

Product Specification

SPECIFICATION FOR APPROVAL

- () Preliminary Specification
(◆) Final Specification

Title	14.1" WXGA TFT LCD
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Customer	General
MODEL	

SUPPLIER	LG Display Co., Ltd.
*MODEL	LP141WX3
Suffix	TLN2

*When you obtain standard approval,
please use the above model name without suffix

APPROVED BY	SIGNATURE
/	_____
/	_____
/	_____

Please return 1 copy for your confirmation with your signature and comments.

APPROVED BY	SIGNATURE
K. J. Kwon / G.Manager	_____
REVIEWED BY	
S. R. Kim / Manager	_____
PREPARED BY	
K. T. Moon / Engineer	_____

Products Engineering Dept.
LG Display Co., Ltd

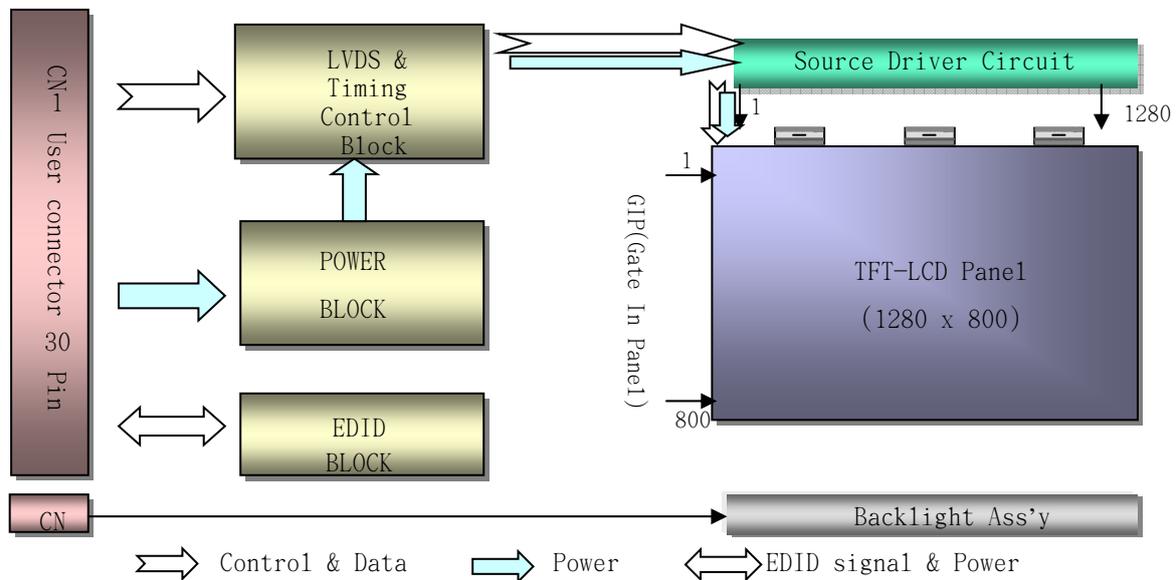
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1. General Description

The LP141WX3 is a Color Active Matrix Liquid Crystal Display with an integral Cold Cathode Fluorescent Lamp (CCFL) backlight system. The matrix employs a-Si Thin Film Transistor as the active element. It is a transmissive type display operating in the normally white mode. This TFT-LCD has 14.1 inches diagonally measured active display area with WXGA resolution(800 vertical by 1280 horizontal pixel array). Each pixel is divided into Red, Green and Blue sub-pixels or dots which are arranged in vertical stripes. Gray scale or the brightness of the sub-pixel color is determined with a 6-bit gray scale signal for each dot, thus, presenting a palette of more than 262,144 colors.

The LP141WX3 has been designed to apply the interface method that enables low power, high speed, low EMI.

The LP141WX3 is intended to support applications where thin thickness, low power are critical factors and graphic displays are important. In combination with the vertical arrangement of the sub-pixels, the LP141WX3 characteristics provide an excellent flat display for office automation products such as Notebook PC.



General Features

Active Screen Size	14.1 inches diagonal
Outline Dimension	319.5(H,Typ.) × 205.5(V,Typ.) × 5.5(D,Max) [mm]
Pixel Pitch	0.2373mm × 0.2373 mm
Pixel Format	1280 horiz. By 800 vert. Pixels RGB strip arrangement
Color Depth	6-bit, 262,144 colors
Luminance, White	200 cd/m ² (Typ.5 point)
Power Consumption	Total 5.2 Watt(Typ.) @ LCM circuit 1.2 Watt (Typ._Mosaic), B/L input 4.0Watt(Typ.)
Weight	400g(Max.)
Display Operating Mode	Transmissive mode, normally white
Surface Treatment	Glare treatment of the front polarizer
RoHS Comply	Yes

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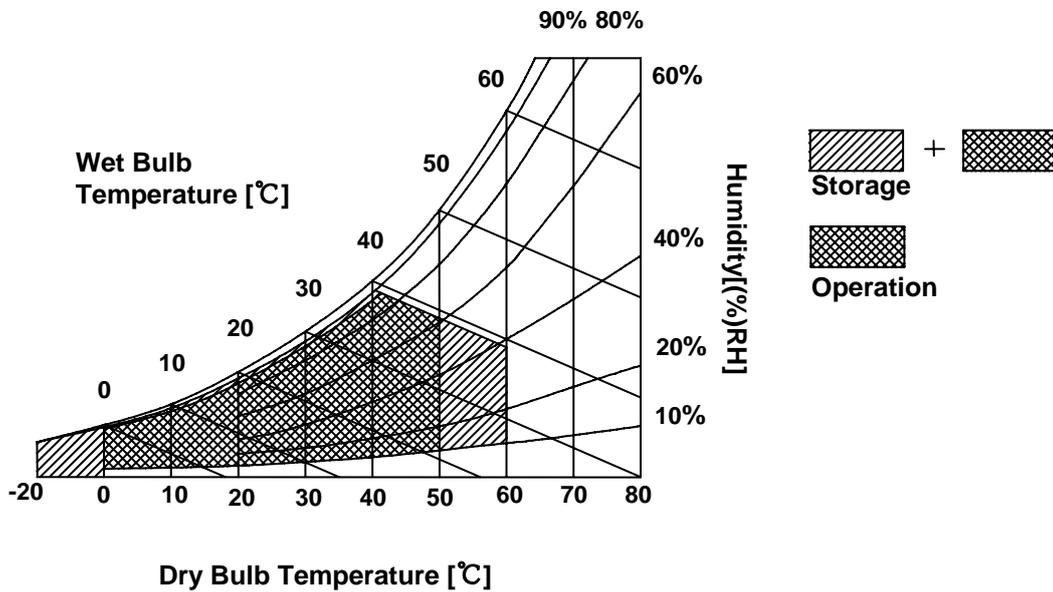
2. Absolute Maximum Ratings

The following are maximum values which, if exceeded, may cause faulty operation or damage to the unit.

Table 1. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Values		Units	Notes
		Min	Max		
Power Input Voltage	VCC	-0.3	4.0	Vdc	at 25 ± 5°C
Operating Temperature	TOP	0	50	°C	1
Storage Temperature	HST	-20	60	°C	1
Operating Ambient Humidity	HOP	10	90	%RH	1
Storage Humidity	HST	10	90	%RH	1

Note : 1. Temperature and relative humidity range are shown in the figure below.
Wet bulb temperature should be 39°C Max, and no condensation of water.



3. Electrical Specifications

3-1. Electrical Characteristics

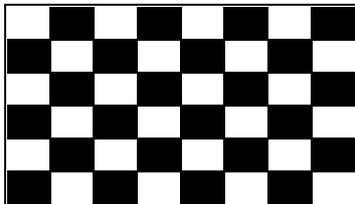
The LP141WX3 requires two power inputs. One is employed to power the LCD electronics and to drive the TFT array and liquid crystal. The second input which powers the CCFL, is typically generated by an inverter. The inverter is an external unit to the LCD.

Table 2. ELECTRICAL CHARACTERISTICS

Parameter	Symbol		Values			Unit	Notes
			Min	Typ	Max		
MODULE :							
Power Supply Input Voltage	VCC		3.0	3.3	3.6	V _{DC}	
Power Supply Input Current	I _{CC}	Mosaic	-	360	414	mA	1
Power Consumption	P _c	Mosaic	-	1.2	1.4		
Differential Impedance	Z _m		90	100	110	Ohm	2
LAMP :							
Operating Voltage	V _{BL}		640(7.0mA)	670(6.0mA)	880(2.0mA)	V _{RMS}	
Operating Current	I _{BL}		2.0	6.0	7.0	mA _{RMS}	3
Power Consumption	P _{BL}		1.8	4.0	4.5	W	
Operating Frequency	f _{BL}		45	55	80	kHz	
Discharge Stabilization Time	T _s				3	Min	4
Life Time			15,000			Hrs	5
Established Starting Voltage at 25°C at 0°C	V _s		1180 1415			V _{RMS} V _{RMS}	

Note)

1. The specified current and power consumption are under the Vcc = 3.3V , 25°C, fv = 60Hz condition whereas Mosaic pattern is displayed and fv is the frame frequency.



2. This impedance value is needed to proper display and measured form LVDS Tx to the mating connector.
3. The typical operating current is for the typical surface luminance (L_{WH}) in optical characteristics.
4. Define the brightness of the lamp after being lighted for 5 minutes as 100%, T_s is the time required for the brightness of the center of the lamp to be not less than 95%.
5. The life time is determined as the time at which brightness of lamp is 50% compare to that of initial value at the typical lamp current.

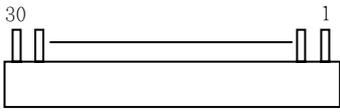
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3-2. Interface Connections

This LCD employs two interface connections, a 30 pin connector is used for the module electronics interface and the other connector is used for the integral backlight system.

The electronics interface connector is a model MDF76LBRW-30S-1 manufactured by HIROSE.

Table 3. MODULE CONNECTOR PIN CONFIGURATION (CN1)

Pin	Symbol	Description	Notes
1	GND	Ground	<p>1, Interface chips 1.1 LCD : SW, SW0612B (LCD Controller) including LVDS Receiver 1.2 System : THC63LVD823A or equivalent * Pin to Pin compatible with LVDS</p> <p>2. Connector 2.1 LCD : MDF76LBRW-30S-1, HIROSE FI-XB30SRL-HF11, JAE its compatibles 2.2 Mating : FI-X30M or equivalent. 2.3 Connector pin arrangement</p> <div style="text-align: center;">  <p>[LCD Module Rear View]</p> </div>
2	VCC	Power Supply, 3.3V Typ.	
3	VCC	Power Supply, 3.3V Typ.	
4	V EEDID	DDC 3.3V power	
5	NC	Reserved for supplier test point	
6	Clk EEDID	DDC Clock	
7	DATA EEDID	DDC Data	
8	R _{IN} 0-	Negative LVDS differential data input	
9	R _{IN} 0+	Positive LVDS differential data input	
10	GND	Ground	
11	R _{IN} 1-	Negative LVDS differential data input	
12	R _{IN} 1+	Positive LVDS differential data input	
13	GND	Ground	
14	R _{IN} 2-	Negative LVDS differential data input	
15	R _{IN} 2+	Positive LVDS differential data input	
16	GND	Ground	
17	CLKIN-	Negative LVDS differential clock input	
18	CLKIN+	Positive LVDS differential clock input	
19	GND	Ground	
20	NC	No Connect	
21	NC	No Connect	
22	GND	Ground	
23	NC	No Connect	
24	NC	No Connect	
25	GND	Ground	
26	NC	No Connect	
27	NC	No Connect	
28	GND	Ground	
29	NC	No Connect	
30	NC	No Connect	

The backlight interface connector is a model BHSR-02VS-1, manufactured by JST or Compatible.

The mating connector part number is AMP1674817-2 or equivalent.

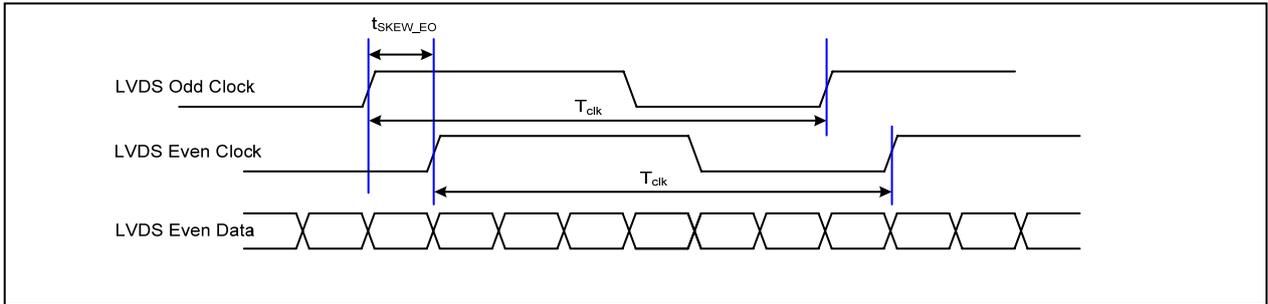


Table 4. BACKLIGHT CONNECTOR PIN CONFIGURATION (J3)

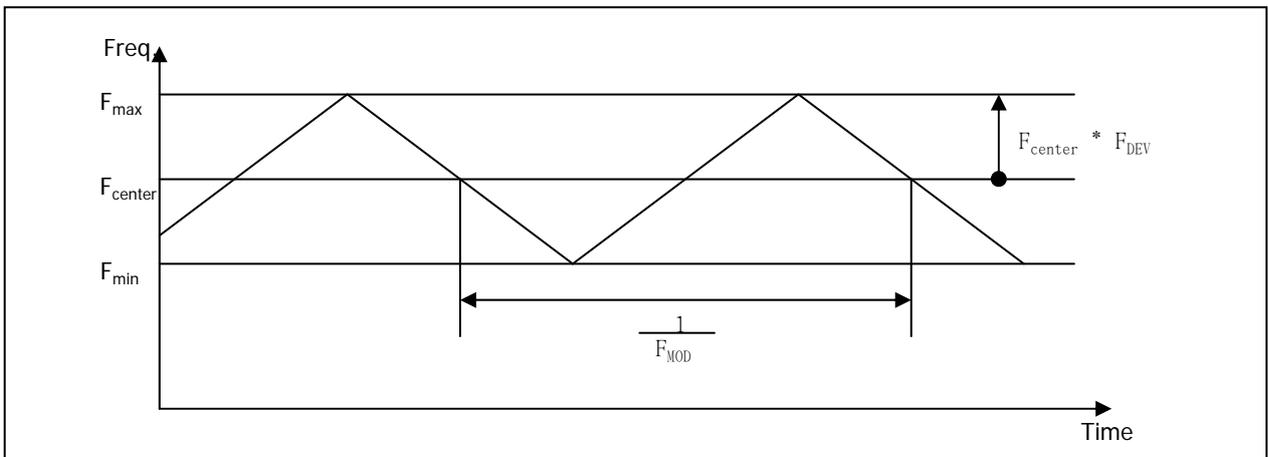
Pin	Symbol	Description	Notes
1	HV	Power supply for lamp (High voltage side)	1
2	LV	Power supply for lamp (Low voltage side)	1

Notes : 1. The high voltage side terminal is colored White and the low voltage side terminal is Yellow.

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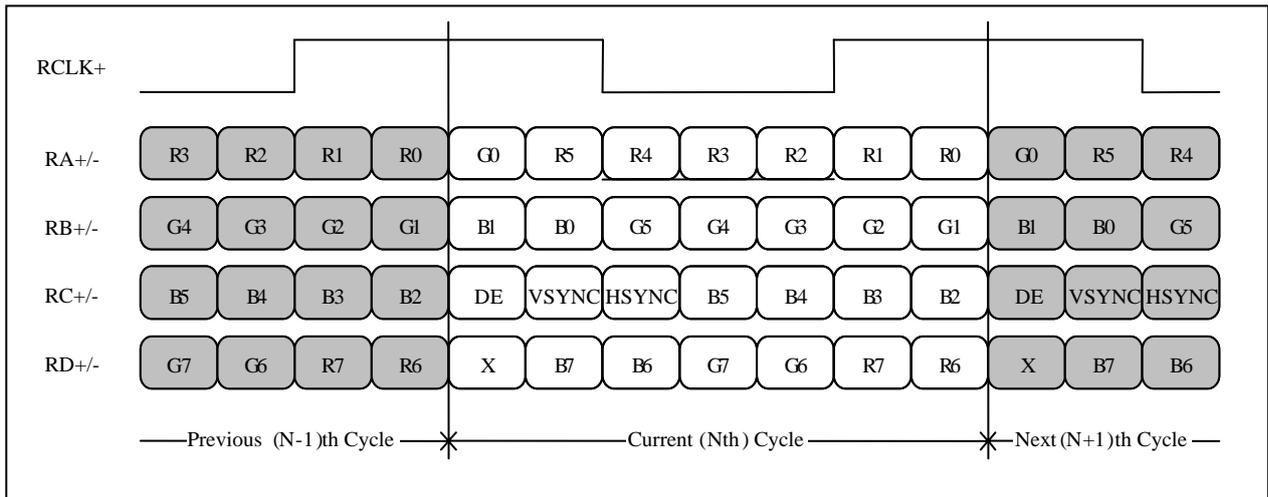
< Clock skew margin between channel >



< Spread Spectrum >

3-3-3. Data Format

1) LVDS 1 Port



< LVDS Data Format >

3-4. Signal Timing Specifications

This is the signal timing required at the input of the User connector. All of the interface signal timing should be satisfied with the following specifications and specifications of LVDS Tx/Rx for its proper operation.

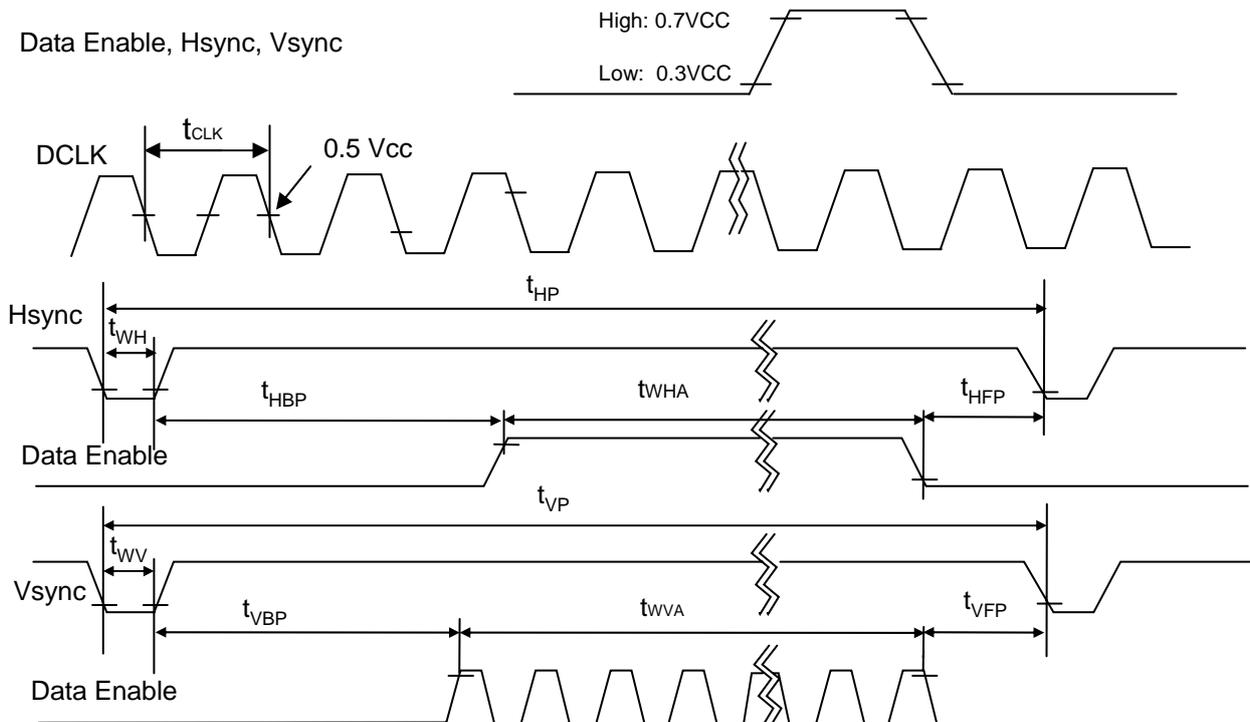
Table 6. TIMING TABLE

ITEM	Symbol	Min	Typ	Max	Unit	Note
DCLK	Frequency	f_{CLK}	-	69.3	-	MHz
Hsync	Period	T_{hp}	1360	1405	1480	tCLK
	Width	t_{WH}	16	32	48	
	Width-Active	t_{WHA}	1280	1280	1280	
Vsync	Period	t_{VP}	809	822	860	tHP
	Width	t_{WV}	2	6	10	
	Width-Active	t_{WVA}	800	800	800	
Data Enable	Horizontal back porch	t_{HBP}	40	45	96	tCLK
	Horizontal front porch	t_{HFP}	24	48	56	
	Vertical back porch	t_{VBP}	6	13	32	tHP
	Vertical front porch	t_{VFP}	1	3	18	

3-5. Signal Timing Waveforms

Condition : VCC = 3.3V

Data Enable, Hsync, Vsync



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3-6. Color Input Data Reference

The brightness of each primary color (red, green and blue) is based on the 6-bit gray scale data input for the color ; the higher the binary input, the brighter the color. The table below provides a reference for color versus data input.

Table 7. COLOR DATA REFERENCE

Color		Input Color Data																			
		RED						GREEN						BLUE							
		MSB						LSB		MSB						LSB		MSB			
		R 5	R 4	R 3	R 2	R 1	R 0	G 5	G 4	G 3	G 2	G 1	G 0	B 5	B 4	B 3	B 2	B 1	B 0		
Basic Color	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0		
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0		
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1		
	Cyan	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1		
	Magenta	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1		
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0		
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
RED	RED (00)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	RED (01)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0		
							
	RED (62)	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
	RED (63)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0		
GREEN	GREEN (00)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	GREEN (01)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0		
							
	GREEN (62)	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0		
	GREEN (63)	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0		
BLUE	BLUE (00)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	BLUE (01)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
							
	BLUE (62)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0		
	BLUE (63)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1		

4. Optical Specification

Optical characteristics are determined after the unit has been 'ON' and stable for approximately 30 minutes in a dark environment at 25°C. The values specified are at an approximate distance 50cm from the LCD surface at a viewing angle of Φ and Θ equal to 0°.

FIG. 1 presents additional information concerning the measurement equipment and method.

FIG. 1 Optical Characteristic Measurement Equipment and Method

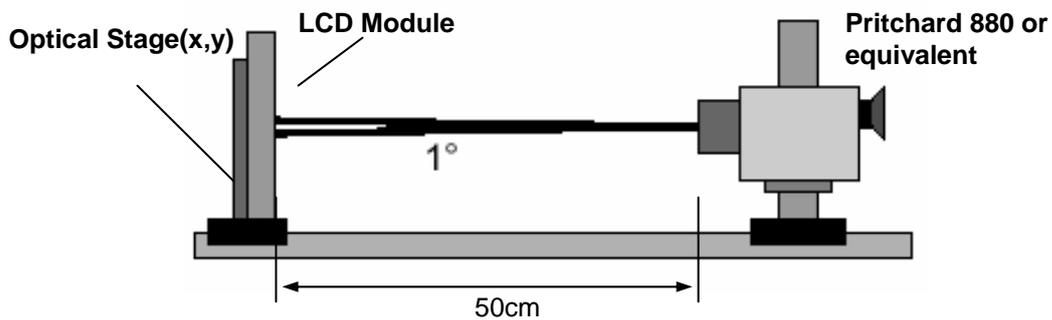


Table 9. OPTICAL CHARACTERISTICS

Ta=25°C, VCC=3.3V, fv=60Hz, f_{CLK}= 69.3MHz, F_{BL}= 55kHz, I_{BL}= 6.0mA

Parameter	Symbol	Values			Units	Notes
		Min	Typ	Max		
Contrast Ratio	CR	300	-	-		1
Surface Luminance, white	L _{WH}	170	200	-	cd/m ²	2
Luminance Variation	δ_{WHITE}	-	1.4	1.6		3
Response Time	T _R + T _D		16		ms	4
Color Coordinates						
RED	RX	0.554	0.584	0.614		
	RY	0.317	0.347	0.377		
GREEN	GX	0.294	0.324	0.354		
	GY	0.512	0.542	0.572		
BLUE	BX	0.128	0.158	0.188		
	BY	0.115	0.145	0.175		
WHITE	WX	0.283	0.313	0.343		
	WY	0.299	0.329	0.359		
Viewing Angle						
x axis, right($\Phi=0^\circ$)	Θ_r	40	-	-	degree	5
x axis, left ($\Phi=180^\circ$)	Θ_l	40	-	-	degree	
y axis, up ($\Phi=90^\circ$)	Θ_u	15	-	-	degree	
y axis, down ($\Phi=270^\circ$)	Θ_d	35	-	-	degree	
Gray Scale						6

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Note)

1. Contrast Ratio(CR) is defined mathematically as

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

2. Surface luminance is the average of 5 point across the LCD surface 50cm from the surface with all pixels displaying white. For more information see FIG 1.

$$L_{WH} = \text{Average}(L_1, L_2, \dots L_5)$$

3. The variation in surface luminance , The panel total variation (δ_{WHITE}) is determined by measuring L_N at each test position 1 through 13 and then defined as followed numerical formula.
For more information see FIG 2.

$$\delta_{WHITE} = \frac{\text{Maximum}(L_1, L_2, \dots L_{13})}{\text{Minimum}(L_1, L_2, \dots L_{13})}$$

4. Response time is the time required for the display to transition from white to black (rise time, Tr_R) and from black to white(Decay Time, Tr_D). For additional information see FIG 3.

5. Viewing angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see FIG 4.

6. Gray scale specification

* $f_V = 60\text{Hz}$

Gray Level	Luminance [%] (Typ)
L0	0.2
L7	1.96
L15	6.4
L23	12.6
L31	20.4
L39	34.9
L47	55.2
L55	78.8
L63	100

5. Mechanical Characteristics

The contents provide general mechanical characteristics for the model LP141WX3. In addition the figures in the next page are detailed mechanical drawing of the LCD.

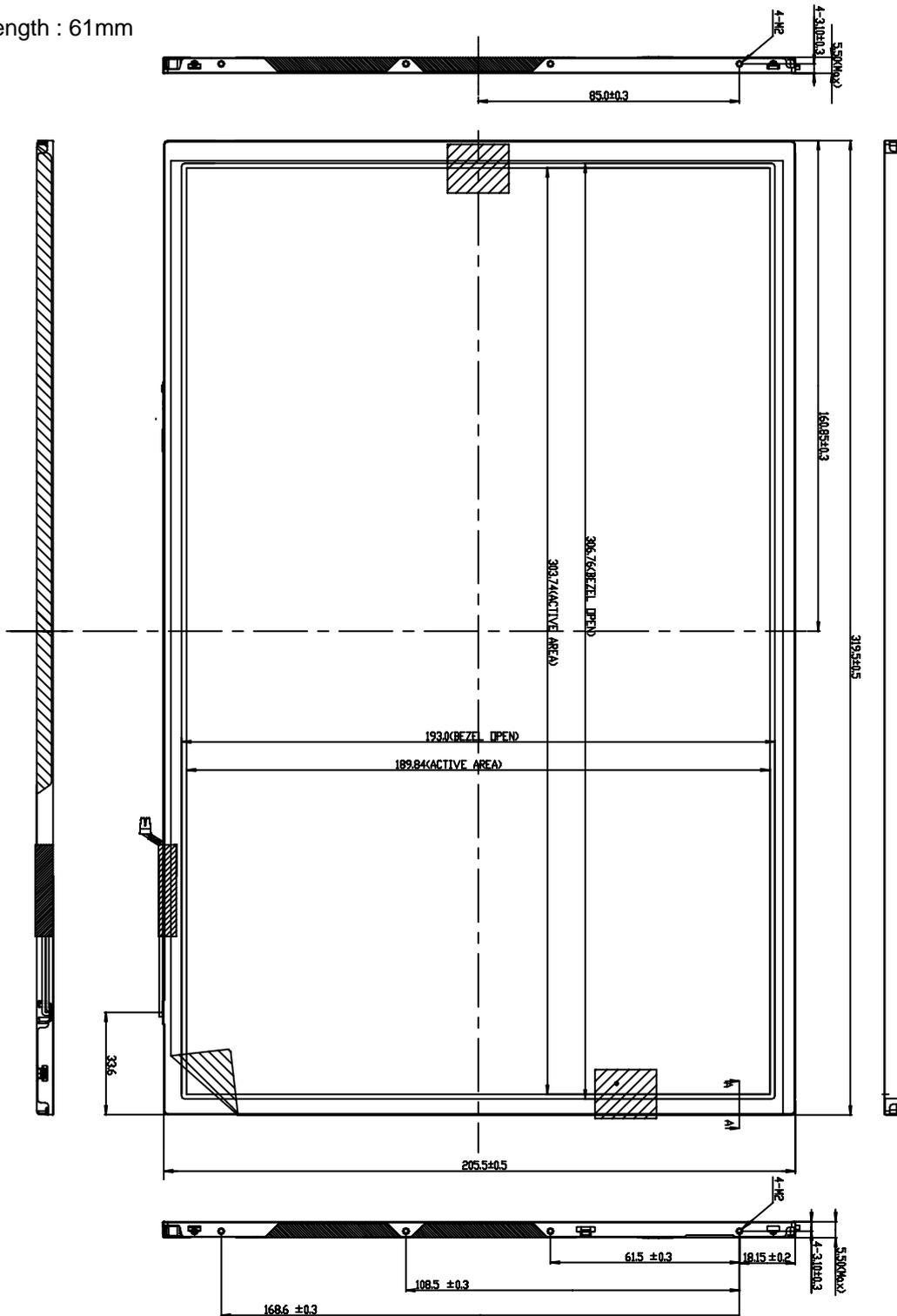
Outline Dimension	Horizontal	319.5 ± 0.5mm
	Vertical	205.5 ± 0.5mm
	Thickness	5.5mm (max)
Bezel Area	Horizontal	306.76 ± 0.5mm
	Vertical	193.00 ± 0.5mm
Active Display Area	Horizontal	303.74 mm
	Vertical	189.84 mm
Weight	400(Max)	
Surface Treatment	Glare treatment of the front polarizer	

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<FRONT VIEW>

Note) Unit:[mm], General tolerance: ± 0.5 mm

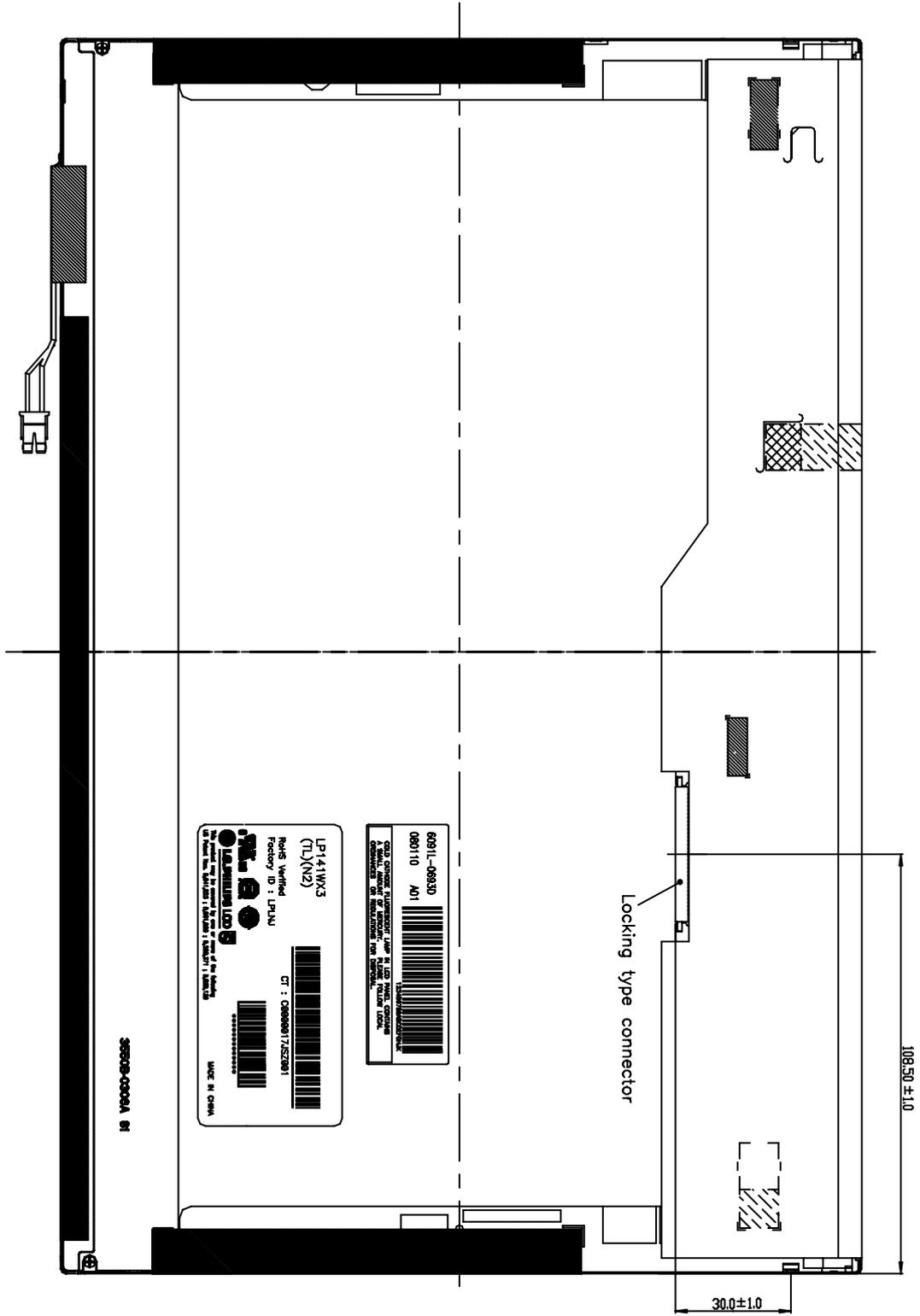
Wire Length : 61mm



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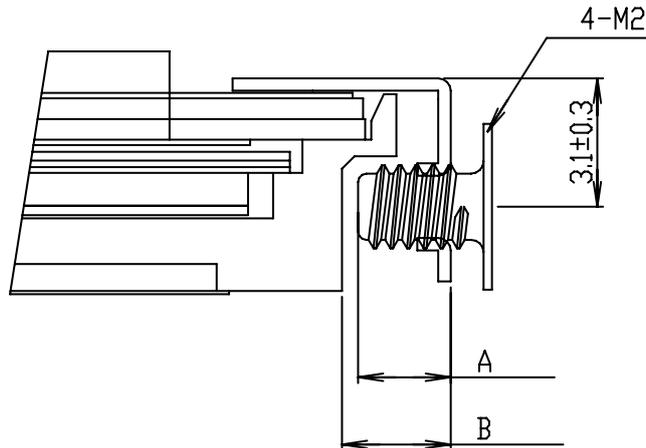
<REAR VIEW>

Note) Unit:[mm], General tolerance: $\pm 0.5\text{mm}$



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[DETAIL DESCRIPTION OF SIDE MOUNTING SCREW]



- * Mounting Screw Length (A)
= 2.0(Min) / 2.5(Max)
- * Mounting Screw Hole Depth (B)
= 2.5(Min)
- * Mounting hole location : 3.7(typ.)
- * Torque : 2.5 kgf.cm(Max)
(Measurement gauge : torque meter)

Notes : 1. Screw plated through the method of non-electrolytic nickel plating is preferred to reduce possibility that results in vertical and/or horizontal line defect due to the conductive particles from screw surface.

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LPL Proposal for system cover design.(Appendix)

1	Gap check for securing the enough gap between LCM and System cover.	
<p>The diagram illustrates the assembly of the LCM and system cover. On the left, a top-down view of the LCM reflector side is shown with various colored regions. In the center, a cross-sectional view shows the LCM with a 'Max thickness' label and a 'A boundary line' at the bottom. To the right, a 'Sponge' is shown between the LCM and the 'System cover', with arrows indicating the gap between them.</p>		
Define	<p>1.Rear side of LCM is sensitive against external stress,and previous check about interference is highly needed.</p> <p>2.In case there is something from system cover comes into the boundary above,mechanical interference may cause the FOS defects. (Eg:Ripple,White spot..)</p>	
2	Check if antenna cable is sufficiently apart from T-CON of LCD Module.	
Define	<p>Two diagrams of a laptop illustrate antenna cable placement. The left diagram, labeled 'NO GOOD', shows the antenna cable overlapping the T-CON. The right diagram, labeled 'GOOD', shows the antenna cable positioned away from the T-CON. Labels include 'Antenna', 'T-CON', and 'Antenna Cable'.</p>	
	1.If system antenna is overlapped with T-CON,it might be cause the noise.	

LPL Proposal for system cover design.

3	Gap check for securing the enough gap between LCM and System hinge.	
Define	<p>1. At least 2.0mm of gap needs to be secured to prevent the shock related defects.</p> <p>2. "L" type of hinge is recommended than "I" type under shock test.</p>	
4	Checking the path of the System wire.	
Define	<p>1. COF area needs to be handled with care.</p> <p>2. GOOD → Wire path design to system side. OK → Wire path is located between COFs. BAD → Wire path overlapped with COF area.</p>	

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6. Reliability

Environment test condition

No.	Test Item	Conditions
1	High temperature storage test	Ta= 60°C, 240h
2	Low temperature storage test	Ta= -20°C, 240h
3	High temperature operation test	Ta= 50°C, 50%RH, 240h
4	Low temperature operation test	Ta= 0°C, 240h
5	Vibration test (non-operating)	Sine wave, 10 ~ 500 ~ 10Hz, 1.5G, 0.37oct/min 3 axis, 1hour/axis
6	Shock test (non-operating)	Half sine wave, 180G, 2ms one shock of each six faces(I.e. run 180G, 2ms for all six faces)
7	Altitude operating storage / shipment	0 ~ 10,000 feet (3,048m) 24Hr 0 ~ 40,000 feet (12,192m) 24Hr

{ Result Evaluation Criteria }

There should be no change which might affect the practical display function when the display quality test is conducted under normal operating condition.

7. International Standards

7-1. Safety

- a) UL 60950-1:2003, First Edition, Underwriters Laboratories, Inc., Standard for Safety of Information Technology Equipment.
- b) CAN/CSA C22.2, No. 60950-1-03 1st Ed. April 1, 2003, Canadian Standards Association, Standard for Safety of Information Technology Equipment.
- c) EN 60950-1:2001, First Edition, European Committee for Electrotechnical Standardization(CENELEC) European Standard for Safety of Information Technology Equipment.

7-2. EMC

- a) ANSI C63.4 "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electrical Equipment in the Range of 9kHz to 40GHz." American National Standards Institute(ANSI), 1992
- b) C.I.S.P.R "Limits and Methods of Measurement of Radio Interface Characteristics of Information Technology Equipment." International Special Committee on Radio Interference.
- c) EN 55022 "Limits and Methods of Measurement of Radio Interface Characteristics of Information Technology Equipment." European Committee for Electrotechnical Standardization.(CENELEC), 1998 (Including A1: 2000)

8. Packing

8-1. Designation of Lot Mark

a) Lot Mark

A	B	C	D	E	F	G	H	I	J	K	L	M
---	---	---	---	---	---	---	---	---	---	---	---	---

A,B,C : SIZE(INCH)
E : MONTH

D : YEAR
F ~ M : SERIAL NO.

Note

1. YEAR

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Mark	1	2	3	4	5	6	7	8	9	0

2. MONTH

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mark	1	2	3	4	5	6	7	8	9	A	B	C

b) Location of Lot Mark

Serial No. is printed on the label. The label is attached to the backside of the LCD module.
This is subject to change without prior notice.

8-2. Packing Form

a) Package quantity in one box : 20 pcs

b) Box Size : 430mm × 334mm × 287mm

9. PRECAUTIONS

Please pay attention to the followings when you use this TFT LCD module.

9-1. MOUNTING PRECAUTIONS

- (1) You must mount a module using holes arranged in four corners or four sides.
- (2) You should consider the mounting structure so that uneven force (ex. Twisted stress) is not applied to the module. And the case on which a module is mounted should have sufficient strength so that external force is not transmitted directly to the module.
- (3) Please attach the surface transparent protective plate to the surface in order to protect the polarizer. Transparent protective plate should have sufficient strength in order to resist external force.
- (4) You should adopt radiation structure to satisfy the temperature specification.
- (5) Acetic acid type and chlorine type materials for the cover case are not desirable because the former generates corrosive gas of attacking the polarizer at high temperature and the latter causes circuit break by electro-chemical reaction.
- (6) Do not touch, push or rub the exposed polarizers with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment. Do not touch the surface of polarizer for bare hand or greasy cloth. (Some cosmetics are detrimental to the polarizer.)
- (7) When the surface becomes dusty, please wipe gently with absorbent cotton or other soft materials like chamois soaks with petroleum benzene. Normal-hexane is recommended for cleaning the adhesives used to attach front / rear polarizers. Do not use acetone, toluene and alcohol because they cause chemical damage to the polarizer.
- (8) Wipe off saliva or water drops as soon as possible. Their long time contact with polarizer causes deformations and color fading.
- (9) Do not open the case because inside circuits do not have sufficient strength.

9-2. OPERATING PRECAUTIONS

- (1) The spike noise causes the mis-operation of circuits. It should be lower than following voltage :
 $V = \pm 200\text{mV}$ (Over and under shoot voltage)
- (2) Response time depends on the temperature. (In lower temperature, it becomes longer.)
- (3) Brightness depends on the temperature. (In lower temperature, it becomes lower.)
And in lower temperature, response time (required time that brightness is stable after turned on) becomes longer.
- (4) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
- (5) When fixed patterns are displayed for a long time, remnant image is likely to occur.
- (6) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.

9-3. ELECTROSTATIC DISCHARGE CONTROL

Since a module is composed of electronic circuits, it is not strong to electrostatic discharge. Make certain that treatment persons are connected to ground through wrist band etc. And don't touch interface pin directly.

9-4. PRECAUTIONS FOR STRONG LIGHT EXPOSURE

Strong light exposure causes degradation of polarizer and color filter.

9-5. STORAGE

When storing modules as spares for a long time, the following precautions are necessary.

- (1) Store them in a dark place. Do not expose the module to sunlight or fluorescent light. Keep the temperature between 5°C and 35°C at normal humidity.
- (2) The polarizer surface should not come in contact with any other object.
It is recommended that they be stored in the container in which they were shipped.

9-6. HANDLING PRECAUTIONS FOR PROTECTION FILM

- (1) When the protection film is peeled off, static electricity is generated between the film and polarizer.
This should be peeled off slowly and carefully by people who are electrically grounded and with well ion-blown equipment or in such a condition, etc.
- (2) The protection film is attached to the polarizer with a small amount of glue. If some stress is applied to rub the protection film against the polarizer during the time you peel off the film, the glue is apt to remain on the polarizer.
Please carefully peel off the protection film without rubbing it against the polarizer.
- (3) When the module with protection film attached is stored for a long time, sometimes there remains a very small amount of glue still on the polarizer after the protection film is peeled off.
- (4) You can remove the glue easily. When the glue remains on the polarizer surface or its vestige is recognized, please wipe them off with absorbent cotton waste or other soft material like chamois soaked with normal-hexane.

Product Specification

APPENDIX A. Enhanced Extended Display Identification Data (EEDID™) 1/3

Byte# (decimal)	Byte# (HEX)	Field Name and Comments	Value (HEX)	Value (binary)		
0	00	Header	0 0	0000 0000	Header	
1	01	Header	F F	1111 1111		
2	02	Header	F F	1111 1111		
3	03	Header	F F	1111 1111		
4	04	Header	F F	1111 1111		
5	05	Header	F F	1111 1111		
6	06	Header	F F	1111 1111		
7	07	Header	0 0	0000 0000		
8	08	E SA manufacturer code = LPL	3 2	0011 0010	Vendor/ Product ID	
9	09	Compressed ASC II	0 C	0000 1100		
10	0A	Productcode =	3 2	0011 0010		
11	0B	(Hex, LSB first)	0 1	0000 0001		
12	0C	LCD M odule SerialNo. = 0 (fnotused)	0 0	0000 0000		
13	0D	LCD M odule SerialNo. = 0 (fnotused)	0 0	0000 0000		
14	0E	LCD M odule SerialNo. = 0 (fnotused)	0 0	0000 0000		
15	0F	LCD M odule SerialNo. = 0 (fnotused)	0 0	0000 0000		
16	10	Week of manufacture	0 0	0000 0000	EED ID Version/ Revision	
17	11	Year of manufacture = 2008	1 2	0001 0010		
18	12	E D D Structure version # = 1	0 1	0000 0001		
19	13	E D D Revision # = 3	0 3	0000 0011		
20	14	V ideo input definition = D igital / p, non TM DS CRGB	8 0	1000 0000		Display Parameter
21	15	M ax H image size(cm) = 30.374cm (30)	1 E	0001 1110		
22	16	M ax V image size(cm) = 18.984cm (19)	1 3	0001 0011		
23	17	D isplay gamma = 2.20	7 8	0111 1000		
24	18	F eature support(DPM S) = Active off, RGB Cobr	0 A	0000 1010	Color Characteristic	
25	19	R ed/G reen low Bits	B 3	1011 0011		
26	1A	B lue/W hite Low Bits	8 5	1000 0101		
27	1B	R ed X Rx = 0.584	9 5	1001 0101		
28	1C	R ed Y Ry = 0.347	5 8	0101 1000		
29	1D	G reen X Gx = 0.324	5 3	0101 0011		
30	1E	G reen Y Gy = 0.542	8 A	1000 1010		
31	1F	B lue X Bx = 0.158	2 8	0010 1000		
32	20	B lue Y By = 0.145	2 5	0010 0101	Established Timings	
33	21	W hite X Wx = 0.313	5 0	0101 0000		
34	22	W hite Y Wy = 0.329	5 4	0101 0100		
35	23	E stablished T iming I	0 0	0000 0000		
36	24	E stablished T iming II	0 0	0000 0000		
37	25	M anufacturer's T imings	0 0	0000 0000		
38	26	S tandard T iming Identification 1 was notused	0 1	0000 0001		Standard Timing ID
39	27	S tandard T iming Identification 1 was notused	0 1	0000 0001		
40	28	S tandard T iming Identification 2 was notused	0 1	0000 0001		
41	29	S tandard T iming Identification 2 was notused	0 1	0000 0001		
42	2A	S tandard T iming Identification 3 was notused	0 1	0000 0001		
43	2B	S tandard T iming Identification 3 was notused	0 1	0000 0001		
44	2C	S tandard T iming Identification 4 was notused	0 1	0000 0001		
45	2D	S tandard T iming Identification 4 was notused	0 1	0000 0001		
46	2E	S tandard T iming Identification 5 was notused	0 1	0000 0001		
47	2F	S tandard T iming Identification 5 was notused	0 1	0000 0001		
48	30	S tandard T iming Identification 6 was notused	0 1	0000 0001		
49	31	S tandard T iming Identification 6 was notused	0 1	0000 0001		
50	32	S tandard T iming Identification 7 was notused	0 1	0000 0001		
51	33	S tandard T iming Identification 7 was notused	0 1	0000 0001		
52	34	S tandard T iming Identification 8 was notused	0 1	0000 0001		
53	35	S tandard T iming Identification 8 was notused	0 1	0000 0001		

Product Specification

APPENDIX A. Enhanced Extended Display Identification Data (EEDID™) 2/3

Byte# (decimal)	Byte# (HEX)	Field Name and Comments	Value (HEX)	Value (binary)		
54	36	PixelClock/10,000 (LSB) 69.3 MHz @ 60 Hz	1 2	0001 0010	Detailed Timing Descriptor #1	
55	37	PixelClock/10,000 (MSB)	1 B	0001 1011		
56	38	HorizontalActive 1280 pixels	0 0	0000 0000		
57	39	HorizontalBlanking(Thbp) 125 pixels	7 D	0111 1101		
58	3A	HorizontalActive / HorizontalBlanking(Thbp)	5 0	0101 0000		
59	3B	VerticalActive 800 lines	2 0	0010 0000		
60	3C	VerticalBlanking (Tvbp) 22 lines	1 6	0001 0110		
61	3D	VerticalActive : VerticalBlanking (Tvbp)	3 0	0011 0000		
62	3E	HorizontalSync. Offset(Thfp) 48 pixels	3 0	0011 0000		
63	3F	HorizontalSync Pulse Width 32 pixels	2 0	0010 0000		
64	40	VerticalSync Offset(Tvbp) : Sync Width 3 lines : 6 lines	3 6	0011 0110		
65	41	HorizontalVertical Sync Offset/Width upper 2bits	0 0	0000 0000		
66	42	Horizontal Image Size 304 mm	3 0	0011 0000		
67	43	Vertical Image Size 190 mm	B E	1011 1110		
68	44	Horizontal Image Size / Vertical Image Size	1 0	0001 0000		
69	45	HorizontalBorder=0 (Zero for Notebook LCD)	0 0	0000 0000		
70	46	VerticalBorder=0 (Zero for Notebook LCD)	0 0	0000 0000		
71	47	Non-interlaced, Normal, no stereo, separate sync, H/V polnegatives, DE only note : LSB is set to "1" if panel is DE-timing only. H/V can be ignored.	1 8	0001 1000		
72	48	Detailed Timing Descriptor #2	0 0	0000 0000		Detailed Timing Description #2
73	49		0 0	0000 0000		
74	4A		0 0	0000 0000		
75	4B		0 0	0000 0000		
76	4C		0 0	0000 0000		
77	4D		0 0	0000 0000		
78	4E		0 0	0000 0000		
79	4F		0 0	0000 0000		
80	50		0 0	0000 0000		
81	51		0 0	0000 0000		
82	52		0 0	0000 0000		
83	53		0 0	0000 0000		
84	55		0 0	0000 0000		
85	55		0 0	0000 0000		
86	56		0 0	0000 0000		
87	57		0 0	0000 0000		
88	58		0 0	0000 0000		
89	59		0 0	0000 0000		
90	5A	Detailed Timing Descriptor #3	0 0	0000 0000	Detailed Timing Description #3	
91	5B		0 0	0000 0000		
92	5C		0 0	0000 0000		
93	5D		F E	1111 1110		
94	5E		0 0	0000 0000		
95	5F	L	4 C	0100 1100		
96	60	G	4 7	0100 0111		
97	61	P	5 0	0101 0000		
98	62	h	6 8	0110 1000		
99	63	i	6 9	0110 1001		
100	64	l	6 C	0110 1100		
101	65	i	6 9	0110 1001		
102	66	p	7 0	0111 0000		
103	67	s	7 3	0111 0011		
104	68	L	4 C	0100 1100		
105	69	C	4 3	0100 0011		
106	6A	D	4 4	0100 0100		
107	6B	LF	0 A	0000 1010		

Product Specification

APPENDIX A. Enhanced Extended Display Identification Data (EEDID™) 3/3

Byte# (decimal)	Byte# (HEX)	Field Name and Comments	Value (HEX)	Value (binary)	
108	6C	Detailed Timing Descriptor #4	0 0	0000 0000	Detailed Timing Description #4
109	6D		0 0	0000 0000	
110	6E		0 0	0000 0000	
111	6F		F E	1111 1110	
112	70		0 0	0000 0000	
113	71	L	4 C	0100 1100	
114	72	P	5 0	0101 0000	
115	73	1	3 1	0011 0001	
116	74	4	3 4	0011 0100	
117	75	1	3 1	0011 0001	
118	76	W	5 7	0101 0111	
119	77	X	5 8	0101 1000	
120	78	3	3 3	0011 0011	
121	79	-	2 D	0010 1101	
122	7A	T	5 4	0101 0100	
123	7B	L	4 C	0100 1100	
124	7C	N	4 E	0100 1110	
125	7D	2	3 2	0011 0010	
126	7E	Extension flag = 00	0 0	0000 0000	Extension Flag
127	7F	Checksum	A 7	1010 0111	Checksum