SPECIFICATION
FOR
APPROVAL

( ) **Preliminary Specification**
(●) **Final Specification**

Title	13.3” HD TFT LCD

BUYER	Acer
MODEL	

SUPPLIER	LG Display Co., Ltd.
*MODEL	LP133WH2
Suffix	TLA3

*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 / S.Manager	
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G. J. Han / Manager	
PREPARED BY	
C. Y. Kim / Engineer S. C. Jung / Engineer	

Product Engineering Dept.
LG Display Co., Ltd

Contents

RECORD OF REVISIONS

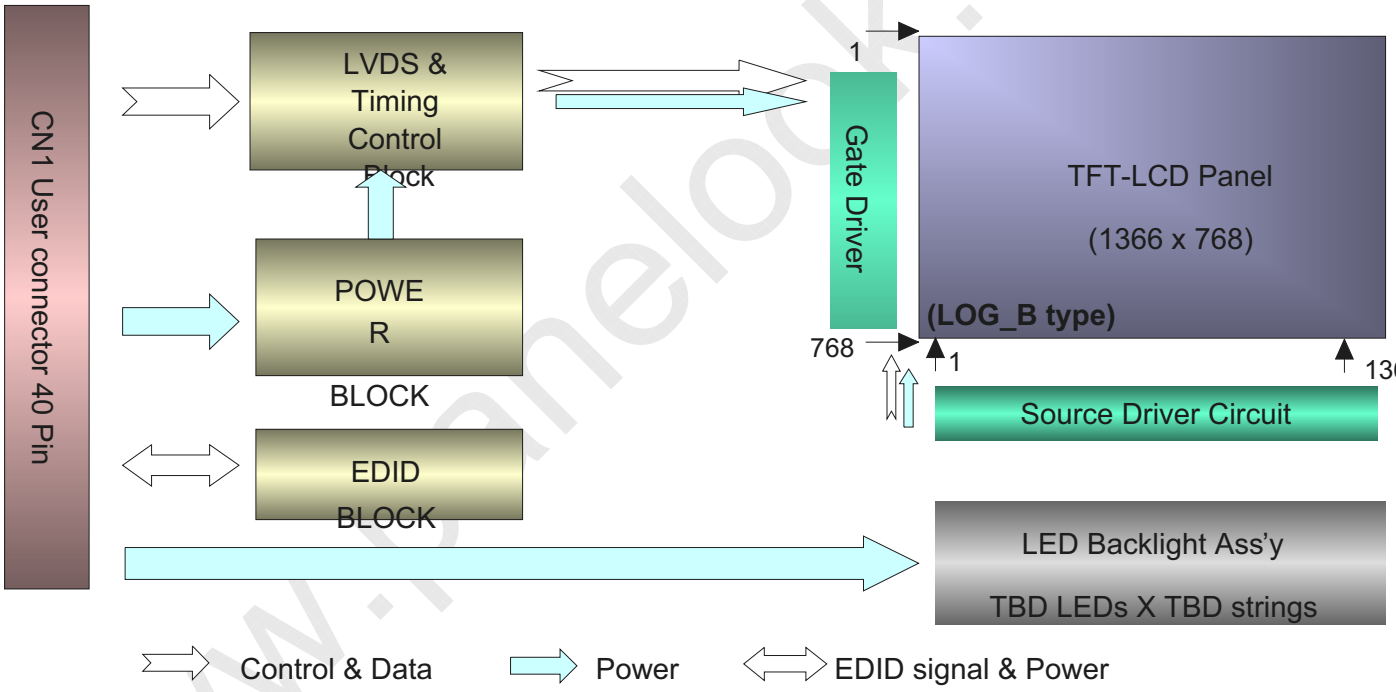
Revision No	Revision Date	Page	Description	EDID ver
0.0	4. Feb, 2009	-	First Draft	0.0
0.1	16. Mar, 2009	13	Updated Color Coordinates.	0.1
		14	Updated Gray scale	
		19	Updated Rear view	
		25-27	Updated EDID (Added Color Coordinates)	
1.0	31. Mar, 2009	-	Final Draft	1.0

1. General Description

The LP133WH2 is a Color Active Matrix Liquid Crystal Display with an integral LED 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 13.3 inches diagonally measured active display area with HD resolution(1366 horizontal by 768 vertical 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 LP133WH2 has been designed to apply the interface method that enables low power, high speed, low EMI.

The LP133WH2 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 LP133WH2 characteristics provide an excellent flat display for office automation products such as Notebook PC.



General Features

Active Screen Size	13.3 inches diagonal
Outline Dimension	306.3(Typ. H) × 177.7(Typ. V) × 3.6(D, Max.) mm
Pixel Pitch	0.2148 × 0.2148 mm
Pixel Format	1366 horiz. by 768 vert. Pixels RGB strip arrangement
Color Depth	6-bit, 262,144 colors
Luminance, White	220 cd/m^2(Typ., @I_{LED}=16 mA)
Power Consumption	Logic : 0.8 W (Max.), Back Light : 2.7W (Max.) @ 200nit, white pattern
Weight	300g(Max.)
Display Operating Mode	Transmissive mode, normally white
Surface Treatment	Hard coating(3H), Glare treatment of the front Polarizer (Haze 0%)

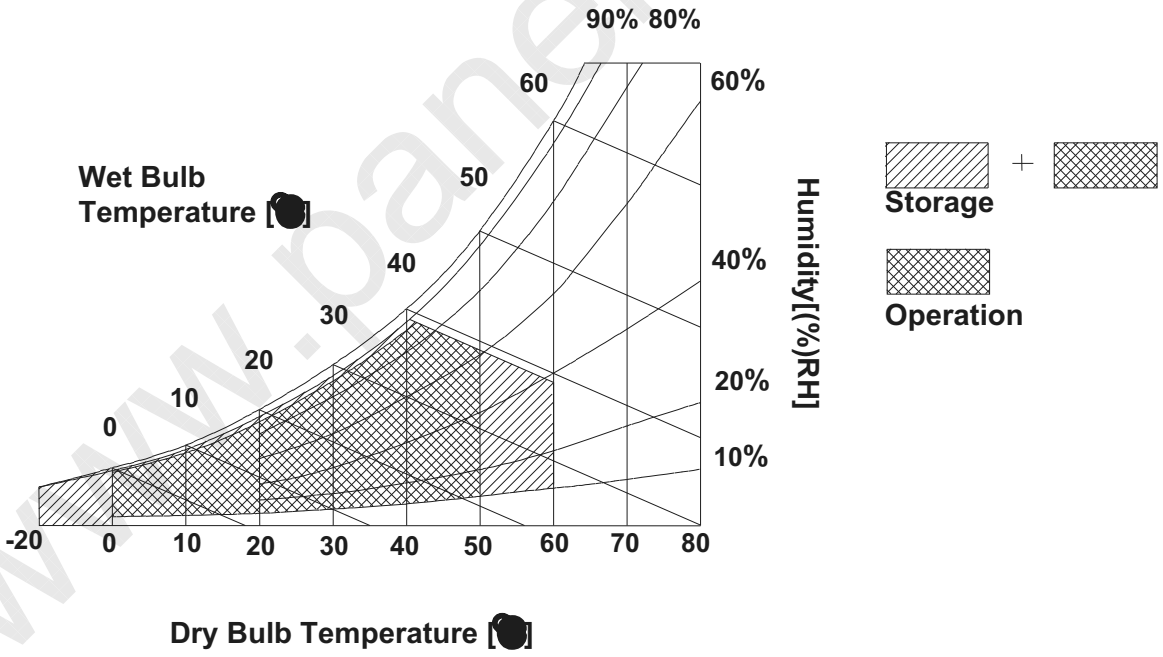
2. Absolute Maximum Ratings

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 LP33WH2 requires two power inputs. The first logic is employed to power the LCD electronics and to drive the TFT array and liquid crystal. The second backlight is the input about LED BL.with LED Driver.

Table 2. ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Values			Unit	Notes
		Min	Typ	Max		
LOGIC :						
Power Supply Input Voltage	V_{CC}	3.0	3.3	3.6	V	
Power Supply Input Current	I_{CC}	-	215	245	mA	1
Power Consumption	P_{CC}	-	-	0.8	W	1
Power Supply Inrush Current	I_{CC_P}	-	-	1800	mA	
LVDS Impedance	Z_{LVDS}	90	100	110	É	2
BACKLIGHT : (with LED Driver)						
LED Power Input Voltage	V_{LED}	7	12	20	V	
LED Power Input Current	I_{LED}		210	230	mA	3
LED Power Comsumption	P_{LED}	-	2.5	2.7	W	3
LED Power Inrush Current	I_{LED_P}	-	-	1000	mA	
PWM Dimming (Duty) Ratio	-	20	-	100	%	4
PWM Frequency	F_{PWM}	200		1500	Hz	5
PWM High Level Voltage	V_{PWM_H}	3.0	-	5	V	
PWM Low Level Voltage	V_{PWM_L}	0	-	0.5	V	
LED_EN High Voltage	$V_{LED\_EN\_H}$	3.0	-	5	V	
LED_EN Low Voltage	$V_{LED\_EN\_L}$	0	-	0.5	V	
Life Time		12,000	-	-	Hrs	6

Note)

1. The specified Icc current and power consumption are under the Vcc = 3.3V , 25℃, fv = 60Hz condition whereas white 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 specified LED current and power consumption are under the Vled = 12.0V , 25℃, Dimming of Max luminance whereas White pattern is displayed and fv is the frame frequency.
4. The operation of LED Driver below minimum dimming ratio may cause flikering or relaibility issue.
5. This Spec. is not effective at 100% dimming ratio as an exception because it has DC level equivalent to 0Hz. In spite of acceptable range as defined, the PWM Frequency should be fixed and stable for more consistent brightness control at any specific level desired.
6. The life time is determined as the time at which brightness of LCD is 50% compare to that of minimum value at Table 7. These LED backlight has 6 strings on it and the typical current of LED's string is base on Table 2.

3-2. Interface Connections

This LCD employs two interface connections, a 40 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 IS050-L40B-C10manufactured by UJU.

Table 3. MODULE CONNECTOR PIN CONFIGURATION (CN1)

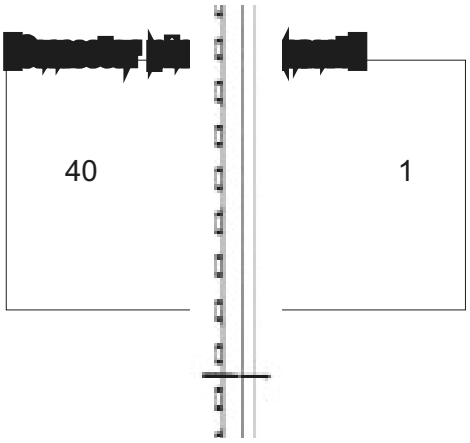
Pin	Symbol	Description
1	NC	No Connection
2	VDD	Power Supply +3.3V
3	VDD	Power Supply +3.3V
4	VEDID	EDID +3.3V Power
5	NC	Reserved (BIST)
6	CLKEDID	EDID Clock Input
7	DATAEDID	EDID Data Input
8	Odd Rx IN0-	-LVDS Differential Data INPUT(R0-R5,G0)
9	Odd Rx IN0+	+LVDS Differential Data INPUT(R0-R5,G0)
10	VSS	Ground
11	Odd Rx IN1-	-LVDS Differential Data INPUT(G1-G5,B0-B1)
12	Odd Rx IN1+	+LVDS Differential Data INPUT(G1-G5,B0-B1)
13	VSS	Ground
14	Odd Rx IN2-	-LVDS Differential Data INPUT(B2-B5,HS,VS,DE)
15	Odd Rx IN2+	+LVDS Differential Data INPUT(B2-B5,HS,VS,DE)
16	VSS	Ground
17	Odd Rx CKIN-	-LVDS Differential Clock INPUT
18	Odd Rx CKIN+	+LVDS Differential Clock INPUT
19	VSS	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
31	VLED_GND	LED Ground
32	VLED_GND	LED Ground
33	VLED_GND	LED Ground
34	NC	No Connection
35	BLIM	PWM for luminance control
36	BL_on	Backlight On/Off Control (on: 2.5V~3.V, off: 0~0.5V)
37	NC	Reserved
38	VLED	LED Power Supply 7V-20V
39	VLED	LED Power Supply 7V-20V
40	VLED	LED Power Supply 7V-20V

Notes

1. LCD :
SW, Dual LVDS Receiver.
2. System : SiWLVDSRx or equivalent
* Pin to Pin compatible with LVDS

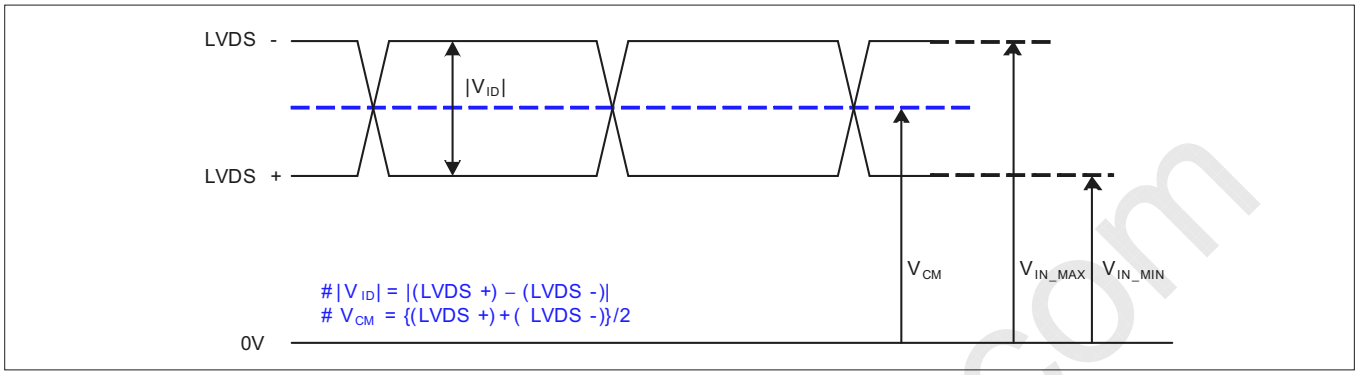
IS050-L40B-C10 or equivalent

20453-040T-0x, I-PEX
or equivalent.



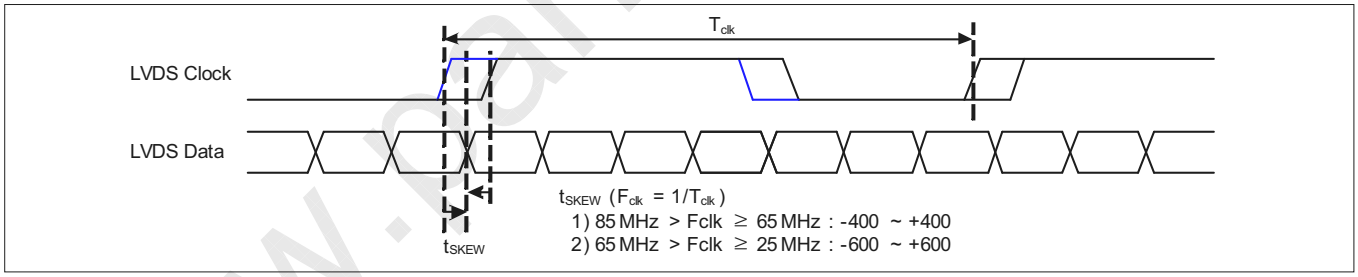
3-3. LVDS Signal Timing Specifications

3-3-1. DC Specification

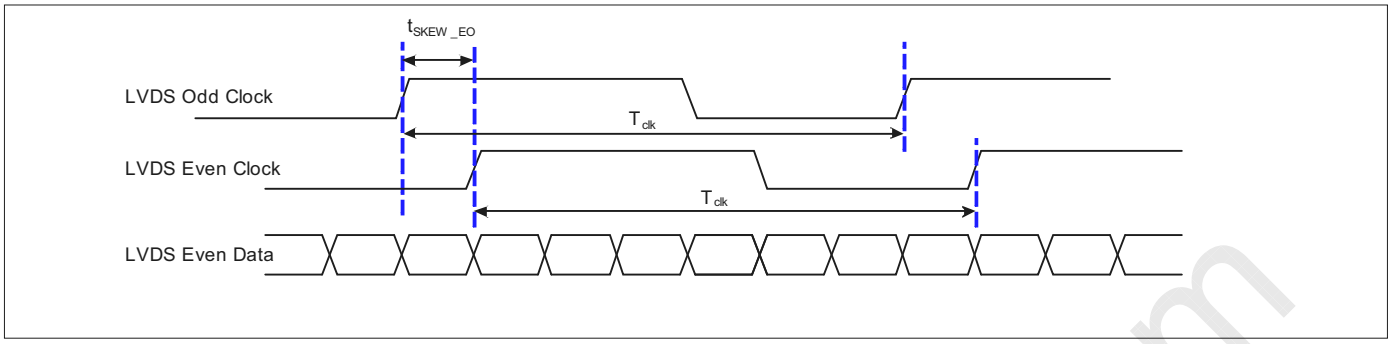


Description	Symbol	Min	Max	Unit	Notes
LVDS Differential Voltage	$\|V_{ID}\|$	100	600	mV	-
LVDS Common mode Voltage	V_{CM}	0.6	1.8	V	-
LVDS Input Voltage Range	V_{IN}	0.3	2.1	V	-

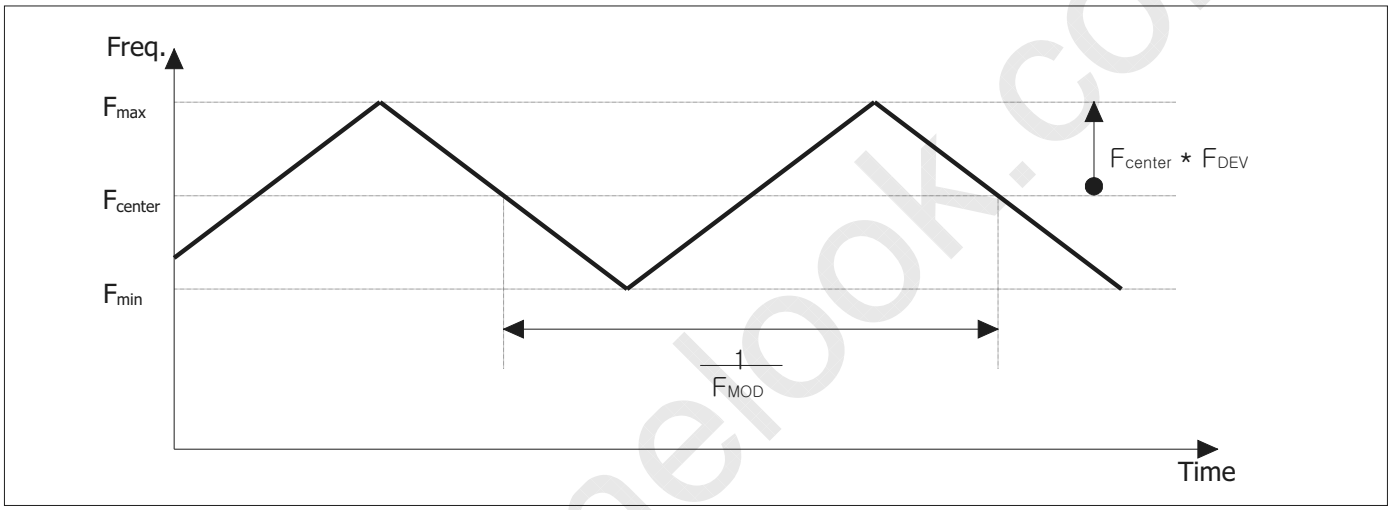
3-3-2. AC Specification



Description	Symbol	Min	Max	Unit	Notes
LVDS Clock to Data Skew Margin	t_{SKEW}	- 400	+ 400	ps	85MHz > Fclk ° 65MHz
	t_{SKEW}	- 600	+ 600	ps	65MHz > Fclk ° 25MHz
LVDS Clock to Clock Skew Margin (Even to Odd)	t_{SKEW_EO}	- 1/7	+ 1/7	T_{clk}	-
Maximum deviation of input clock frequency during SSC	F_{DEV}	-	± 3	%	-
Maximum modulation frequency of input clock during SSC	F_{MOD}	-	200	KHz	-



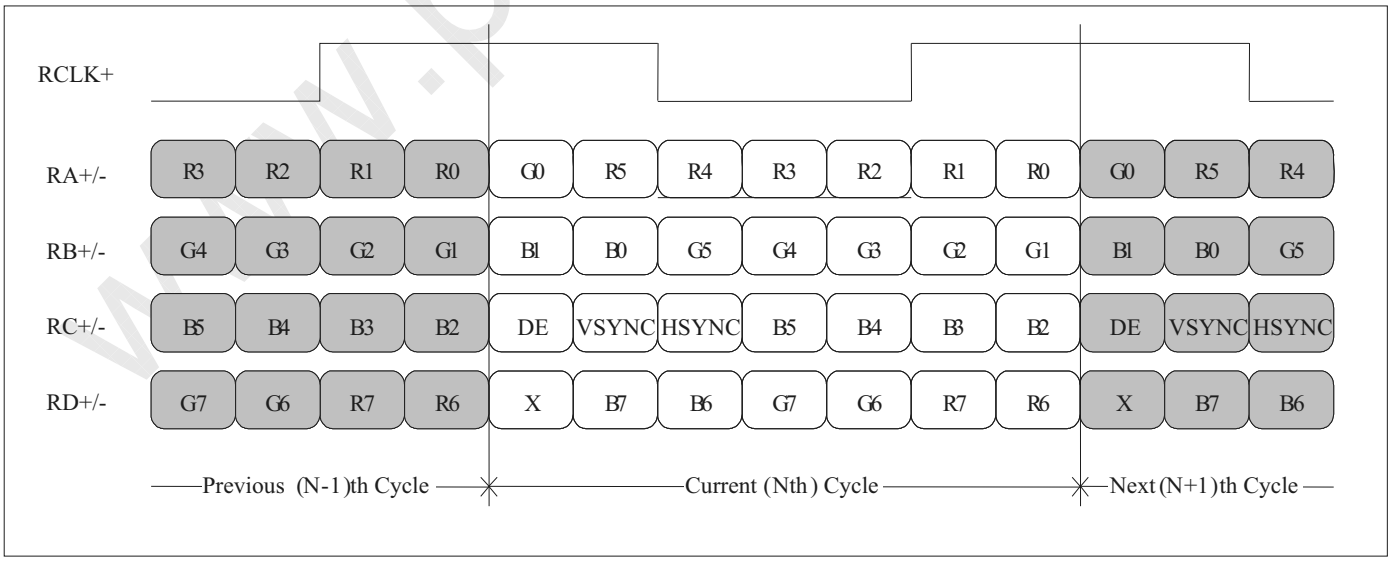
< Clock skew margin between channel >



< Spread Spectrum >

3-3-3. Data Format

1) LVDS 1 Port



< LVDS Data Format >

3-4. Signal Timing Specifications

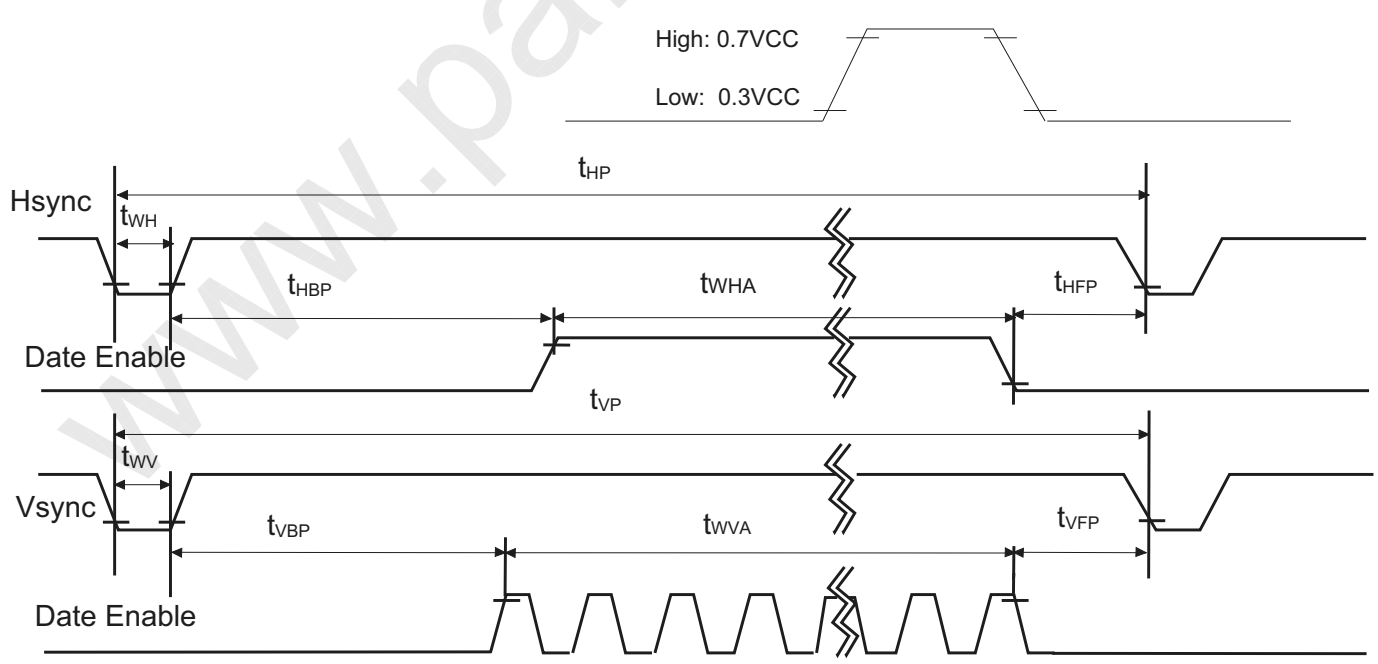
This is the signal timing required at the input of the User connector. All of the interface signal timing should be satisfied with the following specifications and specifications of LVDS Tx/Rx for its proper operation.

Table 4. TIMING TABLE

[redacted]	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
DCLK	Frequency	f_{CLK}	-	72.3	-	MHz	
Hsync	Period	t_{HP}	1470	1526	1582	tCLK	
	Width	t_{WH}	24	32	48		
	Width-Active	t_{WHA}	1366	1366	1366		
Vsync	Period	t_{VP}	779	790	796	tHP	
	Width	t_{WV}	2	5	7		
	Width-Active	t_{WVA}	768	768	768		
Data Enable	Horizontal back porch	t_{HBP}	72	80	104	tCLK	
	Horizontal front porch	t_{HFP}	8	48	64		
	Vertical back porch	t_{VBP}	7	14	16	tHP	
	Vertical front porch	t_{VFP}	2	3	5		

3-5. Signal Timing Waveforms

Condition : V_{CC} =3.3V



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 5. COLOR DATA REFERENCE

Color		Input Color Data		
		RED MSB LSB	GREEN MSB LSB	BLUE MSB LSB
		R5 R4 R3 R2 R1 R0	G5 G4 G3 G2 G1 G0	B5 B4 B3 B2 B1 B0
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

3-7. Power Sequence

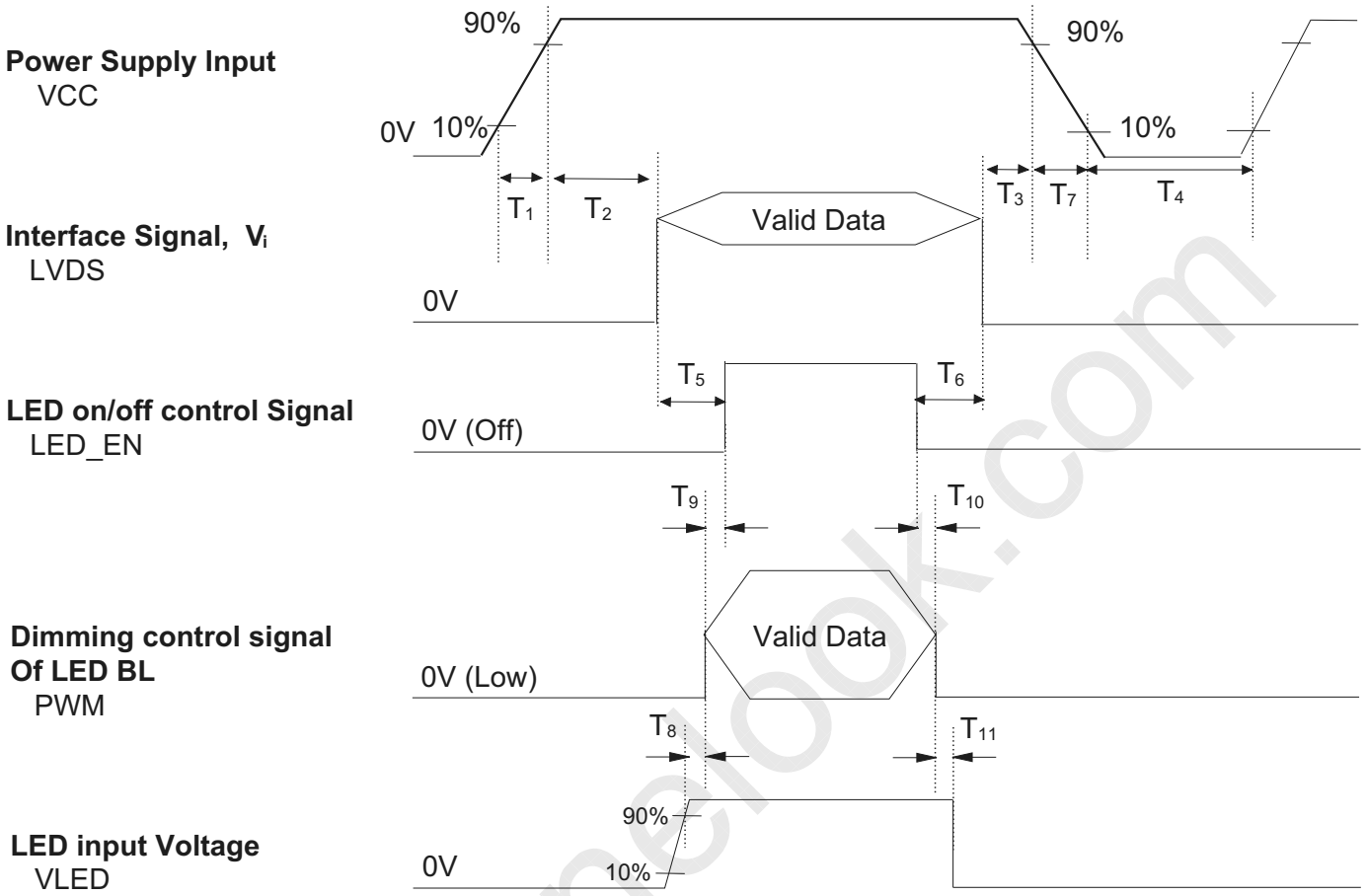


Table 6. POWER SEQUENCE TABLE

Parameter	Value			Units
	Min.	Typ.	Max.	
T_1	0.5	-	10	ms
T_2	0	-	50	ms
T_3	0	-	50	ms
T_4	400	-	-	ms
T_5	200	-	-	ms
T_6	200	-	-	ms
T_7	3	-	10	ms
T_8	10	-	-	ms
T_9	0	-	-	ms
T_{10}	0	-	-	ms
T_{11}	10	-	-	ms

Note)
1. Valid Data is Data to meet “3-3. LVDS Signal Timing Specifications”
2. Please avoid floating state of interface signal at invalid period.
3. When the interface signal is invalid, be sure to pull down the power supply for LCD VCC to 0V.
4. LED power must be turn on after power supply for LCD and interface signal are valid.

4. Optical Specification

Optical characteristics are determined after the unit has been 'ON and stable for approximately 20 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

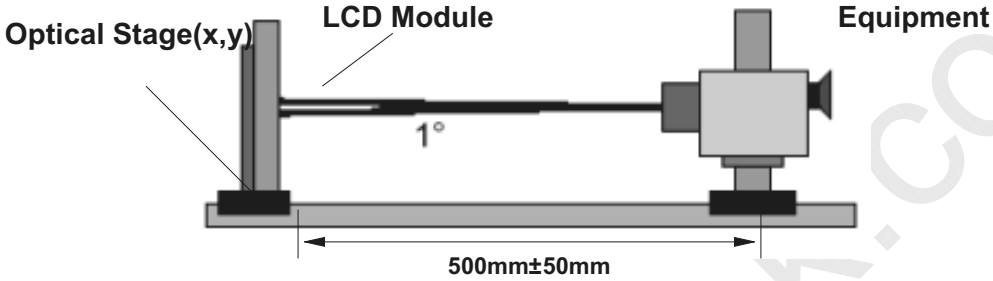


Table 7. OPTICAL CHARACTERISTICS

Ta=25°C, VCC=3.3V, f_V=60Hz, f_{CLK}= 72.3MHz, ILED =16 mA

Parameter		Symbol	Values			Units	Notes
			Min	Typ	Max		
Contrast Ratio		CR	300	500	-		1
Surface Luminance, white		L_{WH}	190	220	-	cd/m^2	2
Luminance Variation		δ_{WHITE}		1.4	1.6		3
Response Time		$Tr_R + Tr_D$	-	16	25	ms	4
Color Coordinates							
	RED	RX	0.555	0.585	0.615		
		RY	0.320	0.350	0.380		
	GREEN	GX	0.305	0.335	0.365		
		GY	0.515	0.545	0.575		
	BLUE	BX	0.130	0.160	0.190		
		BY	0.105	0.135	0.165		
	WHITE	WX	0.283	0.313	0.343		
		WY	0.299	0.329	0.359		
Viewing Angle							5
	x axis, right(Φ=0°)	Θr	40			degree	
	x axis, left (Φ=180°)	Θl	40			degree	
	y axis, up (Φ=90°)	Θu	10			degree	
	y axis, down (Φ=270°)	Θd	30			degree	
Gray Scale							6
Color Gamut		C/G		45		%	

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.

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

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.

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

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.

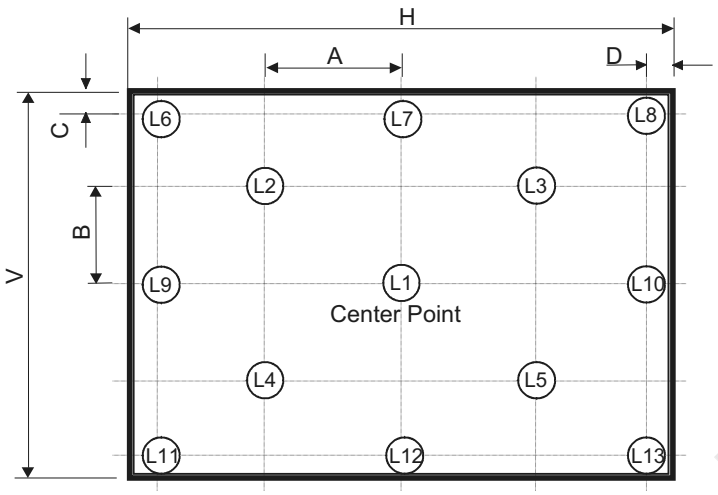
5. Viewing angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see FIG 4.

6. Gray scale specification *f_V = 60Hz

Gray Level	Luminance [%] (Typ)
L0	0.0
L7	0.8
L15	4.25
L23	10.9
L31	21.0
L39	34.8
L47	52.5
L55	74.2
L63	100

FIG. 2 Luminance

<Measuring point for Average Luminance & measuring point for Luminance variation>



H,V : ACTIVE AREA
A : H/4 mm
B : V/4 mm
C : 10 mm
D : 10 mm
POINTS : 13 POINTS

FIG. 3 Response Time

The response time is defined as the following figure and shall be measured by switching the input signal for “black” and “white”.

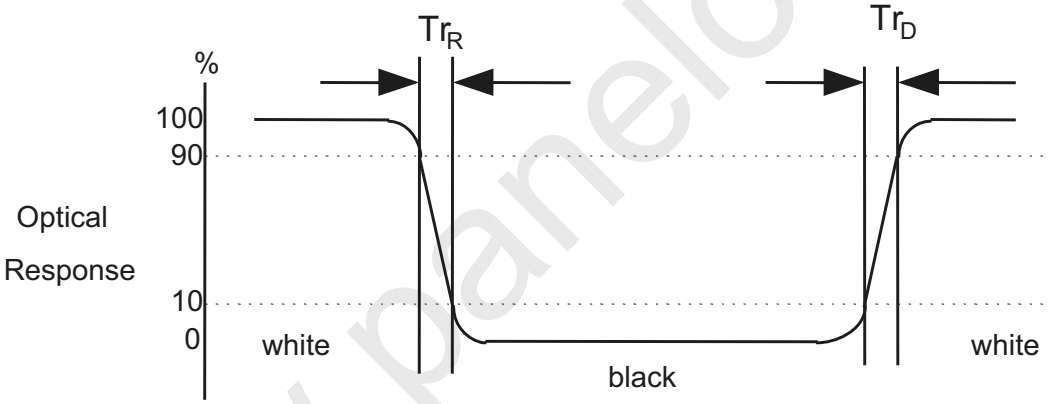
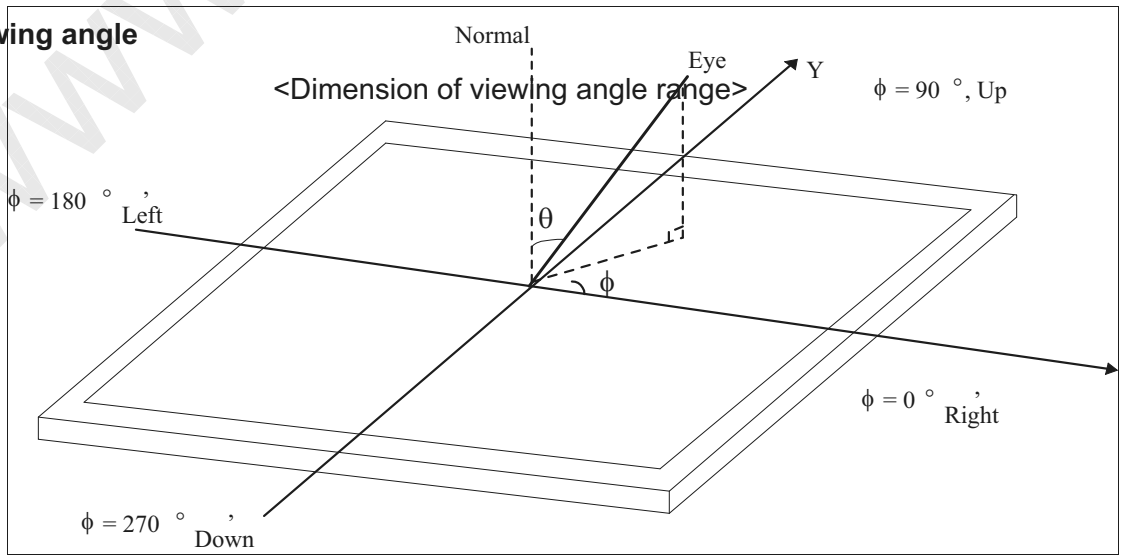


FIG. 4 Viewing angle



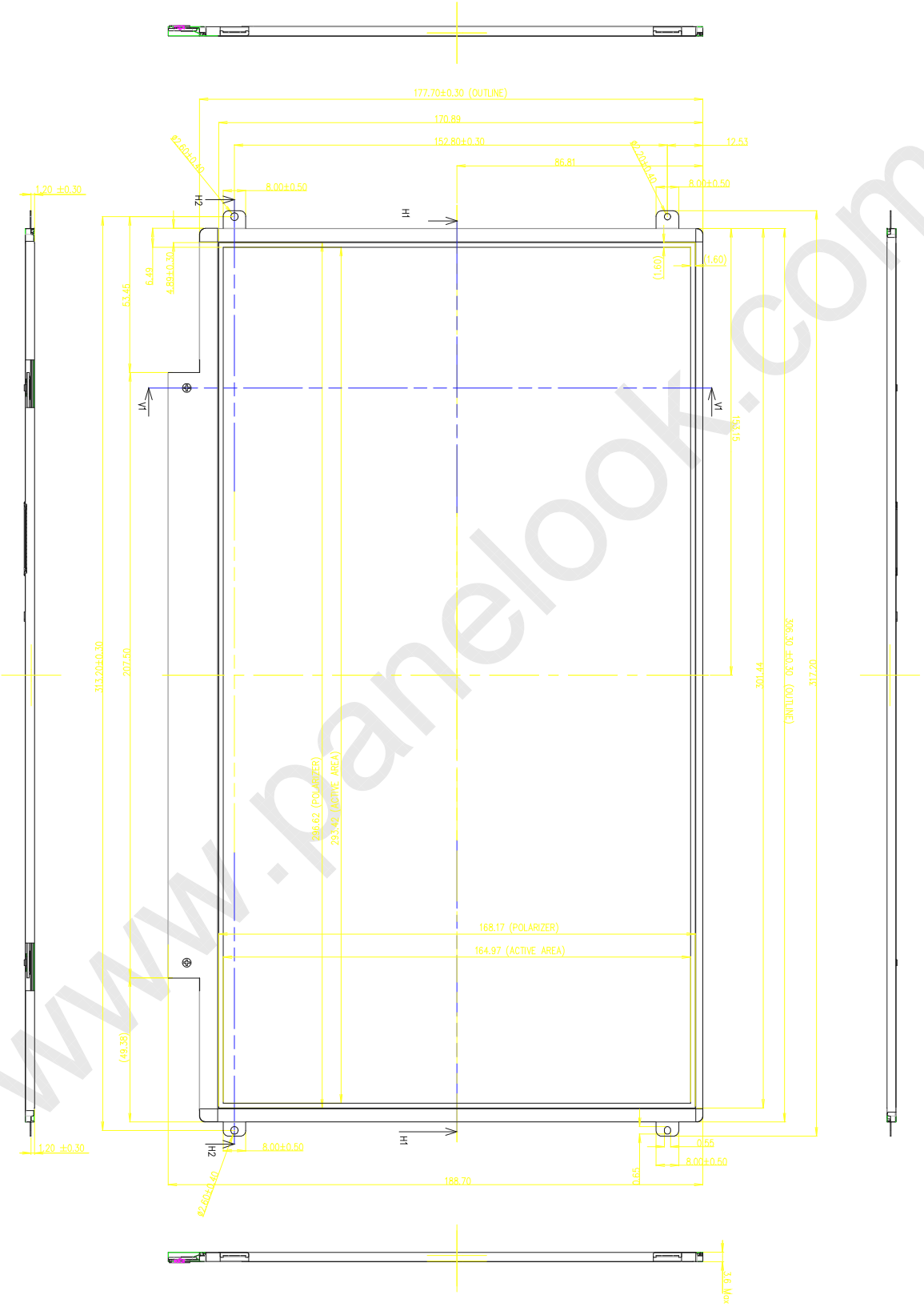
5. Mechanical Characteristics

The contents provide general mechanical characteristics for the model LP133WH2.
In addition the figures in the next page are detailed mechanical drawing of the LCD.

Outline Dimension	Horizontal	306.3 ± 0.50mm
	Vertical	177.7 ± 0.50mm
	Depth	3.6mm(Max.)
Bezel Area	Horizontal	296.62 mm
	Vertical	168.17 mm
Active Display Area	Horizontal	293.42mm
	Vertical	164.97 mm
Weight	300g(Max.)	
Surface Treatment	Hard coating(3H), Glare treatment of the front Polarizer (Haze 0%)	
Mother Glass Thickness	Upper Glass (C/F Glass)	0.50 + 0.05 / -0.03 mm
	Lower Glass (TFT Glass)	0.50 + 0.05 / -0.03 mm

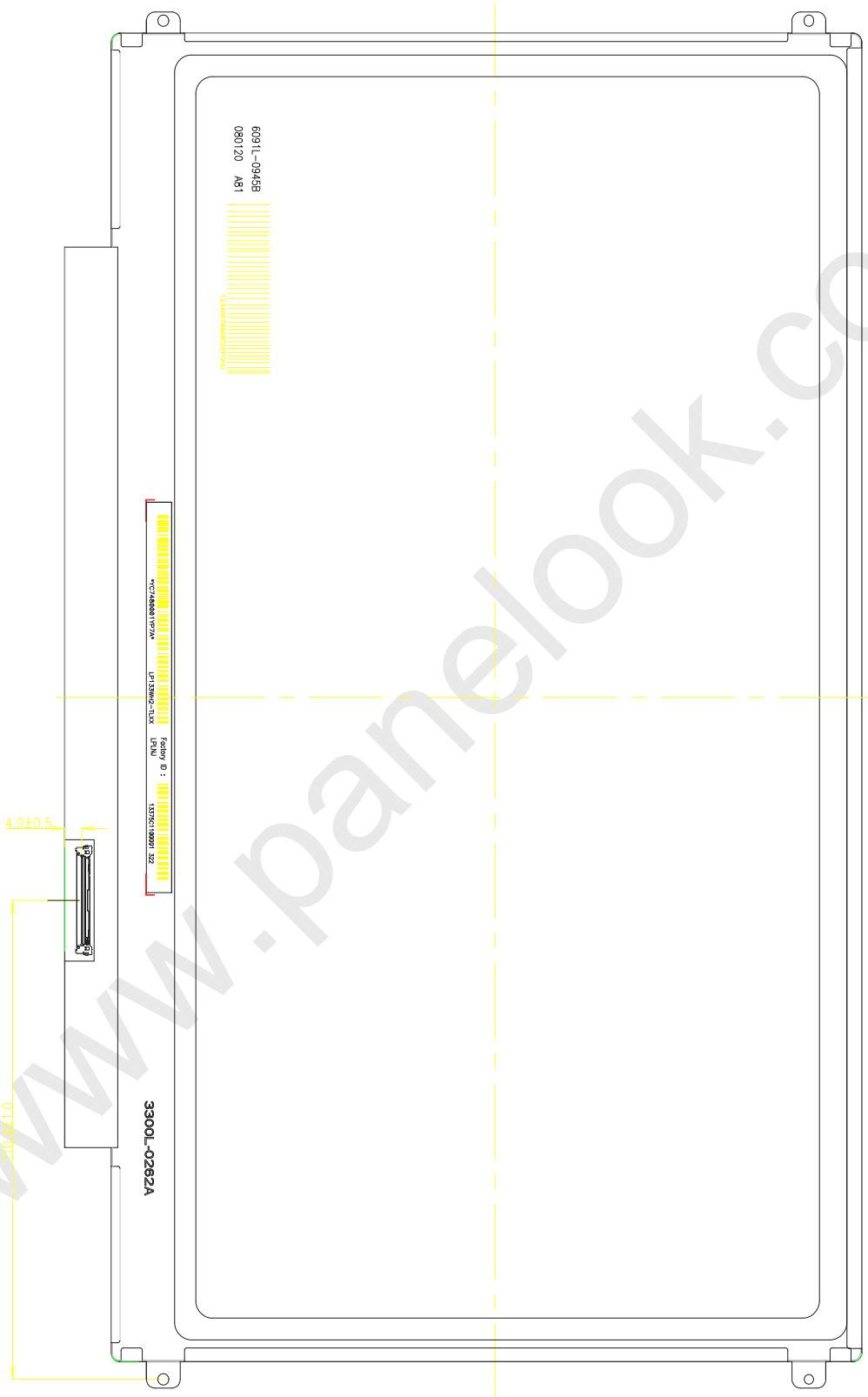
<FRONT VIEW>

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



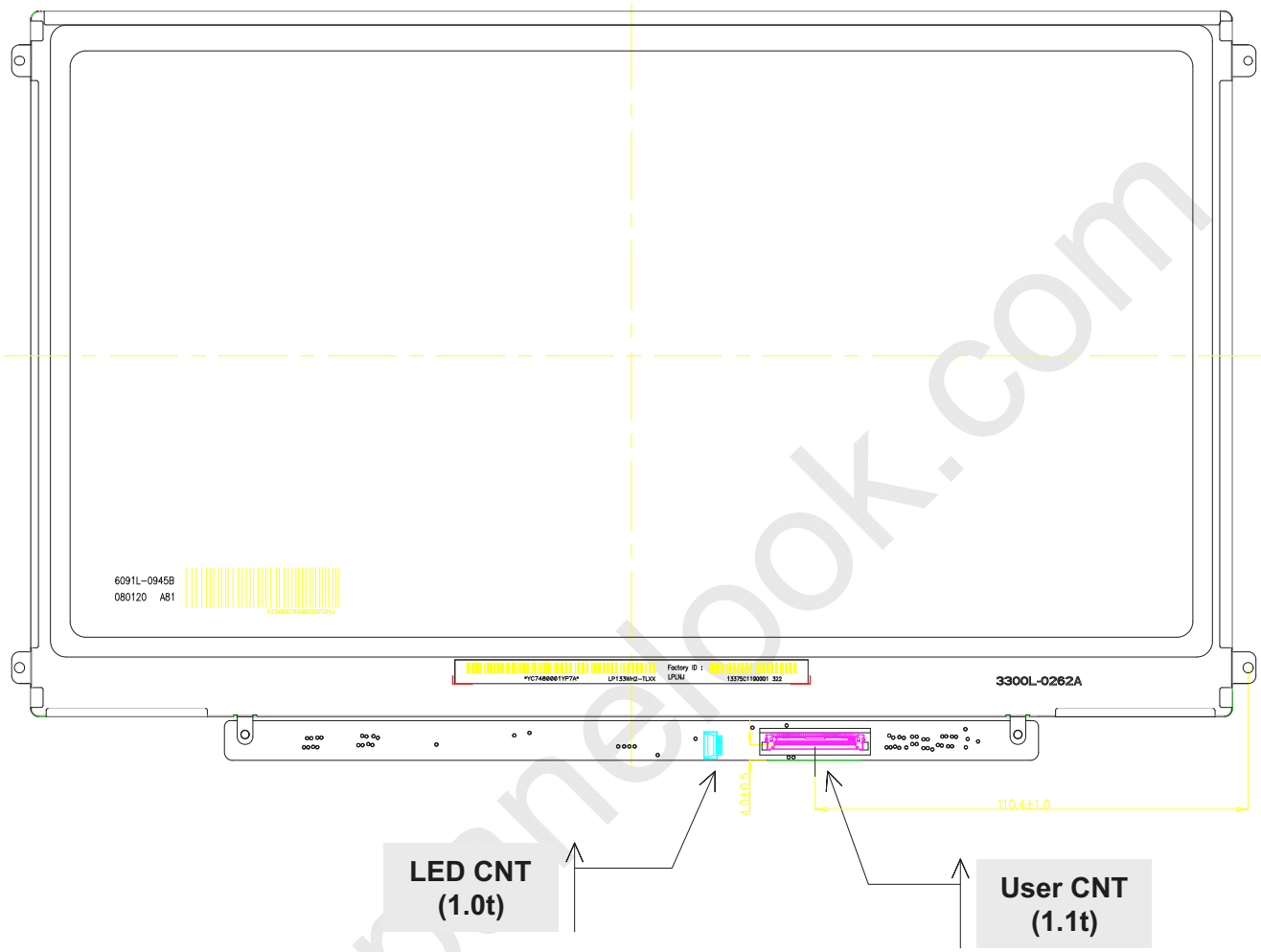
<REAR VIEW>

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

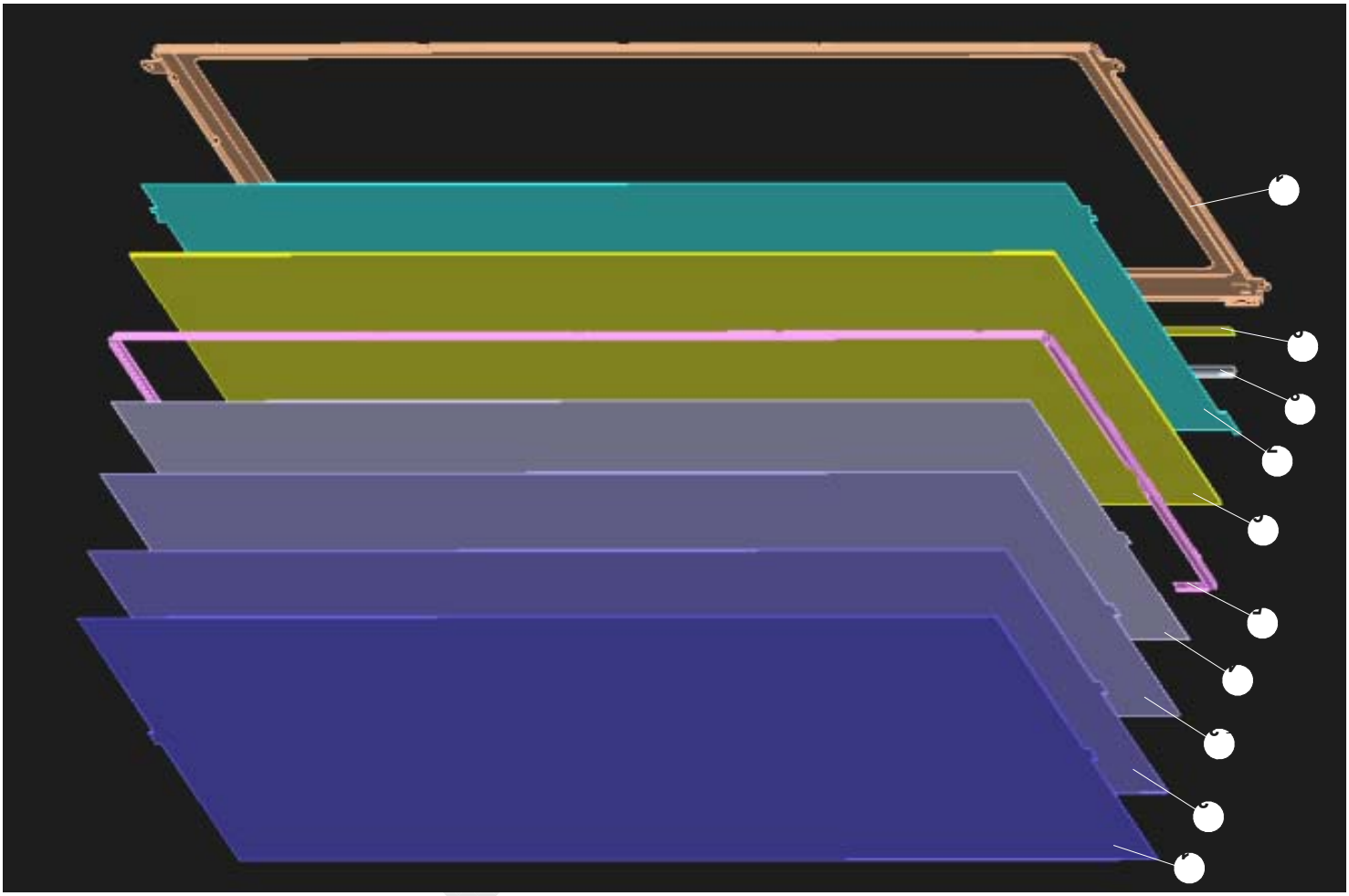


<REAR VIEW>

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



Backlight Exploded View. (Appendix)



No	Part Name	No	Part Name
1	Diffuser Up Sheet	9	LED Array
2	Prism Up Sheet	10	Plate Bottom
3	Prism Down Sheet		
4	Diffuser Down Sheet		
5	Supporter Main		
6	Light Guide Panel		
7	Reflector		
8	LED Housing		

7. International Standards

7-1. Safety

a) UL 60950-1:2003, First Edition, Underwriters Laboratories, Inc., 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) CISPR22 “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)

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, 5 ~ 150Hz, 1.5G, 0.37oct/min 3 axis, 30min/axis
6	Shock test (non-operating)	- No functional or cosmetic defects following a shock to all 6 sides delivering at least 180 G in a half sine pulse no longer than 2 ms to the display module - No functional defects following a shock delivering at least 200 g in a half sine pulse no longer than 2 ms to each of 6 sides. Each of the 6 sides will be shock tested with one each display, for a total of 6 displays
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.

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)
D : YEAR
E : MONTH
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 : 422X340X260

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 the 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=± 200mV(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 minimized 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.

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

LP133WH2-TLA3 E-EDID DATA (ver1.0)

2009-03-16

Byte# (decimal)	Byte# (HEX)	Field Name and Comments	Value (HEX)		Value (binary)	
0	00	Header	0	0	0000 0000	Header
1	01		F	F	1111 1111	
2	02		F	F	1111 1111	
3	03		F	F	1111 1111	
4	04		F	F	1111 1111	
5	05		F	F	1111 1111	
6	06		F	F	1111 1111	
7	07		0	0	0000 0000	
8	08	EISA manufacturer code = LGD	3	0	0011 0000	Vender/ Product ID
9	09		E	4	1110 0100	
10	0A	Product code = 01F7	F	7	1111 0111	
11	0B	(Hex, LSB first)	0	1	0000 0001	
12	0C	32-bit serial number	0	0	0000 0000	
13	0D		0	0	0000 0000	
14	0E		0	0	0000 0000	
15	0F		0	0	0000 0000	
16	10	Week of manufacture	0	0	0000 0000	
17	11	Year of manufacture = 2009	1	3	0001 0011	
18	12	EDID Structure version # = 1	0	1	0000 0001	EDID Version/ Revision
19	13	EDID Revision # = 3	0	3	0000 0011	
20	14	Video input definition = Digital I/p,non TMDS CRGB	8	0	1000 0000	Display Parameter
21	15	Max H image size(㎝) = 29.342㎝(29)	1	D	0001 1101	
22	16	Max V image size(㎝) = 16.497㎝(16)	1	0	0001 0000	
23	17	Display gamma = 2.20	7	8	0111 1000	
24	18	Feature support(DPMS) = Active off, RGB Color	0	A	0000 1010	
25	19	Red/Green low Bits	E	E	1110 1110	Color Characteristic
26	1A	Blue/White Low Bits	2	5	0010 0101	
27	1B	Red X Rx = 0.585	9	5	1001 0101	
28	1C	Red Y Ry = 0.350	5	9	0101 1001	
29	1D	Green X Gx = 0.335	5	5	0101 0101	
30	1E	Green Y Gy = 0.545	8	B	1000 1011	
31	1F	Blue X Bx = 0.160	2	9	0010 1001	
32	20	Blue Y By = 0.135	2	2	0010 0010	
33	21	White X Wx = 0.313	5	0	0101 0000	
34	22	White Y Wy = 0.329	5	4	0101 0100	
35	23	Established Timing I	0	0	0000 0000	Established Timings
36	24	Established Timing II	0	0	0000 0000	
37	25	Manufacturer's Timings	0	0	0000 0000	
38	26	Standard Timing Identification 1 was not used	0	1	0000 0001	Standard Timing ID
39	27	Standard Timing Identification 1 was not used	0	1	0000 0001	
40	28	Standard Timing Identification 2 was not used	0	1	0000 0001	
41	29	Standard Timing Identification 2 was not used	0	1	0000 0001	
42	2A	Standard Timing Identification 3 was not used	0	1	0000 0001	
43	2B	Standard Timing Identification 3 was not used	0	1	0000 0001	
44	2C	Standard Timing Identification 4 was not used	0	1	0000 0001	
45	2D	Standard Timing Identification 4 was not used	0	1	0000 0001	
46	2E	Standard Timing Identification 5 was not used	0	1	0000 0001	
47	2F	Standard Timing Identification 5 was not used	0	1	0000 0001	
48	30	Standard Timing Identification 6 was not used	0	1	0000 0001	
49	31	Standard Timing Identification 6 was not used	0	1	0000 0001	
50	32	Standard Timing Identification 7 was not used	0	1	0000 0001	
51	33	Standard Timing Identification 7 was not used	0	1	0000 0001	
52	34	Standard Timing Identification 8 was not used	0	1	0000 0001	
53	35	Standard Timing Identification 8 was not used	0	1	0000 0001	

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

Byte# (decimal)	Byte# (HEX)	Field Name and Comments	Value (HEX)		Value (binary)	
54	36	1600 X 900 @ 60Hz mode : pixel clock = 72.3MHz	3	E	0011 1110	Timing Descriptor #1
55	37	(Stored LSB first)	1	C	0001 1100	
56	38	Horizontal Active = 1366 pixels	5	6	0101 0110	
57	39	Horizontal Blanking = 160 pixels	A	0	1010 0000	
58	3A	Horizontal Active : Horizontal Blanking = 1366 : 160	5	0	0101 0000	
59	3B	Vertical Avtive = 768 lines	0	0	0000 0000	
60	3C	Vertical Blanking = 22 lines	1	6	0001 0110	
61	3D	Vertical Active : Vertical Blanking = 768 : 22	3	0	0011 0000	
62	3E	Horizontal Sync. Offset = 48 pixels	3	0	0011 0000	
63	3F	Horizontal Sync Pulse Width = 32 pixels	2	0	0010 0000	
64	40	Vertical Sync Offset = 3 lines, Sync Width = 5 lines	3	5	0011 0101	
65	41	Horizontal Vertical Sync Offset/Width upper 2bits = 0	0	0	0000 0000	
66	42	Horizontal Image Size = 293.42㎜(293)	2	5	0010 0101	
67	43	Vertical Image Size = 164.97㎜(165)	A	5	1010 0101	
68	44	Horizontal & Vertical Image Size	1	0	0001 0000	
69	45	Horizontal Border = 0	0	0	0000 0000	
70	46	Vertical Border = 0	0	0	0000 0000	
71	47	Non-interlaced,Normal display,no stereo,Digital separate sync,H/V pol negatives	1	9	0001 1001	
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		0	0	0000 0000	
96	60		0	0	0000 0000	
97	61		0	0	0000 0000	
98	62	L	4	C	0100 1100	
99	63	G	4	7	0100 0111	
100	64	D	4	4	0100 0100	
101	65	i	6	9	0110 1001	
102	66	s	7	3	0111 0011	
103	67	p	7	0	0111 0000	
104	68	l	6	C	0110 1100	
105	69	a	6	1	0110 0001	
106	6A	y	7	9	0111 1001	
107	6B	LF	0	A	0000 1010	

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	3	3	3	0011 0011	
117	75	3	3	3	0011 0011	
118	76	W	5	7	0101 0111	
119	77	H	4	8	0100 1000	
120	78	2	3	2	0011 0010	
121	79	-	2	D	0010 1101	
122	7A	T	5	4	0101 0100	
123	7B	L	4	C	0100 1100	
124	7C	A	4	1	0100 0001	
125	7D	3	3	3	0011 0011	
126	7E	Extension flag = 00	0	0	0000 0000	Extension Flag
127	7F	Checksum	C	2	1100 0010	Checksum