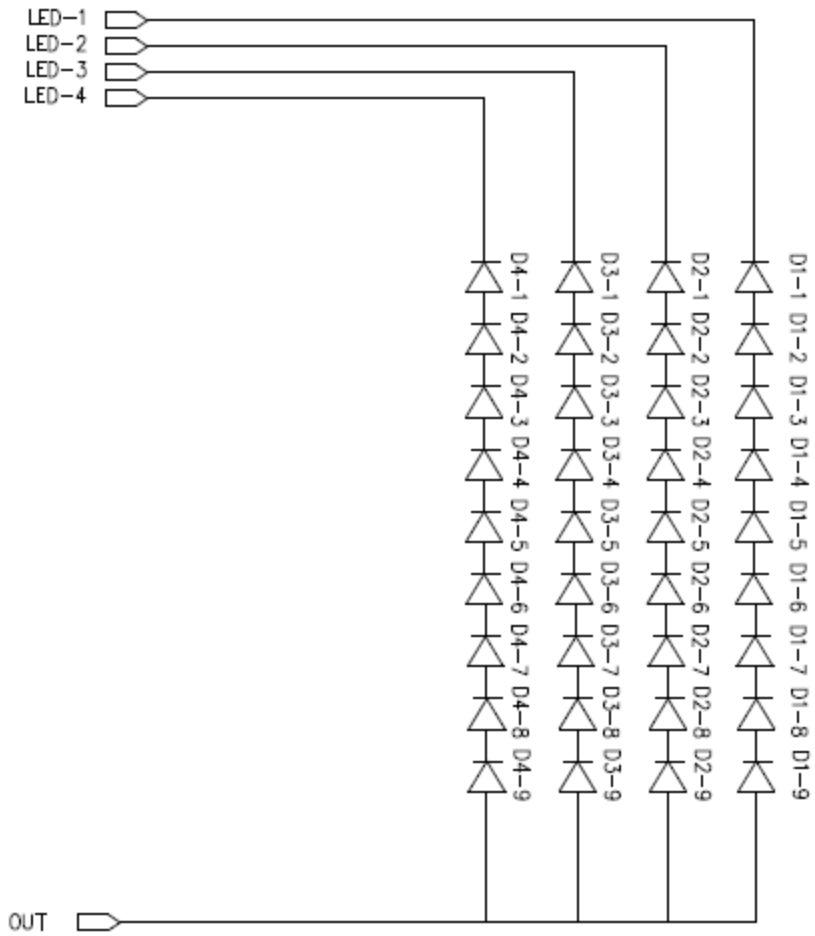
3.2 Backlight Unit

< Table 5. LED Driving guideline specifications > Ta=25+/-2°C

Parameter			Min.	Typ.	Max.	Unit	Remarks
LED Forward Voltage		V_F	-	-	3.0	V	I_F = 20mA
LED Forward Current		I_F	-	21		mA	-
LED Power Consumption		P_{LED}			1.68	W	Note 1
LED Life-Time		N/A	15,000	-	-	Hour	I_F = 20mA
Power supply voltage for LED Driver		VLED	5	12	21	V	
EN Control Level	Backlight on		2.2		5.0	V	
	Backlight off		0		0.3	V	
PWM Control Level	PWM High Level		2.2		5.0	V	
	PWM Low Level		0		0.3	V	
PWM Control Frequency		F_{PWM}	100	-	20,000	Hz	
Duty Ratio		-	1	-	100	%	

Notes : 1. The LED Life-time define as the estimated time to 50% degradation of initial luminous.
2. 1% duty cycle is achievable with a dimming frequency less than 1KHz.

3.3 LED structure 4*9



4.0 OPTICAL SPECIFICATION

4.1 Overview

The test of Optical specifications shall be measured in a dark room (ambient luminance ≤ 1 lux and temperature = 25±2℃) with the equipment of Luminance meter system (Goniometer system and TOPCON BM-5) and test unit shall be located at an approximate distance 50cm from the LCD surface at a viewing angle of θ and Φ equal to 0°. We refer to θØ=0 (=θ3) as the 3 o'clock direction (the "right"), θØ=90 (= θ12) as the 12 o'clock direction ("upward"), θØ=180 (= θ9) as the 9 o'clock direction ("left") and θØ=270(= θ6) as the 6 o'clock direction ("bottom"). While scanning θand/or Ø, the center of the measuring spot on the Display surface shall stay fixed. The backlight should be operating for 30 minutes prior to measurement. VDD shall be 3.3+/- 0.3V at 25°C. Optimum viewing angle direction is 6 'clock.

4.2 Optical Specifications

<Table 6. Optical Specifications>

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle range	Horizontal	Θ_3	CR > 10	80	-	-	Deg.	Note 1
		Θ_9		80	-	-	Deg.	
	Vertical	Θ_{12}		80	-	-	Deg.	
		Θ_6		80	-	-	Deg.	
Luminance Contrast ratio		CR	Θ = 0°	600	800			Note 2
Luminance of White	5 Points	Y_w	Θ = 0° I_{LED} = 22.5mA	187	220	-	cd/m^2	Note 3
White Luminance uniformity	5 Points	ΔY5		20%	-	-		Note 4
	13 Points	ΔY13		35%	-	-		
White Chromaticity		x_w	Θ = 0°	0.283	0.313	0.343		Note 5
		y_w		0.299	0.329	0.359		
Reproduction of color	Red	x_R	Θ = 0°	-	-	-		
		y_R			-			
	Green	x_G			-			
		y_G			-			
	Blue	x_B			-			
		y_B			-			
Color Gamut				45	50	-	%	
Response Time (Rising + Falling)		T_{RT}	Ta= 25° C Θ = 0°	-	30	35	ms	Note 6
Cross Talk		CT	Θ = 0°	-	-	2.0	%	Note 7

Notes :

1. Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing angles are determined for the horizontal or 3, 9 o'clock direction and the vertical or 6, 12 o'clock direction with respect to the optical axis which is normal to the LCD surface (see FIGURE 1).

2. Contrast measurements shall be made at viewing angle of Θ= 0 and at the center of the LCD surface. Luminance shall be measured with all pixels in the view field set first t o white, then to the dark (black) state .
(see FIGURE 1) Luminance Contrast Ratio (CR) is defined mathematically.

$$CR = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$$

3. (with TP)Center Luminance of white is defined as luminance values of 5 point avera ge across the LCD surface. Luminance shall be measured with all pixels in the view fie ld set first
to white. This measurement shall be taken at the locations shown in FIGURE 2 for a total of the measurements per display.

4. The White luminance uniformity on LCD surface is then expressed as : ΔY =Minimum Luminance of 5(or 13) points / Maximum Luminance of 5(or 13) points.
(see FIGURE 2 and FIGURE 3).

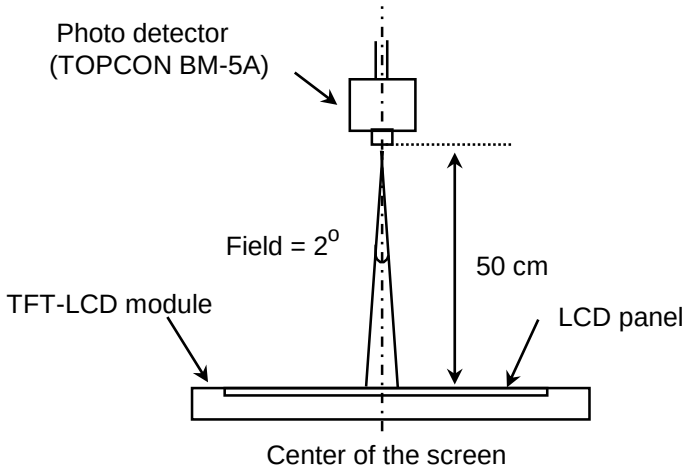
5. The color chromaticity coordinates specified in Table 5 shall be calculated from the spectral data measured with all pixels first in red, green, blue and white. Measurements shall be made at the center of the panel.

6. The electro-optical response time measurements shall be made as FIGURE 4 by switching the "data" input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is Tr, and 90% to 10% is Td.

7. Cross-Talk of one area of the LCD surface by another shall be measured by comparing the luminance (YA) of a 25mm diameter area, with all display pixels set to a gray level, to the luminance (YB) of that same area when any adjacent area is driven dark.
(See FIGURE 5).

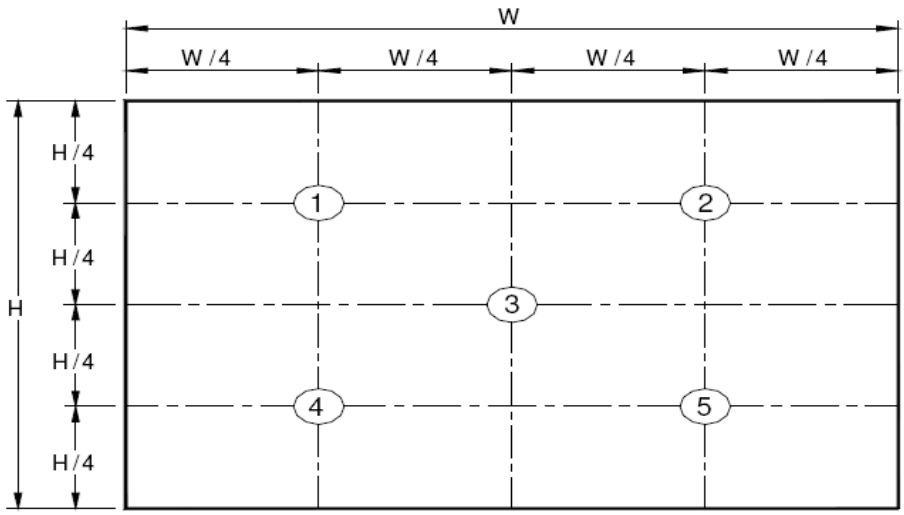
4.3 Optical measurements

Figure 1. Measurement Set Up



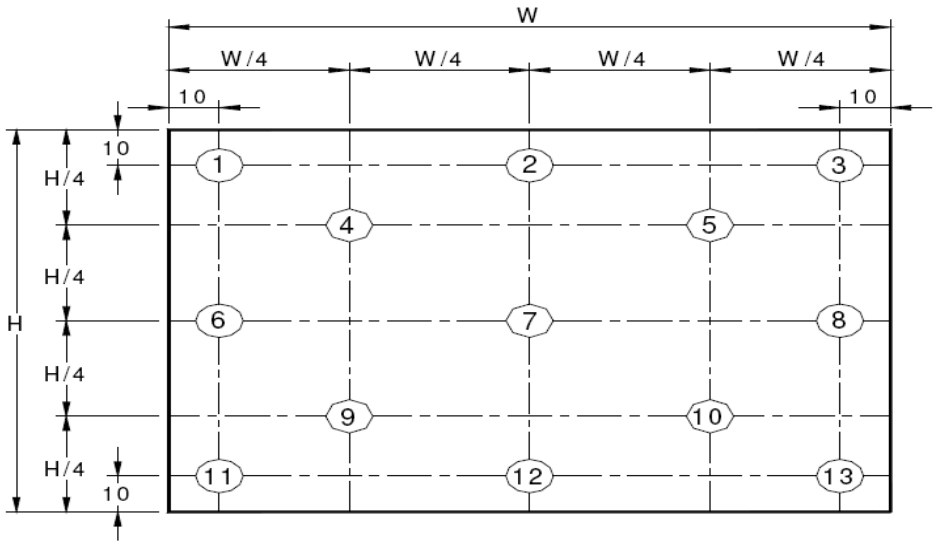
Optical characteristics measurement setup

Figure 2. White Luminance and Uniformity Measurement Locations (5 points)



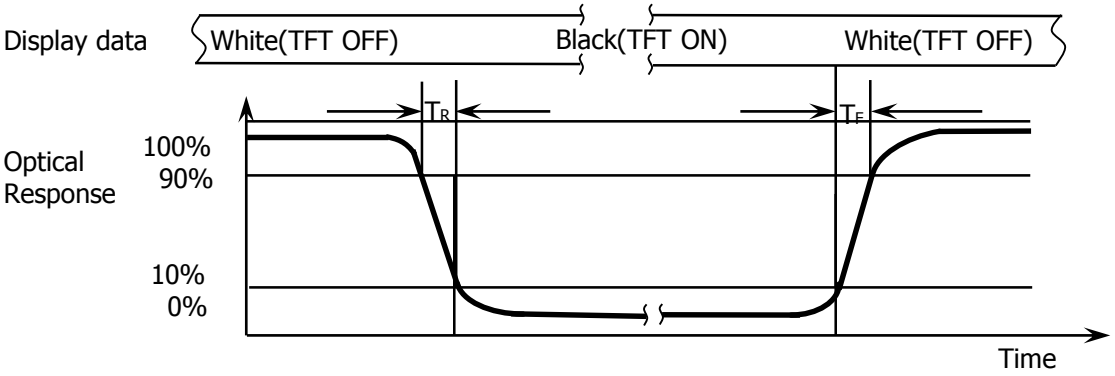
Center Luminance of white is defined as luminance values of center 5 points acro ss the LCD surface. Luminance shall be measured with all pixels in the view field se t first to white. This measurement shall be taken at the locations shown in FIGURE 2 for a total of the measurements per display.

Figure 3. Uniformity Measurement Locations (13 points)



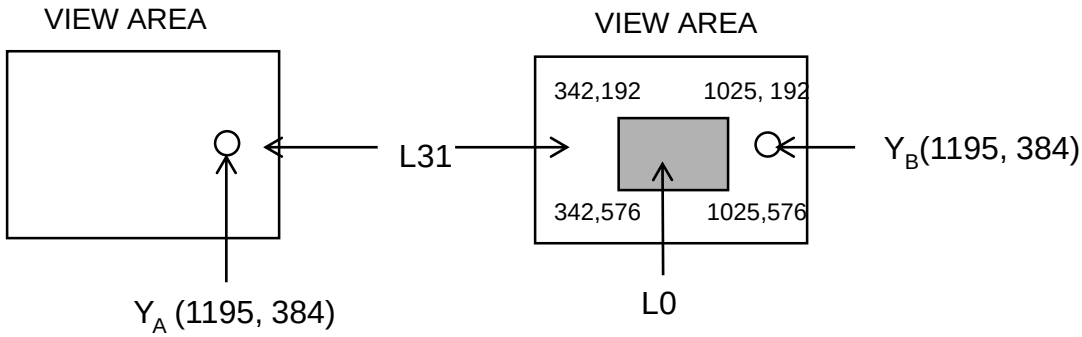
The White luminance uniformity on LCD surface is then expressed as : ΔY5 = Minimum Luminance of five points / Maximum Luminance of five points (see FIGURE 2) , ΔY13 = Minimum Luminance of 13 points /Maximum Luminance of 13 points (see FIGURE 3).

Figure 4. Response Time Testing



The electro-optical response time measurements shall be made as shown in FIGURE 4 by switching the “data” input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is Td and 90% to 10% is Tr.

Figure 5. Cross Modulation Test Description



$$\text{Cross-Talk (\%)} = \left| \frac{Y_B - Y_A}{Y_A} \right| \times 100$$

Where:

Y_A = Initial luminance of measured area (cd/m^2)

Y_B = Subsequent luminance of measured area (cd/m^2)

The location measured will be exactly the same in both patterns

Cross-Talk of one area of the LCD surface by another shall be measured by com paring the luminance (YA) of a 25mm diameter area, with all display pixels set to a gray level, to the luminance (YB) of that same area when any adjacent area is driven dark (Refer to FIGURE 5).

5.0 INTERFACE CONNECTION.

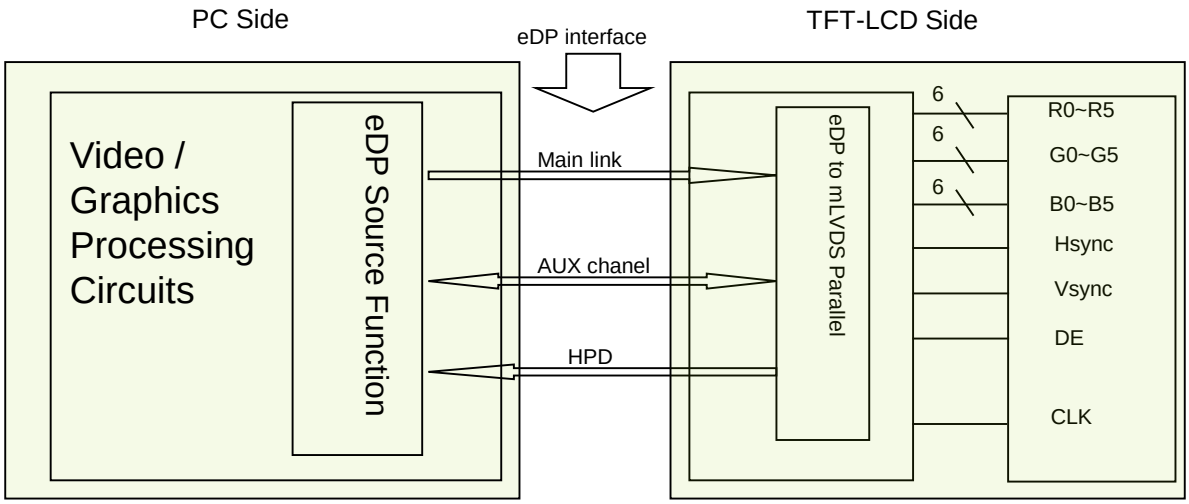
5.1 Electrical Interface Connection

The electronics interface connector is STM or Compatible or equivalent. The mating connector part number is I-PEX 20455-030T-11 or Compatible. The connector interface pin assignments are listed in Table 6.

<Table 7. Pin Assignments for the Interface Connector>

Terminal	Symbol	Functions
Pin No.	Symbol	Description
1	CABC_ENIN	CABC input
2	H_GND	High Speed Ground
3	Lane1_N	Complement Signal Link Lane 1
4	Lane1_P	True Signal Link Lane 1
5	H_GND	High Speed Ground
6	Lane0_N	Complement Signal Link Lane 0
7	Lane0_P	True Signal Link Lane 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 power (3.3V)
13	LCD_VCC	LCD logic power (3.3V)
14	BIST	No Connection (Reserved for CMI)
15	LCD_GND	LCD Ground
16	LCD_GND	LCD 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	3.3VDC from system
23	PWM_DIM	System PWM signal input
24	Hsync	Hsync
25	NC	No Connection
26	BL_PWR	Backlight 12VDC
27	BL_PWR	Backlight 12VDC
28	BL_PWR	Backlight 12VDC
29	BL_PWR	Backlight 12VDC
30	NC	No Connection

5.2. eDP Interface



Note. Transmitter : Parade DP611 or equivalent.
Transmitter is not contained in Module.

5.3.eDP Input signal

Lane 0	
R0-5:0	G0-5:4
G0-3.0	B0-5:2
B0-1:0	R1-5:0
G1-5:0	B1-5:4
B1-3:0	R2-5:2
R2-1:0	G2-5:0
B2-5:0	R3-5:4
R3-3:0	G3-5:2
G3-1:0	B3-5:0

5.4 Back-light & LCM Interface Connection

Interface Connector: PF040-B09B-C09 or Equivalent

<Table 7. Pin Assignments for the BLU & LCM Connector>

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	Vout	LED cathode connection	6	LED1	No Connection
2	Vout	LED cathode connection	7	LED2	LED anode connection
3	Vout	LED cathode connection	8	LED3	LED anode connection
4	NC	No Connection	9	LED4	LED anode connection
5	NC	No Connection			

6.0 SIGNAL TIMING SPECIFICATION

6.1 The NV116WHM-N41 is operated **by the DE only.**

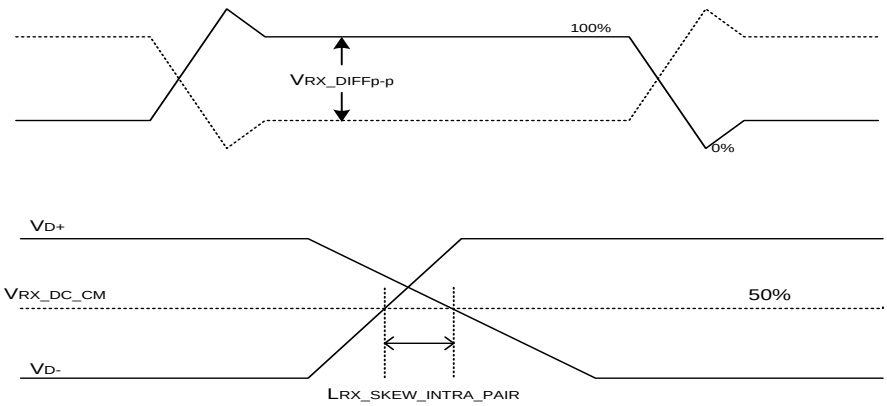
Item		Symbols	Min	Typ	Max	Unit
Clock	Frequency	1/Tc	67.5	72.3	76.3	MHz
	High Time	Tch	-	4/7	-	Tc
	Low Time	Tcl	-	3/7	-	Tc
Frame Period		Tv	778	790	802	lines
			-	60	-	Hz
			-	16.7	-	ms
Vertical Display Period		Tvd	768	768	768	lines
One line Scanning Period		Th	1446	1526	1586	clocks
Horizontal Display Period		Thd	1366	1366	1366	clocks

6.2 eDP Rx Interface Timing Parameter

The specification of the eDP Rx interface timing parameter is shown in Table 9.

<Table 9. eDP Rx Interface Timing Specification>

Item	Symbol	Min	Typ	Max	Unit	Remark
Spread spectrum clock	ssc		0.5		%	
Differential peak-to-peak input voltage at package pins	$V_{RX-DIFFp-p}$	100	0	1320	mV	
Rx input DC common mode voltage	$V_{RX_DC_CM}$	-	GND	-	V	
Differential termination resistance	$R_{RX-DIFF}$	80	100	120	Ω	
Single-ended termination resistance	R_{RX-SE}	40	50	60	Ω	
Rx short circuit current limit	I_{RX_SHORT}	-	-	20	mA	
Intra-pair skew at Rx package pins (HBR) RX intra-pair skew tolerance at HBR	$L_{RX_SKEW_INTRA_PAIR}$	-	-	150	ps	

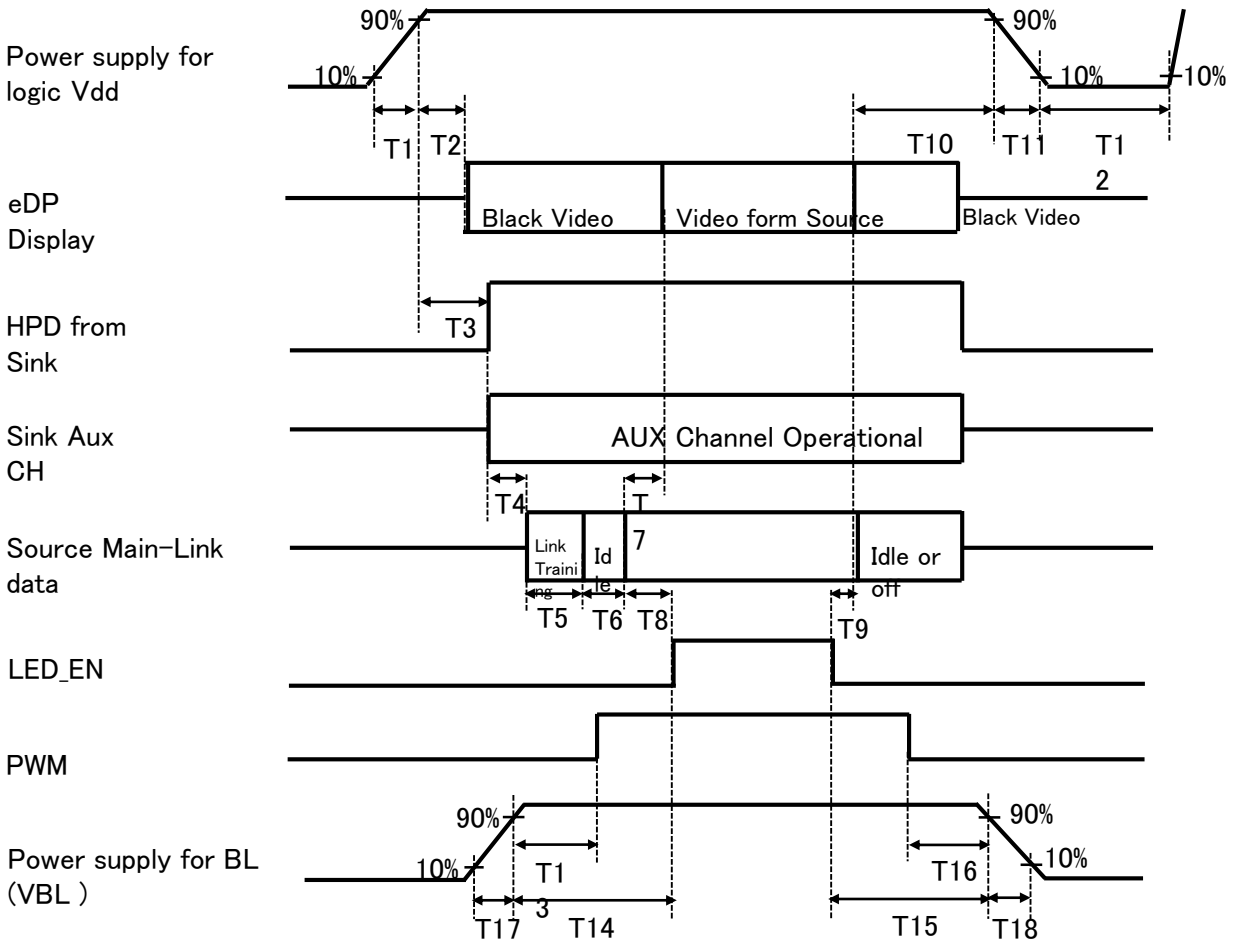


7.0 INPUT SIGNALS, BASIC DISPLAY COLORS & GRAY SCALE OF COLORS

	Colors & Gray scale	Data signal																	
		R0	R1	R2	R3	R4	R5	G0	G1	G2	G3	G4	G5	B0	B1	B2	B3	B4	B5
Basic colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Light Blue	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Purple	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	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
Gray scale of Red	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Darker	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△ ▽	↑ ↓						↑ ↓						↑ ↓					
	Brighter	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	▽	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Gray scale of Green	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	1	0	0	0	0	0	0	0	0	0	0	0
	Darker	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	△ ▽	↑ ↓						↑ ↓						↑ ↓					
	Brighter	0	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0
	▽	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Gray scale of Blue	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	0	0	0	0	0	0	1	0	0	0	0	0
	Darker	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
	△ ▽	↑ ↓						↓ ↓						↑ ↓					
	Brighter	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1
	▽	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Gray scale of White & Black	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
	Darker	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
	∆ ▽	↑ ↓						↑ ↓						↑ ↓					
	Brighter	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1
	▽	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

8.0 POWER SEQUENCE

To prevent a latch-up or DC operation of the LCD module, the power on/off seq uence shall be as shown in below



- 0.5ms ≤ T1 ≤ 10 ms
- 0ms ≤ T2 ≤ 200 ms
- 0ms ≤ T3 ≤ 200 ms
- 0ms ≤ T13
- 0ms ≤ T14
- 0ms ≤ T17
- 0ms ≤ T7 ≤ 50ms
- 0ms ≤ T10 ≤ 500 ms
- 0 ms ≤ T11 ≤ 10 ms
- 150ms ≤ T12
- 0ms ≤ T15
- 0ms ≤ T16
- 0ms ≤ T18

Notes:

1. When the power supply VDD is 0V, keep the level of input signals on the low or keep high impedance.
2. Do not keep the interface signal high impedance when power is on. Back Light must be turn on after power for logic and interface signal are valid.

9.0 Connector Description

Physical interface is described as for the connector on LCM.
These connectors are capable of accommodating the following signals and will be following components.

9.1 TFT LCD Module

Connector Name /Description	**For Signal Connector**
Manufacturer	UJU or Compatible
Type/ Part Number	MSAK24025P30 0 or Compatible
Mating housing/ Part Number	I-PEX 20455-030T-11 or Compatible

10.0 MECHANICAL CHARACTERISTICS

10.1 Dimensional Requirements

FIGURE 6 shows mechanical outlines for the model NV116WHM-N41.
Other parameters are shown in Table 10.

<Table 10. Dimensional Parameters>

Parameter	Specification	Unit
Active Area	256.125 (H) ×144.0 (V)	
Number of pixels	1366 (H) X 768 (V) (1 pixel = R + G + B dots)	
Pixel pitch	0.1875 (H) X 0.1875 (V)	
Pixel arrangement	RGB Vertical stripe	
Display colors	262K	
Display mode	Normally black	
Dimensional outline	278 (H)×168 (V) (with PCBA)	mm
Weight	200 Max.	g
Back Light	Connector :PF040-B09B-C09	
	LED, Horizontal-LED Array type	

10.2 Mounting

See FIGURE 6.

10.3 Light Leakage

There shall not be visible light from the back-lighting system around the edges of the screen as seen from a distance 50cm from the screen with an overhead light level of 350lux.

11.0 RELIABILITY TEST

The Reliability test items and its conditions are shown in below.

<Table 11. Reliability test>

No	Test Items	Conditions
1	Temperature Humidity Bias	Ta = 50 ℃, 80%RH, 240 hrs
2	High Temperature Operation	Ta = 60 ℃, 240 hrs
3	Low Temperature Operation	Ta = 0 ℃, 240 hrs
4	High Temperature Storage	Ta = 60 ℃, 240 hrs
5	Low Temperature Storage	Ta = -20 ℃, 240 hrs
6	Thermal Shock Test	Ta = -20 ℃ ↔ 60 ℃ (0.5 hr), 100 cycles
7	ESD	Contact : 150 pF, 330Ω, 8 KV Air : 150 pF, 330Ω, 15 KV

12.0 HANDLING & CAUTIONS

(1) Cautions when taking out the module
- Pick the pouch only, when taking out module from a shipping package.

(2) Cautions for handling the module
- As the electrostatic discharges may break the LCD module, handle the LCD module with care. Peel a protection sheet off from the LCD panel surface as slowly as possible.
- As the LCD panel and back - light element are made from fragile glass material, impulse and pressure to the LCD module should be avoided.
- As the surface of the polarizer is very soft and easily scratched, use a soft dry cloth without chemicals for cleaning.
- Do not pull the interface connector in or out while the LCD module is operating.
- Put the module display side down on a flat horizontal plane.
- Handle connectors and cables with care.

(3) Cautions for the operation
- When the module is operating, do not lose CLK, ENAB signals. If any one of these signals is lost, the LCD panel would be damaged.
- Obey the supply voltage sequence. If wrong sequence is applied, the module would be damaged.

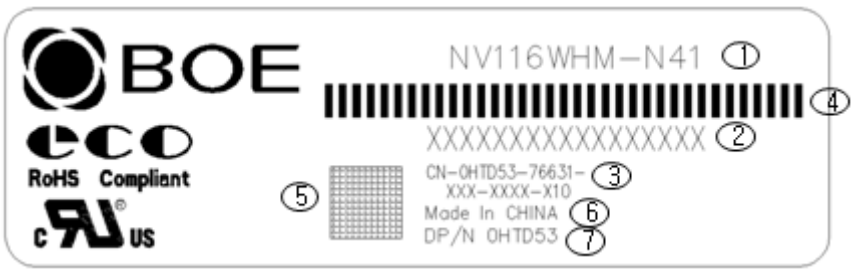
(4) Cautions for the atmosphere
- Dew drop atmosphere should be avoided.
- Do not store and/or operate the LCD module in a high temperature and/or humidity atmosphere. Storage in an electro-conductive polymer packing pouch and under relatively low temperature atmosphere is recommended.

(5) Cautions for the module characteristics
- Do not apply fixed pattern data signal to the LCD module at product aging.
- Applying fixed pattern for a long time may cause image sticking.

(6) Other cautions
- Do not disassemble and/or re-assemble LCD module.
- Do not re-adjust variable resistor or switch etc.
- When returning the module for repair or etc., Please pack the module not to be broken. We recommend to use the original shipping packages.

13.0 LABEL

(1) Product label

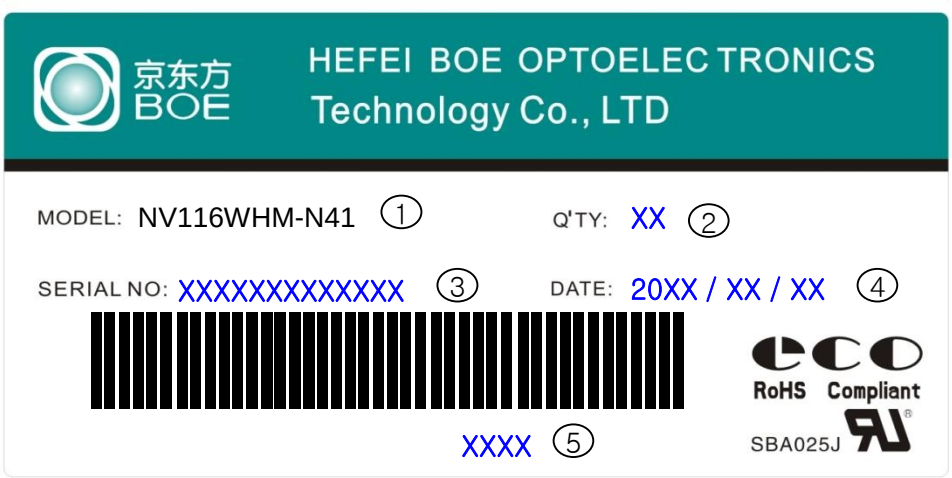


Label Size: 80mm × 25mm
1. FG-CODE
2. MDL ID
3.客户要求PPID
4. MDL ID 条纹码
5. PPID 二维码
6. Made In CHINA (产地)
7. 客户端物料号: 0HTD53

序列号	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
代码	4	F	P	3	1	2	7	3	8	3	0	0	0	1	E	E	J
描述	GBN 代码		等级	B3	年份		月	FG Code后四位				序列号					

(2) Box label

Label Size: 110 mm (L) × 56 mm (W)
Contents
Model: NV116WHM-N41
Q`ty: Module Q`ty in one box
Serial No.: Box Serial No. See next figure for detail description.
Date: Packing Date
Internal use of Product



1. **FG-CODE**
2. **Box 产品数量**
3. **Box ID**
4. **Box Packing 日期**
5. **FG-CODE 后四位**

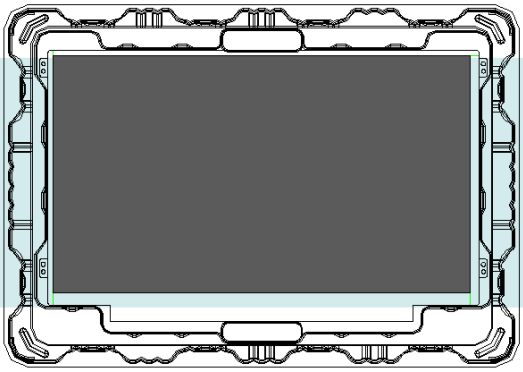
序列号	1	2	3	4	5	6	7	8	9	10	11	12	13
代码	4	J	P	3	1	2	7	0	0	0	1	H	D
描述	GBN代码		等级	B3	年份		月	Rev	序列号				

14.0 PACKING INFORMATION

14.1 Packing order

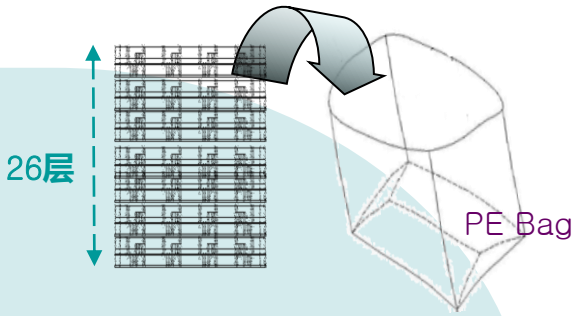
-. 将 1pcs MDL 平放入Tray

-. 上面放置1pcs EPE Spacer



-. 将26pcs PET Tray 平放入PE Bag

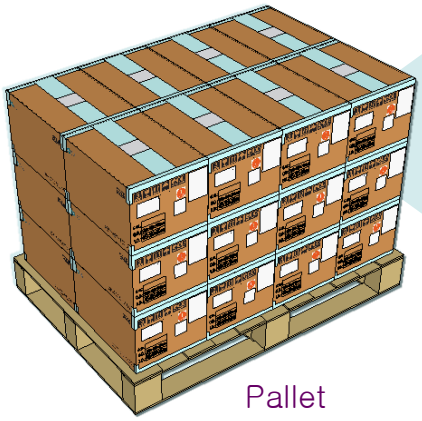
-. 顶部1pcs 空Tray



-. 每个Pallet上放3层Box，1层8箱,共计24ea Box

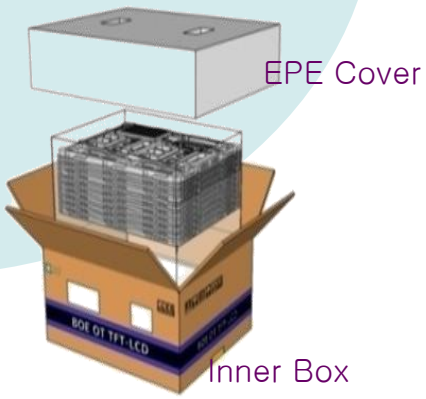
-. Pallet 四边及打包带位置放置纸护角后，以缠绕膜包裹

-. 容量: 600pcs/Pallet



-.将PET Tray堆码后平放入Inner Box 上下放置EPE Cover

-. 容量：25pcs/Inner Box



14.2 Notes

- Box Dimension: 375mm(W) x 280mm(D) x 300mm(H)
- Package Quantity in one Box: 25pcs
- Total Weight: TBD

15.0 MECHANICAL OUTLINE DIMENSION

Figure 6. TFT-LCD Module Outline Dimension (Front View)

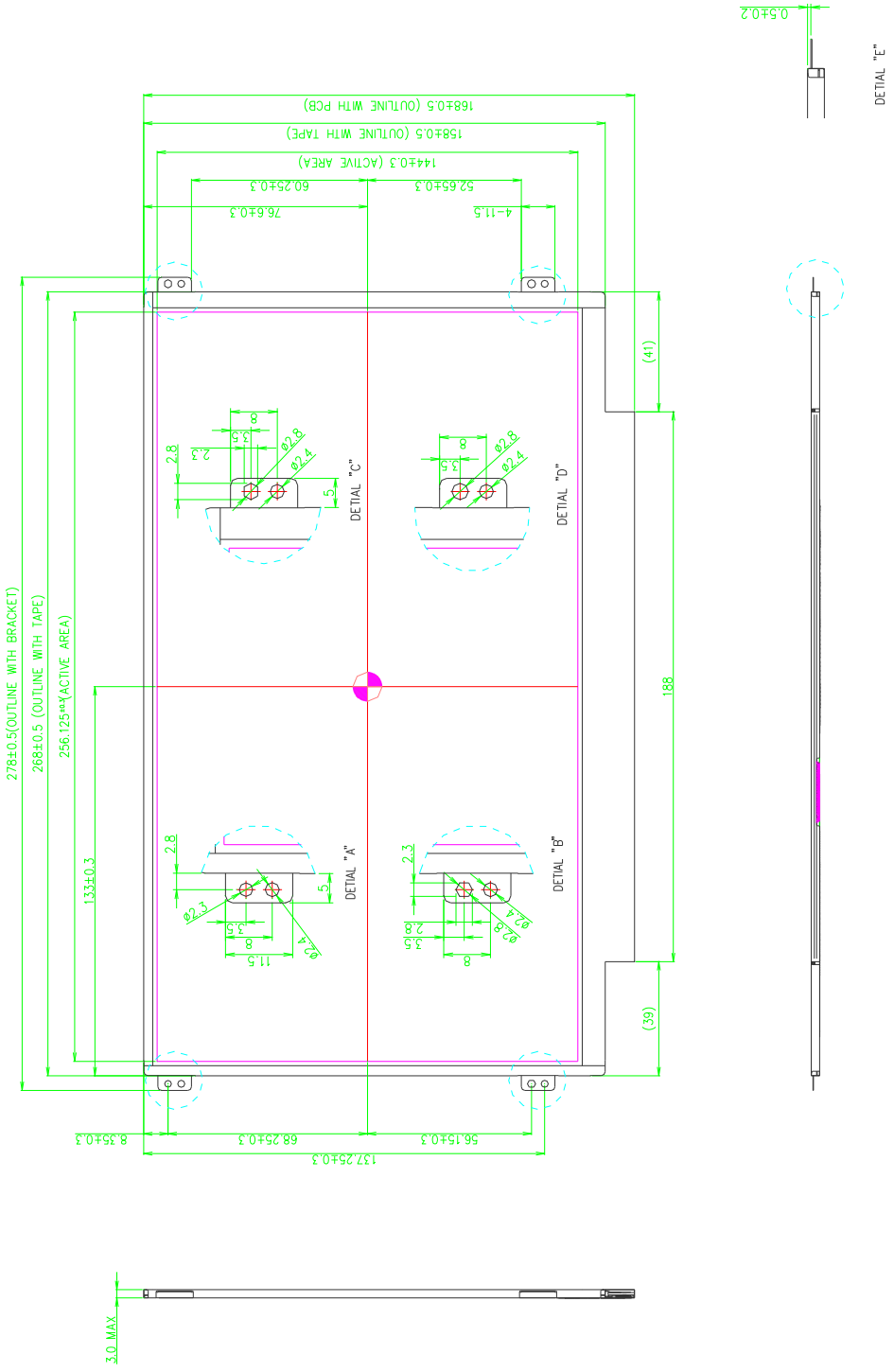
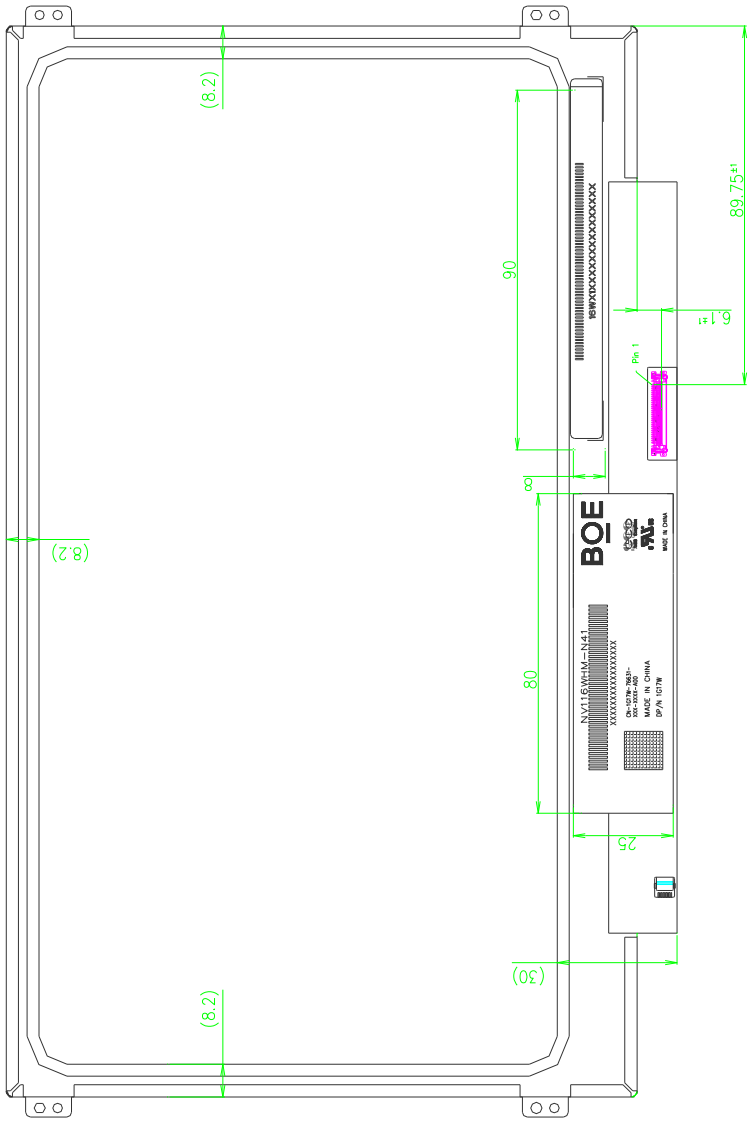


Figure 7. TFT-LCD Module Outline Dimensions (Rear view)



16.0 EDID Table

Address (HEX)	Function	Hex	Dec	crc	Input values.	Notes
00	Header	00	0		0	EDID Header
01		FF	255		255	
02		FF	255		255	
03		FF	255		255	
04		FF	255		255	
05		FF	255		255	
06		FF	255		255	
07		00	0		0	
08	ID Manufacturer Name	09	9		BOE	ID = BOE
09		E5	229			
0A	ID Product Code	8B	139		1675	ID = 1675
0B		06	6			
0C	32-bit serial No.	00	0			
0D		00	0			
0E		00	0			
0F		00	0			
10	Week of manufacture	01	1		1	
11	Year of Manufacture	19	25		2015	Manufactured in 2015
12	EDID Structure Ver.	01	1		1	EDID Ver 1.0
13	EDID revision #	03	3		3	EDID Rev. 0.3
14	Video input definition	95	149		-	digital signal/DP input
15	Max H image size	1A	26		26	26 cm (Approx)
16	Max V image size	0E	14		14	14 cm (Approx)
17	Display Gamma	78	120		2.2	Gamma curve = 2.2
18	Feature support	0A	10			RGB display, Preferred Timming mode
19	Red/Green low bits	7D	125		-	Red / Green Low Bits
1A	Blue/White low bits	70	112		-	Blue / White Low Bits
1B	Red x high bits	9E	158	633	0.619	Red (x) = 10011110 (0.619)
1C	Red y high bits	5B	91	363	0.355	Red (y) = 01011011 (0.355)
1D	Green x high bits	57	87	351	0.343	Green (x) = 01010111 (0.343)
1E	Green y high bits	9E	158	633	0.619	Green (y) = 10011110 (0.619)
1F	Blue x high bits	27	39	157	0.154	Blue (x) = 00100111 (0.154)
20	BLue y high bits	19	25	103	0.101	Blue (y) = 00011001 (0.101)
21	White x high bits	50	80	320	0.313	White (x) = 01010000 (0.313)
22	White y high bits	54	84	336	0.329	White (y) = 01010100 (0.329)
23	Established timing 1	00	0		-	
24	Established timing 2	00	0		-	
25	Established timing 3	00	0		-	
26	Standard timing #1	01	1			Not Used
27		01	1			
28	Standard timing #2	01	1			Not Used
29		01	1			
2A	Standard timing #3	01	1			Not Used
2B		01	1			
2C	Standard timing #4	01	1			Not Used
2D		01	1			
2E	Standard timing #5	01	1			Not Used
2F		01	1			
30	Standard timing #6	01	1			Not Used
31		01	1			
32	Standard timing #7	01	1			Not Used
33		01	1			
34	Standard timing #8	01	1			Not Used
35		01	1			

36	Detailed timing/monitor descriptor #1	3E	62		72.3	72.3MHz Main clock
37		1C	28			
38		56	86		1366	Hor Active = 1366
39		A0	160		160	Hor Blanking = 160
3A		50	80		-	4 bits of Hor. Active + 4 bits of Hor. Blanking
3B		00	0		768	Ver Active = 768
3C		16	22		22	Ver Blanking = 22
3D		30	48		-	4 bits of Ver. Active + 4 bits of Ver. Blanking
3E		30	48		48	Hor Sync Offset = 48
3F		20	32		32	H Sync Pulse Width = 32
40		36	54		3	V sync Offset = 3 line
41		00	0		6	V Sync Pulse width : 6 line
42		00	0		256	Horizontal Image Size = 256 mm (Low 8 bits)
43		90	144		144	Vertical Image Size = 144 mm (Low 8 bits)
44		10	16		-	4 bits of Hor Image Size + 4 bits of Ver Image Size
45		00	0		0	Hor Border (pixels)
46		00	0		0	Vertical Border (Lines)
47		1A	26			Refer to right table
48	Detailed timing/monitor descriptor #2	9A	154		57.9	57.86MHz Main clock
49		16	22			
4A		56	86		1366	Hor Active = 1366
4B		A0	160		160	Hor Blanking = 160
4C		50	80		-	4 bits of Hor. Active + 4 bits of Hor. Blanking
4D		00	0		768	Ver Active = 768
4E		16	22		22	Ver Blanking = 22
4F		30	48		-	4 bits of Ver. Active + 4 bits of Ver. Blanking
50		30	48		48	Hor Sync Offset = 48
51		20	32		32	H Sync Pulse Width = 32
52		36	54		3	V sync Offset = 3 line
53		00	0		6	V Sync Pulse width : 6 line
54		00	0		256	Horizontal Image Size = 256 mm (Low 8 bits)
55		90	144		144	Vertical Image Size = 144 mm (Low 8 bits)
56		10	16		-	4 bits of Hor Image Size + 4 bits of Ver Image Size
57		00	0		0	Hor Border (pixels)
58		00	0		0	Vertical Border (Lines)
59		1A	26			
5A	Detailed timing/monitor descriptor #3	00	0			ASCII Data Sting Tag
5B		00	0			
5C		00	0			
5D		FE	254			
5E		00	0			
5F		48	72		H	D/PN:HTD53
60		54	84		T	
61		44	68		D	
62		35	53		5	
63		33	51		3	
64		0A	10		1010	EDID:X10
65		48	72		H	BOE PN
66		56	86		V	
67		31	49		1	
68		31	49		1	
69		36	54		6	
6A		34	52		4	
6B		31	49		1	

6C	Detailed timing/monitor descriptor #4	00	0			Product Name Tag (ASCII)
6D		00	0			
6E		00	0			
6F		00	0			
70		00	0			
71		00	0		00000000	6-bit Color Depth & no FRC
72		41	65		01000001	WLED & singal light bar & one light bar
73		01	1		00100001	Frame rate 40Hz~65Hz
74		94	148		00011110	Light Controller:PWM & Max. Luminance 300
75		01	1		00000001	Front Surface: Glare & RGB v-stripe
76		10	16		00010000	DBC
77		00	0		00000000	no Motion Blur & no Active Gamma
78		00	0		00000000	no Wireless Enhancement & no In-Cell Scanner
79		09	9		00001001	1 lane edp1.2
7A		01	1		00000001	Built-In Self Test
7B		0A	10			
7C		20	32			
7D		20	32			
7E	Extension flag	00	0			
7F	Checksum	93	147	147	-	