




## Product Specification

AU OPTRONICS CORPORATION

( V ) Preliminary Specifications

( ) Final Specifications

Module	11.6"(11.57") WXGA Color TFT-LCD with LED Backlight design
Model Name	B11.6XW02 V0 (H/W:0A)
Note (  )	<i>LED Backlight with driving circuit design</i>

Customer

Date

Checked &  
Approved by

Date

Note: This Specification is subject to change without notice.

Approved by

Date

\_\_\_\_\_  
MM/DD/YYYY

Prepared by

\_\_\_\_\_  
02/13/2009

**NBBU Marketing Division /  
AU Optronics corporation**

## Contents

<b>1. Handling Precautions .....</b>	<b>4</b>
<b>2. General Description .....</b>	<b>5</b>
2.1 General Specification .....	5
2.2 Optical Characteristics .....	6
<b>3. Functional Block Diagram .....</b>	<b>11</b>
<b>4. Absolute Maximum Ratings.....</b>	<b>12</b>
4.1 Absolute Ratings of TFT LCD Module .....	12
4.2 Absolute Ratings of Environment .....	12
<b>5. Electrical characteristics .....</b>	<b>13</b>
5.1 TFT LCD Module.....	13
5.2 Backlight Unit .....	15
<b>6. Signal Characteristic .....</b>	<b>16</b>
6.1 Pixel Format Image .....	16
6.2 The input data format .....	17
6.3 Integration Interface and Pin Assignment.....	18
6.4 Interface Timing .....	22
<b>7. Connector Description.....</b>	<b>25</b>
7.1 TFT LCD Module.....	25
<b>8. LED Driving Specification .....</b>	<b>26</b>
8.1 Connector Description.....	26
8.2 Pin Assignment.....	26
<b>9. Vibration and Shock Test .....</b>	<b>27</b>
9.1 Vibration Test .....	27
9.2 Shock Test Spec:.....	27
<b>10. Reliability.....</b>	<b>28</b>
<b>11. Mechanical Characteristics.....</b>	<b>29</b>
11.1 LCM Outline Dimension .....	29
11.2 Screw Hole Depth and Center Position .....	31
<b>12. Shipping and Package .....</b>	<b>32</b>
12.1 Shipping Label Format .....	32
12.2 Carton package .....	33
12.3 Shipping package of palletizing sequence.....	34
<b>13. Appendix: EDID description .....</b>	<b>35</b>



# Product Specification

AU OPTRONICS CORPORATION

## Record of Revision

Version and Date	Page	Old description	New Description	Remark																														
0.1 2008/12/26	All	First Edition for Customer																																
0.2 2009/01/07	1	Module: 11.6"	Module: 11.6" (11.57")	modified																														
	34	EDID: TBD	EDID:Added	Added																														
0.3 2009/02/13	6	Response Time Rising: TBD(typ), TBD(max) Falling: TBD(typ), TBD(max)	Response Time Rising: 6ms(typ), 8ms(max) Falling: 2ms(typ), 4ms(max)	Updated																														
	15	LED Power Consumption and LED Life-Time <table><tr><td></td><td>min</td><td>typ</td><td>max</td><td>unit</td></tr><tr><td>LED Power consumption</td><td></td><td>TBD</td><td>TBD</td><td>Watt</td></tr><tr><td>LED Life-Time</td><td>TBD</td><td></td><td></td><td></td></tr></table>		min	typ	max	unit	LED Power consumption		TBD	TBD	Watt	LED Life-Time	TBD				LED Power Consumption and LED Life-Time <table><tr><td></td><td>min</td><td>typ</td><td>max</td><td>unit</td></tr><tr><td>LED Power consumption</td><td></td><td>2710</td><td>2880</td><td>mWatt</td></tr><tr><td>LED Life-Time</td><td>15000</td><td></td><td></td><td></td></tr></table>		min	typ	max	unit	LED Power consumption		2710	2880	mWatt	LED Life-Time	15000				Updated
	min	typ	max	unit																														
LED Power consumption		TBD	TBD	Watt																														
LED Life-Time	TBD																																	
	min	typ	max	unit																														
LED Power consumption		2710	2880	mWatt																														
LED Life-Time	15000																																	
	25	LVDS Connector Type <table><tr><td>Type / Part Number</td><td>IPEX 20455-040E-12 or compatible</td></tr></table>	Type / Part Number	IPEX 20455-040E-12 or compatible	LVDS Connector Type <table><tr><td>Type / Part Number</td><td>IPEX 20455-040E-12A or compatible</td></tr></table>	Type / Part Number	IPEX 20455-040E-12A or compatible	Modified																										
Type / Part Number	IPEX 20455-040E-12 or compatible																																	
Type / Part Number	IPEX 20455-040E-12A or compatible																																	
	31	Screw Hole Depth and Center Position TBD	Screw Hole Depth and Center Position Attached	Updated																														
	32	Shipping Label Format: TBD	Shipping Label Format:Added	Updated																														
	33	Carton package:TBD	Carton package: Added	Updated																														
	34	Shipping package of palletizing sequence:TBD	Shipping package of palletizing sequence:Added	Updated																														
	19	6.3 Integration Interface and Pin Assignment <table><tr><td>38</td><td>VLED</td><td>LED Power Supply 7V-20V</td></tr><tr><td>39</td><td>VLED</td><td>LED Power Supply 7V-20V</td></tr><tr><td>40</td><td>VLED</td><td>LED Power Supply 7V-20V</td></tr></table>	38	VLED	LED Power Supply 7V-20V	39	VLED	LED Power Supply 7V-20V	40	VLED	LED Power Supply 7V-20V	6.3 Integration Interface and Pin Assignment <table><tr><td>38</td><td>VLED</td><td>LED Power Supply 6V-21V</td></tr><tr><td>39</td><td>VLED</td><td>LED Power Supply 6V-21V</td></tr><tr><td>40</td><td>VLED</td><td>LED Power Supply 6V-21V</td></tr></table>	38	VLED	LED Power Supply 6V-21V	39	VLED	LED Power Supply 6V-21V	40	VLED	LED Power Supply 6V-21V	Modified												
38	VLED	LED Power Supply 7V-20V																																
39	VLED	LED Power Supply 7V-20V																																
40	VLED	LED Power Supply 7V-20V																																
38	VLED	LED Power Supply 6V-21V																																
39	VLED	LED Power Supply 6V-21V																																
40	VLED	LED Power Supply 6V-21V																																

## 1. Handling Precautions

- 1) Since front polarizer is easily damaged, pay attention not to scratch it.
- 2) Be sure to turn off power supply when inserting or disconnecting from input connector.
- 3) Wipe off water drop immediately. Long contact with water may cause discoloration or spots.
- 4) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.
- 5) Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface.
- 6) Since CMOS LSI is used in this module, take care of static electricity and insure human earth when handling.
- 7) Do not open nor modify the Module Assembly.
- 8) Do not press the reflector sheet at the back of the module to any directions.
- 9) At the insertion or removal of the Signal Interface Connector, be sure not to rotate nor tilt the Interface Connector of the TFT Module.
- 11) After installation of the TFT Module into an enclosure (Notebook PC Bezel, for example), do not twist nor bend the TFT Module even momentarily. 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.
- 12) Small amount of materials having no flammability grade is used in the LCD module. The LCD module should be supplied by power complied with requirements of Limited Power Source (IEC60950 or UL1950), or be applied exemption.
- 13) Disconnecting power supply before handling LCD modules, it can prevent electric shock, DO NOT TOUCH the electrode parts, cables, connectors and LED circuit part of TFT module that a LED light bar build in as a light source of back light unit. It can prevent electrostatic breakdown.

## 2. General Description

B116XW02 V0 is a Color Active Matrix Liquid Crystal Display composed of a TFT LCD panel, a driver circuit, and LED backlight system. The screen format is intended to support the WXGA (1366(H) x 768(V)) screen and 262k colors (RGB 6-bits data driver) with LED backlight driving circuit. All input signals are LVDS interface compatible.

B116XW02 V0 is designed for a display unit of notebook style personal computer and industrial machine.

### 2.1 General Specification

The following items are characteristics summary on the table at 25 °C condition:

Items	Unit	Specifications			
Screen Diagonal	[mm]	11.6W"			
Active Area	[mm]	256.125 X 144.0			
Pixels H x V		1366x3(RGB) x 768			
Pixel Pitch	[mm]	0.1875 x 0.1875			
Pixel Format		R.G.B. Vertical Stripe			
Display Mode		Normally White			
White Luminance ( <b>I<sub>LED</sub>=20mA</b> ) (Note: I <sub>LED</sub> is LED current)	[cd/m <sup>2</sup> ]	200 typ. (5 points average) 170 min. (5 points average)			
Luminance Uniformity		1.25 max. (5 points)			
Contrast Ratio		500:1 typ			
Response Time	[ms]	8 typ / 12 Max			
Nominal Input Voltage VDD	[Volt]	+3.3 typ.			
Power Consumption	[Watt]	4.0 max. (Include Logic and Blu power)			
Weight	[Grams]	255g max.			
Physical Size <b>without inverter, bracket.</b>	[mm]		Min.	Typ.	Max.
		Length	267.5	268.0	268.5
		Width	161.0	161.5	162.0
		Thickness	-	-	5.2
Electrical Interface		1 channel LVDS			
Glass Thickness	[mm]	0.5			
Surface Treatment		Glare, Hardness 3H, Reflection <4%			
Support Color		262K colors ( RGB 6-bit )			



# Product Specification

AU OPTRONICS CORPORATION

Temperature Range		
Operating	[°C]	0 to +50
Storage (Non-Operating)	[°C]	-20 to +60
RoHS Compliance		RoHS Compliance

## 2.2 Optical Characteristics

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

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	Note
White Luminance I <sub>LED</sub> =20mA		5 points average	170	200	-	cd/m <sup>2</sup>	1, 4, 5.
Viewing Angle	$\theta_R$	Horizontal (Right)	40	45	-	degree	4, 9
	$\theta_L$	CR = 10 (Left)	40	45	-		
	$\phi_H$	Vertical (Upper)	10	15	-		
	$\phi_L$	CR = 10 (Lower)	30	35	-		
Luminance Uniformity	$\delta_{5P}$	5 Points	-	-	1.25		1, 3, 4
Luminance Uniformity	$\delta_{13P}$	13 Points	-	-	1.60		2, 3, 4
Contrast Ratio	CR		400	500	-		4, 6
Cross talk	%				4		4, 7
Response Time	T <sub>r</sub>	Rising	-	6	8	msec	4, 8
	T <sub>f</sub>	Falling	-	2	4		
	T <sub>RT</sub>	Rising + Falling	-	8	12		
Color / Chromaticity Coordinates	Red	R <sub>x</sub>	CIE 1931	TBD	TBD	TBD	4
		R <sub>y</sub>		TBD	TBD	TBD	
	Green	G <sub>x</sub>		TBD	TBD	TBD	
		G <sub>y</sub>		TBD	TBD	TBD	
	Blue	B <sub>x</sub>		TBD	TBD	TBD	
		B <sub>y</sub>		TBD	TBD	TBD	
	White	W <sub>x</sub>		0.283	0.313	0.343	
		W <sub>y</sub>		0.299	0.329	0.359	
				-	45	-	
NTSC		%					

**Note 1:** 5 points position (Ref: Active area)



**Note 2:** 13 points position (Ref: Active area)



**Note 3:** The luminance uniformity of 5 or 13 points is defined by dividing the maximum luminance values by the minimum test point luminance

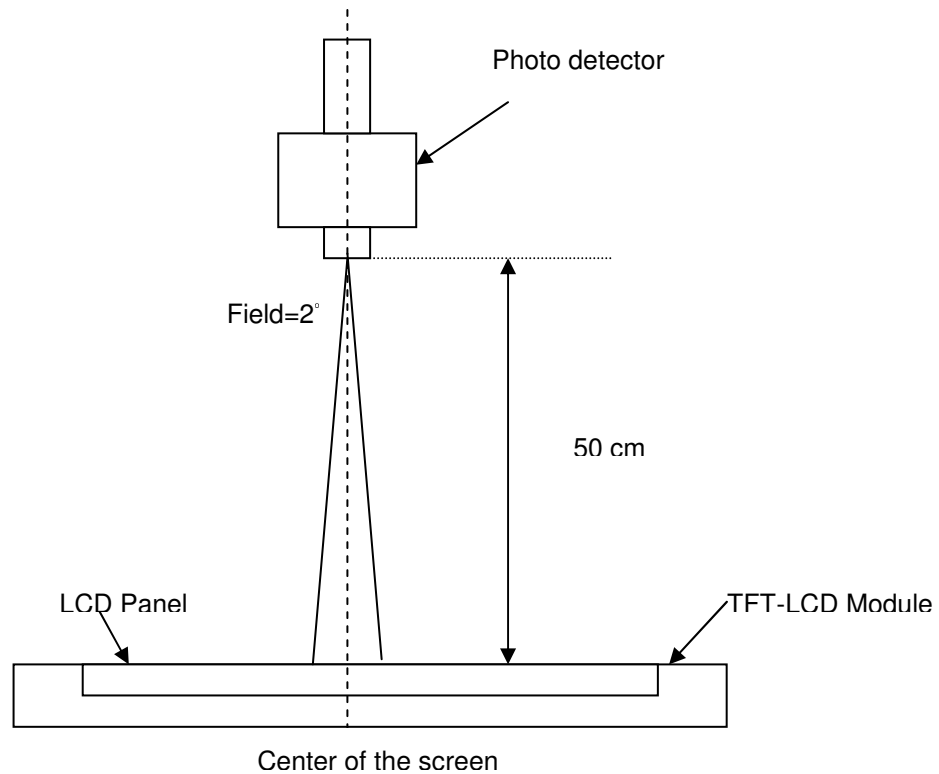
$$\delta_{W5} = \frac{\text{Maximum Brightness of five points}}{\text{Minimum Brightness of five points}}$$

$$\delta_{W13} = \frac{\text{Maximum Brightness of thirteen points}}{\text{Minimum Brightness of thirteen points}}$$

**Note 4:** Measurement method

The LCD module should be stabilized at given temperature for 30 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting

Backlight for 30 minutes in a stable, windless and dark room, and it should be measured in the center of screen.



**Note 5 :** Definition of Average Luminance of White ( $Y_L$ ):

Measure the luminance of gray level 63 at 5 points ,  $Y_L = [L(1) + L(2) + L(3) + L(4) + L(5)] / 5$

$L(x)$  is corresponding to the luminance of the point X at Figure in Note (1).

**Note 6 :** Definition of contrast ratio:

Contrast ratio is calculated with the following formula.

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

**Note 7 :** Definition of Cross Talk (CT)

$$CT = |Y_B - Y_A| / Y_A \times 100 (\%)$$

Where

$Y_A$  = Luminance of measured location without gray level 0 pattern (cd/m<sup>2</sup>)

$Y_B$  = Luminance of measured location with gray level 0 pattern (cd/m<sup>2</sup>)





**Note 8:** Definition of response time:

The output signals of BM-7 or equivalent are measured when the input signals are changed from “Black” to “White” (falling time) and from “White” to “Black” (rising time), respectively. The response time interval between the 10% and 90% of amplitudes. Refer to figure as below.



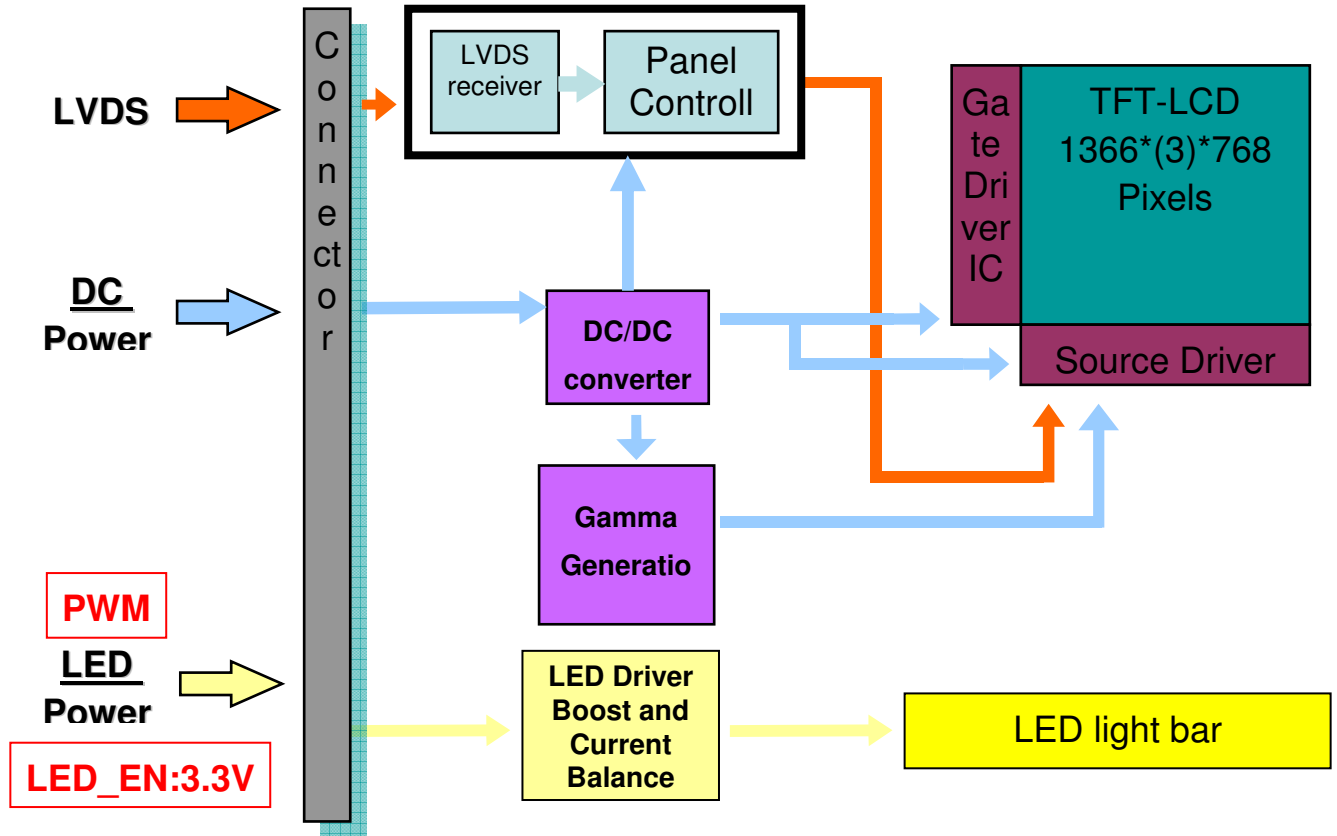
## Note 9. Definition of viewing angle

Viewing angle is the measurement of contrast ratio  $\geq 10$ , at the screen center, over a  $180^\circ$  horizontal and  $180^\circ$  vertical range (off-normal viewing angles). The  $180^\circ$  viewing angle range is broken down as follows;  $90^\circ$  ( $\theta$ ) horizontal left and right and  $90^\circ$  ( $\phi$ ) 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.



## 3. Functional Block Diagram

The following diagram shows the functional block of the 11.6 inches wide Color TFT/LCD 40 Pin (One CH/connector Module)



## 4. Absolute Maximum Ratings

An absolute maximum rating of the module is as following:

### 4.1 Absolute Ratings of TFT LCD Module

Item	Symbol	Min	Max	Unit	Conditions
Logic/LCD Drive Voltage	Vin	-0.3	+4.0	[Volt]	Note 1,2

### 4.2 Absolute Ratings of Environment

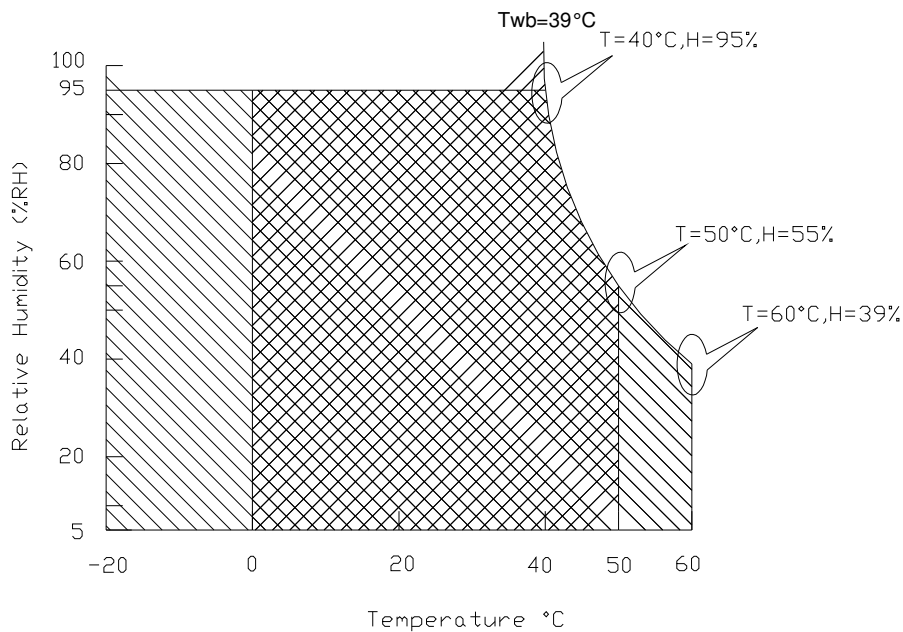
Item	Symbol	Min	Max	Unit	Conditions
Operating Temperature	TOP	0	+50	[°C]	Note 4
Operation Humidity	HOP	5	95	[%RH]	Note 4
Storage Temperature	TST	-20	+60	[°C]	Note 4
Storage Humidity	HST	5	95	[%RH]	Note 4

Note 1: At Ta (25°C )

Note 2: Permanent damage to the device may occur if exceed maximum values

Note 3: LED specification refer to section 5.2

**Note 4: For quality performance, please refer to AUO IIS (Incoming Inspection Standard).**



Operating Range 

Storage Range  + 

## 5. Electrical characteristics

### 5.1 TFT LCD Module

#### 5.1.1 Power Specification

Input power specifications are as follows;

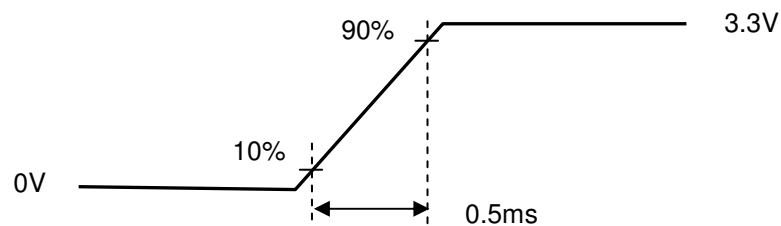
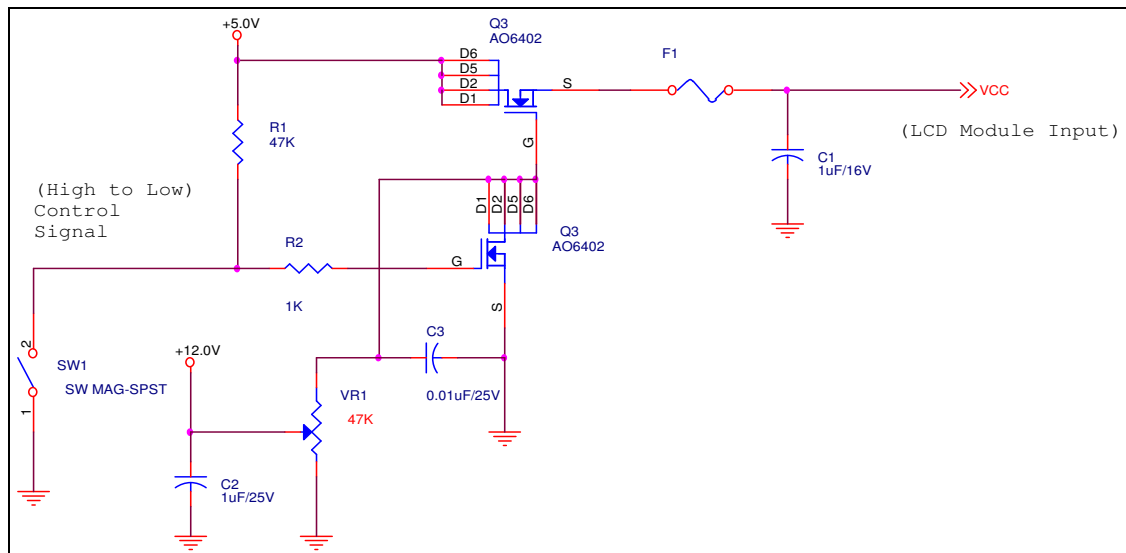
The power specification are measured under 25°C and frame frequency under 60Hz

Symble	Parameter	Min	Typ	Max	Units	Note
VDD	Logic/LCD Drive Voltage	3.0	3.3	3.6	[Volt]	
PDD	VDD Power	-	-	0.8	[Watt]	Note 1/2
IDD	IDD Current	-	350	450	[mA]	Note 1/2
IRush	Inrush Current	-	-	2000	[mA]	Note 3
VDDrp	Allowable Logic/LCD Drive Ripple Voltage	-	-	100	[mV] p-p	

Note 1 : Maximum Measurement Condition : Black Pattern

Note 2 : Typical Measurement Condition: Mosaic Pattern

Note 3 : Measure Condition



Vin rising time

## 5.1.2 Signal Electrical Characteristics

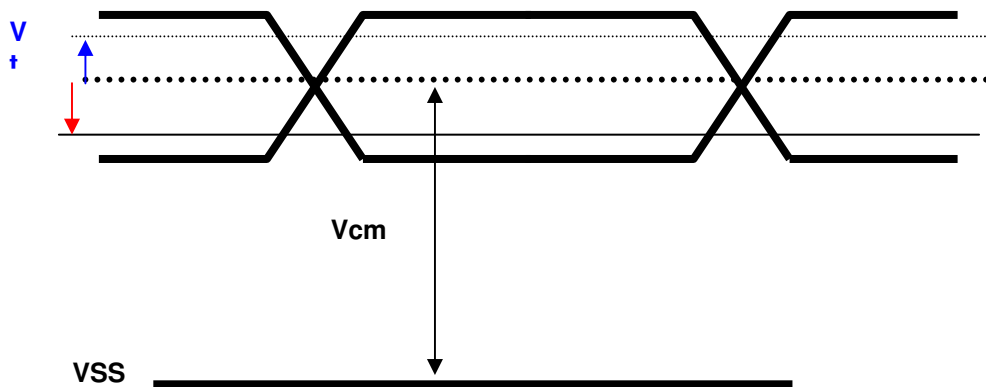
Input signals shall be low or High-impedance state when VDD is off.

It is recommended to refer the specifications of THC63LVDF84A (Thine Electronics Inc.) in detail.

Signal electrical characteristics are as follows;

Parameter	Condition	Min	Max	Unit
Vth	Differential Input High Threshold ( $V_{cm}=+1.2V$ )	-	100	[mV]
Vtl	Differential Input Low Threshold ( $V_{cm}=+1.2V$ )	-100	-	[mV]
Vcm	Differential Input Common Mode Voltage	1.125	1.375	[V]

Note: LVDS Signal Waveform





## 5.2 Backlight Unit

LED Parameter guideline for LED driving selection (Ref. Remark 1)

Parameter	Symbol	Min	Typ	Max	Units	Condition
LED Forward Voltage	$V_F$	3.0	3.2	3.4	[Volt]	(Ta=25°C)
LED Forward Current	$I_F$		20		[mA]	(Ta=25°C)
LED Power consumption	$P_{LED}$		2710	2880	[mWatt]	(Ta=25°C) Note 1
LED Life-Time	N/A	15,000	-	-	Hour	(Ta=25°C) $I_F=20\text{ mA}$ Note 2
Output PWM frequency	$F_{PWM}$	100	200	20K	Hz	
Duty ratio	--	5	--	100	%	

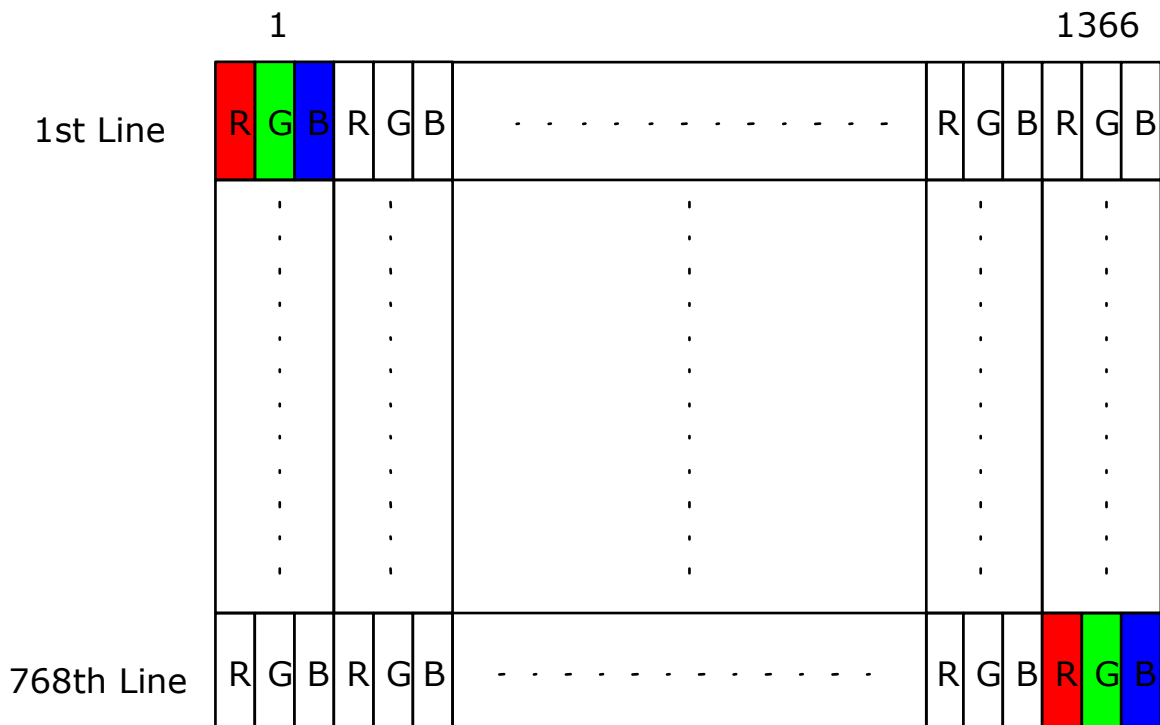
**Note 1:** Calculator value for reference  $P_{LED} = V_F \text{ (Normal Distribution)} * I_F \text{ (Normal Distribution)} / \text{Efficiency}$

**Note 2:** The LED life-time define as the estimated time to 50% degradation of initial luminous.

## 6. Signal Characteristic

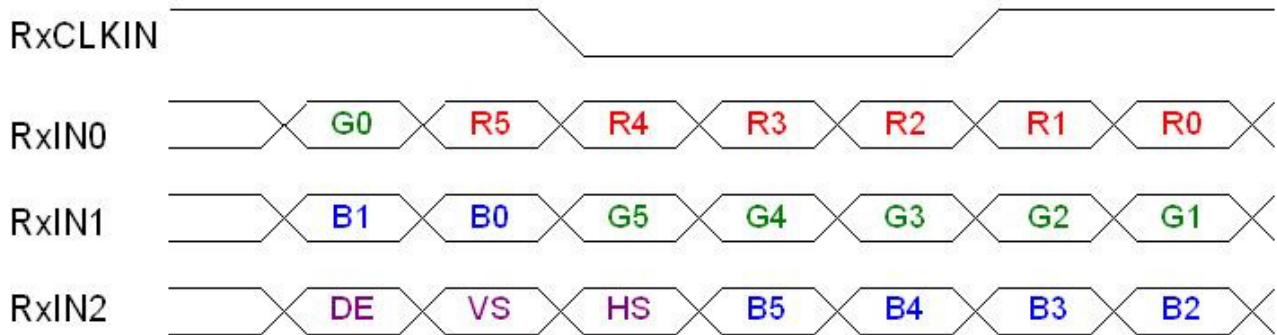
### 6.1 Pixel Format Image

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





## 6.2 The input data format



Signal Name	Description	
R5 R4 R3 R2 R1 R0	Red Data 5 (MSB) Red Data 4 Red Data 3 Red Data 2 Red Data 1 Red Data 0 (LSB)	Red-pixel Data Each red pixel's brightness data consists of these 6 bits pixel data.
G5 G4 G3 G2 G1 G0	Green Data 5 (MSB) Green Data 4 Green Data 3 Green Data 2 Green Data 1 Green Data 0 (LSB)	Green-pixel Data Each green pixel's brightness data consists of these 6 bits pixel data.
B5 B4 B3 B2 B1 B0	Blue Data 5 (MSB) Blue Data 4 Blue Data 3 Blue Data 2 Blue Data 1 Blue Data 0 (LSB)	Blue-pixel Data Each blue pixel's brightness data consists of these 6 bits pixel data.
RxCLKIN	Data Clock	The signal is used to strobe the pixel data and DE signals. All pixel data shall be valid at the falling edge when the DE signal is high.
DE	Display Timing	This signal is strobed at the falling edge of RxCLKIN. When the signal is high, the pixel data shall be valid to be displayed.
VS	Vertical Sync	The signal is synchronized to RxCLKIN .
HS	Horizontal Sync	The signal is synchronized to RxCLKIN .

Note: Output signals from any system shall be low or High-impedance state when VDD is off.

## 6.3 Integration Interface and Pin Assignment

LVDS is a differential signal technology for LCD interface and high speed data transfer device.

PIN#	Signal Name	Description
1	NC	No Connection (Reserve)
2	AVDD	PowerSupply,3.3V(typical)
3	AVDD	PowerSupply,3.3V(typical)
4	DVDD	DDC 3.3Vpower
5	NC	No Connection (Reserve)
6	SCL	DDCClock
7	SDA	DDCData
8	Rin0-	-LVDSdifferential data input(R0-R5,G0)
9	Rin0+	+LVDSdifferential data input(R0-R5,G0)
10	GND	Ground
11	Rin1-	-LVDSdifferential data input(G1-G5,B0-B1)
12	Rin1+	+LVDSdifferential data input(G1-G5,B0-B1)
13	GND	Ground
14	Rin2-	-LVDSdifferential data input(B2-B5,HS,VS,DE)
15	Rin2+	+LVDSdifferential data input(B2-B5,HS,VS,DE)
16	GND	Ground
17	ClkIN-	-LVDSdifferential clock input
18	ClkIN+	+LVDSdifferential clock input
19	GND	Ground–Shield
20	NC	No Connection (Reserve)
21	NC	No Connection (Reserve)
22	GND	Ground–Shield
23	NC	No Connection (Reserve)
24	NC	No Connection (Reserve)
25	GND	Ground–Shield
26	NC	No Connection (Reserve)
27	NC	No Connection (Reserve)
28	GND	Ground–Shield
29	NC	No Connection (Reserve)
30	NC	No Connection (Reserve)
31	VLED_GND	LED Ground
32	VLED_GND	LED Ground
33	VLED_GND	LED Ground
34	NC	No Connection (Reserve)

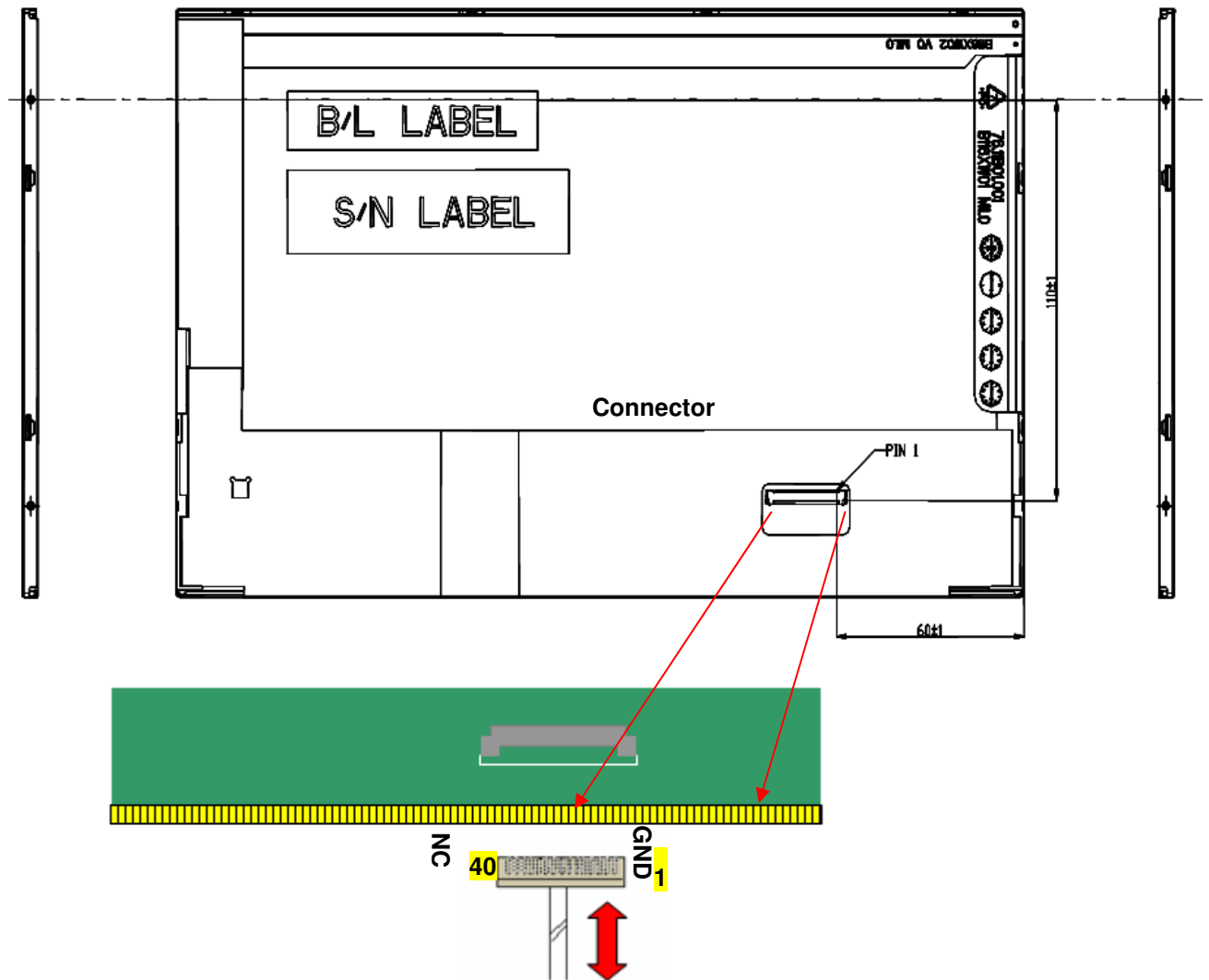


## Product Specification

AU OPTRONICS CORPORATION

35	PWM	System PWM Signal Input
36	LED_EN	LED enable pin(+3V Input)
37	NC	No Connection (Reserve)
38	VLED	LED Power Supply 6V-21V
39	VLED	LED Power Supply 6V-21V
40	VLED	LED Power Supply 6V-21V

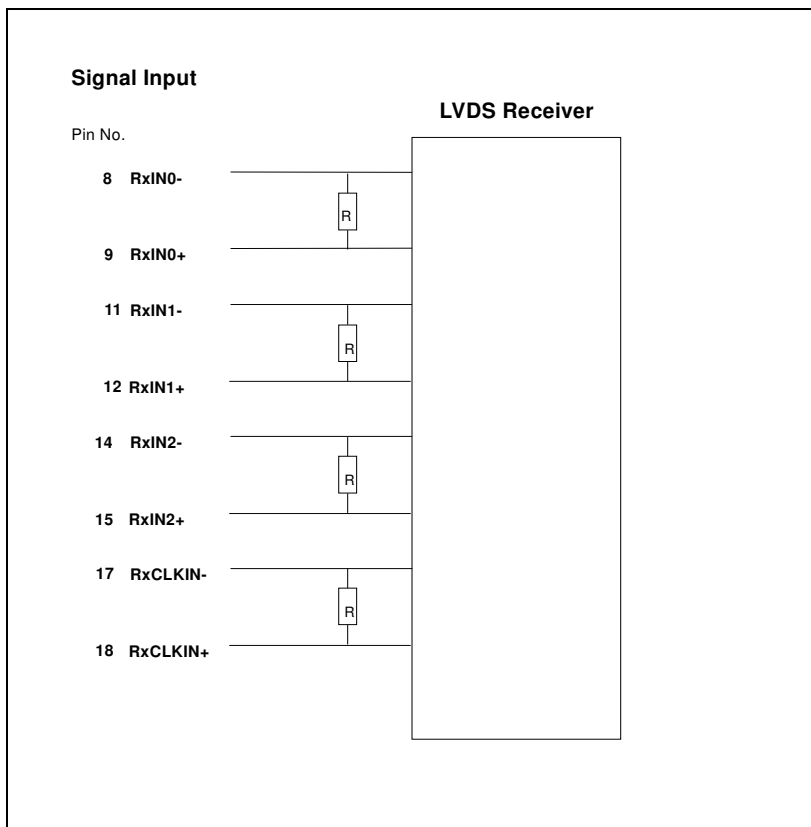
Note1: Start from right side



Note2: Input signals shall be low or High-impedance state when VDD is off.

internal circuit of LVDS inputs are as following.

The module uses a 100ohm resistor between positive and negative data lines of each receiver input



## 6.4 Interface Timing

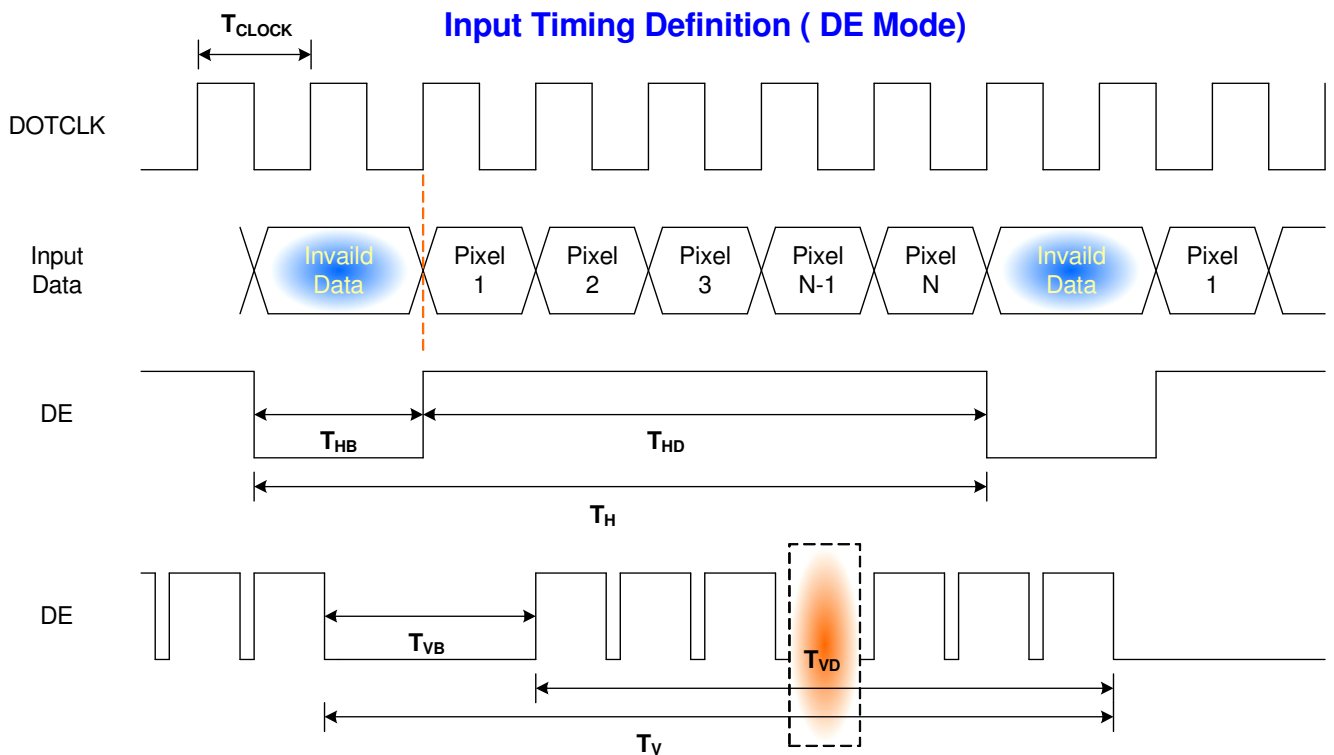
### 6.4.1 Timing Characteristics

Basically, interface timings should match the 1366x768 /60Hz manufacturing guide line timing.

Parameter		Symbol	Min.	Typ.	Max.	Unit
Frame Rate		-	50	60	-	Hz
Clock frequency		1/ T <sub>Clock</sub>	TBD	TBD	TBD	MHz
Vertical Section	Period	T <sub>V</sub>	803	TBD	-	T <sub>Line</sub>
	Active	T <sub>VD</sub>	TBD			
	Blanking	T <sub>VB</sub>	TBD	TBD	-	
Horizontal Section	Period	T <sub>H</sub>	TBD	TBD	-	T <sub>Clock</sub>
	Active	T <sub>HD</sub>	TBD			
	Blanking	T <sub>HB</sub>	TBD	TBD	-	

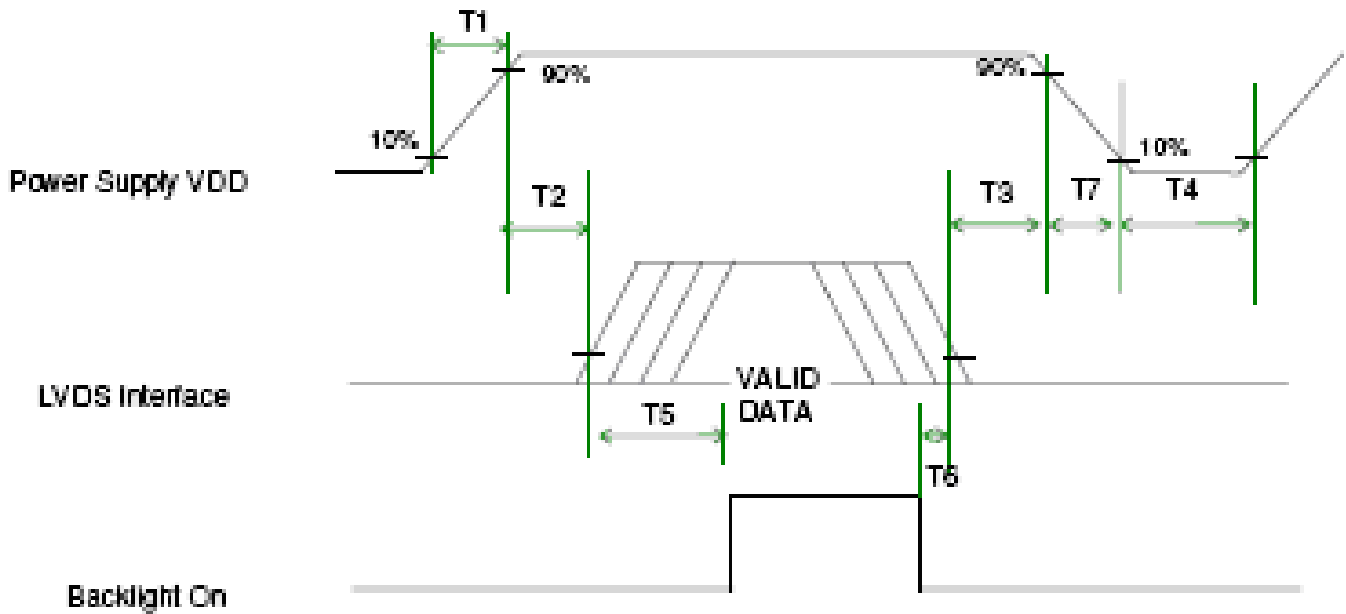
Note : DE mode only

### 6.4.2 Timing diagram



## 6.5 Power ON/OFF Sequence

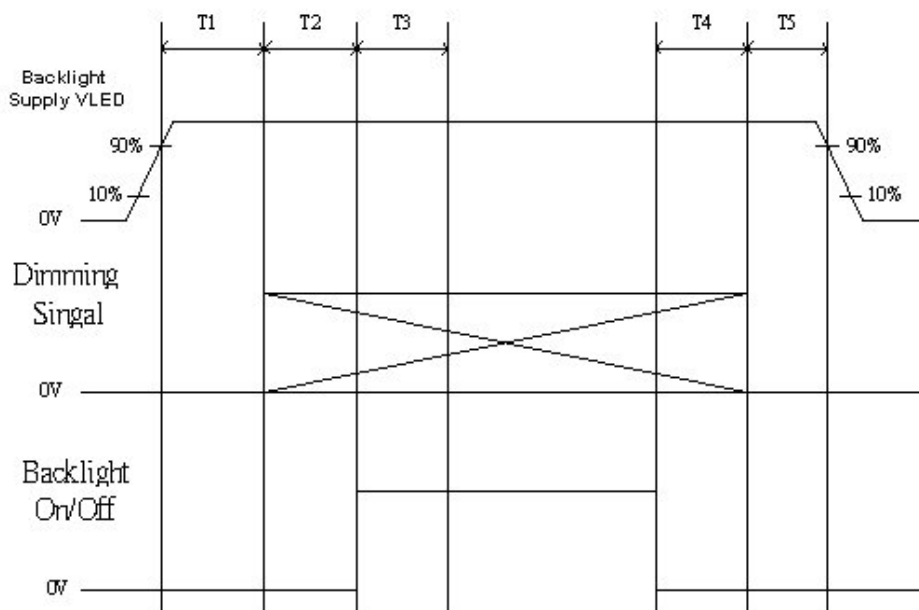
VDD power on/off sequence is as follows. Interface signals are also shown in the chart. Signals from any system shall be Hi-Z state or low level when VDD is off



**Power Sequence Timing**

Parameter	Value			Units
	Min.	Typ.	Max.	
T1	0.5	-	10	ms
T2	0	-	50	
T3	0	-	50	
T4	400	-	-	
T5	200	-	-	
T6	200	-	-	
T7	0	-	10	

LED on/off sequence is as follows. Interface signals are also shown in the chart.



Symbol	Values			Unit
	Min	Typ	Max	
<b>T1</b>	10	---	---	ms
<b>T2</b>	10	---	---	
<b>T3</b>	50	---	---	
<b>T4</b>	0	---	---	
<b>T5</b>	10	---	---	

Note: The duty of LED dimming signal should be more than 5% in T2 and T3.





## 7. Connector Description

Physical interface is described as for the connector on module.

These connectors are capable of accommodating the following signals and will be following components.

### 7.1 TFT LCD Module

Connector Name / Designation	For Signal Connector
Manufacturer	IPEX or compatible
Type / Part Number	<b>IPEX 20455-040E-12A</b> or compatible
Mating Housing/Part Number	<b>IPEX 20453-040E-01</b> or compatible



## 8. LED Driving Specification

### 8.1 Connector Description

It is a integrative interface and comibe into LVDS connector. The type and mating refer to section 7.

### 8.2 Pin Assignment

Ref. to 6.3



## 9. Vibration and Shock Test

### 9.1 Vibration Test

**Test Spec:**

- Test method: Non-Operation
- Acceleration: 1.5 G
- Frequency: 10 - 500Hz Random
- Sweep: 30 Minutes each Axis (X, Y, Z)

### 9.2 Shock Test Spec:

**Test Spec:**

- Test method: Non-Operation
- Acceleration: 220 G , Half sine wave
- Active time: 2 ms
- Pulse: X,Y,Z .one time for each side

## 10. Reliability

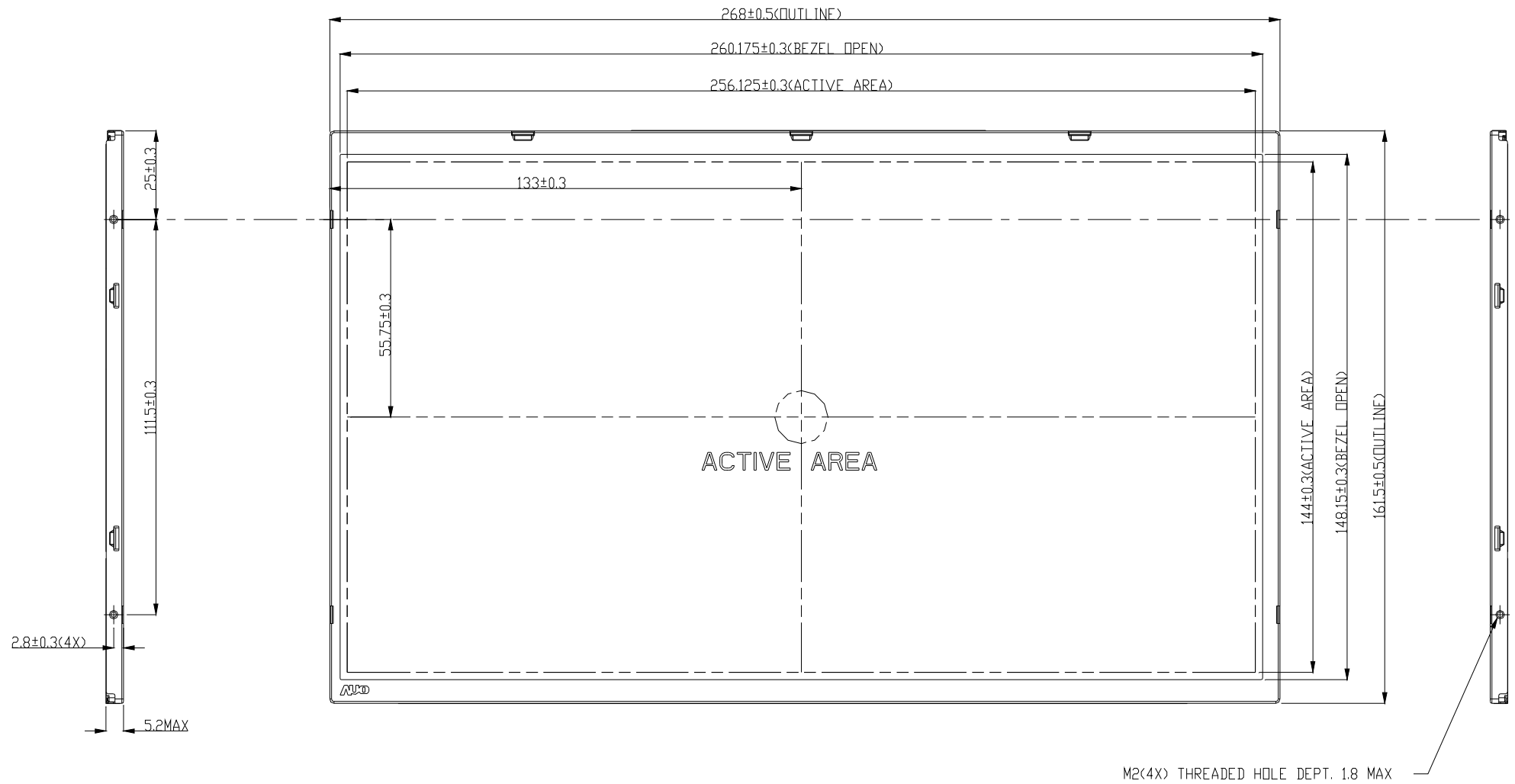
Items	Required Condition	Note
Temperature Humidity Bias	Ta= 40°C, 90%RH, 300h	
High Temperature Operation	Ta= 50°C, Dry, 300h	
Low Temperature Operation	Ta= 0°C, 300h	
High Temperature Storage	Ta= 60°C, 35%RH, 300h	
Low Temperature Storage	Ta= -20°C, 50%RH, 250h	
Thermal Shock Test	Ta=-20°C to 60°C, Duration at 30 min, 100 cycles	
ESD	Contact : ±8 KV Air : ±15 KV	Note 1

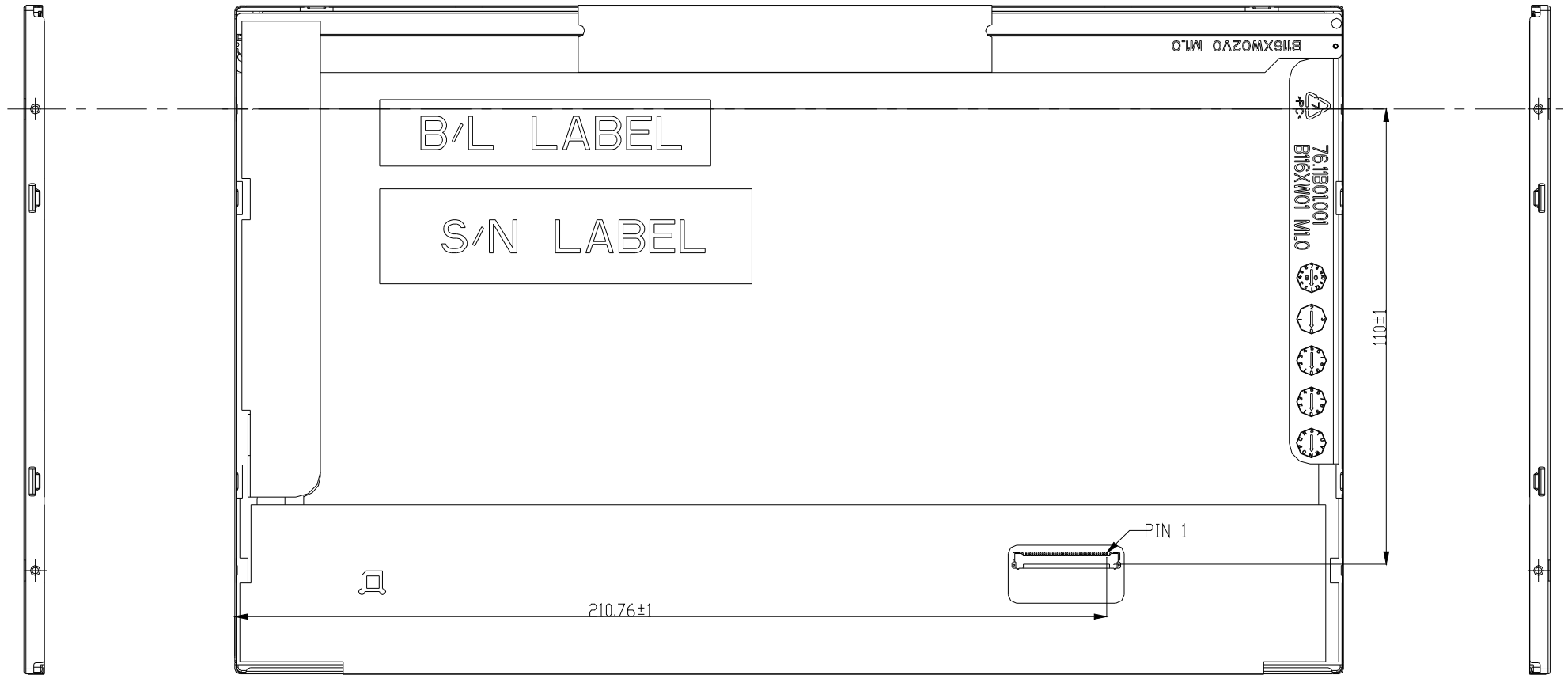
**Note1:** According to EN 61000-4-2 , ESD class B: Some performance degradation allowed. No data lost  
. Self-recoverable. No hardware failures.

**Remark:** MTBF (Excluding the LED): 30,000 hours with a confidence level 90%

## 11. Mechanical Characteristics

### 11.1 LCM Outline Dimension

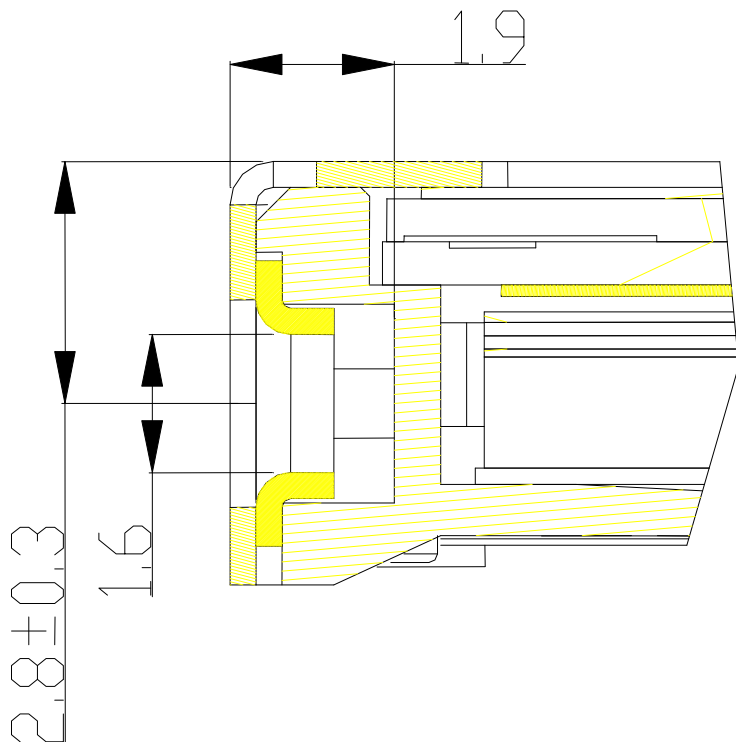




Note: Prevention IC damage, IC positions not allowed any overlap over these areas.

## 11.2 Screw Hole Depth and Center Position

Unit:mm.






## Product Specification

AU OPTRONICS CORPORATION

### 12. Shipping and Package

#### 12.1 Shipping Label Format

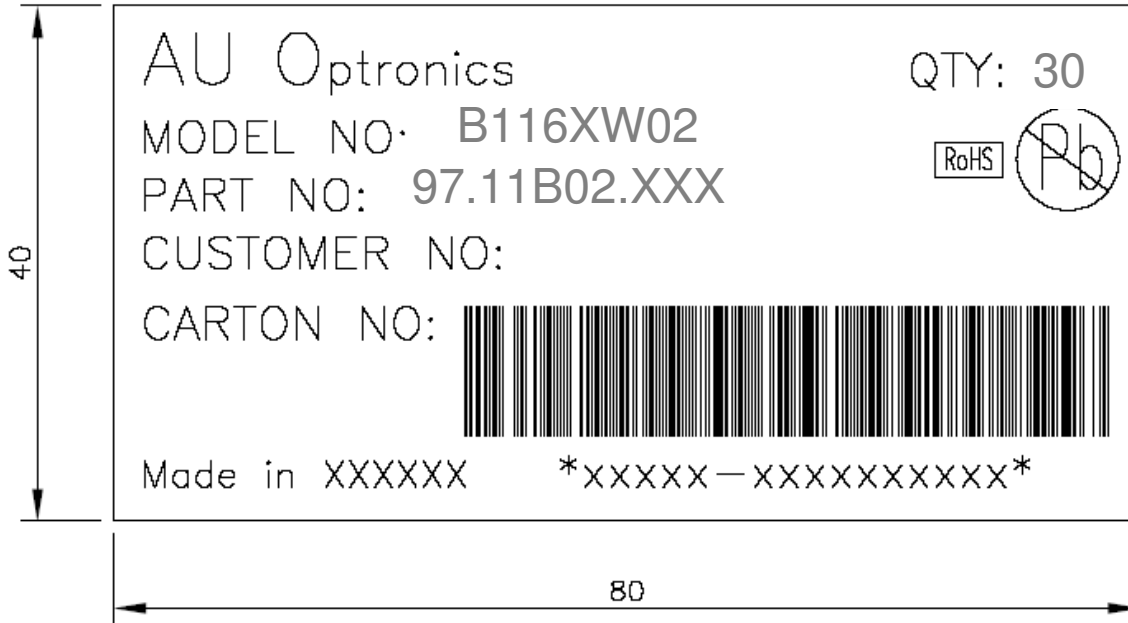
Size :90 mm(length) x35mm(width)

 *XXXXXXXXXXXX-XXXX*	Manufactured <b>MMWW</b> Model No: <b>B116XW02</b> AU Optronics MADE IN CHINA (S01) <b>HW: 0A FW:1</b>	<b>V.0</b> <b>0AXXG</b>	c  <b>US</b> <b>xxxxxxx</b>	  
----------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------	----------------------------	-------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



## 12.2 Carton package

Carton Label: 80mm \* 40mm



The outside dimension of carton is 405(L)mm\* 375(W)mm\* 268(H)mm, carton and cushion weight are 2080g

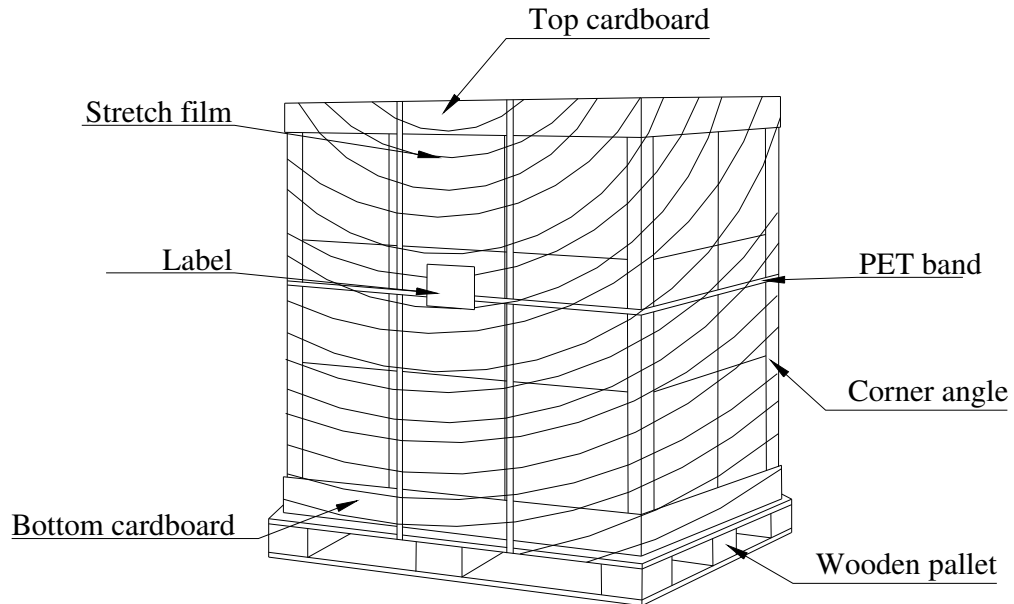


**12.3 Shipping package of palletizing sequence**

The outside dimension of Pallet is 114(L)mm\* 89(W)mm\* 13.8(H)mm

By air : 6 \*5 layers, one pallet put 30 boxes, total 900 pcs module.

By sea : 6 \*7 layers, one pallet put 42 boxes, total 1260 pcs module.





# Product Specification

AU OPTRONICS CORPORATION

## 13. Appendix: EDID description

Address	FUNCTION	Value	Value	Value	Note
HEX		HEX	BIN	DEC	
00	Header	00	00000000	0	
01		FF	11111111	255	
02		FF	11111111	255	
03		FF	11111111	255	
04		FF	11111111	255	
05		FF	11111111	255	
06		FF	11111111	255	
07		00	00000000	0	
08	EISA Manuf. Code LSB	06	00000110	6	
09	Compressed ASCII	AF	10101111	175	
0A	Product Code	5C	01011100	92	
0B	hex, LSB first	20	00100000	32	
0C	32-bit ser #	00	00000000	0	
0D		00	00000000	0	
0E		00	00000000	0	
0F		00	00000000	0	
10	Week of manufacture	01	00000001	1	
11	Year of manufacture	12	00010010	18	
12	EDID Structure Ver.	01	00000001	1	
13	EDID revision #	03	00000011	3	
14	<b>Video input def.</b> <small>(digital I/P, non-TMDS, CRGB)</small>	80	10000000	128	
15	<b>Max H image size</b> <small>(rounded to cm)</small>	1A	00011010	26	
16	<b>Max V image size</b> <small>(rounded to cm)</small>	0E	00001110	14	
17	<b>Display Gamma</b> <small>(=(gamma*100)-100)</small>	78	01111000	120	
18	<b>Feature support</b> <small>(no DPMS, Active OFF, RGB, tmg Blk#1)</small>	0A	00001010	10	
19	Red/green low bits ( <b>Lower 2:2:2:2 bits</b> )	99	10011001	153	
1A	Blue/white low bits ( <b>Lower 2:2:2:2 bits</b> )	85	10000101	133	
1B	Red x ( <b>Upper 8 bits</b> )	95	10010101	149	
1C	Red y/ highER 8 bits	55	01010101	85	
1D	Green x	56	01010110	86	
1E	Green y	92	10010010	146	
1F	Blue x	28	00101000	40	
20	Blue y	22	00100010	34	
21	White x	50	01010000	80	
22	White y	54	01010100	84	
23	Established timing 1	00	00000000	0	
24	Established timing 2	00	00000000	0	
25	Established timing 3	00	00000000	0	



# Product Specification

AU OPTRONICS CORPORATION

26	Standard timing #1	01	00000001	1	
27		01	00000001	1	
28	Standard timing #2	01	00000001	1	
29		01	00000001	1	
2A	Standard timing #3	01	00000001	1	
2B		01	00000001	1	
2C	Standard timing #4	01	00000001	1	
2D		01	00000001	1	
2E	Standard timing #5	01	00000001	1	
2F		01	00000001	1	
30	Standard timing #6	01	00000001	1	
31		01	00000001	1	
32	Standard timing #7	01	00000001	1	
33		01	00000001	1	
34	Standard timing #8	01	00000001	1	
35		01	00000001	1	
36	Pixel Clock/10000 LSB	20	00100000	32	
37	Pixel Clock/10000 USB	1C	00011100	28	
38	Horz active <b>Lower 8bits</b>	56	01010110	86	
39	Horz blanking <b>Lower 8bits</b>	80	10000000	128	
3A	HorzAct:HorzBlnk <b>Upper 4:4 bits</b>	50	01010000	80	
3B	Vertical Active <b>Lower 8bits</b>	00	00000000	0	
3C	Vertical Blanking <b>Lower 8bits</b>	23	00100011	35	
3D	Vert Act : Vertical Blanking (upper 4:4 bit)	30	00110000	48	
3E	HorzSync. Offset	30	00110000	48	
3F	HorzSync.Width	20	00100000	32	
40	VertSync.Offset : VertSync.Width	36	00110110	54	
41	Horz&Vert Sync Offset/Width <b>Upper 2bits</b>	00	00000000	0	
42	Horizontal Image Size <b>Lower 8bits</b>	00	00000000	0	
43	Vertical Image Size <b>Lower 8bits</b>	90	10010000	144	
44	Horizontal & Vertical Image Size (upper 4:4 bits)	10	00010000	16	
45	Horizontal Border (zero for internal LCD)	00	00000000	0	
46	Vertical Border (zero for internal LCD)	00	00000000	0	
47	Signal (non-intr, norm, no stero, sep sync, neg pol)	18	00011000	24	
48	Detailed timing/monitor	00	00000000	0	
49	descriptor #2	00	00000000	0	
4A		00	00000000	0	
4B		0F	00001111	15	
4C		00	00000000	0	
4D		00	00000000	0	
4E		00	00000000	0	



# Product Specification

AU OPTRONICS CORPORATION

4F		00	00000000	0	
50		00	00000000	0	
51		00	00000000	0	
52		00	00000000	0	
53		00	00000000	0	
54		00	00000000	0	
55		00	00000000	0	
56		00	00000000	0	
57		00	00000000	0	
58		00	00000000	0	
59		20	00100000	32	
5A	Detailed timing/monitor	00	00000000	0	
5B	descriptor #3	00	00000000	0	
5C		00	00000000	0	
5D		FE	11111110	254	
5E		00	00000000	0	
5F	Manufacture	41	01000001	65	A
60	Manufacture	55	01010101	85	U
61	Manufacture	4F	01001111	79	O
62		0A	00001010	10	
63		20	00100000	32	
64		20	00100000	32	
65		20	00100000	32	
66		20	00100000	32	
67		20	00100000	32	
68		20	00100000	32	
69		20	00100000	32	
6A		20	00100000	32	
6B		20	00100000	32	
6C	Detailed timing/monitor	00	00000000	0	
6D	descriptor #4	00	00000000	0	
6E		00	00000000	0	
6F		FE	11111110	254	
70		00	00000000	0	
71	Manufacture P/N	42	01000010	66	B
72	Manufacture P/N	31	00110001	49	1
73	Manufacture P/N	31	00110001	49	1
74	Manufacture P/N	36	00110110	54	6
75	Manufacture P/N	58	01011000	88	X
76	Manufacture P/N	57	01010111	87	W
77	Manufacture P/N	30	00110000	48	0
78	Manufacture P/N	32	00110010	50	2
79	Manufacture P/N	20	00100000	32	



## Product Specification

AU OPTRONICS CORPORATION

7A	Manufacture P/N	56	01010110	86	V
7B	Manufacture P/N	30	00110000	48	0
7C		20	00100000	32	
7D		0A	00001010	10	
7E	Extension Flag	00	00000000	0	
7F	Checksum	BE	10111110	190	
			SUM	5888	
			SUM to HEX	1700	