

## Матрицы для ноутбуков производства AUOptronics

Экраны для ноутбуков AUOptronics являются самыми распространенными на современном рынке ноутбуков. Матрицы AUO используются в нетбуках и ноутбуках ASUS, Acer, eMachines, HP Compaq, Dell, Apple, MSI, IBM Lenovo и других производителей компьютерной техники. Даже такие гиганты, как Toshiba, Samsung и LG довольно часто комплектуют свои ноутбуки дисплеями AUO, хотя под их брендами выпускаются матрицы не менее хорошего качества, которые тоже довольно популярны среди производителей ноутбуков. Связано это в первую очередь с качеством, незаурядными характеристиками и неограниченным ассортиментом экранов AUOptronics, который охватывает практически весь рынок ноутбуков, нетбуков и планшетов.

Интернет-магазин Notebook-LCD занимается официальными поставками в Россию матриц AUOptronics, а также других производителей дисплеев для ноутбуков. В наличии на складе в Москве имеются экраны всех типов для ноутбуков, нетбуков и электронных книг. Осуществляем отправку дисплеев в регионы РФ. Форма оплаты: наличными в офисе или курьеру при доставке по Москве, безнал (цена не меняется, НДС включен), банковский перевод, пополнение карты VISA, WebMoney, Яндекс деньги, а также наложенный платеж (оплата при получении курьеру EMS).

Для сервисных центров и предпринимателей, занимающихся ремонтом ноутбуков, действуют специальные цены, приятно отличающиеся от розничных вне зависимости от ежемесячного объема требуемых матриц. Для оптовых покупателей предоставляются оптовые цены. Ознакомится с условиями приобретения матриц для ноутбуков по специальным или оптовым ценам можно обратившись к консультантам Notebook-LCD по контактам, представленным ниже.

Купить матрицу B140XW01-V.0 Вы можете в нашем офисе либо оформив заказ на странице <http://www.notebook-lcd.ru/ru/partnumbers/au-optonics/B140XW01-V.0>

Также Вы можете зарезервировать комплектующие, сделать заказ либо проконсультироваться с нашими менеджерами по подбору аналога для данной матрицы либо соответствия её модели Вашего ноутбука.

Склад матриц для ноутбуков и других запчастей для ноутбуков, КПК и электронных книг находится по адресу Варшавское шоссе, д.75, корпус 2 (ст. м. «Варшавская»).

Контакты:

Телефон: +79015534828, (495)973-48-28

Электронная почта: [zakaz@notebook-lcd.ru](mailto:zakaz@notebook-lcd.ru)

Skype: [www.notebook-lcd.ru](http://www.notebook-lcd.ru)

ICQ: 2666355

Схема проезда: <http://www.notebook-lcd.ru/i/map.jpg>

Координаты для владельцев GPS-навигаторов:

N 55° 39.3700

E 037° 37.2316

График работы:

Пн-Пт: 9:00-19:00

Сб: 12:00-17:00


Вск: 12:00-17:00



## Product Specification

AU OPTRONICS CORPORATION

( V ) Preliminary Specifications  
 ( ) Final Specifications

<b>Module</b>	<b>14.0" WXGA Color TFT-LCD with LED Backlight design</b>
<b>Model Name</b>	B140XW01 V0 (H/W:0A)
<b>Note</b> (  )	<b><i>LED Backlight with driving circuit design</i></b>

<b>Customer</b>	<b>Date</b>
<b>Checked &amp; Approved by</b>	<b>Date</b>
_____	_____
<p>Note: This Specification is subject to change without notice.</p>	

<b>Approved by</b>	<b>Date</b>
<u>Howard Lee</u>	<u>08/22/2008</u>
<b>Prepared by</b>	
<u>Yingjung Tung</u>	<u>08/22/2008</u>
<p><b>NBBU Marketing Division /                  AU Optronics corporation</b></p>	



## Product Specification

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 2008/04/30	All	First Edition for Customer		
0.2 2008/05/16	15/24/25	ConnectorType & Pin Assignment	20455-040E-12 & Pin Assignment Backlight Unit Parameter	
0.3	32		Add China RoHS 15	
0.4	22;32		6.4.1 Timing Characteristics; Shipping Label remove PM code	
0.5	6;32-34	Modify White Luminance item	200 typ/170 min.;32-34 Update Carton and Shipping package of palletizing sequence	
0.6	13		Add LED Driving Input Voltage	
0.7	35	Modify :Appendix: EDID description	16:9 EDID Format	
0.8	35	Modify :Appendix: EDID description	For optics	



## Product Specification

AU OPTRONICS CORPORATION

---

### 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 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.
- 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.



## Product Specification

AU OPTRONICS CORPORATION

### 2. General Description

B140XW01 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 HD (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.

B140XW01 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]	354.95 (14.0W")		
Active Area	[mm]	309.40 X 173.95		
Pixels H x V		1366x3(RGB) x 768		
Pixel Pitch	[mm]	0.2265X0.2265		
Pixel Format		R.G.B. Vertical Stripe		
Display Mode		Normally White		
White Luminance (ILED=20mA) (Note: ILED 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 typ		
Response Time	[ms]	8 typ / 12 Max		
Nominal Input Voltage VDD	[Volt]	+3.3 typ.		
Power Consumption	[Watt]	4.8 max. (Include Logic and Blu power)		
Weight	[Grams]	350 max.		
Physical Size <b>without inverter, bracket.</b>	[mm]	Min.	Typ.	Max.
		Length	323.5	324
		Width	192	192.5
	Thickness		5.2	
Electrical Interface		1 channel LVDS		
Surface Treatment		Glare, Hardness 3H,		
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) :

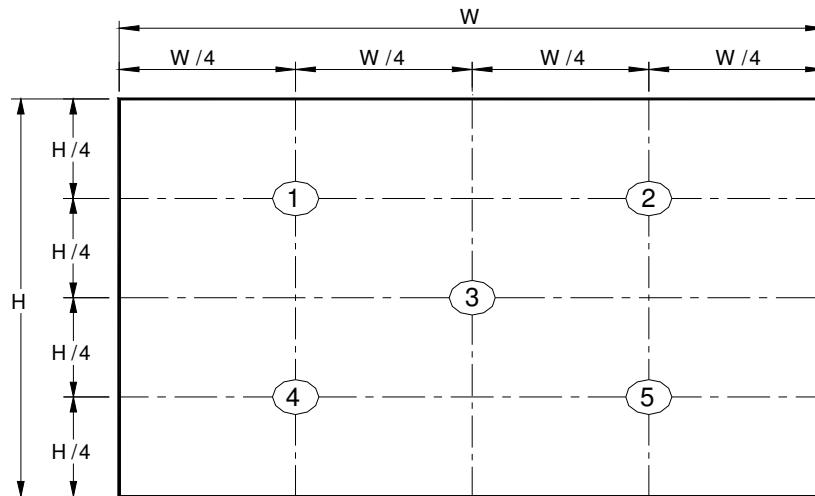
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	Note
White Luminance $I_{LED=20mA}$		5 points average	170	200	-	cd/m <sup>2</sup>	1, 4, 5.
Viewing Angle	$\theta_R$	Horizontal (Right)	40	45	-	degree	4, 9
	$\theta_L$	CR = 10 (Left)	40	45	-		
	$\phi_H$	Vertical (Upper)	10	15	-		
	$\phi_L$	CR = 10 (Lower)	30	35	-		
Luminance Uniformity	$\delta_{5P}$	5 Points	-	-	1.25		1, 3, 4
Luminance Uniformity	$\delta_{13P}$	13 Points	-	-	1.50		2, 3, 4
Contrast Ratio	CR		400	500	-		4, 6
Cross talk	%				4		4, 7
Response Time	$T_r$	Rising	-	TBD	-	msec	4, 8
	$T_f$	Falling	-	TBD	-		
	$T_{RT}$	Rising + Falling	-	8	12		
Color / Chromaticity Coordinates	Red	Rx	CIE 1931	-	TBD	-	4
		Ry		-	TBD	-	
	Green	Gx		-	TBD	-	
		Gy		-	TBD	-	
	Blue	Bx		-	TBD	-	
		By		-	TBD	-	
	White	Wx			TBD		
		Wy			TBD		
NTSC	%		-	60	-		



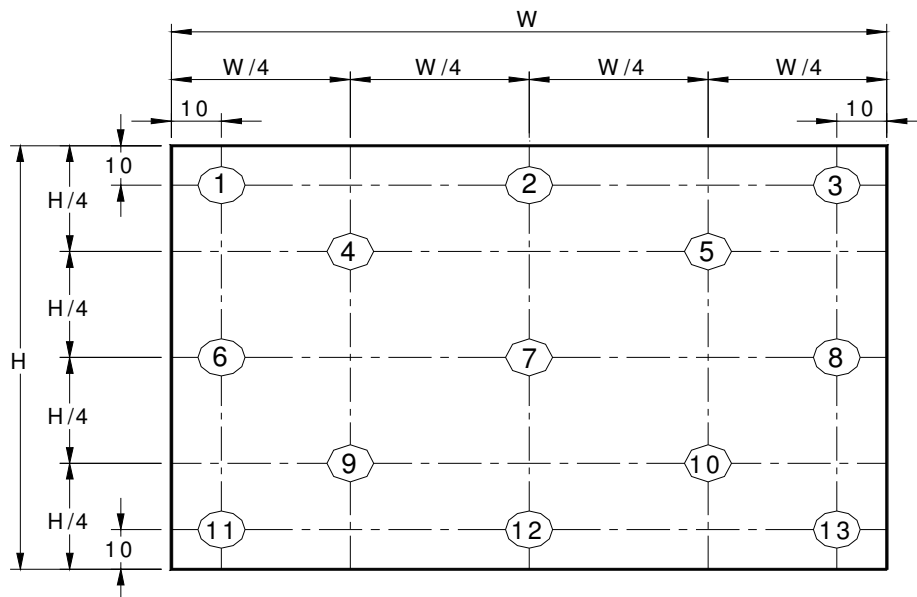
# Product Specification

AU OPTRONICS CORPORATION

**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

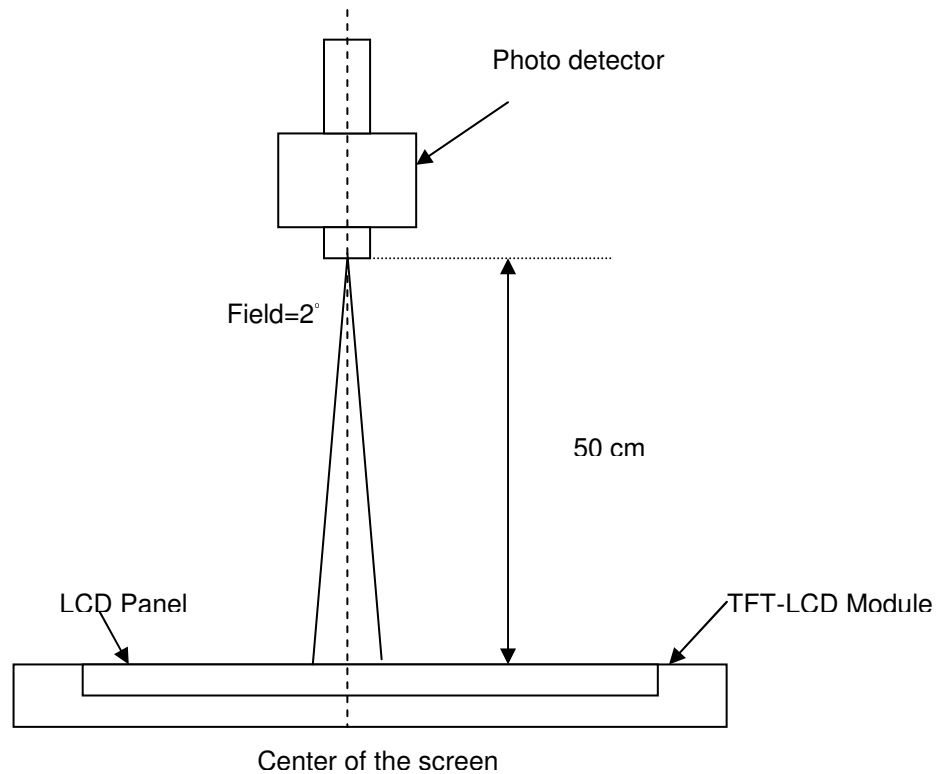




## Product Specification

AU OPTRONICS CORPORATION

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

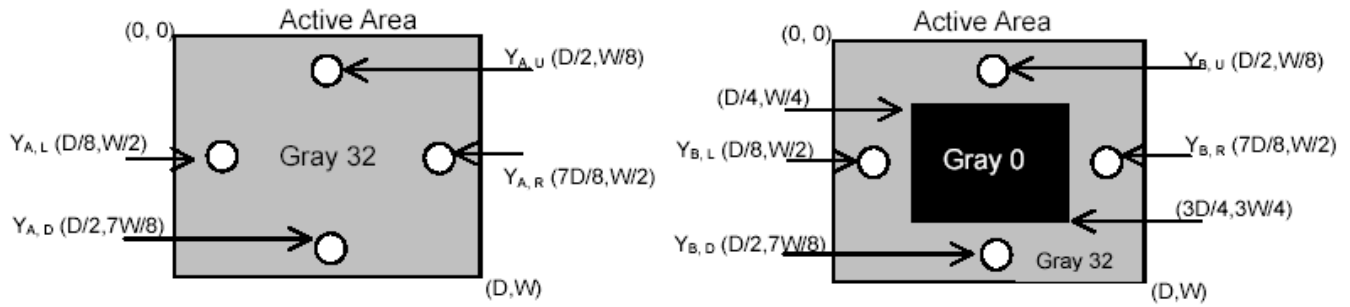
$Y_A$  = Luminance of measured location without gray level 0 pattern ( $\text{cd}/\text{m}^2$ )

$Y_B$  = Luminance of measured location with gray level 0 pattern ( $\text{cd}/\text{m}^2$ )



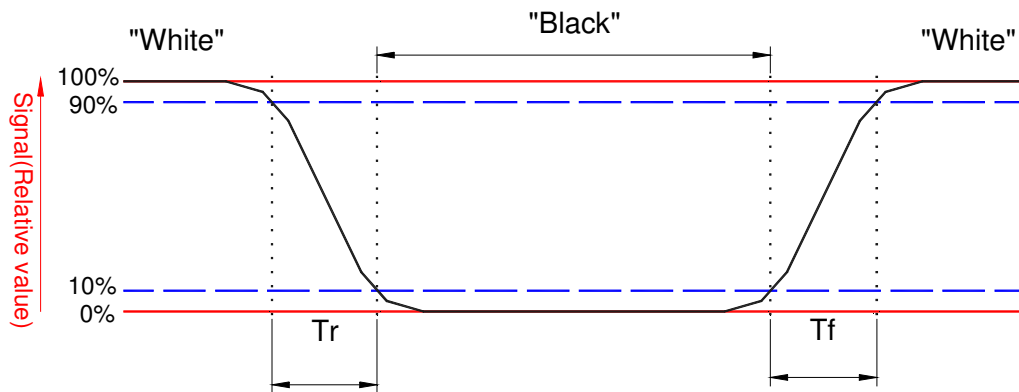
# Product Specification

AU OPTRONICS CORPORATION



**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.



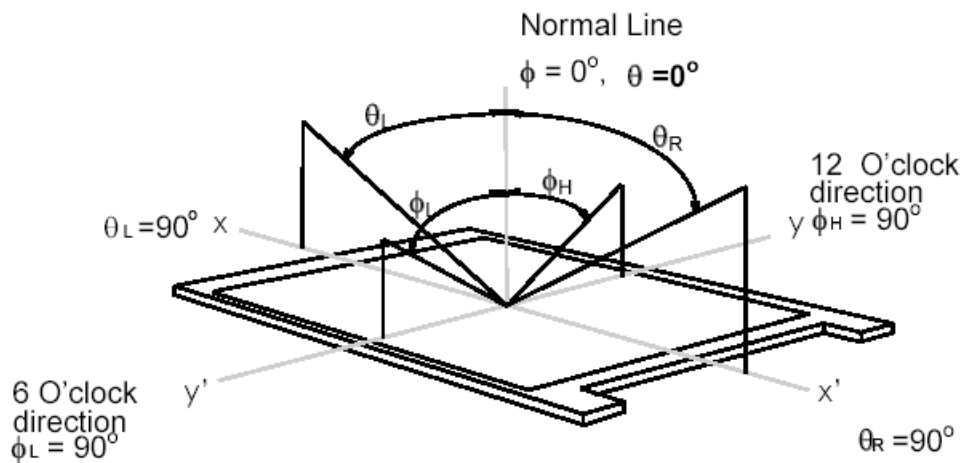


## Product Specification

AU OPTRONICS CORPORATION

### 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.



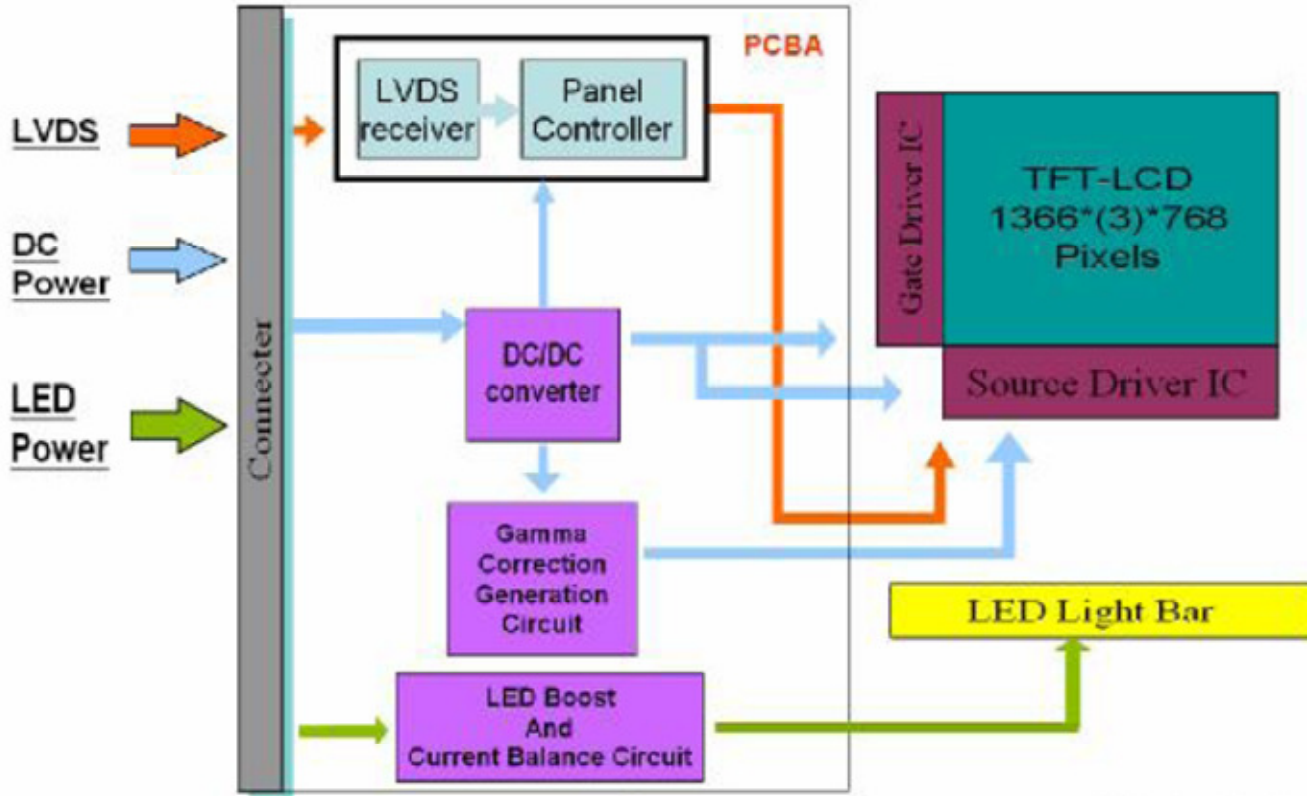


## Product Specification

AU OPTRONICS CORPORATION

### 3. Functional Block Diagram

The following diagram shows the functional block of the 14.0 inches wide Color TFT/LCD 40 Pin (One CH/connector Module)





# Product Specification

AU OPTRONICS CORPORATION

## 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

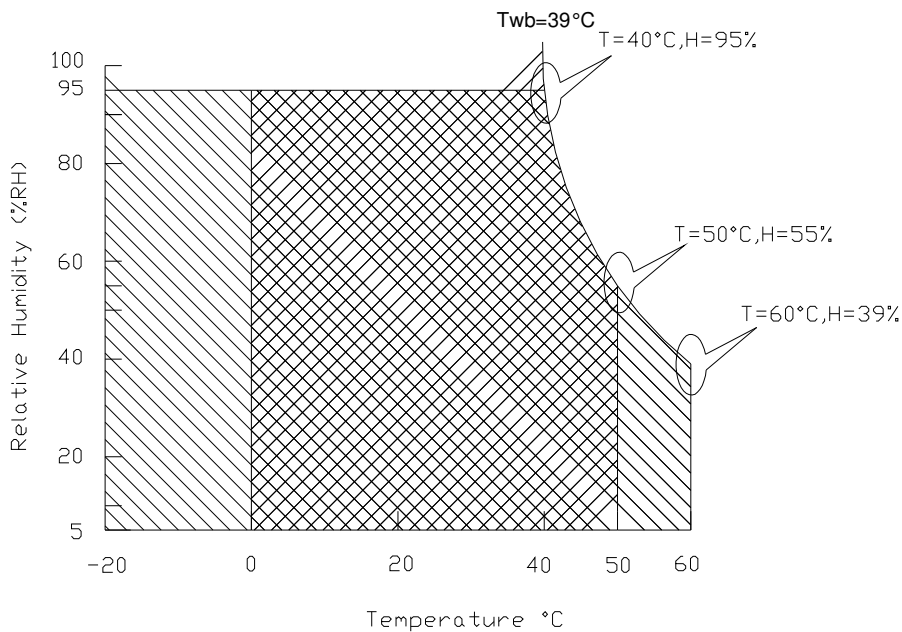
Item	Symbol	Min	Max	Unit	Conditions
Operating Temperature	TOP	0	+50	[°C]	Note 4
Operation Humidity	HOP	10	90	[%RH]	Note 4
Storage Temperature	TST	-20	+60	[°C]	Note 4
Storage Humidity	HST	10	90	[%RH]	Note 4

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

+



# Product Specification

AU OPTRONICS CORPORATION

## 5. Electrical characteristics

### 5.1 TFT LCD Module

#### 5.1.1 Power Specification

Input power specifications are as follows;

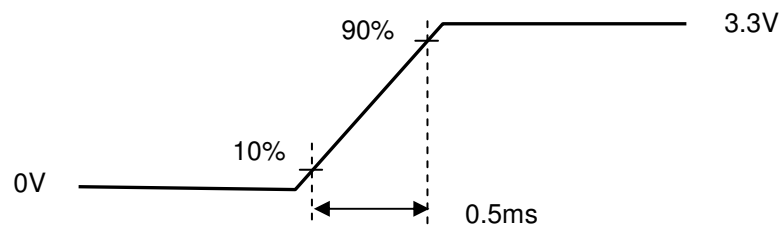
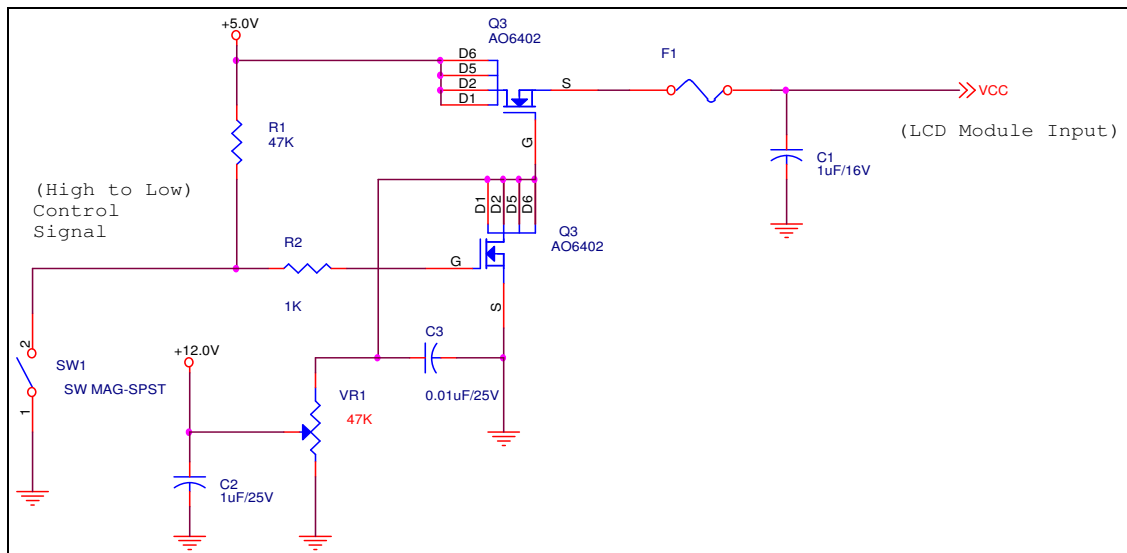
The power specification are measured under 25°C and frame frequency under 60Hz

Symble	Parameter	Min	Typ	Max	Units	Note
VDD	Logic/LCD Drive Voltage	3.0	3.3	3.6	[Volt]	
PDD	VDD Power	-	1.1	1.2	[Watt]	Note 1/2
IDD	IDD Current	-	333	364	[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



## Product Specification

AU OPTRONICS CORPORATION

### 5.1.2 Signal Electrical Characteristics

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

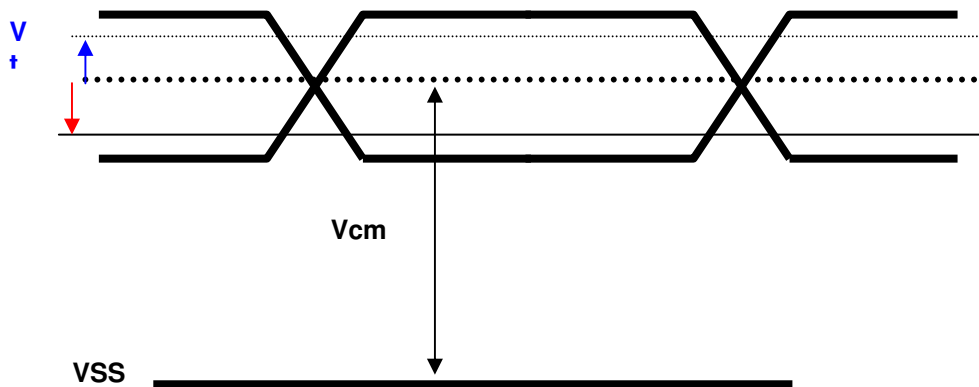
It is recommended to refer the specifications of THC63LVDF84A (Thine Electronics Inc.) in detail.

Signal electrical characteristics are as follows;

Parameter	Condition	Min	Typ	Max	Unit
Vth	Differential Input High Threshold (Vcm=+1.2V)	-		100 *note1	[mV]
Vtl	Differential Input Low Threshold (Vcm=+1.2V)	-100 *note1		-	[mV]
Vcm	Differential Input Common Mode Voltage	0.05	1.2	1.9	[V]

Note: LVDS Signal Waveform

\*note1  $R_{xVCM}=1.2V$





## Product Specification

AU OPTRONICS CORPORATION

### 5.2 Backlight Unit

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

Parameter	Symbol	Min	Typ	Max	Units	Condition
LED Forward Voltage	$V_F$	2.95	3.2	3.4	[Volt]	( $T_a=25^\circ\text{C}$ )
LED Forward Current	$I_F$		20	20.6	[mA]	( $T_a=25^\circ\text{C}$ )
LED Power consumption	$P_{LED}$		3.07	3.36	[Watt]	( $T_a=25^\circ\text{C}$ ) Note 1
LED Driving Input Voltage	$V_{LED}$	7	12	21	[Volt]	
LED Life-Time	N/A	10,000	-	-	Hour	( $T_a=25^\circ\text{C}$ ) $I_F=20\text{ mA}$ Note 2
Output PWM frequency	$F_{PWM}$	180	200	220	Hz	
Duty ratio	--	20	--	100	%	

**Note 1:** Calculator value for reference  $I_F \times V_F = P$

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





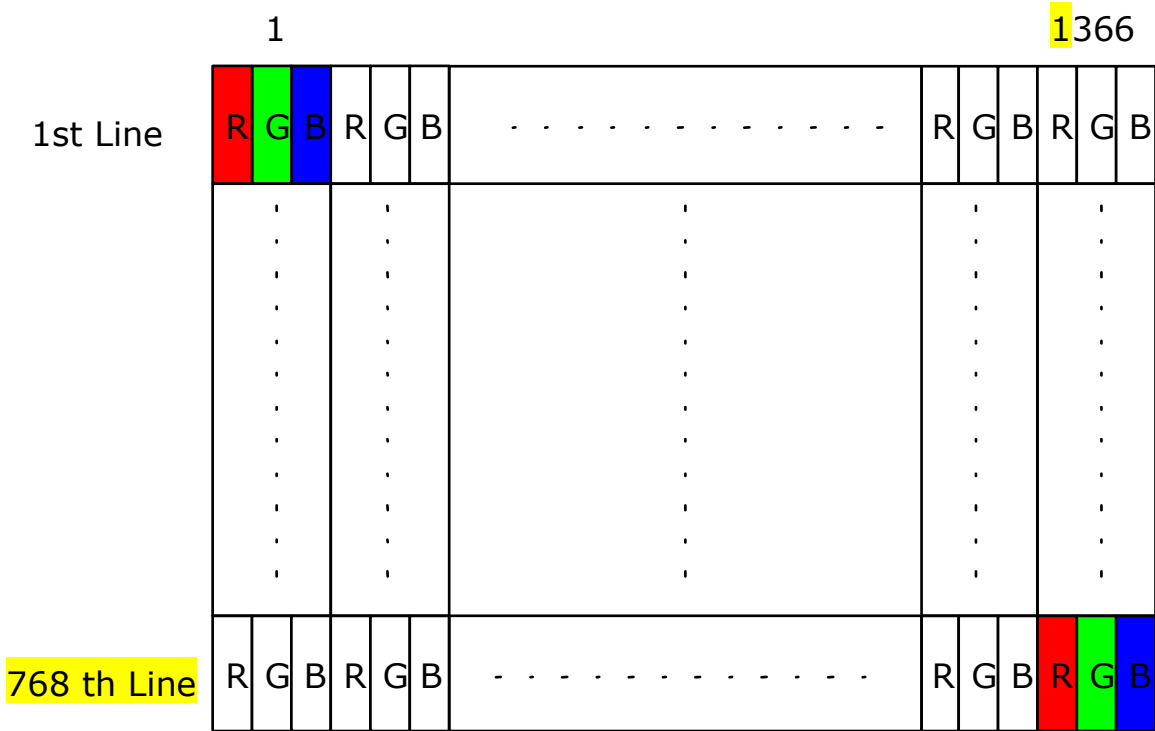
# Product Specification

AU OPTRONICS CORPORATION

## 6. Signal Characteristic

### 6.1 Pixel Format Image

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

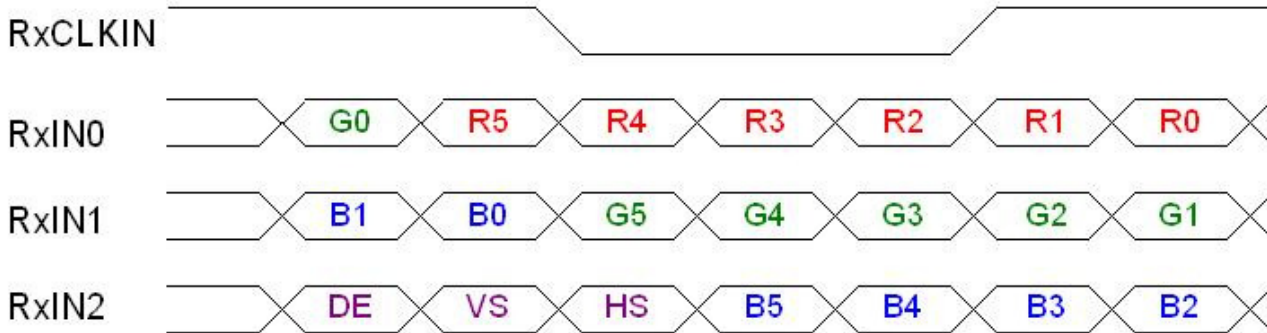




# Product Specification

AU OPTRONICS CORPORATION

## 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.



# Product Specification

AU OPTRONICS CORPORATION

## 6.3 Integration Interface and Pin Assignment

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

Pin	Signal	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

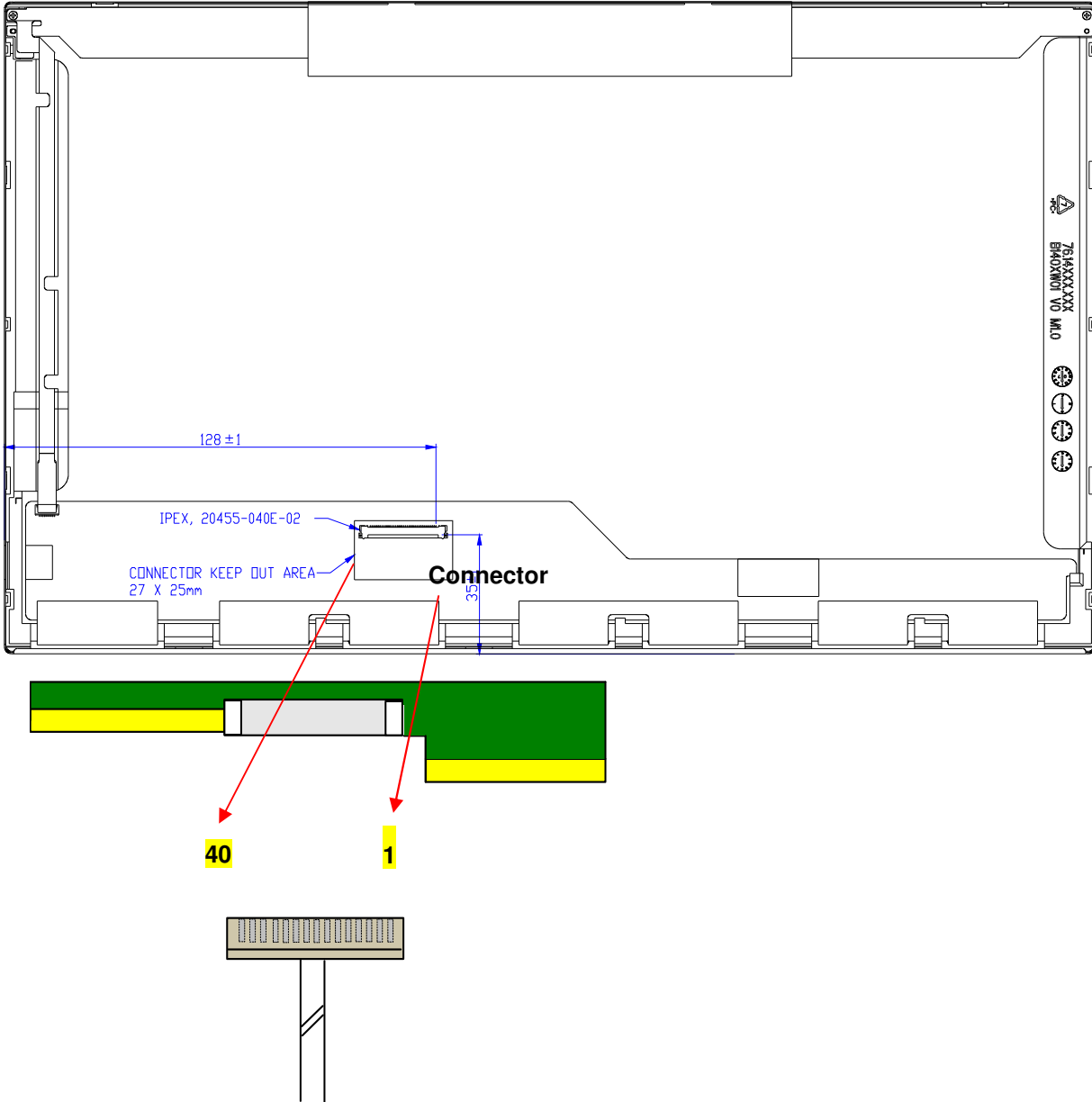
35	PWM	System PWM Signal Input
36	LED_EN	LED enable pin(+3V Input)
37	NC	No Connection (Reserve)
38	VLED	LED Power Supply 7.5V-21V
39	VLED	LED Power Supply 7.5V-21V
40	VLED	LED Power Supply 7.5V-21V



# Product Specification

AU OPTRONICS CORPORATION

Note1: Start from right side



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

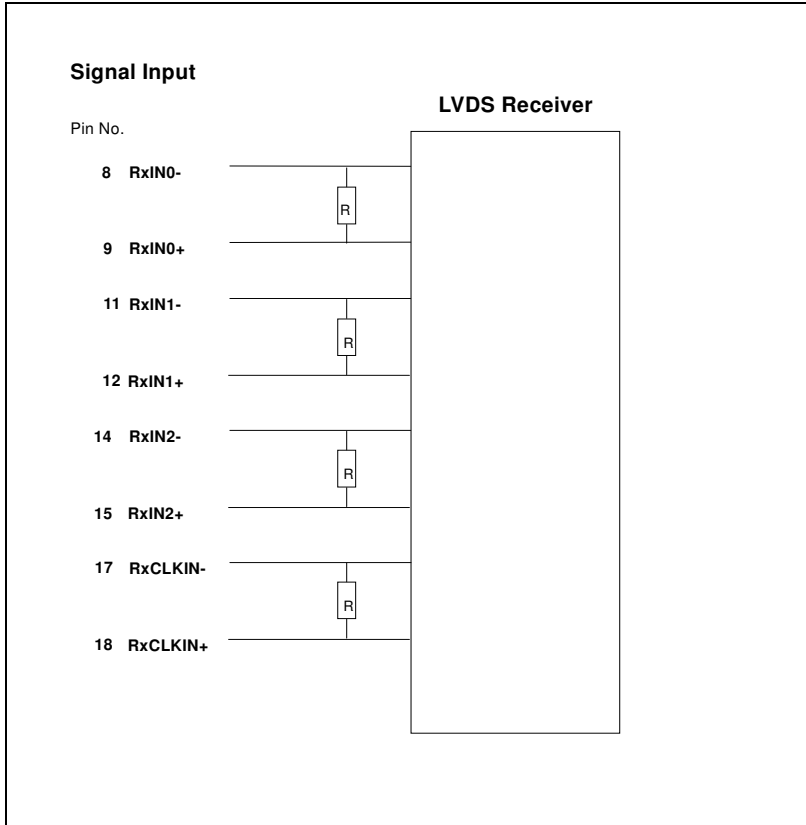


# Product Specification

AU OPTRONICS CORPORATION

internal circuit of LVDS inputs are as following.

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





# Product Specification

AU OPTRONICS CORPORATION

## 6.4 Interface Timing

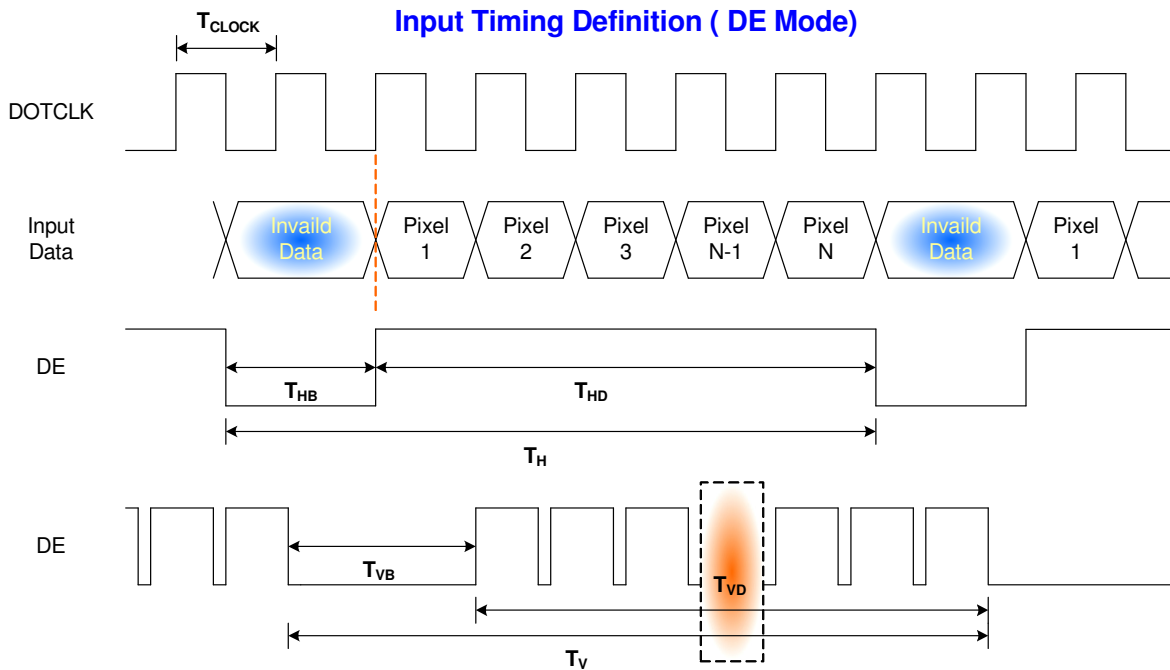
### 6.4.1 Timing Characteristics

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
Frame Rate	-	-	60	-	Hz	
Clock frequency	$1/T_{Clock}$	65	72	85	MHz	
Vertical Section	Period	$T_V$	776	808	1023	$T_{Line}$
	Active	$T_{VD}$	768			
	Blanking	$T_{VB}$	8	40	255	
Horizontal Section	Period	$T_H$	1396	1606	2047	$T_{Clock}$
	Active	$T_{HD}$	1366			
	Blanking	$T_{HB}$	30	240	681	

Note : DE mode only

### 6.4.2 Timing diagram



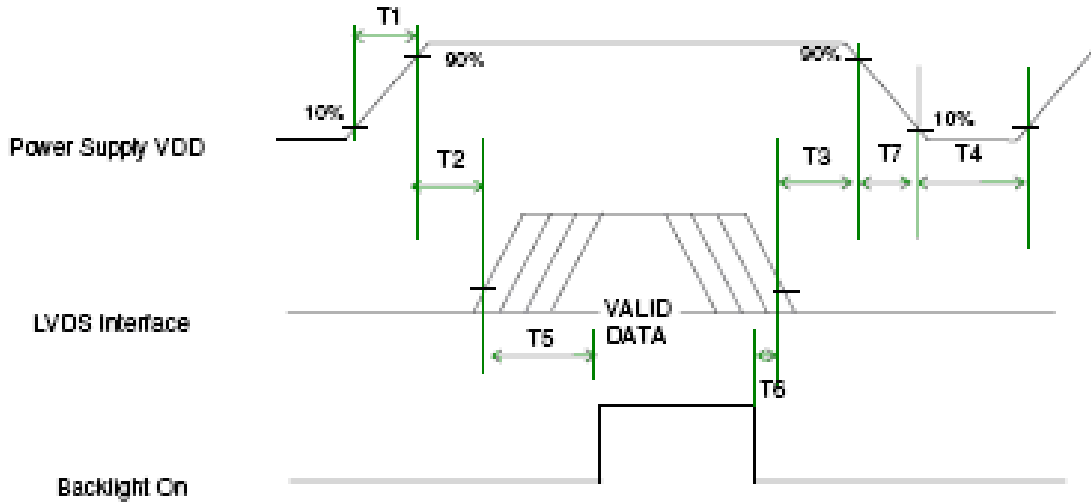


# Product Specification

AU OPTRONICS CORPORATION

## 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	

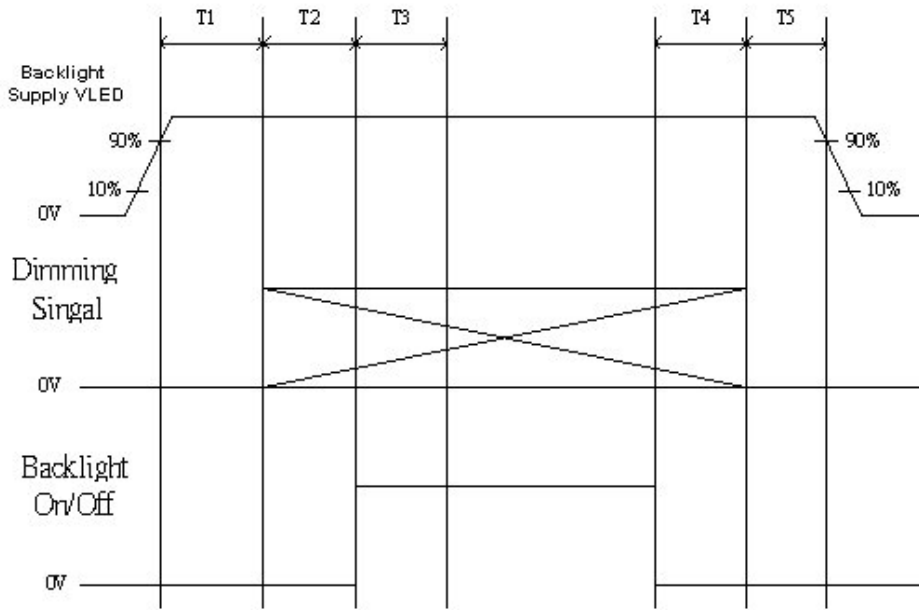




# Product Specification

AU OPTRONICS CORPORATION

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 20% 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	<b>IPEX</b>
Type / Part Number	<b>IPEX 20455-040E-12</b>
Mating Housing/Part Number	<b>IPEX 20453-040T-11</b>



## 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



## Product Specification

AU OPTRONICS CORPORATION

### 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, 300h	
Low Temperature Storage	Ta= -20°C, 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%

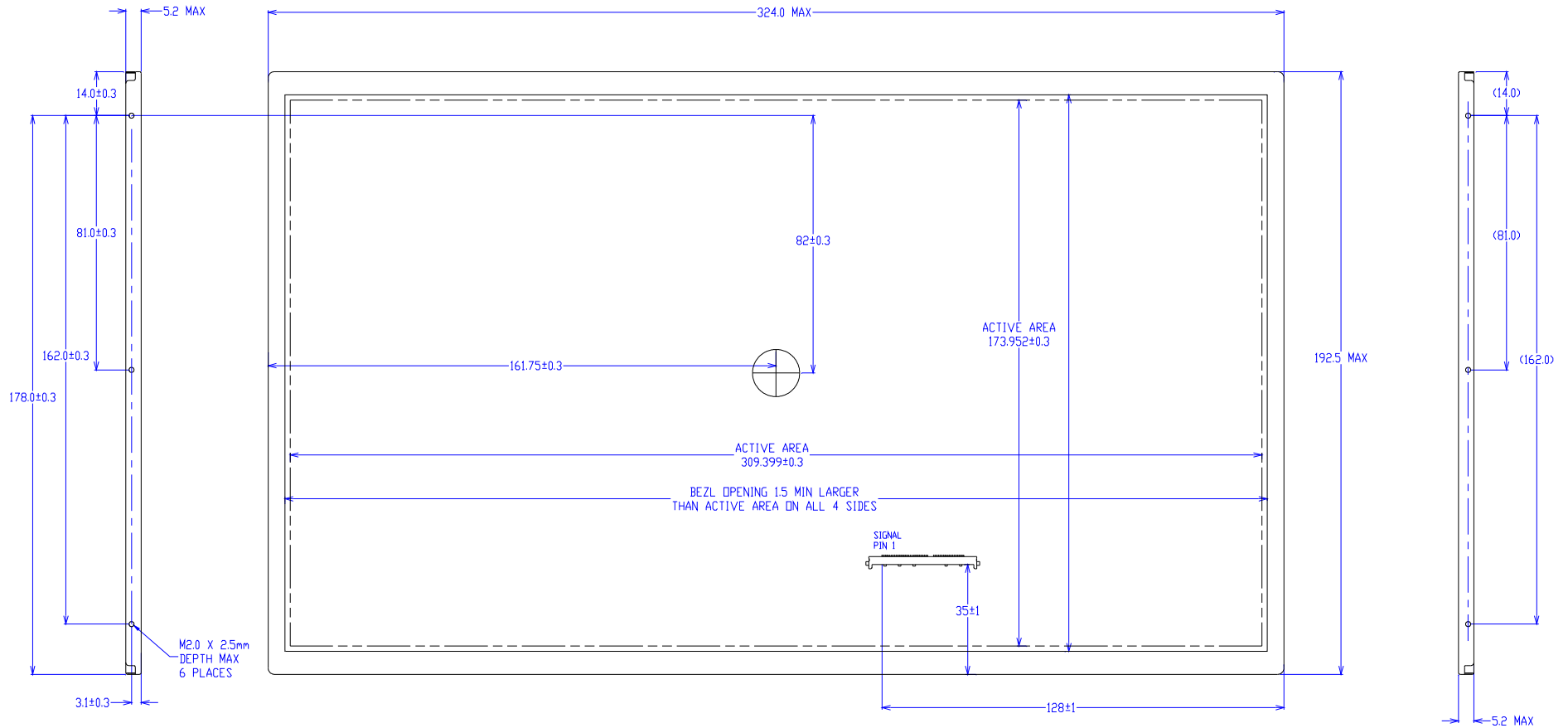


# Product Specification

AU OPTRONICS CORPORATION

## 11. Mechanical Characteristics

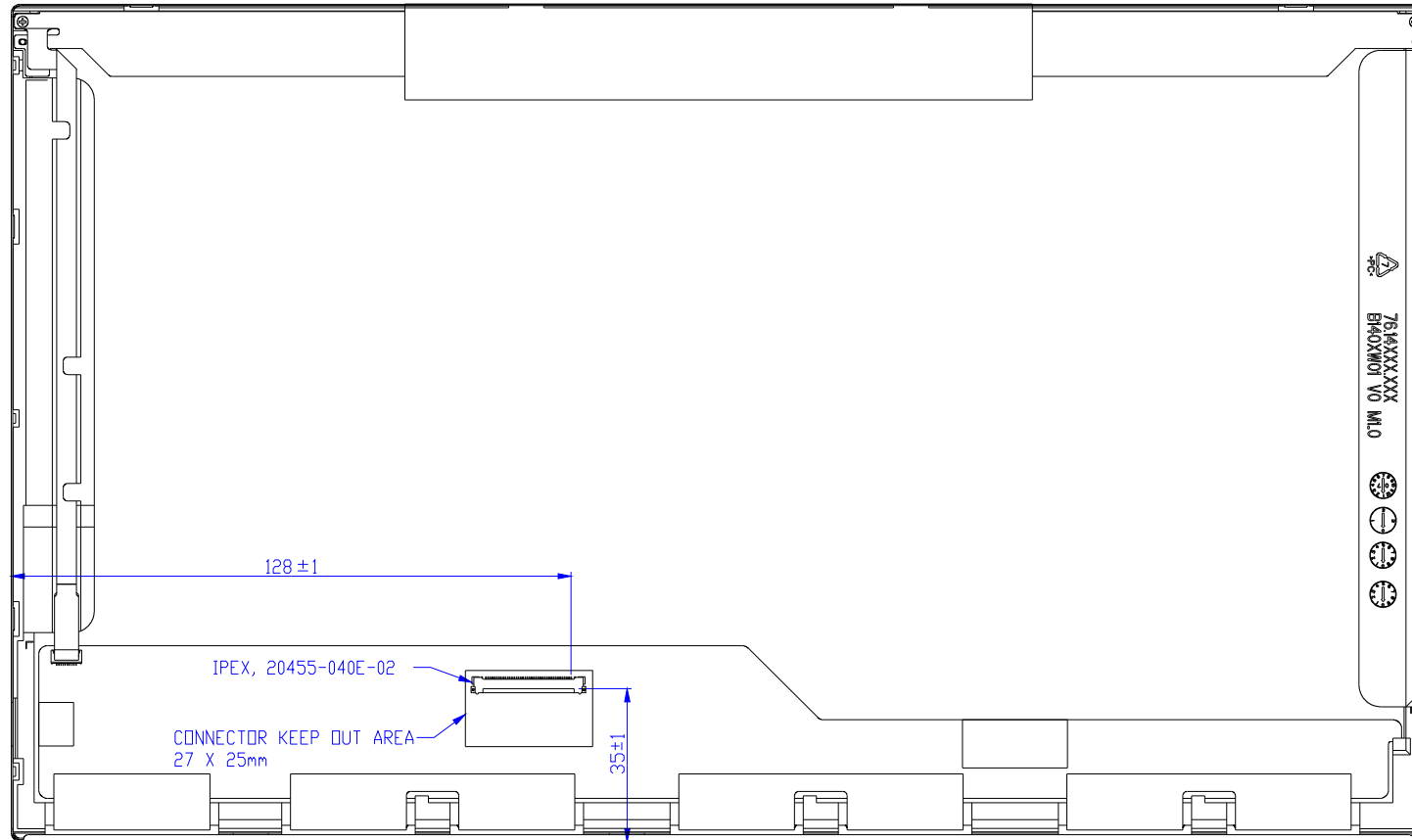
### 11.1 LCM Outline Dimension





## Product Specification

AU OPTRONICS CORPORATION



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



## Product Specification

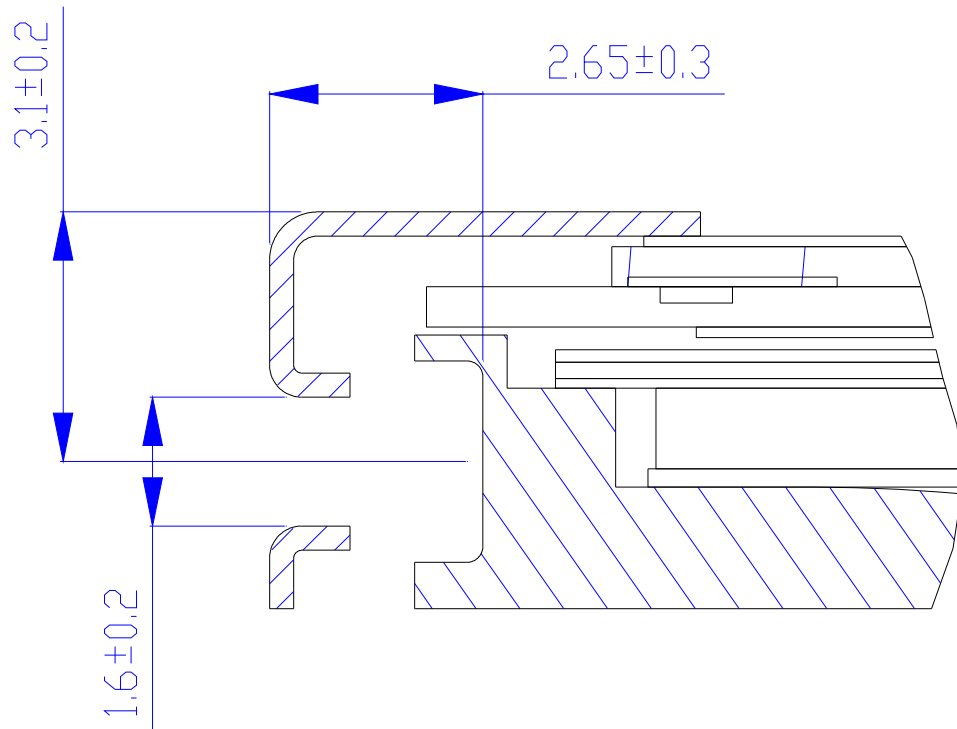
AU OPTRONICS CORPORATION

### 11.2 Screw Hole Depth and Center Position

Screw hole minimum depth, from side surface = 2.35 mm (See drawing)

Screw hole center location, from front surface =  $3.1 \pm 0.2$ mm (See drawing)

Screw Torque: Maximum 2.5 kgf-cm







## Product Specification

AU OPTRONICS CORPORATION

### 12. Shipping and Package

#### 12.1 Shipping Label Format

Size :90 mm(length) ×35mm(width)



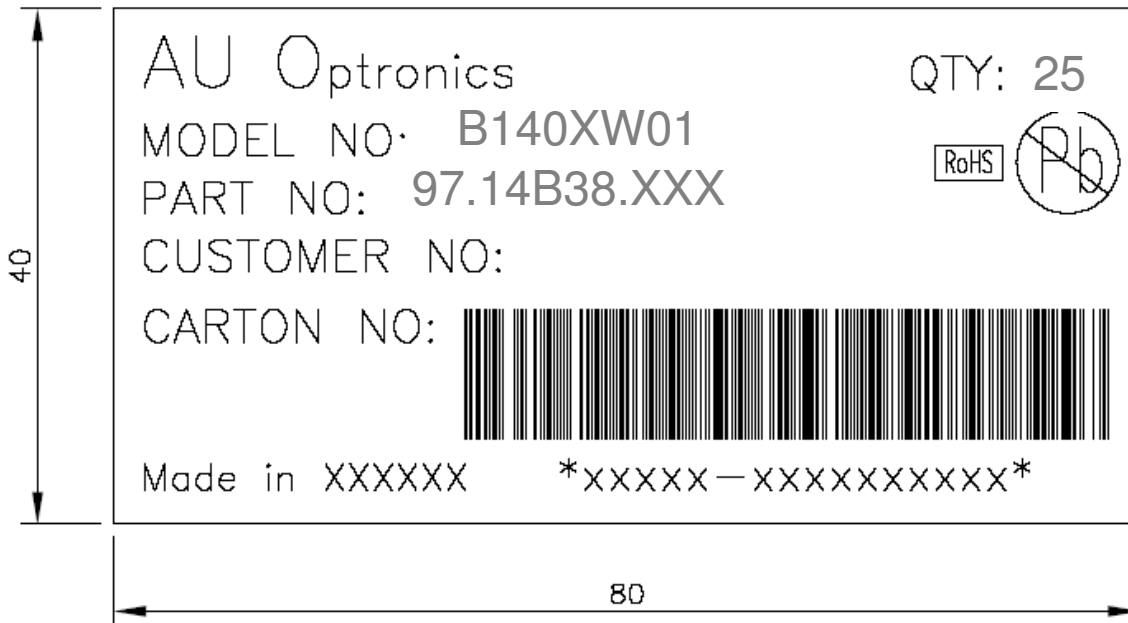


## Product Specification

AU OPTRONICS CORPORATION

### 12.2 Carton package

Carton Label: 80mm \* 40mm



The outside dimension of carton is 454(L)mm\* 376(W)mm\* 302(H)mm, carton and cushion weight are 2200g





## Product Specification

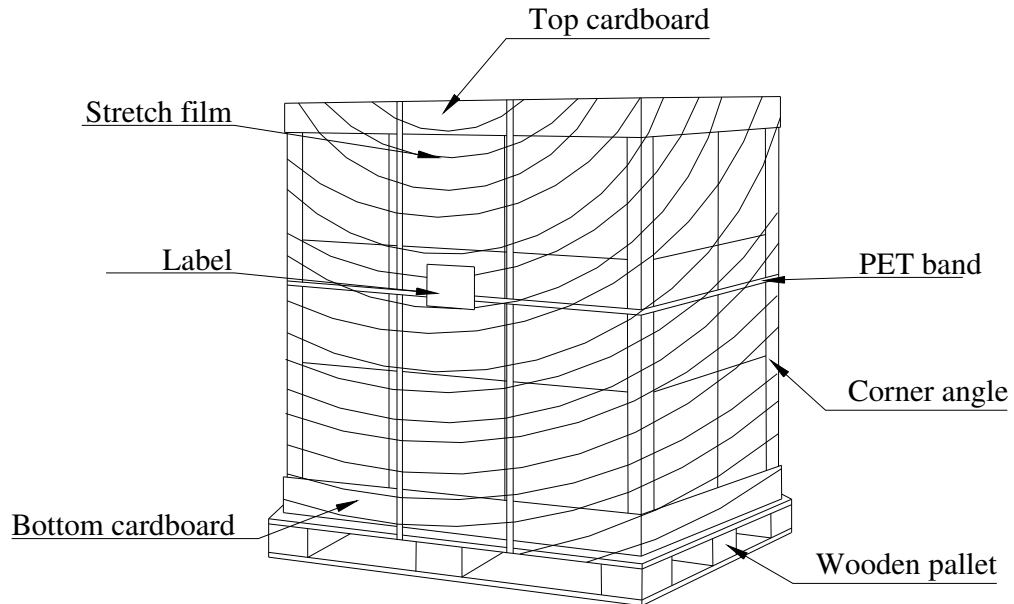
AU OPTRONICS CORPORATION

### 12.3 Shipping package of palletizing sequence

The outside dimension of Pallet is 114(L)mm\* 83(W)mm\* 13.8(H)mm

By air : 6 \*4 layers, one pallet put 24 boxes, total 600 pcs module.

By sea : 6 \*6 layers, one pallet put 36 boxes, total 900 pcs module.





# Product Specification

AU OPTRONICS CORPORATION

## 13. Appendix: EDID description

### B140XW01 V0 EDID Code

Address	FUNCTION	Value	Value	Value
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	3C	00111100	60
0B	hex, LSB first	10	00010000	16
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> ( <i>digital I/P, non-TMDS, CRGB</i> )	80	10000000	128
15	<b>Max H image size</b> ( <i>rounded to cm</i> )	1F	00011111	31
16	<b>Max V image size</b> ( <i>rounded to cm</i> )	11	00010001	17
17	<b>Display Gamma</b> ( <i>=(gamma*100)-100</i> )	78	01111000	120
18	<b>Feature support</b> ( <i>no DPMS, Active OFF, RGB, tmg Blk#1</i> )	0A	00001010	10
19	Red/green low bits ( <b>Lower 2:2:2 bits</b> )	45	01000101	69
1A	Blue/white low bits ( <b>Lower 2:2:2 bits</b> )	25	00100101	37
1B	Red x ( <b>Upper 8 bits</b> )	9C	10011100	156
1C	Red y/ highER 8 bits	5B	01011011	91
1D	Green x	55	01010101	85
1E	Green y	9C	10011100	156
1F	Blue x	27	00100111	39
20	Blue y	19	00011001	25
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
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



## Product Specification

AU OPTRONICS CORPORATION

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:HorzBlink <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 <b>(upper 4:4 bit)</b>	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>	35	00110101	53
43	Vertical Image Size <b>Lower 8bits</b>	AD	10101101	173
44	Horizontal & Vertical Image Size <b>(upper 4:4 bits)</b>	10	00010000	16
45	Horizontal Border <i>(zero for internal LCD)</i>	00	00000000	0
46	Vertical Border <i>(zero for internal LCD)</i>	00	00000000	0
47	Signal <i>(non-intr, norm, no stero, sep sync, neg pol)</i>	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
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



## Product Specification

AU OPTRONICS CORPORATION

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
60	Manufacture	55	01010101	85
61	Manufacture	4F	01001111	79
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
72	Manufacture P/N	31	00110001	49
73	Manufacture P/N	34	00110100	52
74	Manufacture P/N	30	00110000	48
75	Manufacture P/N	58	01011000	88
76	Manufacture P/N	57	01010111	87
77	Manufacture P/N	30	00110000	48
78	Manufacture P/N	31	00110001	49
79	Manufacture P/N	20	00100000	32
7A	Manufacture P/N	56	01010110	86
7B	Manufacture P/N	30	00110000	48
7C		20	00100000	32
7D		0A	00001010	10
7E	Extension Flag	00	00000000	0
7F	Checksum	40	01000000	64