(V) Preliminary Specifications
( ) Final Specifications

Module	14.1” XGA Color TFT-LCD
Model Name	B141XG09 V5

Customer	**Date**	**Approved by**	**Date**
Checked & Approved by	**Date**	**Prepared by**	**Date**
Note: This Specification is subject to change without notice.		AU Optronics corporation	

Contents

Record of Revision

Version and Date	Page	Old description	New Description	Remark
0.1 2007/4/2	All	First Edition		

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) In case if a Module has to be put back into the packing container slot after once it was taken out from the container, do not press the center of the CCFL Reflector edge. Instead, press at the far ends of the CFL Reflector edge softly. Otherwise the TFT Module may be damaged.
10) 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) Cold cathode fluorescent lamp in LCD contains a small amount of mercury. Please follow local ordinances or regulations for disposal.
13) 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.
14) The LCD module is designed so that the CCFL in it is supplied by Limited Current Circuit(IEC60950 or UL1950). Do not connect the CCFL in Hazardous Voltage Circuit.

2. General Description

B141XG09 V5 is a Color Active Matrix Liquid Crystal Display composed of a TFT LCD panel, a driver circuit, and backlight system. The screen format is intended to support the XGA (1024(H)

x 768(V)) screen and 262k colors. All input signals are LVDS interface compatible. Inverter of backlight is not included.

B141XG09 V5 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 ℃ condition:

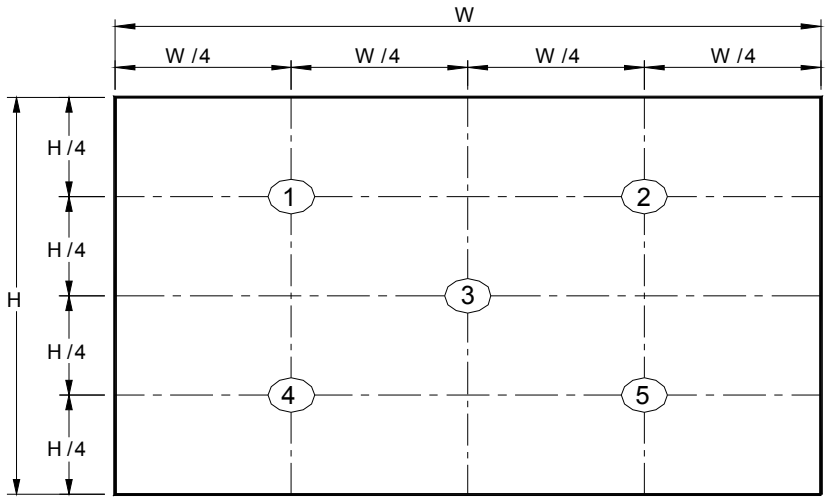
Items	Unit	Specifications
Screen Diagonal	[mm]	357.0 (14.1”)
Active Area	[mm]	285.7(H) X 214.3(V)
Pixels H x V		1024 x 3(RGB) x 768
Pixel Pitch	[mm]	0.279 x 0.279
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		Normally White
White Luminance (I_{CCFL}=6.0mA) Note: I_{CCFL} is lamp current	[cd/m^2]	200 typ. (5 points average) 170 min. (5 points average) (Note1)
Luminance Uniformity		1.25 (5 points)
Contrast Ratio		400 typ. 300 min.
Optical Rise Time/Fall Time	[msec]	10/15 typ.
Nominal Input Voltage VDD	[Volt]	+3.3 typ.
Power Consumption	[Watt]	4.92 max.(without inverter)
Weight	[Grams]	413 typ 433 max.
Physical Size	[mm]	299.0 typ. x 228.0 typ. x 5.5 max
Electrical Interface		1-channel LVDS
Surface Treatment		Anti-Glare, Anti-reflection (Nitto Denko ARC150T), Hardness 3H, Haze 25%
Support Color		Native 262K colors (RGB 6-bit data driver)
Temperature Range Operating Storage (Non-Operating)	 [^{o}C] [^{o}C]	 0 to +50 -20 to +60
RoHS Compliance		RoHS Compliance

2.2 Optical Characteristics

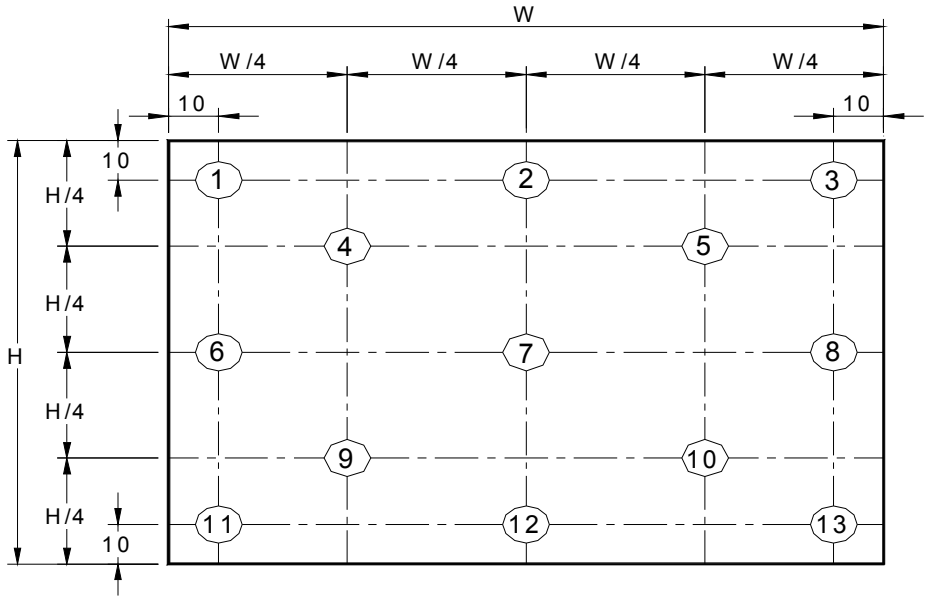
The optical characteristics are measured under stable conditions at 25℃ (Room Temperature):

Item	Unit	Conditions	Min.	Typ.	Max.	Note
White Luminance I_{CCFL}=6.0mA	[cd/m^2]	5 points average	170	200	-	1, 4, 5.
Viewing Angle	[degree]	Horizontal (Right) CR = 10	-	42	-	8
	[degree]	(Left)	-	42	-	
	[degree]	Vertical (Upper) CR = 10	-	20	-	
	[degree]	(Lower)	-	40	-	
Luminance Uniformity		5 Points	-	-	1.25	1
Luminance Uniformity		13 Points	-	-	1.6	2
CR: Contrast Ratio			300	400	-	6
Cross talk	%		-	-	4	7
Response Time	[msec]	Rising	-	10	15	8
	[msec]	Falling	-	15	20	
	[msec]	Rising + Falling		25	35	
Color / Chromaticity Coordinates (CIE 1931)		Red x	0.550	0.580	0.610	2,8
		Red y	0.310	0.340	0.370	
		Green x	0.280	0.310	0.340	
		Green y	0.520	0.550	0.580	
		Blue x	0.120	0.150	0.180	
		Blue y	0.100	0.130	0.160	
		White x	0.285	0.313	0.341	
		White y	0.309	0.329	0.349	

Note 1: 5 points position (Display area : 285.7mm x 214.3mm)



Note 2: 13 points position



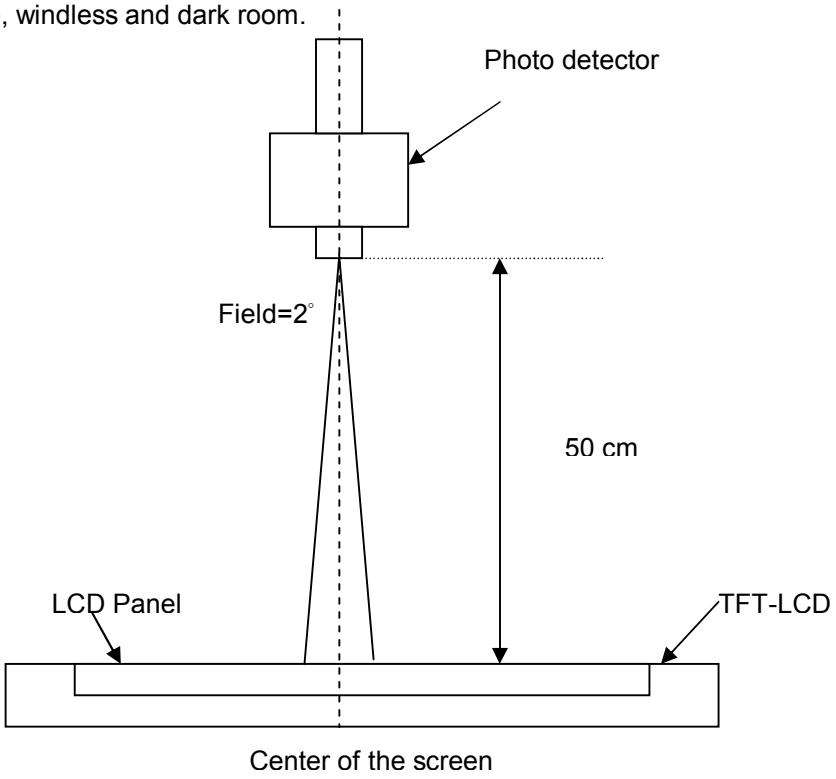
Note 3: The luminance uniformity of 5 and 13 points is defined by dividing the maximum luminance values by the minimum test point luminance

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

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

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.



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.

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

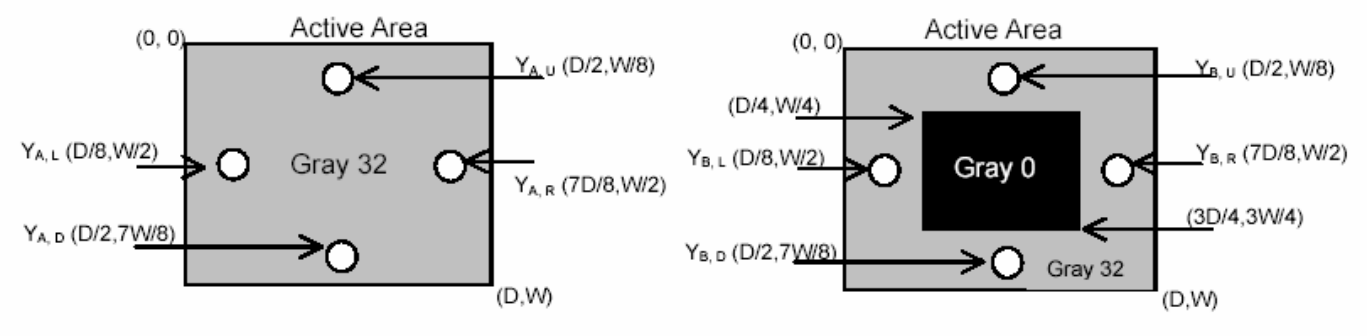
Note 7： Definition of Cross Talk (CT)

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

Where

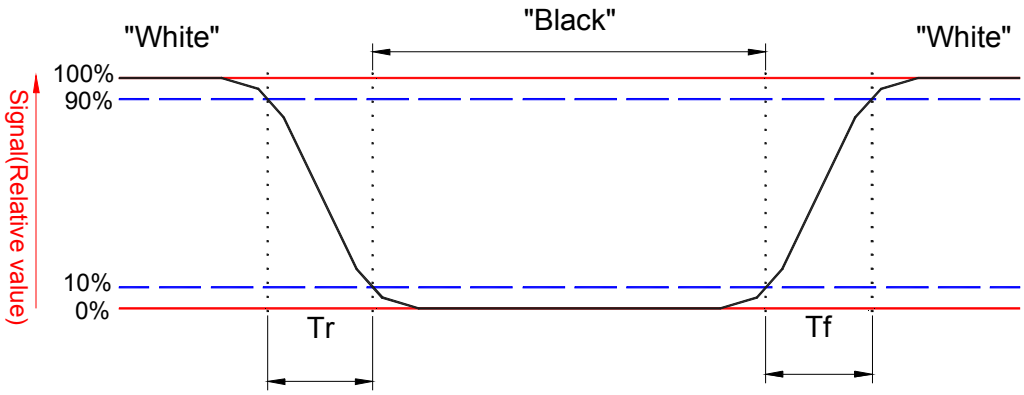
Y_A = Luminance of measured location without gray level 0 pattern (cd/m2)

Y_B = Luminance of measured location with gray level 0 pattern (cd/m2)



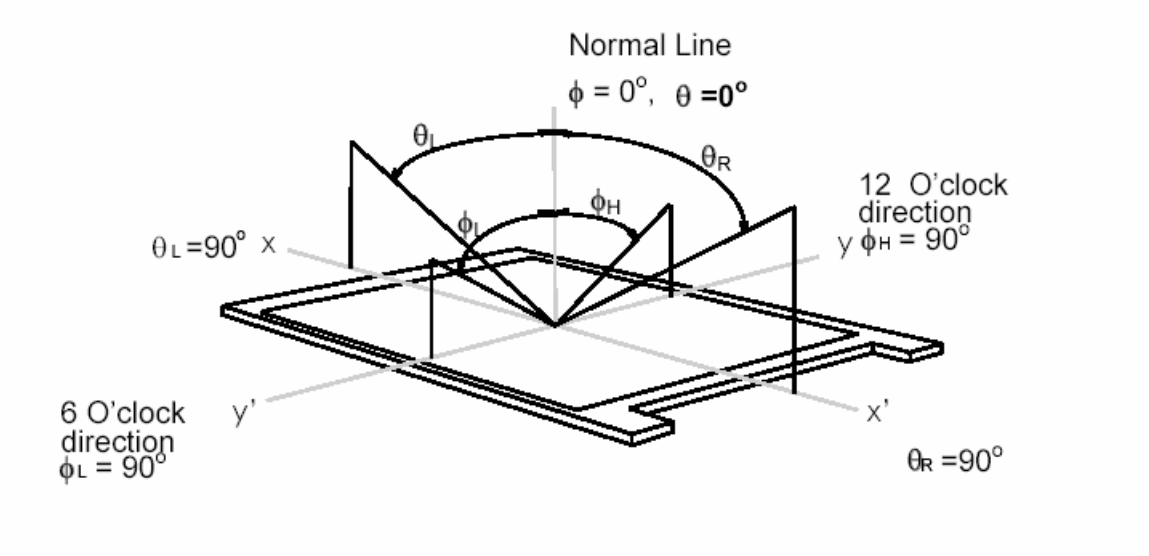
Note 8: Definition of response time:

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.



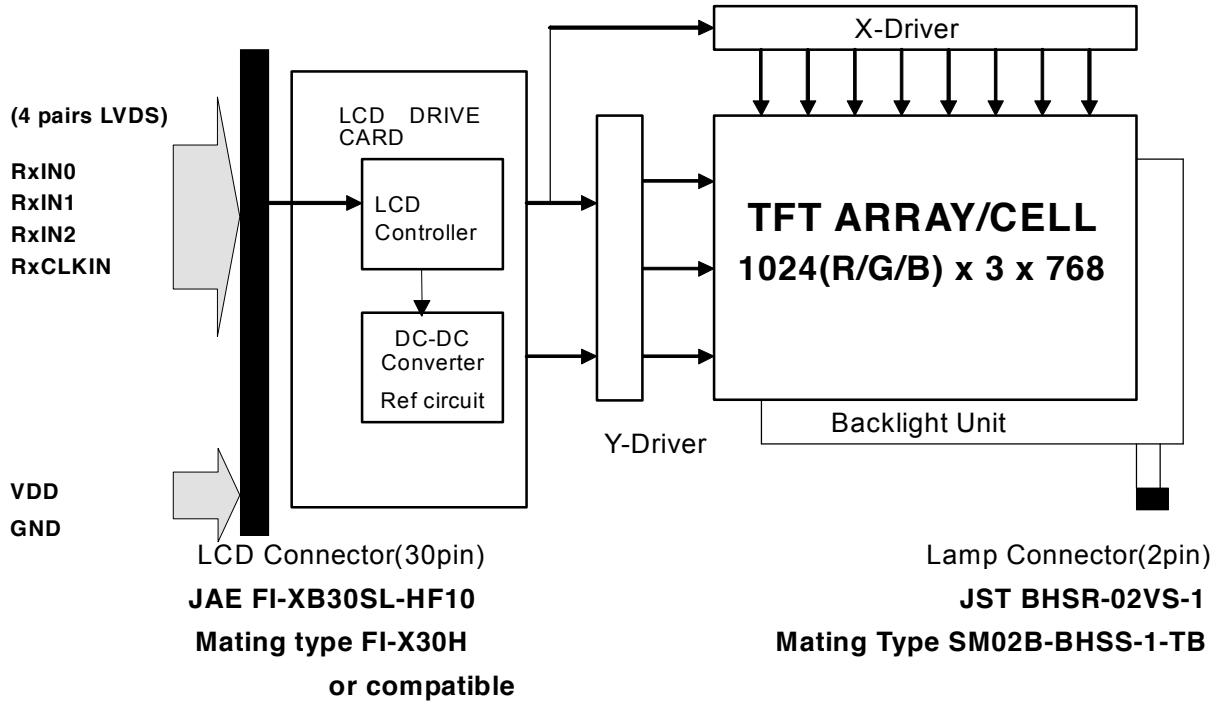
Note 8. Definition of viewing angle

Viewing angle is the measurement of contrast ratio ≧ 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 Color TFT/LCD Module:



4. Absolute Maximum Ratings

Absolute maximum ratings of the module is as following:

4.1 Absolute Ratings of TFT LCD Module

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

4.2 Absolute Ratings of Backlight Unit

Item	Symbol	Min	Max	Unit	Conditions
CCFL Current	ICCFL	-	7.0	[mA] rms	Note 1,2

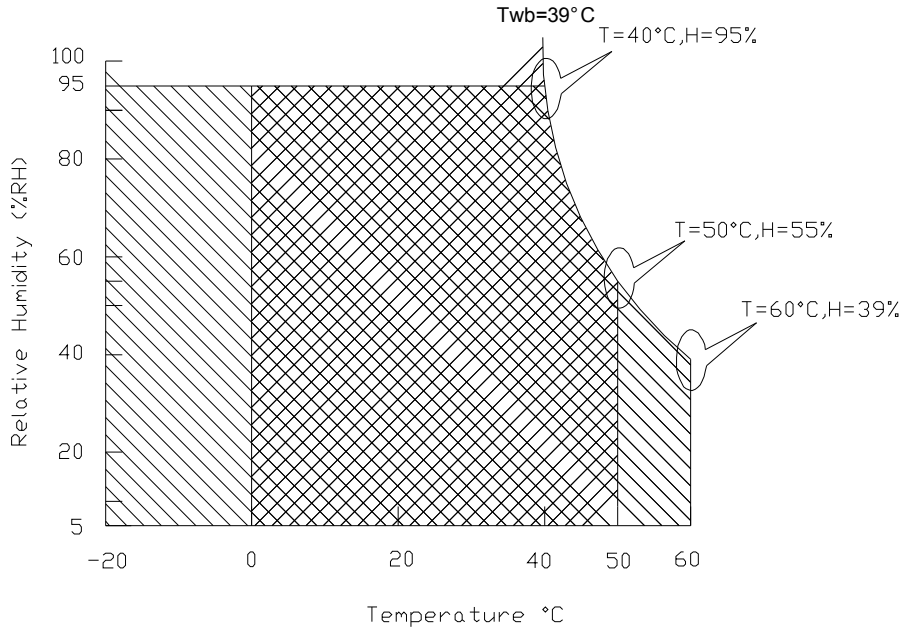
4.3 Absolute Ratings of Environment

Item	Symbol	Min	Max	Unit	Conditions
Operating Temperature	TOP	0	+50	[°C]	Note 3
Operation Humidity	HOP	5	95	[%RH]	Note 3
Storage Temperature	TST	-20	+60	[°C]	Note 3
Storage Humidity	HST	5	95	[%RH]	Note 3

Note 1: At Ta (25℃)

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

Note 3: For quality performance, please refer to AUO IIS(Incoming Inspection Standard).



Operating Range Storage Range

5. Electrical characteristics

5.1 TFT LCD Module

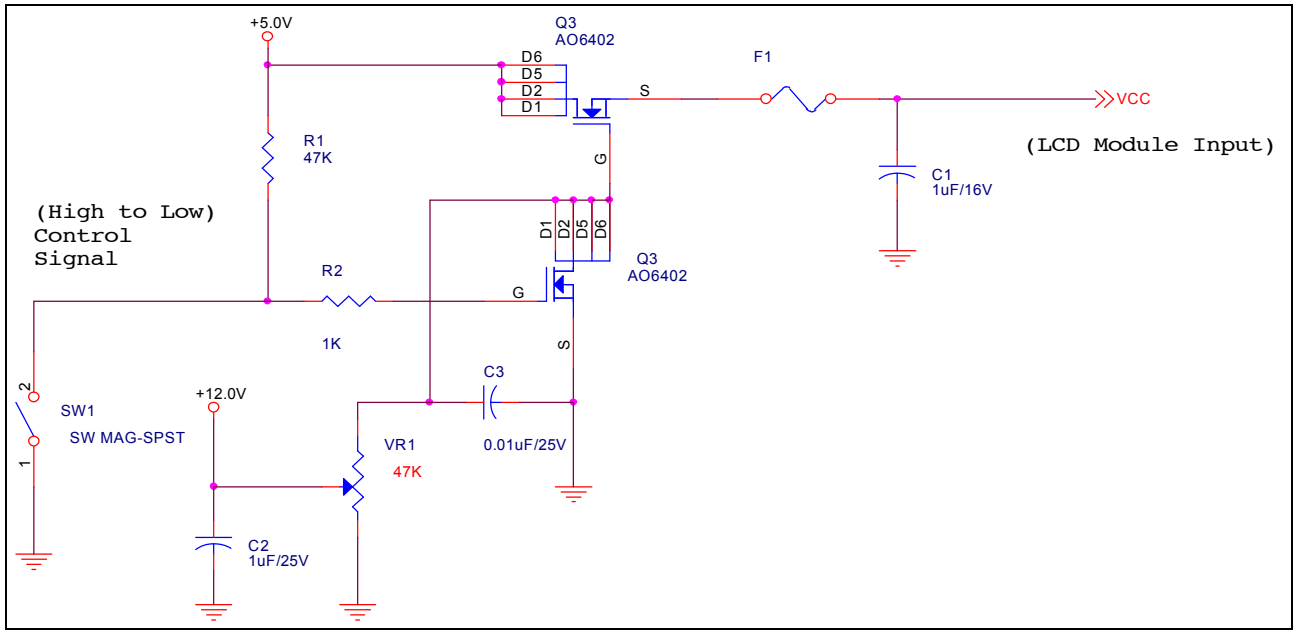
5.1.1 Power Specification

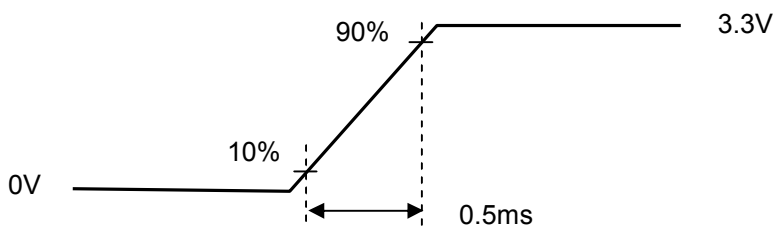
Input power specifications are as follows;

Symbol	Parameter	Min	Typ	Max	Units	Note
VDD	Logic/LCD Drive Voltage	3.0	3.3	3.6	[Volt]	
PDD	VDD Power		1.2	1.6	[Watt]	Note 1
IDD	IDD Current		400	420	[mA]	Note 1
IRush	Inrush Current			1800	[mA]	Note 2
VDDrp	Allowable Logic/LCD Drive Ripple Voltage			500	[mV] p-p	

Note 1 : Maximum Measurement Condition : Black Pattern (Windows XP pattern VDD Power Typ.: 0.92W)

Note 2 : Measure Condition





Vin rising time

5.1.2 Signal Electrical Characteristics

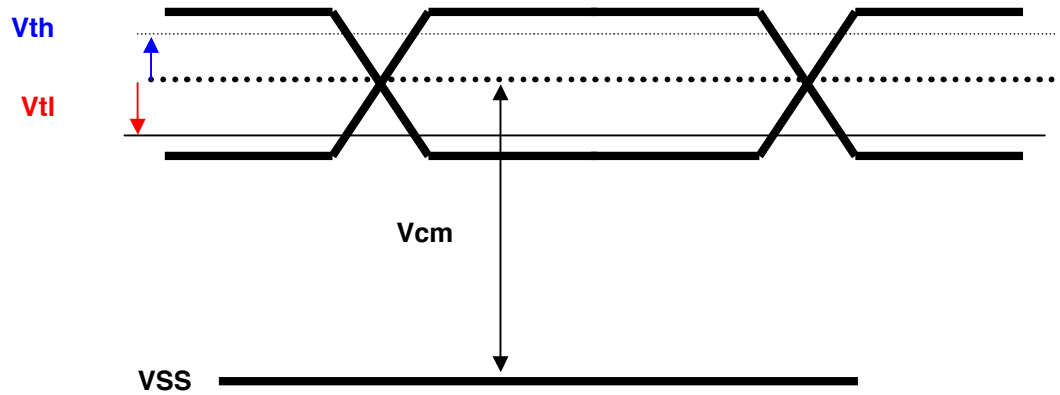
Input signals shall be low or High-impedance state when VDD is off.

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	2	[V]

Note: LVDS Signal Waveform



5.2 Backlight Unit

Parameter guideline for CCFL Inverter

Parameter	Min	Typ	Max	Units	Condition
White Luminance 5 points average	170	200	-	[cd/m^2]	(Ta=25℃)
CCFL current(I_{CCFL})	2.0	6.0	6.5	[mA] rms	(Ta=25℃) Note 2
CCFL Frequency(F_{CCFL})	50	60	70	[KHz]	(Ta=25℃) Note 3,4
CCFL Ignition Voltage(Vs)	1400			[Volt] rms	(Ta= 0℃) Note 5
CCFL Ignition Voltage(Vs)		1130		[Volt] rms	(Ta= 25℃) Note 5
CCFL Voltage (Reference) (V_{CCFL})		650		[Volt] rms	(Ta=25℃) Note 6
CCFL Power consumption (P_{CCFL})	-	3.72	3.9	[Watt]	(Ta=25℃) Note 6

Note 1: Typ are AUO recommended Design Points.

*1 All of characteristics listed are measured under the condition using the AUO Test inverter.

*2 In case of using an inverter other than listed, it is recommended to check the inverter carefully. Sometimes, interfering noise stripes appear on the screen, and substandard luminance or flicker at low power may happen.

*3 In designing an inverter, it is suggested to check safety circuit very carefully. Impedance of CCFL, for instance, becomes more than 1 [M ohm] when CFL is damaged.

*4 Generally, CCFL has some amount of delay time after applying kick-off voltage. It is recommended to keep on applying kick-off voltage for 1 [Sec] until discharge.

*5 CCFL discharge frequency must be carefully chosen so as not to produce interfering noise stripes on the screen.

*6 Reducing CCFL current increases CCFL discharge voltage and generally increases CCFL discharge frequency. So all the parameters of an inverter should be carefully designed so as not to produce too much leakage current from high-voltage output of the inverter.

Note 2: It should be employed the inverter which has “Duty Dimming”, if ICCFL is less than 4mA.

Note 3: CCFL discharge frequency should be carefully determined to avoid interference between inverter and TFT LCD.

Note 4: The frequency range will not affect to lamp life and reliability characteristics.

Note 5: CCFL inverter should be able to give out a power that has a generating capacity of over 1,430 voltage. Lamp units need 1,400 voltage minimum for ignition.

Note 6: Calculator value for reference ($I_{CCFL} \times V_{CCFL} = P_{CCFL}$)

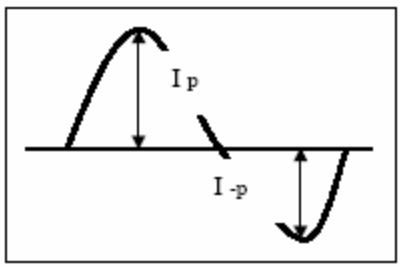
Note 7: Requirements for a system inverter design, which is intended to have a better display performance, a better power efficiency and a more reliable lamp, are following.

It shall help increase the lamp lifetime and reduce leakage current.

a. The asymmetry rate of the inverter waveform should be less than 10%.

b. The distortion rate of the waveform should be within √2 ±10%.

* Inverter output waveform had better be more similar to ideal sine wave.



* Asymmetry rate:

$| I_p - I_{-p} | / I_{rms} * 100\%$

* Distortion rate

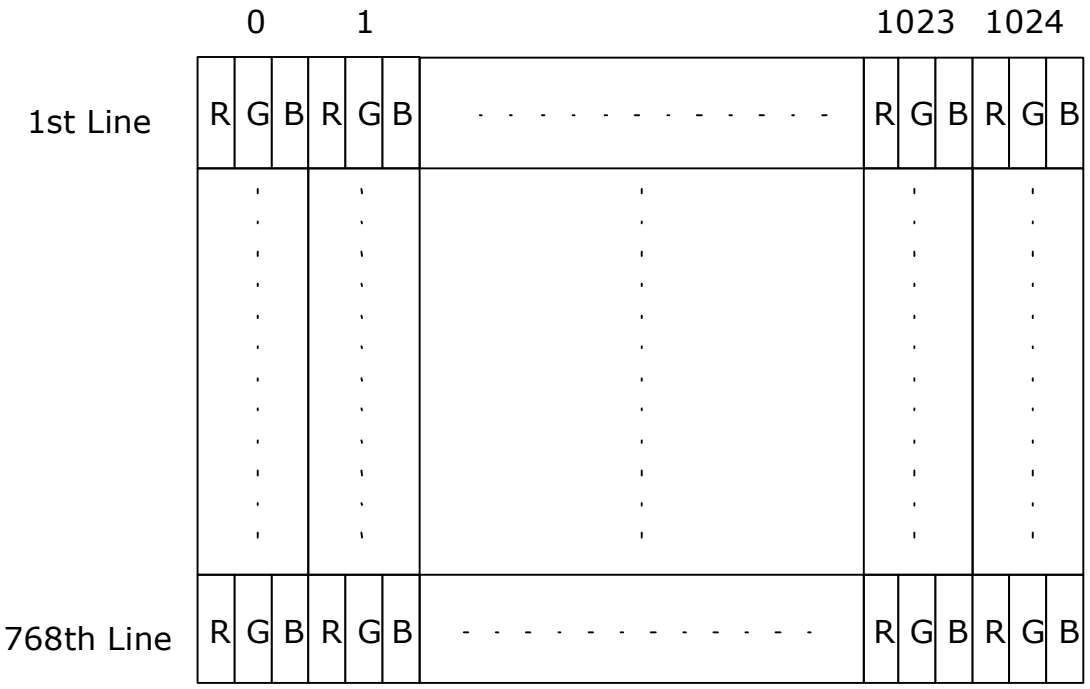
I_p (or I_{-p}) / I_{rms}

Note 8: When CCFL works at minimum working current (2mA), the duty percent has to maintain at 15% (min).

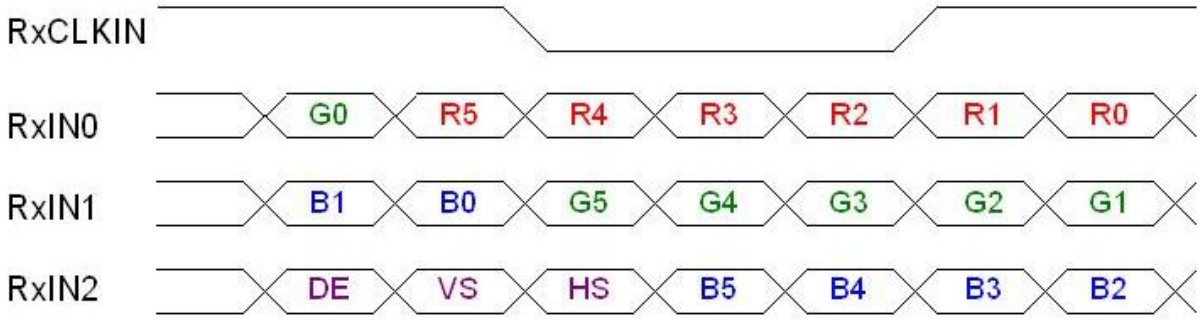
6. Signal Characteristic

6.1 Pixel Format Image

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



6.2 The input data format



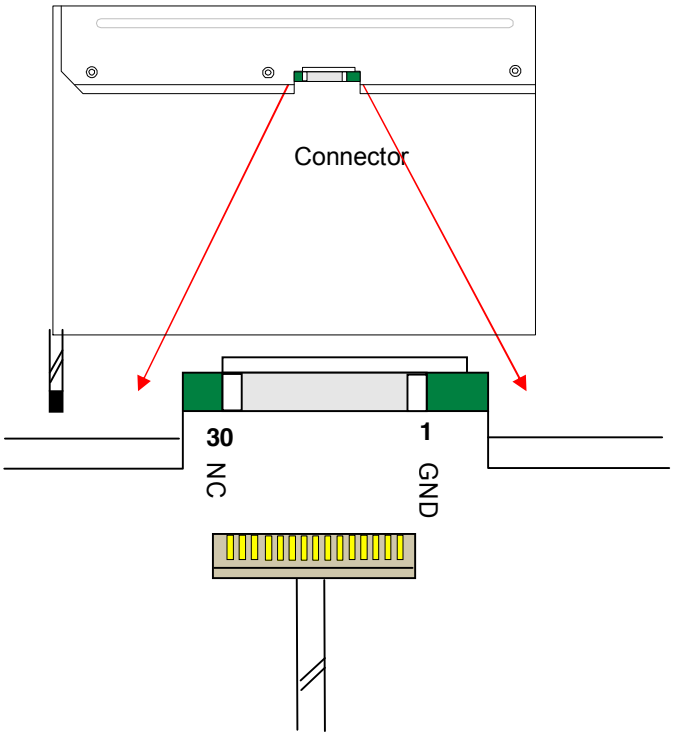
Signal Name	Description	
RED5 RED4 RED3 RED2 RED1 RED0	Red Data 5 (MSB) Red Data 4 Red Data 3 Red Data 2 Red Data 1 Red Data 0 (LSB) Red-pixel Data	Red-pixel Data Each red pixel's brightness data consists of these 6 bits pixel data.
GREEN 5 GREEN 4 GREEN 3 GREEN 2 GREEN 1 GREEN 0	Green Data 5 (MSB) Green Data 4 Green Data 3 Green Data 2 Green Data 1 Green Data 0 (LSB) Green-pixel Data	Green-pixel Data Each green pixel's brightness data consists of these 6 bits pixel data.
BLUE 5 BLUE 4 BLUE 3 BLUE 2 BLUE 1 BLUE 0	Blue Data 5 (MSB) Blue Data 4 Blue Data 3 Blue Data 2 Blue Data 1 Blue Data 0 (LSB) Blue-pixel Data	Blue-pixel Data Each blue pixel's brightness data consists of these 6 bits pixel data.
DTCLK	Data Clock	The typical frequency is 68.9 MHZ.. The signal is used to strobe the pixel data and DSPTMG signals. All pixel data shall be valid at the falling edge when the DSPTMG signal is high.
DSPTMG	Display Timing	This signal is strobed at the falling edge of -DTCLK. When the signal is high, the pixel data shall be valid to be displayed.
VSYNC	Vertical Sync	The signal is synchronized to -DTCLK .
HSYNC	Horizontal Sync	The signal is synchronized to -DTCLK .

6.3 Signal Description/Pin Assignment

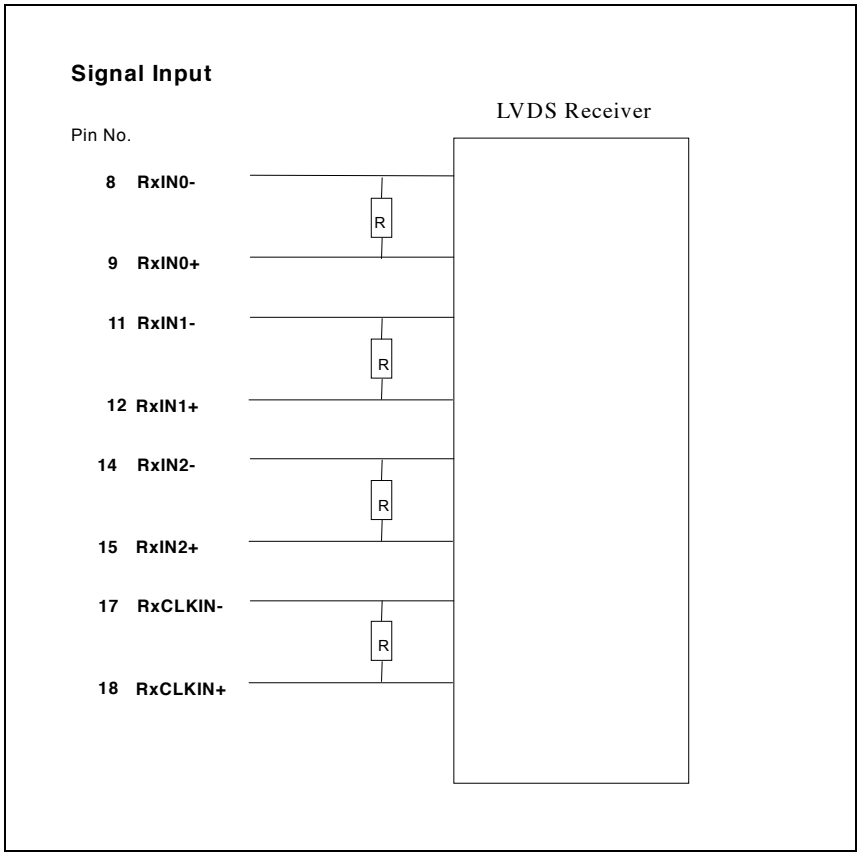
The LVDS receiver equipped in this LCD module is compatible with SN75LVDS86 standard. LVDS is a differential signal technology for LCD interface and high speed data transfer device. Transmitter shall be SN75LVDS84 (negative edge sampling) or compatible.

Signal Name	Description
RxIN0N, RxIN0P	LVDS differential data input (Red0-Red5, Green0)
RxIN1N, RxIN1P	LVDS differential data input (Green1-Green5, Blue0-Blue1)
RxIN2N, RxIN2P	LVDS differential data input (Blue2-Blue5, Hsync, Vsync, DSPTMG)
RxCLKINN, RxCLKIN0P	LVDS differential clock input
VDD	+3.3V Power Supply
GND	Ground

Note1: Start from right side
Note2: Please follow VESA.
Note3: Input signals shall be low or Hi-Z 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



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

PIN#	Signal Name	Description
1	GND	Ground
2	VDD	+3.3V Power Supply
3	VDD	+3.3V Power Supply
4	V_{EDID}	+3.3V EDID Power
5	NC	No connection (For AUO test)
6	CLK_{EDID}	EDID Clock Input
7	$DATA_{EDID}$	EDID Data Input
8	RXIN0-	LVDS differential data input(Red0-Red5, Green0)
9	RXIN0+	LVDS differential data input(Red0-Red5, Green0)
10	GND	Ground
11	RXin1-	LVDS differential data input(Green1-Green5, Blue0-Blue1)
12	RxIN1+	LVDS differential data input(Green1-Green5, Blue0-Blue1)
13	GND	Ground
14	RXin2-	LVDS differential data input(Blue2-Blue5, Hsync, Vsync, DSPTMG)
15	RxIN2+	LVDS differential data input(Blue2-Blue5, Hsync, Vsync, DSPTMG)
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

6.4 Interface Timing

6.4.1 Timing Characteristics

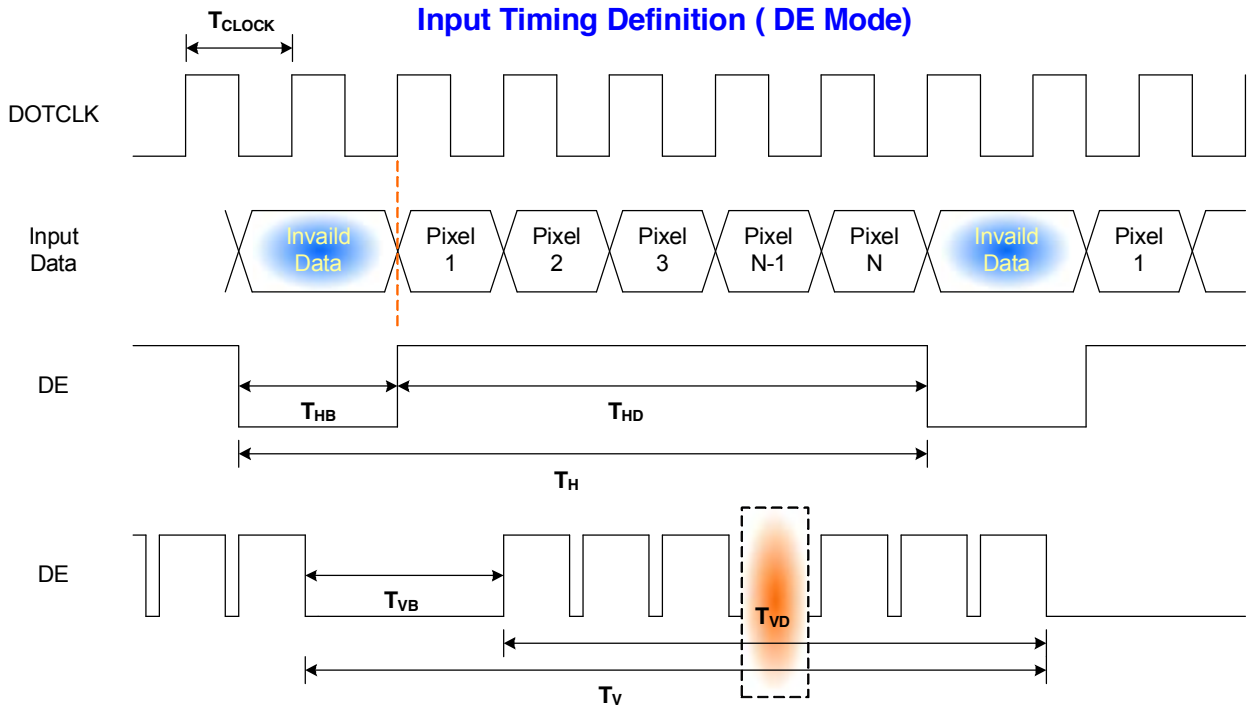
Basically, interface timings should match the 1024x768 / 60Hz manufacturing guide line timing.

Parameter		Symbol	Min.	Typ.	Max.	Unit
Frame Rate		-	40	60	-	Hz
Clock frequency		$1/T_{Clock}$	50	65	68	MHz
Vertical Section	Period	T_V	774	806	1024	T_{Line}
	Active	T_{VD}	-	768	-	
	Blanking	T_{VB}	6	38	256	
Horizontal Section	Period	T_H	1054	1344	1648	T_{Clock}
	Active	T_{HD}	-	1024	-	
	Blanking	T_{HB}	30	320	624	

Note(1) : DE mode only

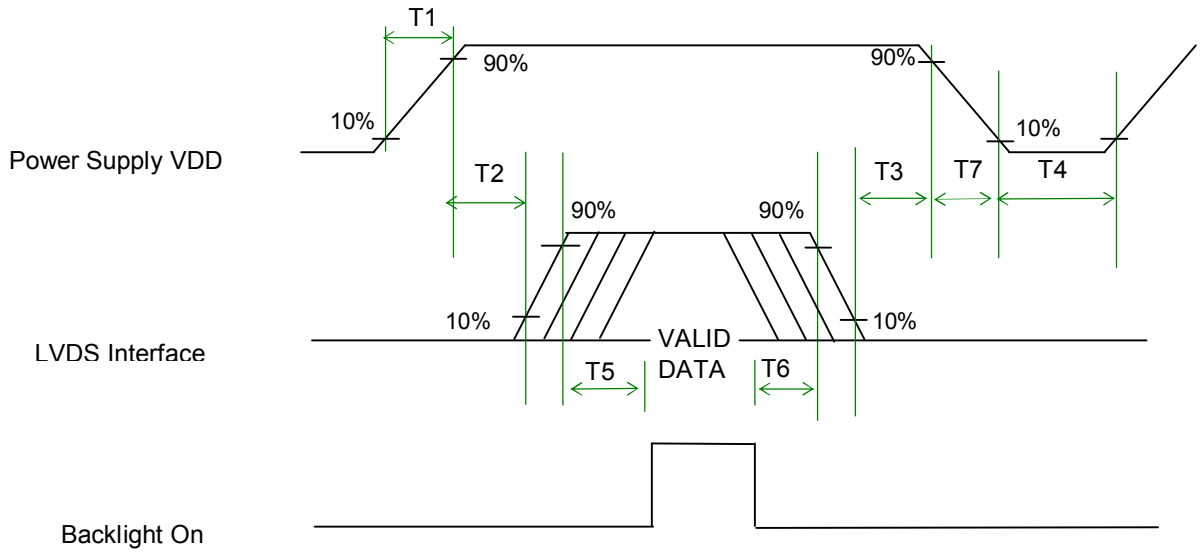
Note(2) : The designed minimum value of “Frame Rate” is 50 Hz. When “Frame Rate” is set to be 40 Hz, flicker syndrome may occur.

6.4.2 Timing diagram



6.5 Power ON/OFF Sequence

VDD power and lamp 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	0.3	-	10	(ms)
T2	0	-	50	(ms)
T3	0	-	-	(ms)
T4	150	-	-	(ms)
T5	200	-	-	(ms)
T6	0	-	-	(ms)
T7	-	-	10	(ms)

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
Type / Part Number	FI-XB30SL-HF10
Mating Housing/Part Number	FI-X30M, FI-X30C or FI-X30H

7.2 Backlight Unit

Physical interface is described as for the connector on module.

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

Connector Name / Designation	For Lamp Connector
Manufacturer	JST
Type / Part Number	BHSR-02VS-1
Mating Type / Part Number	SM02B-BHSS-1-TB

7.3 Signal for Lamp connector

Pin #	Cable color	Signal Name
1	Red	Lamp High Voltage
2	White	Lamp Low Voltage

8. Vibration and Shock Test

8.1 Vibration Test

Test Spec:

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

8.2 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

9. Reliability

Items	Required Condition	Note
Temperature Humidity Bias	40℃/90%,300Hr	
High Temperature Operation	50℃/Dry,300Hr	
Low Temperature Operation	0℃,300Hr	
On/Off Test	25℃,150hrs(ON/10 sec. OFF/10sec., 10,000 cycles)	
Hot Storage	60℃/35% RH ,250 hours	
Cold Storage	-20℃/50% RH ,250 hours	
Thermal Shock Test	-20℃/30 min ,60℃/30 min 100cycles	
Hot Start Test	50℃/1 Hr min. power on/off per 5 minutes, 5 times	
Cold Start Test	0℃/1 Hr min. power on/off per 5 minutes, 5 times	
Shock Test (Non-Operating)	220G, 2ms, Half-sine wave	
Vibration Test (Non-Operating)	Random vibration, 1.5 G zero-to-peak, 10 to 500 Hz, 30 mins in each of three mutually perpendicular axes	
ESD	Contact : ±8KV/ operation Air : ±15KV / operation	Note 1
Room temperature Test	25℃, 2000hours, Operating with loop pattern	

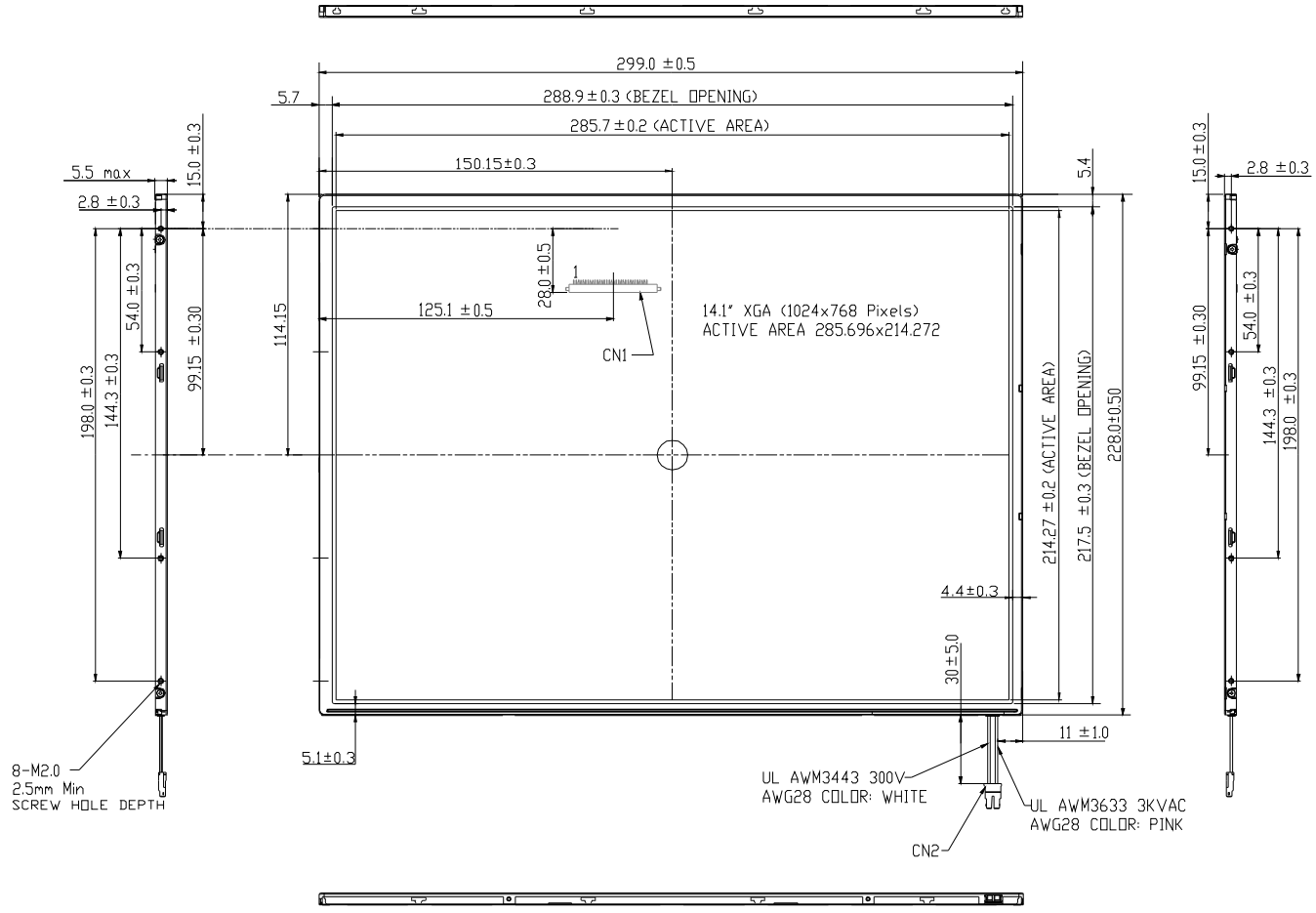
Note1: According to EN61000-4-2 , ESD class B: Some performance degradation allowed. No data lost . Self-recoverable. No hardware failures.

Note2: CCFL Life time: 12,000 hours minimum under normal module usage.

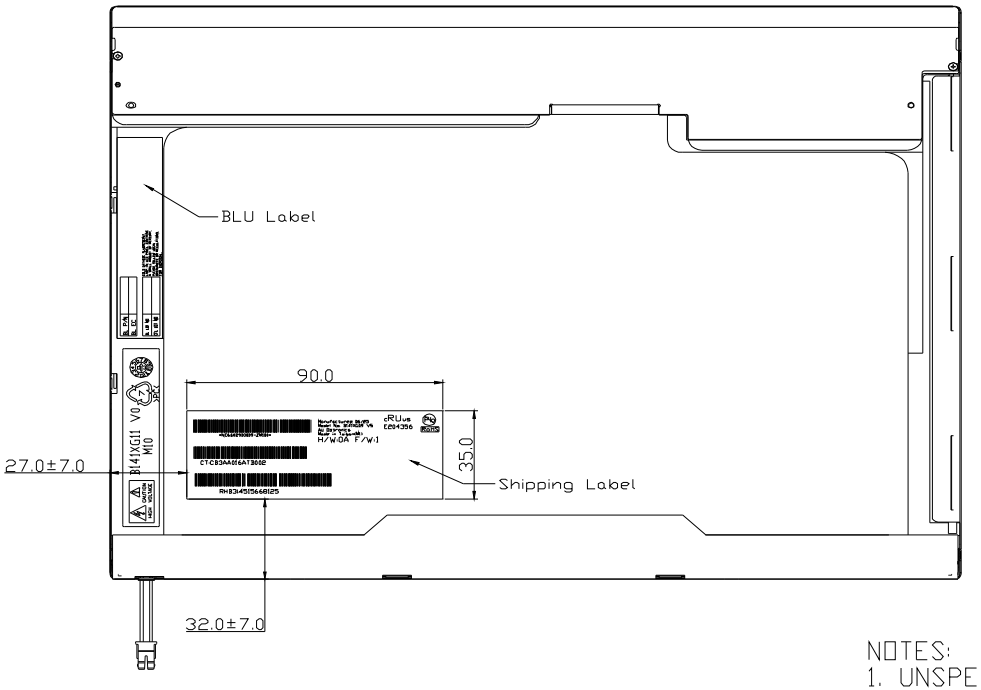
Note3: MTBF (Excluding the CCFL): 30,000 hours with a confidence level 90%

10. Mechanical Characteristics

10.1 LCM Outline Dimension



B141XG09 V5 OUTLINE DIMENSION (FRONT VIEW)



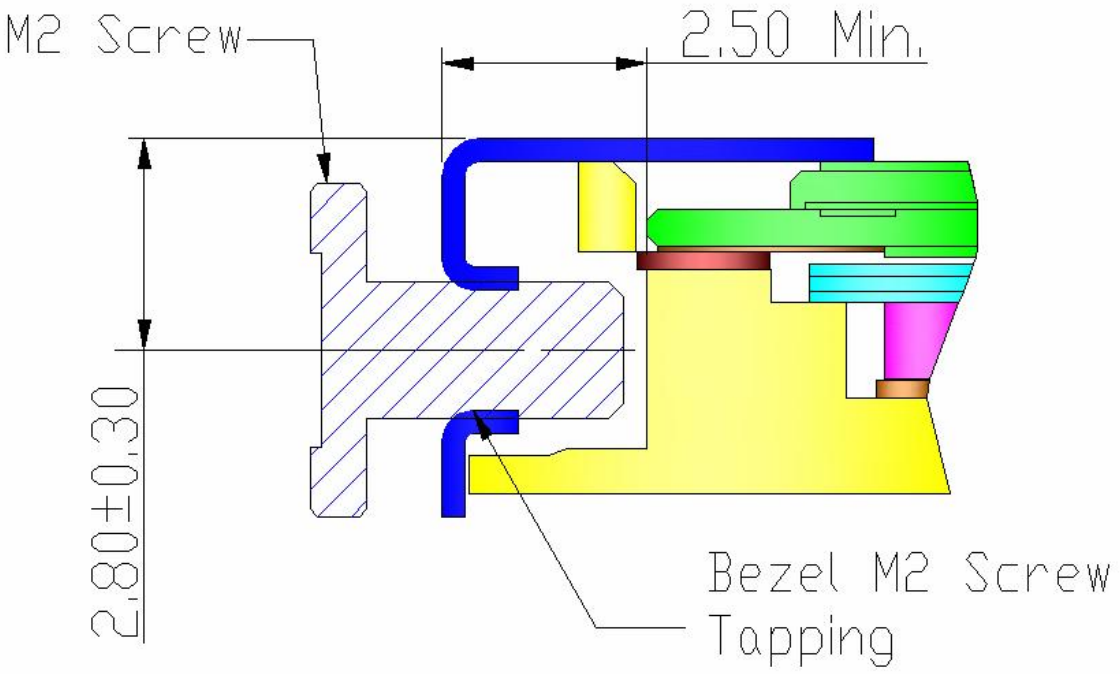
NOTES:
1. UNSPECIFIED TOLERANCE TO BE ±0.3mm
2. CONNECTOR TYPE:
   CN1: JAE FI-XB30SL-HF10
   MATING CONNECTOR: JAE FI-X30HL
   CN2: BHSR-02VS-1 (JST)
   MATING CONNECTOR: SM02B-BHSS-1-TB (JST)
3. UNIT: mm

B141XG09 V5 OUTLINE DIMENSION (REAR VIEW)

10.2 Screw Hole Depth and Center Position

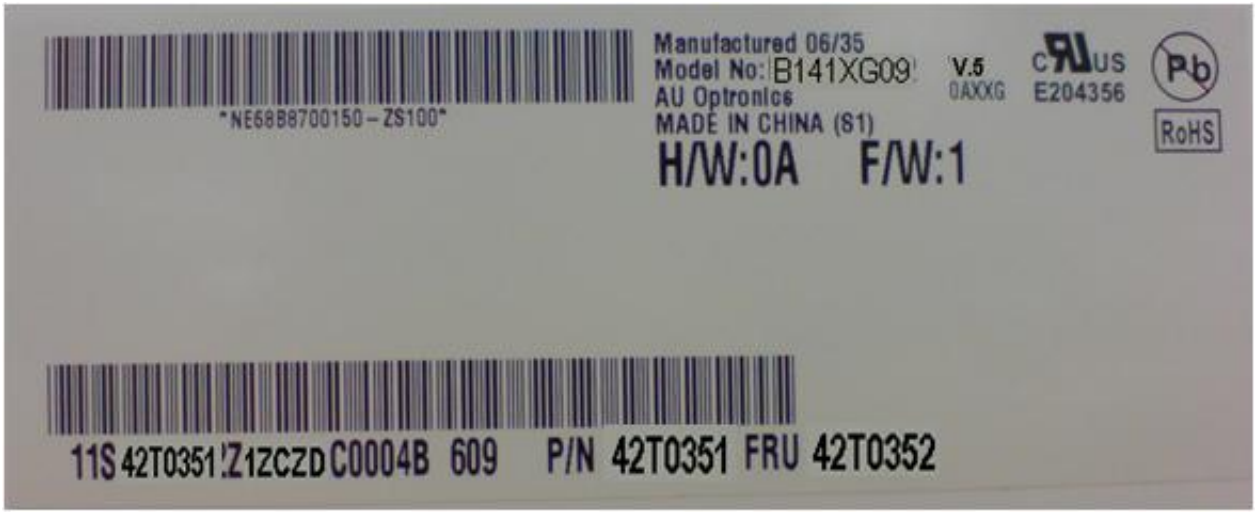
Screw hole minimum depth, from side surface =2.5 mm (See drawing)

Screw hole center location, from front surface = 3.1 +/- 0.3mm (See drawing)
Screw Torque: Maximum 2.5 kgf-cm

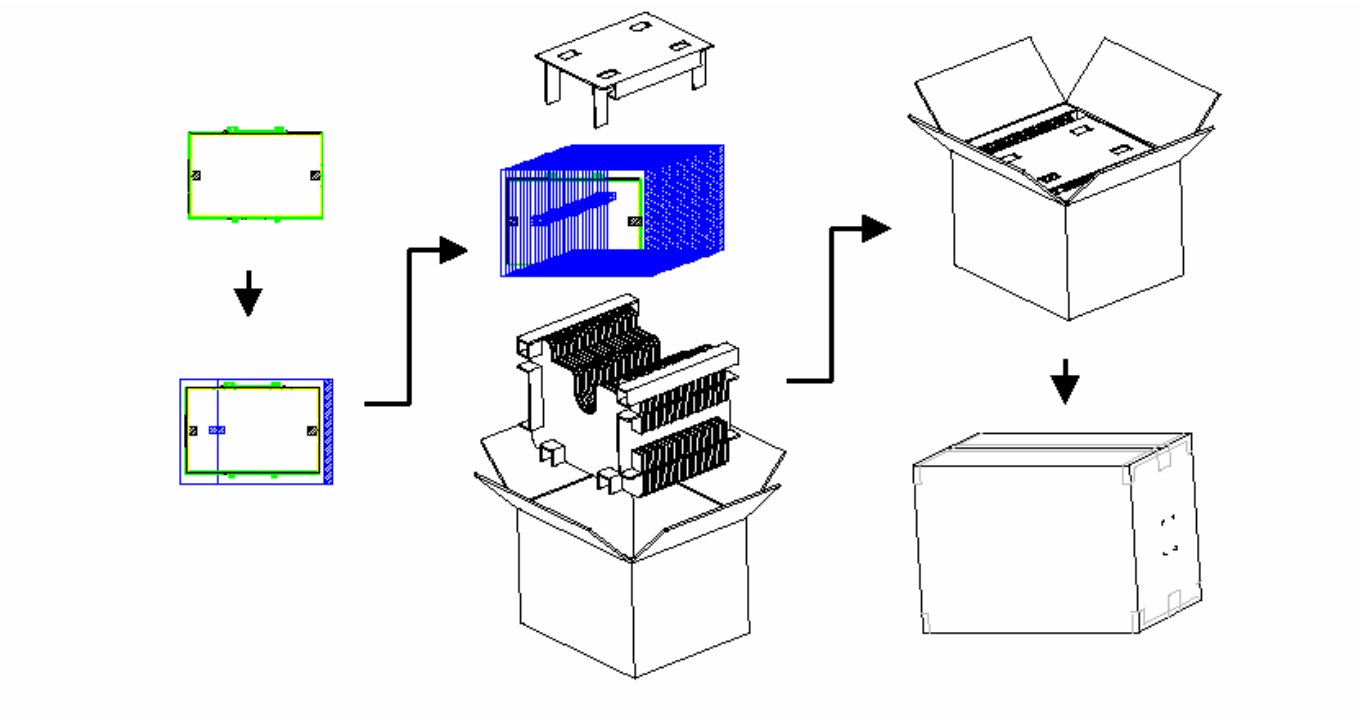


11. Shipping and Package

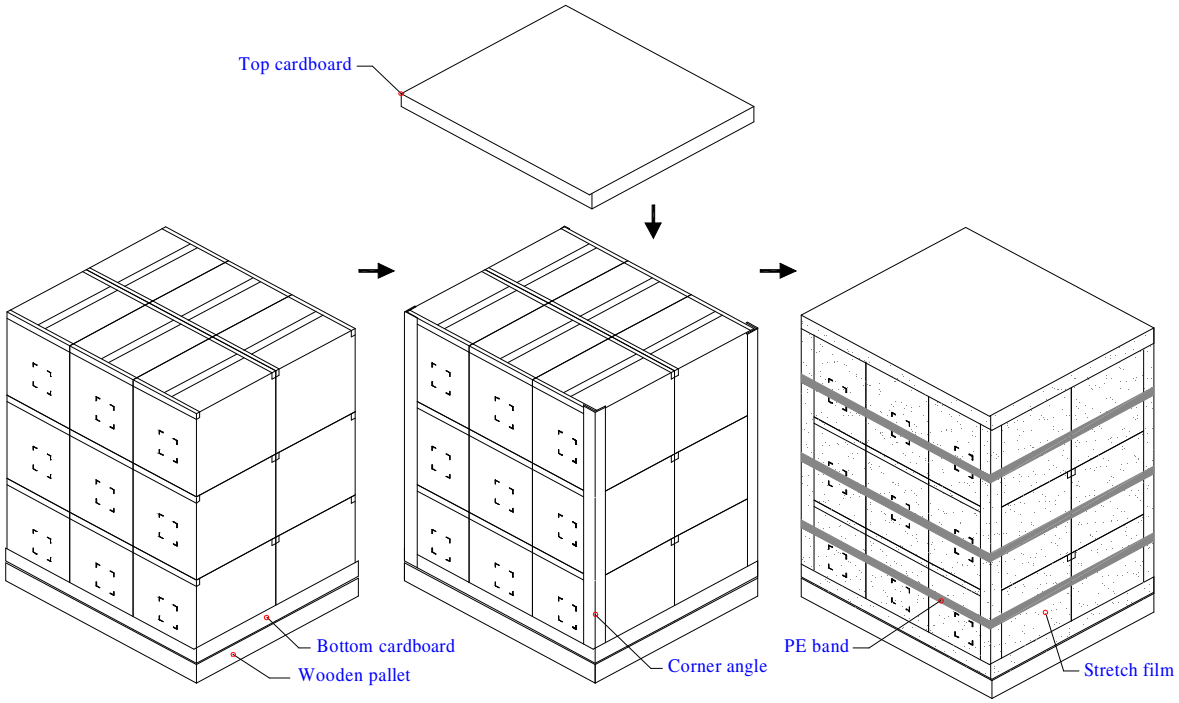
11.1 Shipping Label Format



11.2. Carton package



11.3 Shipping package of palletizing sequence



Note : Limit of box palletizing = Max 3 layers(ship and stock conditions)

12. Appendix: EDID description

Byte# (decimal)	Byte# (HEX)	Field Name and Comments	Data (DEC)	Data (HEX)	Input Value
0	00	Header	0	00	
1	01	Header	255	FF	
2	02	Header	255	FF	
3	03	Header	255	FF	
4	04	Header	255	FF	
5	05	Header	255	FF	
6	06	Header	255	FF	
7	07	Header	0	00	
8	08	ID system Manufacturer Name	48	30	**LEN**
9	09	Compressed ASCII	174	AE	
10	0A	ID Product Code (LSB)	32	20	**XGA (4020)**
11	0B	ID Product Code (MSB)	64	40	
12	0C	LCD Module Serial No.	0	00	
13	0D	LCD Module Serial No.	0	00	
14	0E	LCD Module Serial No.	0	00	
15	0F	LCD Module Serial No.	0	00	
16	10	Week of Manufacture	1	01	
17	11	Year of Manufacture	16	10	2006
18	12	EDID Structure version	1	01	1
19	13	EDID Revision	3	03	3
20	14	Video Input Definition	128	80	
21	15	Max H image size(㎝)	28	1C	28
22	16	Max V image size(㎝)	21	15	21
23	17	Display gamma	120	78	2.2
24	18	Feature support(DPMS)	234	EA	
25	19	Red/Green low Bits	135	87	RxRyGxGy
26	1A	Blue/White Low Bits	245	F5	BxByWxWy
27	1B	Red X	148	94	Rx=0.580
28	1C	Red Y	87	57	Ry=0.340
29	1D	Green X	79	4F	Gx=0.310
30	1E	Green Y	140	8C	Gy=0.550
31	1F	Blue X	39	27	Bx=0.155
32	20	Blue Y	39	27	By=0.155
33	21	White X	80	50	Wx=0.313
34	22	White Y	84	54	Wy=0.329
35	23	Established Timing I	33	21	
36	24	Established Timing II	8	08	
37	25	Manufacturer's Timings	0	00	
38	26	Standard Timing Identification 1	1	01	
39	27	Standard Timing Identification 1	1	01	
40	28	Standard Timing Identification 2	1	01	
41	29	Standard Timing Identification 2	1	01	
42	2A	Standard Timing Identification 3	1	01	
43	2B	Standard Timing Identification 3	1	01	
44	2C	Standard Timing Identification 4	1	01	
45	2D	Standard Timing Identification 4	1	01	
46	2E	Standard Timing Identification 5	1	01	

47	2F	Standard Timing Identification 5	1	01	
48	30	Standard Timing Identification 6	1	01	
49	31	Standard Timing Identification 6	1	01	
50	32	Standard Timing Identification 7	1	01	
51	33	Standard Timing Identification 7	1	01	
52	34	Standard Timing Identification 8	1	01	
53	35	Standard Timing Identification 8	1	01	
54	36	Pixel Clock/10,000 (LSB)	100	64	65MHz
55	37	Pixel Clock/10,000 (MSB) /	25	19	
56	38	Horizontal Active	0	00	1024 pixels
57	39	Horizontal Blanking	64	40	320 pixels
58	3A	Horizontal Active : Horizontal Blanking	65	41	
59	3B	Vertical Avtive	0	00	768 lines
60	3C	Vertical Blanking	38	26	38 lines
61	3D	Vertical Active : Vertical Blanking	48	30	
62	3E	Horizontal Sync. Offset	24	18	24 pixels
63	3F	Horizontal Sync Pulse Width	136	88	136 pixels
64	40	Vertical Sync Offset : Sync Width	54	36	3/6 lines
65	41	Horizontal Vertical Sync Offset/Width upper 2bits	0	00	0
66	42	Horizontal Image Size	29	1D	285
67	43	Vertical Image Size	214	D6	214
68	44	Horizontal & Vertical Image Size (upper 4bit)	16	10	
69	45	Horizontal Border = 0	0	00	
70	46	Vertical Border = 0	0	00	
71	47	Non-interlaced,Normal display,no stereo,Digital separate sync,H/V pol negatives	24	18	
72	48	Pixel Clock/10,000 (LSB) 50Hz	40	28	54.16MHz
73	49	Pixel Clock/10,000 (MSB) / 50Hz	21	15	
74	4A	Horizontal Active	0	00	1024 pixels
75	4B	Horizontal Blanking	64	40	320 pixels
76	4C	Horizontal Active : Horizontal Blanking	65	41	
77	4D	Vertical Avtive	0	00	768 lines
78	4E	Vertical Blanking	38	26	38 lines
79	4F	Vertical Active : Vertical Blanking	48	30	
80	50	Horizontal Sync. Offset	24	18	24 pixels
81	51	Horizontal Sync Pulse Width	136	88	136 pixels
82	52	Vertical Sync Offset : Sync Width	54	36	3/6 lines
83	53	Horizontal Vertical Sync Offset/Width upper 2bits	0	00	0
84	54	Horizontal Image Size	29	1D	285
85	55	Vertical Image Size	214	D6	214
86	56	Horizontal & Vertical Image Size (upper 4bit)	16	10	
87	57	Horizontal Border = 0	0	00	
88	58	Vertical Border = 0	0	00	
89	59	Non-interlaced,Normal display,no stereo,Digital separate sync,H/V pol negatives	24	18	
90	5A	Detailed Timing Descriptor #3	0	00	0
91	5B		0	00	0
92	5C		0	00	0
93	5D		15	0F	15
94	5E		0	00	0
95	5F	(Horizontal active pixel /8)-31	97	61	129
96	60	Image Aspect Ratio(4:3)	67	43	4:3

97	61	Low Refresh Rate #1(50Hz)	50	32	50
98	62	(Horizontal active pixel /8)-31	97	61	129
99	63	Image Aspect Ratio(16:10)	67	43	4:3
100	64	Low Refresh Rate #2(40Hz)	40	28	40
101	65	Brightness(1/10nit)	**21**	**15**	**210nit**
102	66	Feature flag(TN mode)	1	01	1
103	67	Reserved 00h	0	00	0
104	68	EISA manufacturer code(3 Character ID)	6	06	AUO
105	69	Compressed ASCII	175	AF	
106	6A	Panel Supplier Reserved - Product code	65	41	
107	6B	(Hex, LSB first)	149	95	
108	6C	Detailed Timing Descriptor #4	0	00	
109	6D		0	00	
110	6E		0	00	
111	6F		254	FE	
112	70		0	00	
113	71	(Supplier S/N)	65	41	A
114	72	(Supplier S/N)	85	55	U
115	73	(Supplier S/N)	79	4F	O
116	74	(Supplier S/N)	66	42	B
117	75	(Supplier S/N)	49	31	1
118	76	(Supplier S/N)	52	34	4
119	77	(Supplier S/N)	49	31	1
120	78	(Supplier S/N)	88	58	X
121	79	(Supplier S/N)	71	47	G
122	7A	(Supplier S/N)	48	30	0
123	7B	(Supplier S/N)	57	39	9
124	7C	(Supplier S/N)	86	56	V
125	7D	(Supplier S/N)	53	35	5
126	7E	Extension flag = 00	0	00	
127	7F	Checksum	**73**	**49**	