

- ( ) Preliminary Specifications(V ) Final Specifications

Module	14.1" WXGA Color TFT-LCD with LED Backlight design
Model Name	B141EW05 V3
Note ( 🗭 )	LED Backlight design

Customer E	)ate	Approved by	Date
		Beyond Yang	09/25/2008
Checked & E	)ate	Prepared by	
		<u>Jeff Hou</u>	09/25/2008
Note: This Specification is subject to change without notice.		NBBU Market AU Optronics	ing Division / s corporation



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# **Record of Revision**

Ver	sion and Date	Page	Old description	New Description	Remark
0.1	2008/5/16	All	First Edition for Customer		
0.2	2008/5/26	12	LED Light bar Driving	Update LED Light bar Driving = 25.2 (Row Output)	
0.3	2008/6/9	29,30	Update drawing	Update drawing	
0.4	2008/8/14	32	Update Label	Update Label	
0.5	2008/9/25	6		Update response time and color coodinates	
		20,28		Update drawing	
		22		Update clock frequency =70.5	
		33		Update EDID	
1.0		1		Final specifications	



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### 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. High voltage is supplied to these parts when power turn on.



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## 2. General Description

B141EW05 V3 is a Color Active Matrix Liquid Crystal Display composed of a TFT LCD panel, and LED backlight system. The screen format is intended to support the WXGA (1280(H)  $\times$  800(V)) screen and 262k colors (RGB 6-bits data driver) . All input signals are LVDS interface compatible.

B141EW05 V3 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  $^{\circ}\mathrm{C}$  condition:

Items	Unit		Specifi	cations		
Screen Diagonal	[mm]	357.7 (14.1	W")			
Active Area	[mm]	303.36 X 1	89.6			
Pixels H x V		1280x3(RGB) x 800				
Pixel Pitch	[mm]	0.237				
Pixel Format		B.G.R. Ver	tical Stripe			
Display Mode		Normally W	/hite			
White Luminance (ILED=20mA) Note: ILED is LED current	[cd/m <sup>2</sup> ]	220 typ. (5 points average) 187 min. (5 points average) (Note1)				
Luminance Uniformity		1.25 max. (	5 points)			
Contrast Ratio		400 typ				
Response Time	[ms]	8 typ / 12 N	1ax			
Nominal Input Voltage VDD	[Volt]	+3.3 typ.				
Power Consumption	[Watt]	4.4 max. (Ir	nclude Logic	and Blu pov	ver)	
Weight	[Grams]	385 max.				
Physical Size without inverter,	[mm]		Min.	Тур.	Max.	
bracket.		Length	319	319.5	320	
		Width 205 205.5 206				
		Thickness 4.8 - 5.5				
Electrical Interface		1 channel LVDS				
Surface Treatment		Anti-Glare,				



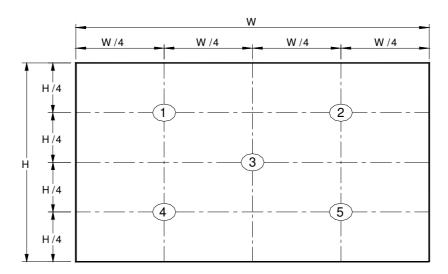
Support Color		262K colors ( RGB 6-bit )
Temperature Range Operating Storage (Non-Operating)	[°C]	0 to +50 -20 to +65
RoHS Compliance		RoHS Compliance

**2.2 Optical Characteristics** The optical characteristics are measured under stable conditions at 25  $^\circ$ C (Room Temperature) :

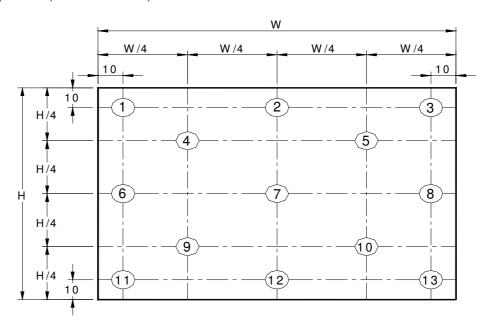
Item	Symbol	Conditions	Min.	Тур.	Max.	Unit	Note
White Luminance ILED=20mA		5 points average	187	220	-	cd/m <sup>2</sup>	1, 4, 5.
Viewing Angle	$oldsymbol{ heta}$ R $oldsymbol{ heta}$ L	Horizontal (Right CR = 10 (Left)	40 40	45 45	-	degree	4.0
Viewing Angle	<b>φ</b> н <b>φ</b> L	Vertical (Upper CR = 10 (Lower)	) 10 30	15 35	-		4, 9
Luminance Uniformity	δ <sub>5P</sub>	5 Points	-	-	1.25		1, 3, 4
Luminance Uniformity	$\delta$ 13P	13 Points	-	-	1.50		2, 3, 4
Contrast Ratio	CR		300	400	-		4, 6
Cross talk	%				4		4, 7
	T <sub>r</sub>	Rising	-	6	10		
Response Time	$T_f$	Falling	-	2	5	msec	4, 8
	$T_{RT}$	Rising + Falling	-	8	12		
	Red x		0.556	0.586	0.616		
	Red y		0.316	0.346	0.376		
	Green x		0.311	0.341	0.371		
Color /	Green y		0.546	0.576	0.606		
Chromaticity	Blue x	CIE 1931	0.127	0.157	0.187		4
Coodinates	Blue y		0.090	0.120	0.150		
	White x		0.283	0.313	0.343		
	White y		0.299	0.329	0.359		
NTSC	%		-	45	-		



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

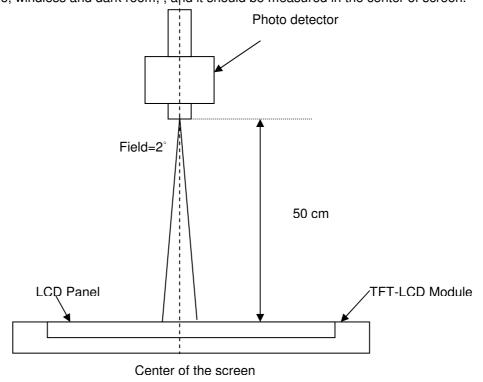
0		Maximum Brightness of five points
ි w5	= '	Minimum Brightness of five points
2		Maximum Brightness of thirteen points
$\delta_{W13} =$		Minimum Brightness of thirteen points

Note 4: Measurement method



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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<sub>L</sub>):

Measure the luminance of gray level 63 at 5 points  $\cdot$   $Y_L = [L (1) + L (2) + L (3) + L (4) + L (5)] / 5 L (x) is corresponding to the luminance of the point X at Figure in Note (1).$ 

Note 6: Definition of contrast ratio:

Contrast ratio is calculated with the following formula.

Note 7: Definition of Cross Talk (CT)

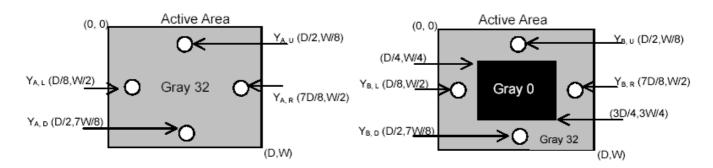
$$CT = |Y_B - Y_A| / Y_A \times 100 (\%)$$

Where

Y<sub>A</sub> = Luminance of measured location without gray level 0 pattern (cd/m<sub>2</sub>)

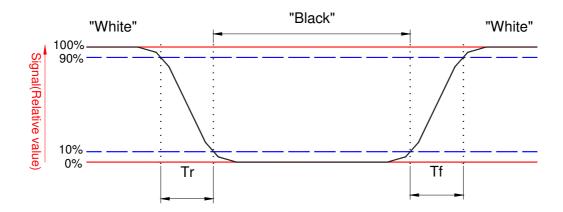
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Y<sub>B</sub> = Luminance of measured location with gray level 0 pattern (cd/m<sub>2</sub>)



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.

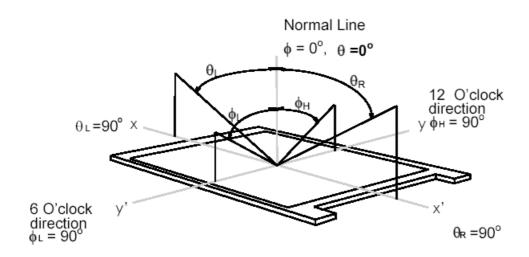




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#### Note 9. Definition of viewing angle

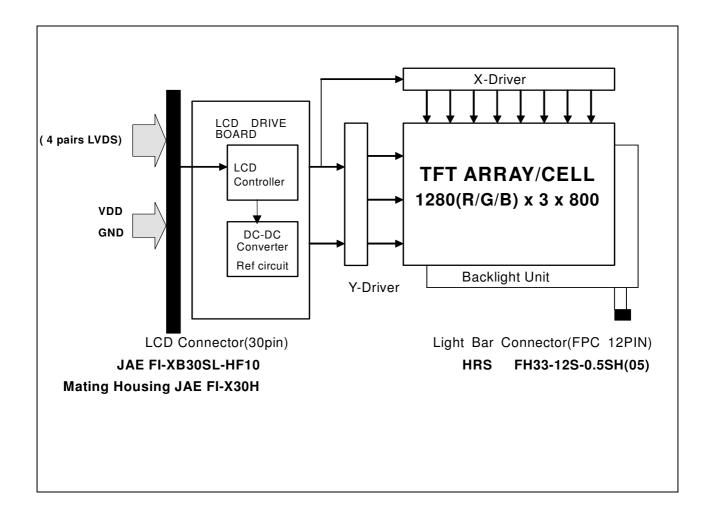
Viewing angle is the measurement of contrast ratio  $\geq$  10, at the screen center, over a 180° horizontal and 180° vertical range (off-normal viewing angles). The 180° viewing angle range is broken down as follows; 90° (θ) horizontal left and right and 90° (Φ) vertical, high (up) and low (down). The measurement direction is typically perpendicular to the display surface with the screen rotated about its center to develop the desired measurement viewing angle.





## 3. Functional Block Diagram

The following diagram shows the functional block of the 14.1 inches wide Color TFT/LCD 30 Pin One ch / connector Module:





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## 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 Backlight Unit

Item	Symbol	Min	Тур	Unit	Conditions
LED Light bar Driving	$V_{LED}$		25.2 (Row Output)	[Volt]	Note 1,2,3
LED Light bar Driving	I <sub>LED</sub>	-	20 (Row Output)	[mA] rms	Note 1,3

4.3 Absolute Ratings of Environment

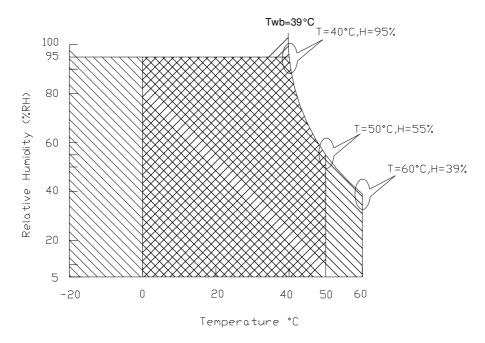
<u> </u>								
Item	Symbol	Min	Max	Unit	Conditions			
Operating Temperature	TOP	0	+50	[°C]	Note 4			
Operation Humidity	HOP	8	95	[%RH]	Note 4			
Storage Temperature	TST	-20	+65	[°C]	Note 4			
Storage Humidity	HST	5	95	[%RH]	Note 4			

Note 1: At Ta (25°C)

Note 2: ILED =20mA

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;

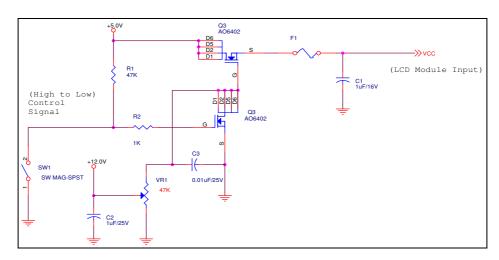
The power specification are measured under 25°C and frame frenquency under 60Hz

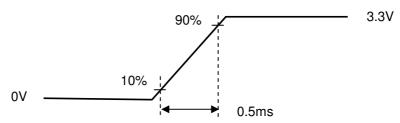
Symble	Parameter	Min	Тур	Max	Units	Note
VDD	Logic/LCD Drive Voltage	3.0	3.3	3.6	[Volt]	
PDD	VDD Power	-	-	1.1	[Watt]	Note 1/2
IDD	IDD Current	-	350	450	[mA]	Note 1/2
IRush	Inrush Current	-	-	2000	[mA]	Note 3
VDDrp	Allowable Logic/LCD Drive Ripple Voltage	-	-	100	[mV]	

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

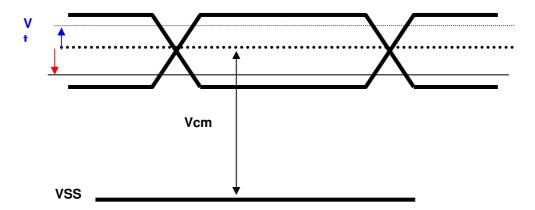
Input signals shall be low or High-impedance state when VDD is off.

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 (Vcm=+1.2V)	-	100	[mV]
Vtl	Differential Input Low Threshold (Vcm=+1.2V)	-100	-	[mV]
Vcm	Differential Input Common Mode Voltage	1.125	1.375	[V]

Note: LVDS Signal Waveform





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

Parameter	Symbol	Min	Тур	Max	Units	Condition
LED Forward Voltage	V <sub>F</sub>	2.95	3.15	3.35	[Volt]	(Ta=25°C)
						Note 1
LED Forward Current	I <sub>F</sub>		20	30	[mA]	(Ta=25℃)
						Note 1
LED Life-Time	N/A	10,000	-	_	Hour	(Ta=25°C)
						(Ta=25°C) I <sub>F</sub> =20 mA
						Note 2

Note 1: Calculator value for LED chip specification

**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.

	1					12	80
1st Line	R G B	B G R		R G	В	R	G B
			•				
		,					
			•	•			•
			:	•			
	'	,	,	-	•		•
800th Line	R G B	R G B		R G	В	R	В



## 6.2 The input data format

RxCLKIN		
RxIN0	G0 R5 R4 R3 R2	R1 R0
RxIN1	B1 B0 G5 G4 G3	G2 G1 X
RxIN2	DE VS HS B5 B4	B3 B2

Cianal Nama	Description	
Signal Name	Description (MCD)	Dad aired Data
R5	Red Data 5 (MSB)	Red-pixel Data
R4	Red Data 4	Each red pixel's brightness data consists of
R3	Red Data 3	these 6 bits pixel data.
R2	Red Data 2	
R1	Red Data 1	
R0	Red Data 0 (LSB)	
	Red-pixel Data	
	·	
G5	Green Data 5 (MSB)	Green-pixel Data
G4	Green Data 4	Each green pixel's brightness data consists of
G3	Green Data 3	these 6 bits pixel data.
G2	Green Data 2	
G1	Green Data 1	
G0	Green Data 0 (LSB)	
<b>D</b> -	Green-pixel Data	5
B5	Blue Data 5 (MSB)	Blue-pixel Data
B4	Blue Data 4	Each blue pixel's brightness data consists of
B3	Blue Data 3	these 6 bits pixel data.
B2	Blue Data 2	
B1	Blue Data 1	
B0	Blue Data 0 (LSB)	
	Blue-pixel Data	
RxCLKIN	Data Clock	The signal is used to strobe the pixel data and
IIAOLININ	Data Oluck	DE signals. All pixel data shall be valid at the
DE	Dioplay Timing	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
VC	Vartical Cura	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 Signal Description/Pin Assignment

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

PIN#	Symbol	Function
1	GND	Ground
2	VDD	+3.3V Power Supply
3	VDD	+3.3V Power Supply
4	VEDID	+3.3V EDID Power
5	NC	No Connection (Reserve for AUO test)
6	CLKEDID	EDID Clock Input
7	DATAEDID	EDID Data Input
8	RxIN0-	-LVDS differential data input (R0-R5, G0)
9	RxIN0+	+LVDS differential data input (R0-R5, G0)
10	GND	Ground
11	RxIN1-	-LVDS differential data input(G1-G5, B0-B1)
12	RxIN1+	+LVDS differential data input(G1-G5, B0-B1)
13	GND	Ground
14	RxIN2-	-LVDS differential data input(B2-B5, HS, VS, DE)
15	RxIN2+	+LVDS differential data input(B2-B5, HS, VS, DE)

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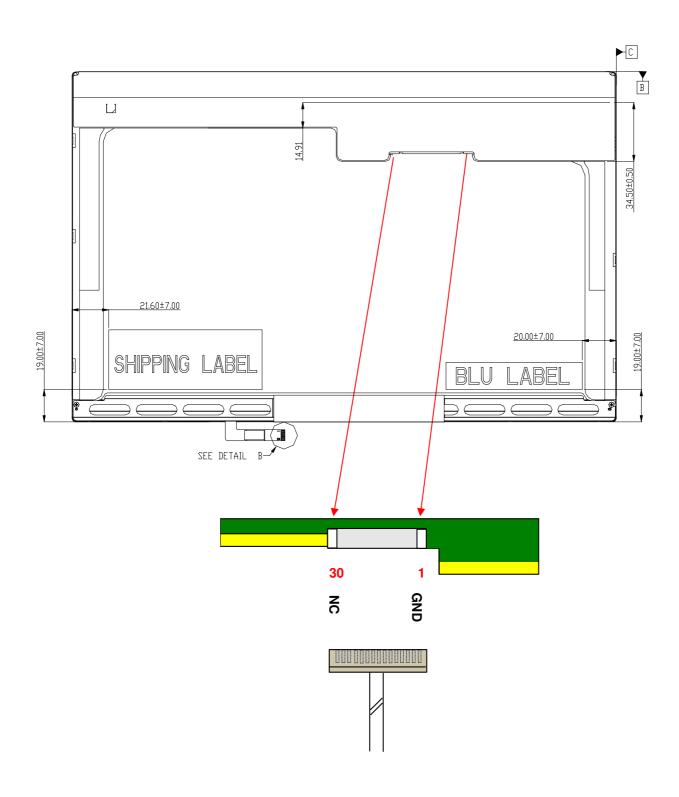


PIN#	Symbol	Function
16	GND	Ground
17	RxCLKIN-	-LVDS differential clock input
18	RxCLKIN+	+LVDS differential clock input
19	GND	Ground
20	NC	No Connection
21	NC	No Connection)
22	GND	Ground
23	NC	No Connection
24	NC	No Connection
25	GND	Ground
26	NC	No Connection
27	NC	No Connection
28	GND	Ground
29	NC	No Connection
30	NC	No Connection

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Note1: Start from right side



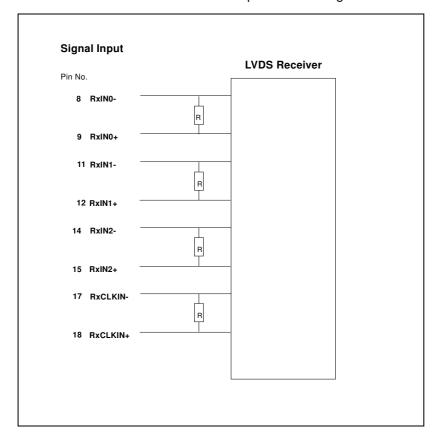
Note2: Input signals shall be low or High-impedance state when VDD is off.



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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 1280x800 /60Hz manufacturing guide line timing.

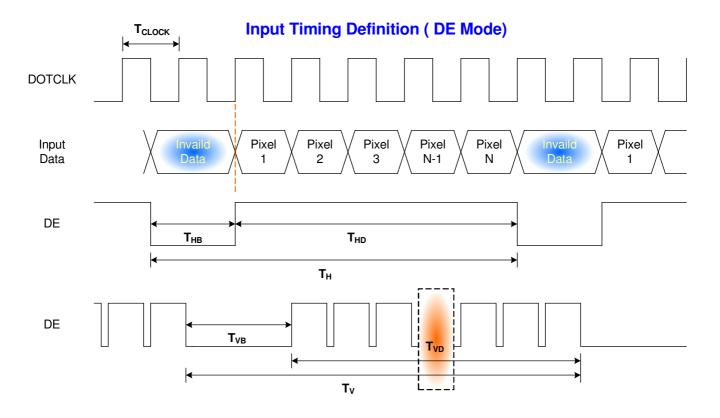
Parameter		Symbol	Min.	Тур.	Max.	Unit
Frame Rate		-	-	60	-	Hz
Clock fr	Clock frequency		-	71.3	-	MHz
	Period	T <sub>V</sub>	808	823	1023	
Vertical	Active	<b>T</b> <sub>VD</sub>	800	800	800	$T_{Line}$
Section	Blanking	<b>T</b> <sub>VB</sub>	8	23	223	
	Period	T <sub>H</sub>	1310	1438	2047	
Horizontal	Active	<b>T</b> <sub>HD</sub>	1280	1280	1280	$T_{Clock}$
Section	Blanking	<b>T</b> <sub>HB</sub>	30	158	767	

Note: DE mode only

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### 6.4.2 Timing diagram





# 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	JAE or compatible
Type / Part Number	JAE FI-XB30SL-HF10 or compatible
Mating Housing/Part Number	JAE FI-X30H or compatible



# 8. LED Driving Specification

## **8.1 Connector Description**

Connector Name / Designation	For Signal Connector
Manufacturer	HRS or compatible
Type / Part Number	HRS FH33-12S-0. 5SH(05) or compatible
Mating Housing/Part Number	compatible

## 8.2 Pin Assignment

PIN#	Signal Name Description
1	LCD channel 1 cathode
2	LCD channel 2 cathode
3	LCD channel 3 cathode
4	LCD channel 4 cathode
5	LCD channel 5 cathode
6	LCD channel 6 cathode ( May be NC if channel<6)
7	LCD channel 7 cathode ( May be NC if channel<7)
8	LCD channel 8 cathode ( May be NC if channel<8)
9	NC
10	LED power bus ( LED Anode)
11	LED power bus ( LED Anode)
12	LED power bus ( LED Anode)

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### 9. Vibration and Shock Test

#### 9.1 Vibration Test

#### **Test Spec:**

Test method: Non-Operation

Acceleration: 1.5 G, Half sine pulse Frequency: 10 - 500Hz Sine wave

Sweep: 30 Minutes each Axis (X, Y, Z)

### 9.2 Shock Test Spec:

#### **Test Spec:**

Test method: Non-Operation

Acceleration: 240 G, Half sine pulse

Active time: 2 ms

Pulse: X,Y,Z .one time for each side



## 10. Reliability

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

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

. Self-recoverable. No hardware failures.

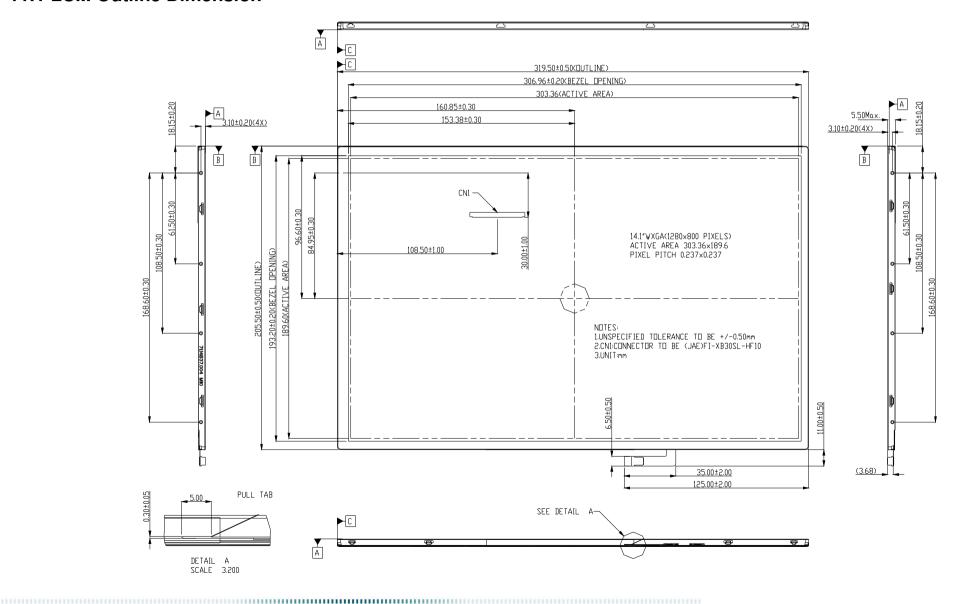
Remark: MTBF (Excluding the LED): 30,000 hours with a confidence level 90%



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### 11. Mechanical Characteristics

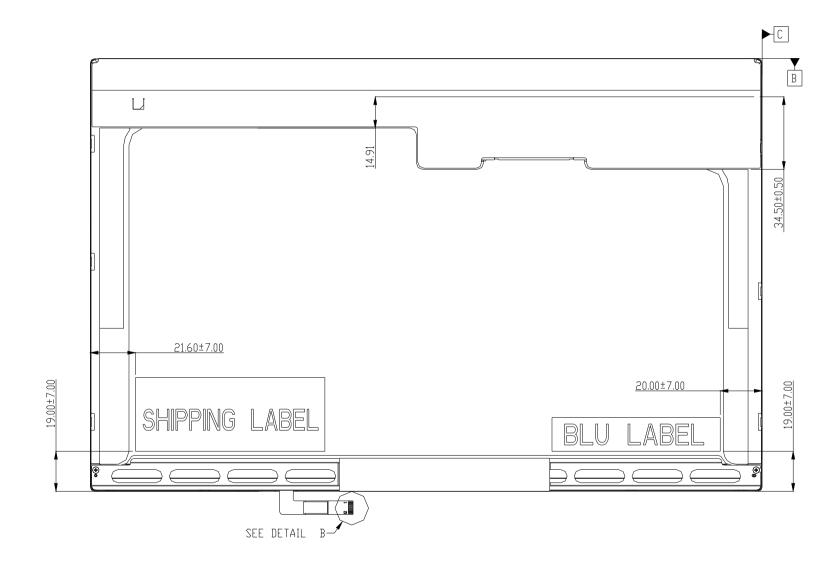
### 11.1 LCM Outline Dimension

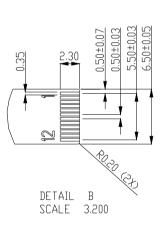


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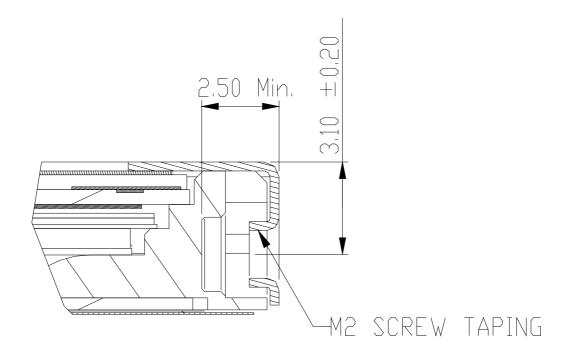
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## 11.2 Screw Hole Depth and Center Position

Screw hole minimum depth, from side surface = 2.5 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





## 12. Shipping and Package

## 12.1 Shipping Label Format



Manufactured 0938 Model No: B141EW05 **AU Optronics** MADE IN CHINA (S1)

H/W: 1A F/W:1

s *IR* o

**V.3** 

1AXXG



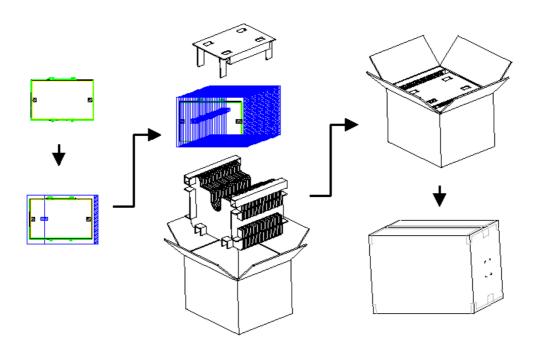




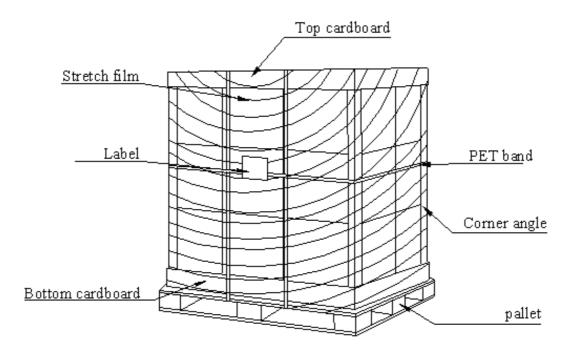


## 12.2 Carton package

The outside dimension of carton is 455 (L)mm x 380 (W)mm x 355 (H)mm



## 11.3 Shipping package of palletizing sequence





# 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	44	01000100	68	
0B	hex, LSB first	53	01010011	83	
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	Video input def. (digital I/P, non-TMDS, CRGB)	80	10000000	128	
15	Max H image size (rounded to cm)	1E	00011110	30	
16	Max V image size (rounded to cm)	13	00010011	19	
17	Display Gamma (=(gamma*100)-100)	78	01111000	120	
18	Feature support (no DPMS, Active OFF, RGB, tmg Blk#1)	0A	00001010	10	
19	Red/green low bits (Lower 2:2:2:2 bits)	26	00100110	38	
1A	Blue/white low bits (Lower 2:2:2:2 bits)	75	01110101	117	
1B	Red x (Upper 8 bits)	96	10010110	150	
1C	Red y/ highER 8 bits	58	01011000	88	
1D	Green x	57	01010111	87	
1E	Green y	93	10010011	147	
1F	Blue x	28	00101000	40	
20	Blue y	1E	00011110	30	
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	0000001	1	
2A	Standard timing #3	01	0000001	1	
2B		01	0000001	1	
2C	Standard timing #4	01	0000001	1	
2D	<u> </u>	01	00000001	1	
2E	Standard timing #5	01	00000001	1	
2F		01	00000001	1	
30	Standard timing #6	01	00000001	1	
31	2	01	00000001	1	
32	Standard timing #7	01	0000001	1	
33	2	01	00000001	1	
34	Standard timing #8	01	00000001	1	

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		1	ı		1
35		01	00000001	1	
36	Pixel Clock/10000 LSB	C6	11000110	198	
37	Pixel Clock/10000 USB	1B	00011011	27	
38	Horz active Lower 8bits	00	00000000	0	
39	Horz blanking Lower 8bits	9E	10011110	158	
3A	HorzAct:HorzBlnk Upper 4:4 bits	50	01010000	80	
3B	Vertical Active Lower 8bits	20	00100000	32	
3C	Vertical Blanking Lower 8bits	17	00010111	23	
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‖ Sync Offset/Width Upper 2bits	00	00000000	0	
42	Horizontal Image Size Lower 8bits	2F	00101111	47	
43	Vertical Image Size Lower 8bits	BD	10111101	189	
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	
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	Α
60	Manufacture	55	01010101	85	U
61	Manufacture	4F	01001111	79	0
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	
		-	-	-	-

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70		00	00000000	0	
71	Manufacture P/N	42	01000010	66	В
72	Manufacture P/N	31	00110001	49	1
73	Manufacture P/N	34	00110100	52	4
74	Manufacture P/N	31	00110001	49	1
75	Manufacture P/N	45	01000101	69	E
76	Manufacture P/N	57	01010111	87	W
77	Manufacture P/N	30	00110000	48	0
78	Manufacture P/N	35	00110101	53	5
79	Manufacture P/N	20	00100000	32	
7 <b>A</b>	Manufacture P/N	56	01010110	86	V
7B	Manufacture P/N	33	00110011	51	3
7C		20	00100000	32	
7D		0A	00001010	10	
7E	Extension Flag	00	00000000	0	
7F	Checksum	4D	01001101	77	
			SUM	5888	

SUM to HEX 1700