



Chunghwa Picture Tubes, Ltd.

Technical Specification

To :
Date : 2009/10/15

CPT TFT-LCD
CLAA141WB05A

ACCEPTED BY :

Tentative

APPROVED BY	CHECKED BY	PREPARED BY

Prepared by :
Product Planning Management General Div Sales & Marketing
General Departments
CHUNGHWA PICTURE TUBES, LTD.,

1127 Hopin Rd., Padeh, Taoyuan, Taiwan 334, R.O.C.
TEL: +886-3-3675151 FAX: +886-3-377-3001

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RECORD OF REVISIONS

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T1	2006/11/01	All	First issued.

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1. OVERVIEW

CLAA141WB05A(with LVDS interface) is 14.1" color TFT-LCD (Thin Film Transistor Liquid Crystal Display) module composed of LCD panel , LVDS driver ICs , control circuit , and backlight.

By applying 6 bits digital data, 1280×800, 262K color images are displayed on the 14.1" diagonal screen. Input power voltage is single 3.3V for LCD driving.

Inverter for backlight is not included in this module. General specifications are summarized in the following table:

ITEM	SPECIFICATION
Display Area (mm)	303.744 (H)x189.84 (V) (14.1-inch diagonal)
Number of Pixels	1280 ×3(H)×800(V)
Pixel Pitch (mm)	0.2373(H)×0.2373(V)
Color Pixel Arrangement	RGB vertical stripe
Display Mode	Normally white
Number of Colors	262,144
Optimum Viewing Angle	6 o'clock
Brightness (cd/m ²)	200(5 point),lamp current 6mA(typ)
Viewing Angle	80/60
Power Consumption (W)	6.0 W (typ) w/o inverter
Module Size (mm)	319.5(W)×205.5(H)×5.5(D) (Max)
Module Weight (g)	420(max)
Backlight Unit	1CCFL
Surface Treatment	Glare (Haze value 12%); Hardness: 3H

[Note] : Sign "()" means tentative value.

The LCD Products listed on this document are not suitable for use of aerospace equipment, submarine cables, nuclear reactor control system and life support systems. If customers intend to use these LCD products for above application or not listed in "Standard" as follows, please contact our sales people in advance.

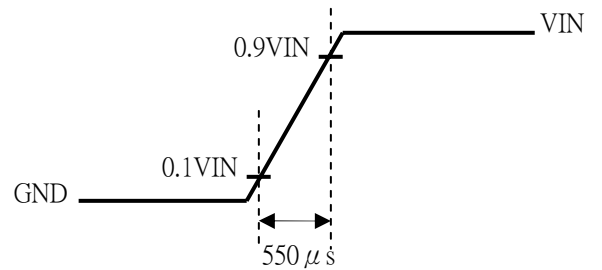
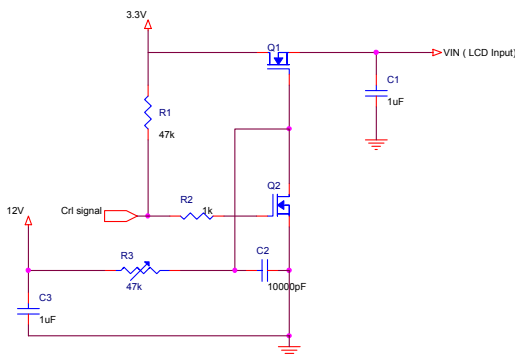
Standard: Computer, Office equipment, Communication equipment, Test and Measurement equipment, Machine tool, Industrial robot, Audio and Visual equipment, Other consumer products.

2. ABSOLUTE MAXIMUM RATINGS

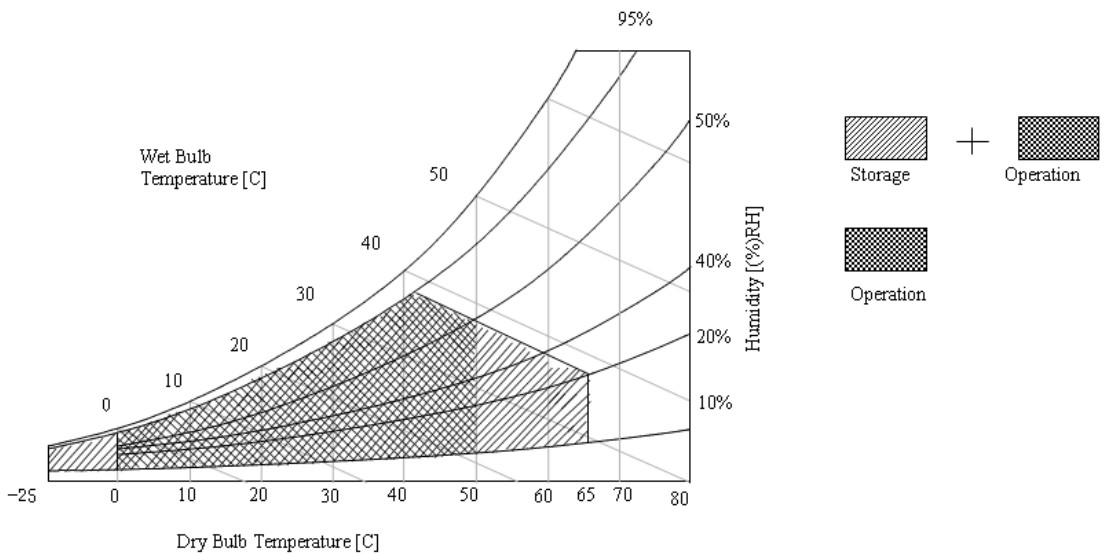
ITEM	SYMBOL	MIN.	MAX.	UNIT	REMARK
Power Supply Voltage for LCD	VCC	-0.3	4.0	V	
LVDS input Voltage	VIN	-0.3	VCC+0.3	V	
Static Electricity	VESDt	-250	250	V	*1)
	VESDc	-15	15	KV	
ICC Rush Current	I _{RUSH}	--	2	A	*2)
Operation Temperature	Top	0	50	°C	*3)*4)
Storage Temperature	Tstg	-20	65	°C	*3)*4)
Starting Voltage	V _{SL}	0	1180	V	

[Note] : *1) Test Condition : IEC 1000-4-2 ,
 VESDt : Contact discharge to input connector
 VESDc : Contact discharge to module

*2) measure with below circuit, If Vcc rise time increase then I_{RUSH} decrease.



*3) Humidity ≤ 85% RH. without condensation.



*4) If the relative temperature and humidity out of range too long, it will affect visual of observation.

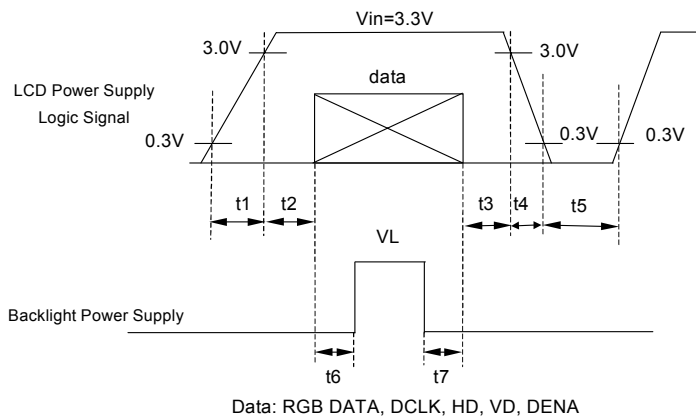
3. ELECTRICAL CHARACTERISTICS

(A) TFT LCD

ITEM	SYMBOL	MIN	TYP	MAX	UNIT	REMARK	
LCD POWER VOLTAGE	VCC	3.0	3.3	3.6	V	[Note 1]	
LCD POWER CURRENT	ICC	-	340	380	mA	[Note 2 · 3]	
LOGIC INPUT VOLTAGE (LVDS: IN+, IN-) [Note 3]	INPUT VOLTAGE	VIN	0	-	VCC	V	
	COMMON VOLTAGE	VCM	1.125	1.25	1.375	V	
	DIFFERENTIAL INPUT VOLTAGE	VID	250	350	450	mV	
	THRESHOLD VOLTAGE (HIGH)	VTH	-	-	100	mV	FOR VCM=+1.2V
	THRESHOLD VOLTAGE (LOW)	VTL	-100	-	-	mV	
DIFFERENTIAL INPUT VOLTAGE TOLERANCE	Δ VID	-	-	35	mV		
COMMON VOLTAGE TOLERANCE	Δ VCM	-	-	35	mV		

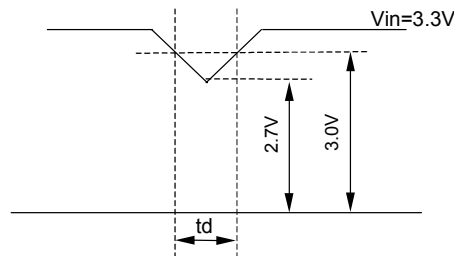
[Note 1] Power Sequence :

- 1 ms < t1 ≤ 10ms
- 0 ms < t2 ≤ 50 ms
- 0 ms < t3 ≤ 50 ms
- 0 ms < t4 ≤ 10 ms
- 1 sec ≤ t5
- 300 ms ≤ t6
- 300 ms ≤ t7



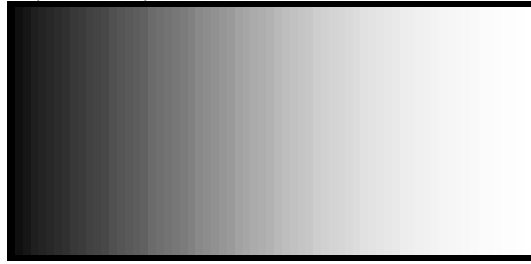
VCC-dip state

- (1) when $2.7 \leq VCC < 3.0V$, $t_d \leq 10$ ms
- (2) when $VCC < 2.7V$, VCC-dip condition should be as the VCC-turn-off condition.

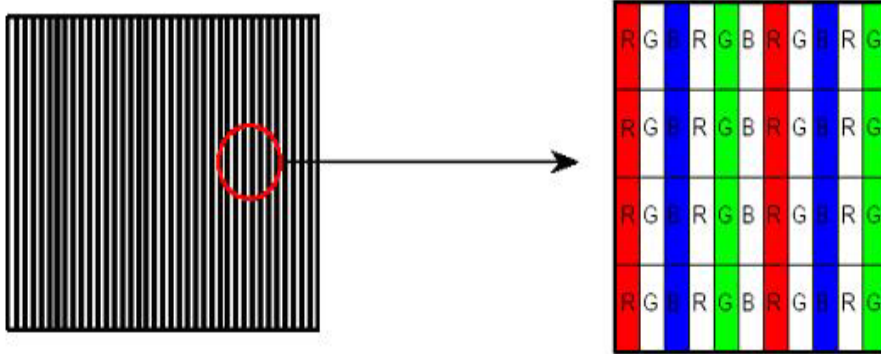


[Note 2]

1. Typical value is 0~63 gray level.(horizontal line Pattern)
 VCC= +3.3V fCLKin =71.1MHz (fV=60Hz)

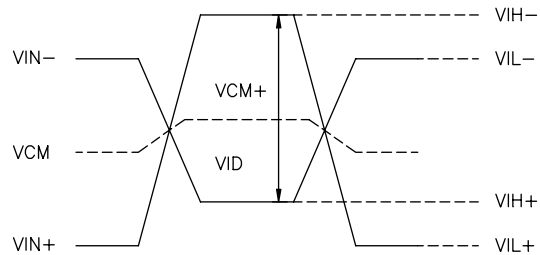
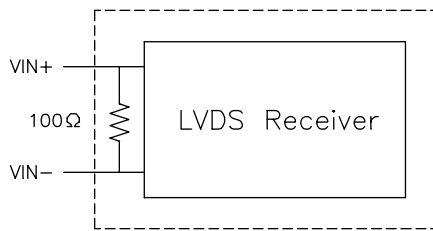


2. Max. value
 VCC= +3.3V fCLKin =71.1MHz (fV=60Hz)



[Note 3]

LVDS Signal Definite :



$$\begin{aligned}
 VID &= VIN_+ - VIN_- \\
 \Delta VCM &= |VCM_+ - VCM_-| \\
 \Delta VID &= |VID_+ - VID_-| \\
 VID_+ &= |VIH_+ - VIH_-| \\
 VID_- &= |VIL_+ - VIL_-| \\
 VCM &= (VIN_+ + VIN_-) / 2 \\
 VCM_+ &= (VIH_+ + VIH_-) / 2 \\
 VCM_- &= (VIL_+ + VIL_-) / 2
 \end{aligned}$$

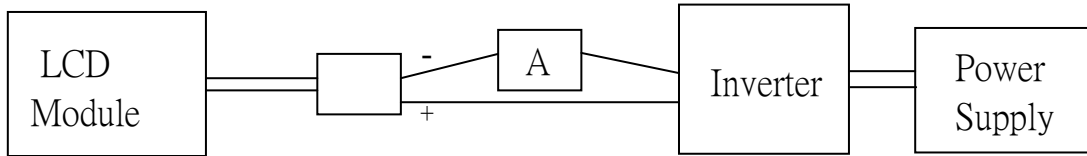
VIN+ : Positive differential DATA & CLK Input
 VIN- : Negative differential DATA & CLK Input

(B) BACK LIGHT

Ta=25°C

ITEM	SYMBOL	MIN	TYP	MAX	UNIT	REMARK
Lamp Voltage(IL=6.0mA)	VL	-	(640)	-	V	
Lamp Current	IL	3.0	6.0	6.5	mA	*1)
Inverter Frequency	FI	50	-	60	kHz	*3)
Lamp Life Time(IL=6.0mA)	Life L	15,000	-	-	hr	*2)
Start up Lamp Voltage	Ta=0°C	-	-	(1420)	V	*4)
	Ta=25°C	-	-	(1180)		

*1)Measure method : galvanometer connect to low voltage



*2) Definition of the lamp life time :

- a. Luminance (L) under 50% of specification starting lamp voltage
- b. Starting Lamp Voltage: Vs=1180 ,Ta=25°C , IL=Max 6.0 mA

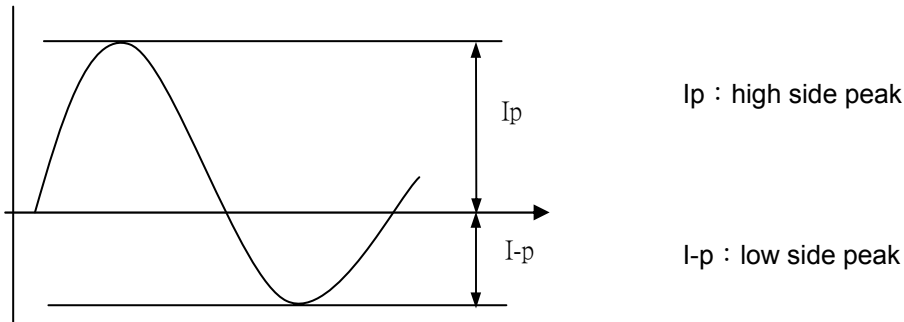
[Note]

If the driving waveform of Lamp is asymmetric, the distribution of mercury inside the lamp tube will become unequally or will deplete the Ar gas in it. Then it may cause the abnormal phenomenon of lighting-up.

Therefore,

designers have to try their best to for fill the conditions under the inverter designing-stage as below:

- The degrees of unbalance : < 10%
- The ratio of wave height : $< \sqrt{2} \pm 10\%$



A : The degrees of unbalance = $| I_p - I-p | / I_{rms} \times 100 (\%)$

B : The ratio of wave height = $I_p \text{ (or } I-p) / I_{rms}$

*3)Frequency in this range can make the characteristics of electric and optics maintain in +/- 10% except hue.

Lamp frequency of inverter may produce interference with horizontal synchronous frequency,and this may cause horizontal beat on the display. Therefore, please adjust lamp frequency, and keep inverter as far from module as possible or use electronic shielding between inverter and module to avoid the interference.

Under optimum operate frequency range (50~80 KHz), will not effect panel life-time and reliability .

*4) For keeping good lighting situation ,when design the inverter,it must be considered that the voltage large than starting lamp voltage.

4.Connector Interface PIN & Function

(1) CN1(Interface signal)

Outlet connector: FI-XB30SL-HF10 (JAE)

Link connector: FI-X30H (JAE, Link Type)

Pin No.	SYMBOL	Function
1	Vss	Ground
2	Vcc	+3.3V
3	Vcc	+3.3V
4	V_EDID	DDC 3.3V Power
5	BIST	Panel BIST test
6	CLK_EDID	DDC Clock
7	DATA_EDID	DDC Data
8	R0M	LVDS Receiver Signal(-)—channel 0
9	R0P	LVDS Receiver Signal(+)—channel 0
10	Ground	Ground
11	R1M	LVDS Receiver Signal(-)—channel 1
12	R1P	LVDS Receiver Signal(+)—channel 1
13	Ground	Ground
14	R2M	LVDS Receiver Signal(-)—channel 2
15	R2P	LVDS Receiver Signal(+)—channel 2
16	Ground	Ground
17	RCLKM	LVDS Clock Signal(-)
18	RCLKP	LVDS Clock Signal(+)
19	Ground	Ground
20	NC	No connect
21	NC	VCOM test provided , but customer-end unused ; No Connect (open)
22	NC	No connect
23	NC	No connect
24	NC	No connect
25	NC	No connect
26	NC	No connect
27	NC	No connect
28	NC	No connect
29	NC	No connect
30	NC	No connect

(2) CN2 (BACKLIGHT)

Backlight-side connector: BHSR-02VS-1 (JST)

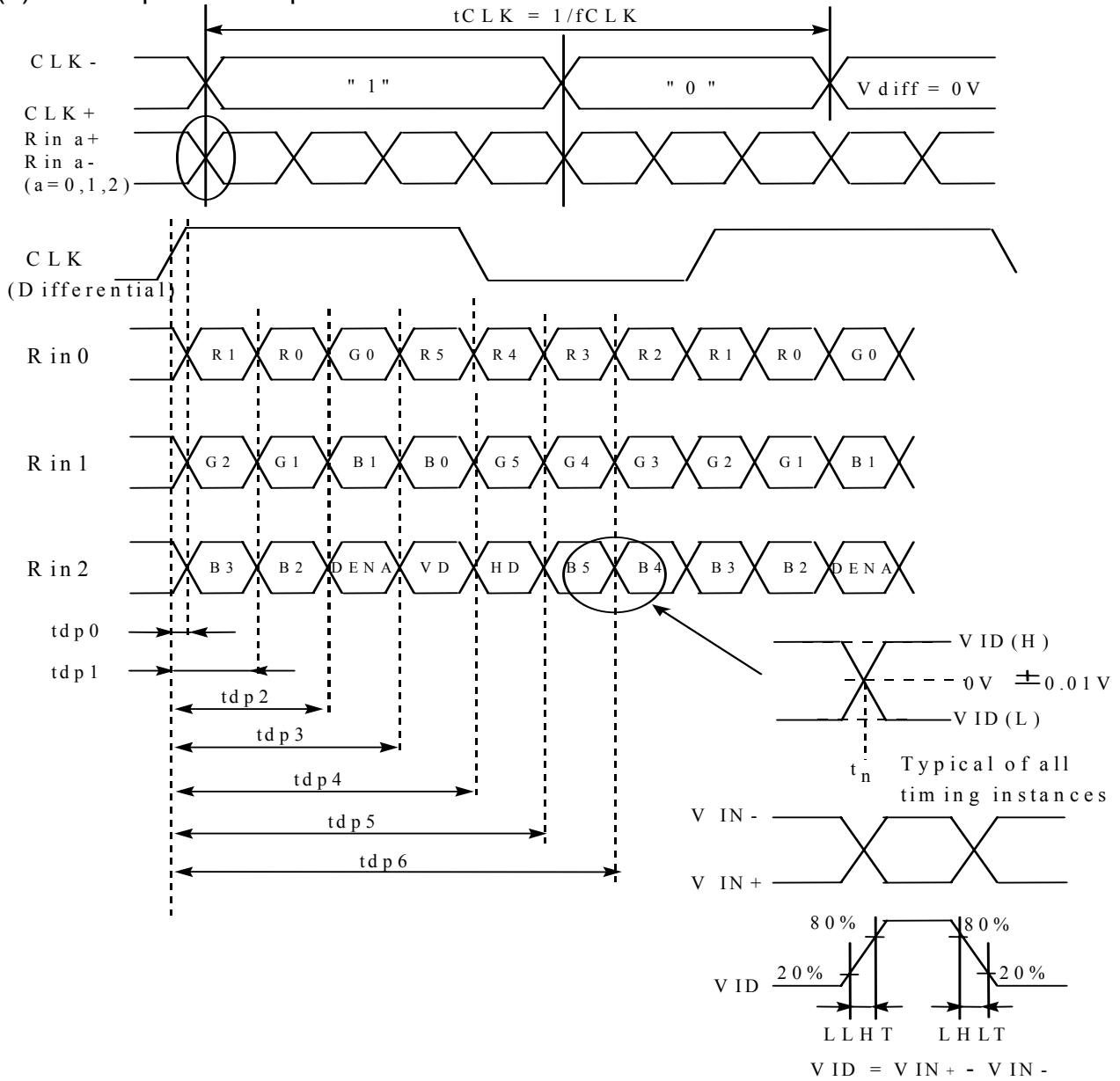
Inverter-side connector: SM02B-BHSS-1 (JST)

Pin No.	Symbol	Function
1	CTH	VBLH (High)
2	CTL	VBLL (Low)

[Note] : VBLH-VBLL=VL

5. INTERFACE TIMING CHART

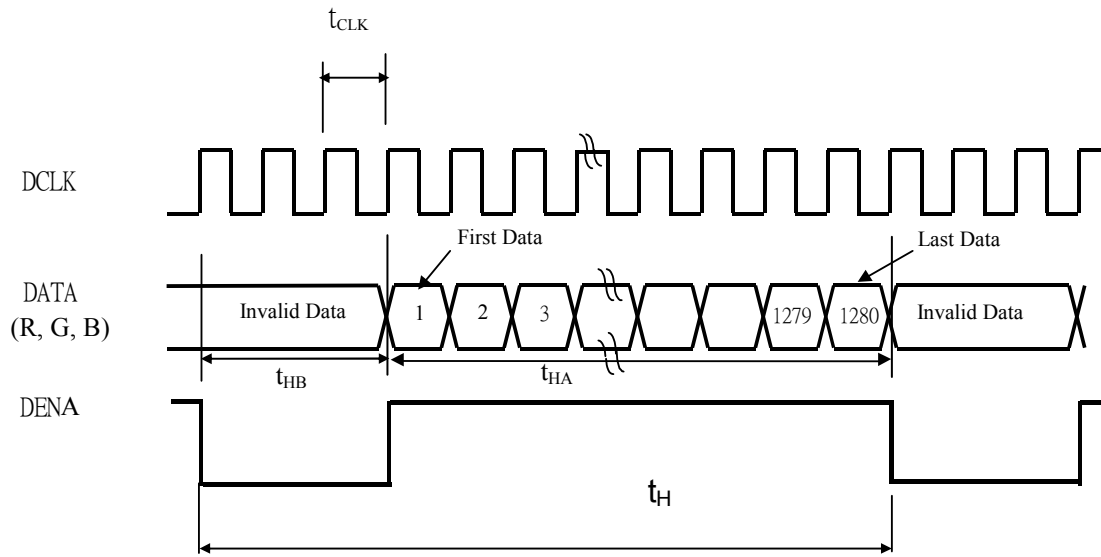
(1) LVDS input time sequence



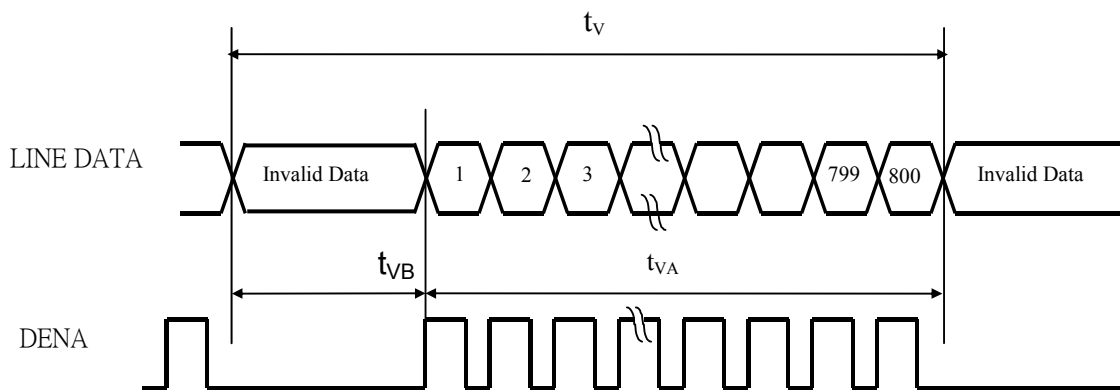
(2) LCD input time sequence

a. Timing Chart

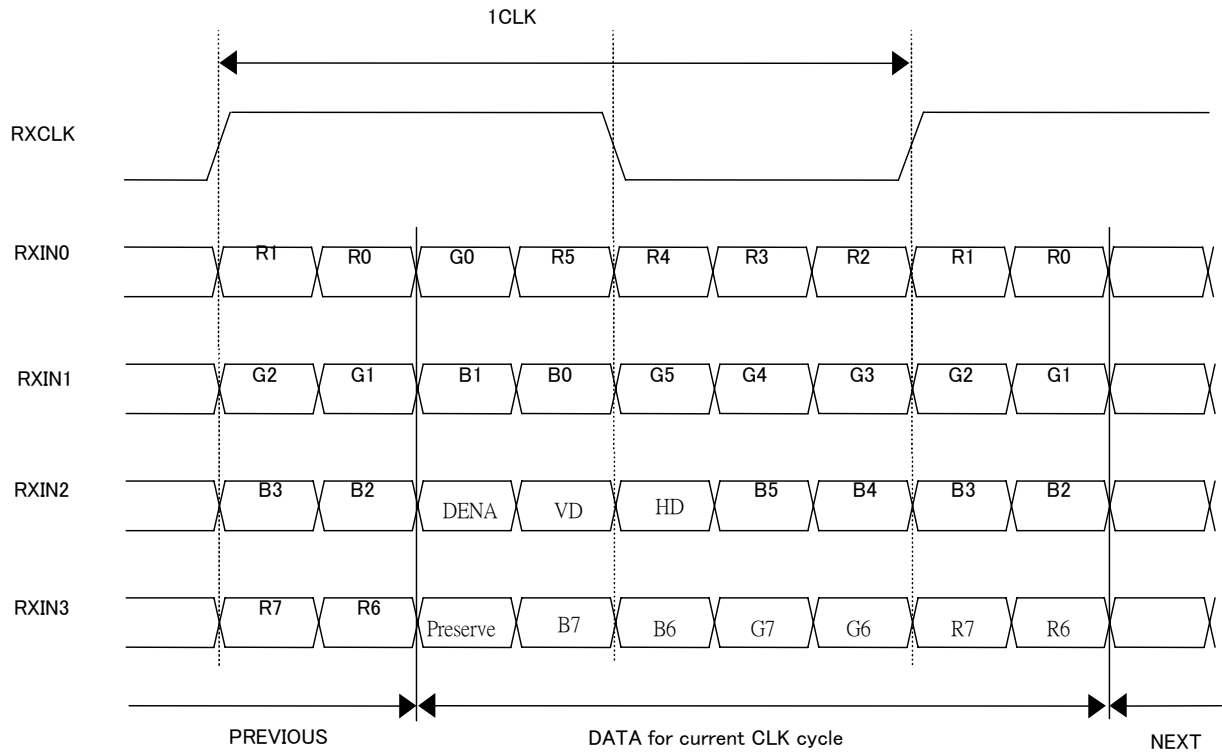
(a) Horizontal signal:



(b) Vertical signal:



b. Data Mapping



(3) Timing Chart

ITEM		SYMBOL	MIN	TYP	MAX	UNIT	
LVDS Input Timing	CLK frequency	fCLKin	62.83	71.11	80.42	MHz	
	CLK period	tCLKin	12.43	14.06	15.92	ns	
LCD input signal (LVDS Tx Input , Rx output)	Horizontal	Total	t _H	1400	1440	1480	tCLK
		Active	t _{HA}	1280	1280	1280	tCLK
		Blank	t _{HB}	120	160	200	tCLK
	Vertical	Frame Rate	f _V	55	60	65	Hz
		Tatol	t _V	816	823	836	t _H
		Active	t _{VA}	800	800	800	t _H
		Blank	t _{VB}	16	23	36	t _H

[Note]

- 1) Data is latched at fall edge of DCLK in this specification.
- 2) DENA (Data Enable) should always be positive polarity as shown in the timing specification.
- 3) CLKIN should appear during all invalid period.
- 4) T(period) = 1/f

(4) DATA mapping

Color	Input Data	R DATA						G DATA						B DATA					
		R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0
		MS B					LS B	MS B					LS B	MS B					LS B
Basic Color	Black	0	0	0	0	0	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(63)	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Blue(63)	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(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(1)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	RED(2)	0	0	0	0	1	0	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(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green(1)		0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Green(2)		0	0	0	0	0	0	0	0	0	0	1	0	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(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Blue(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	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

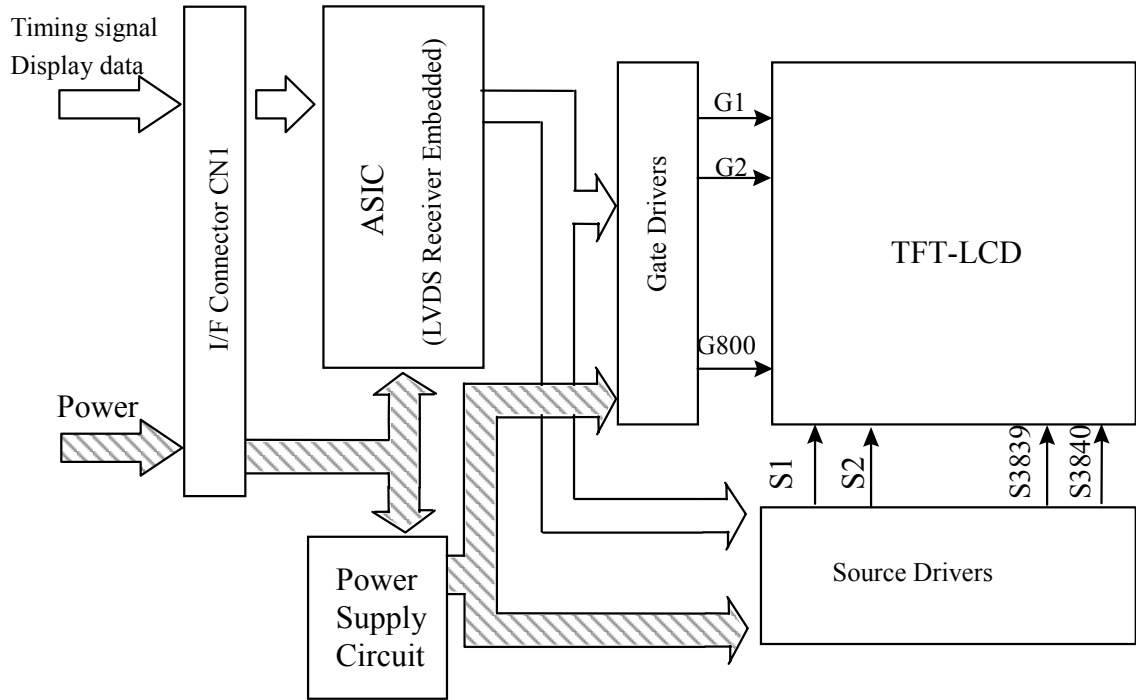
[Note]

(1) Definition of gray scale:

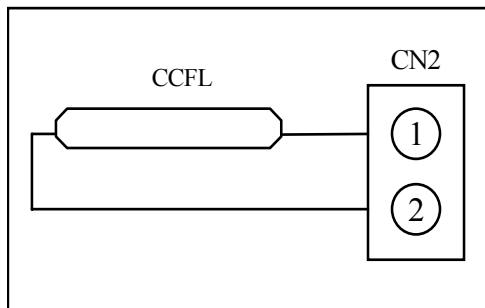
Color(n) : n means level of gray scale . Higher n means brighter level.

(2)Data : 1= High , 0 = Low

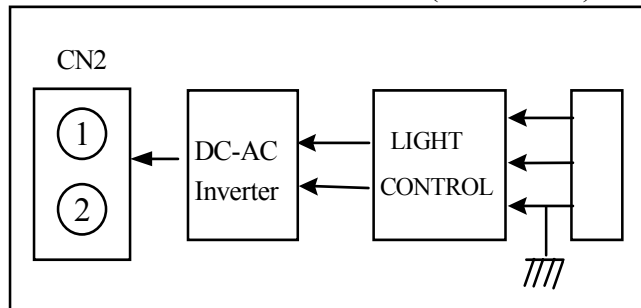
6. BLOCK DIAGRAM



BACK LIGHT



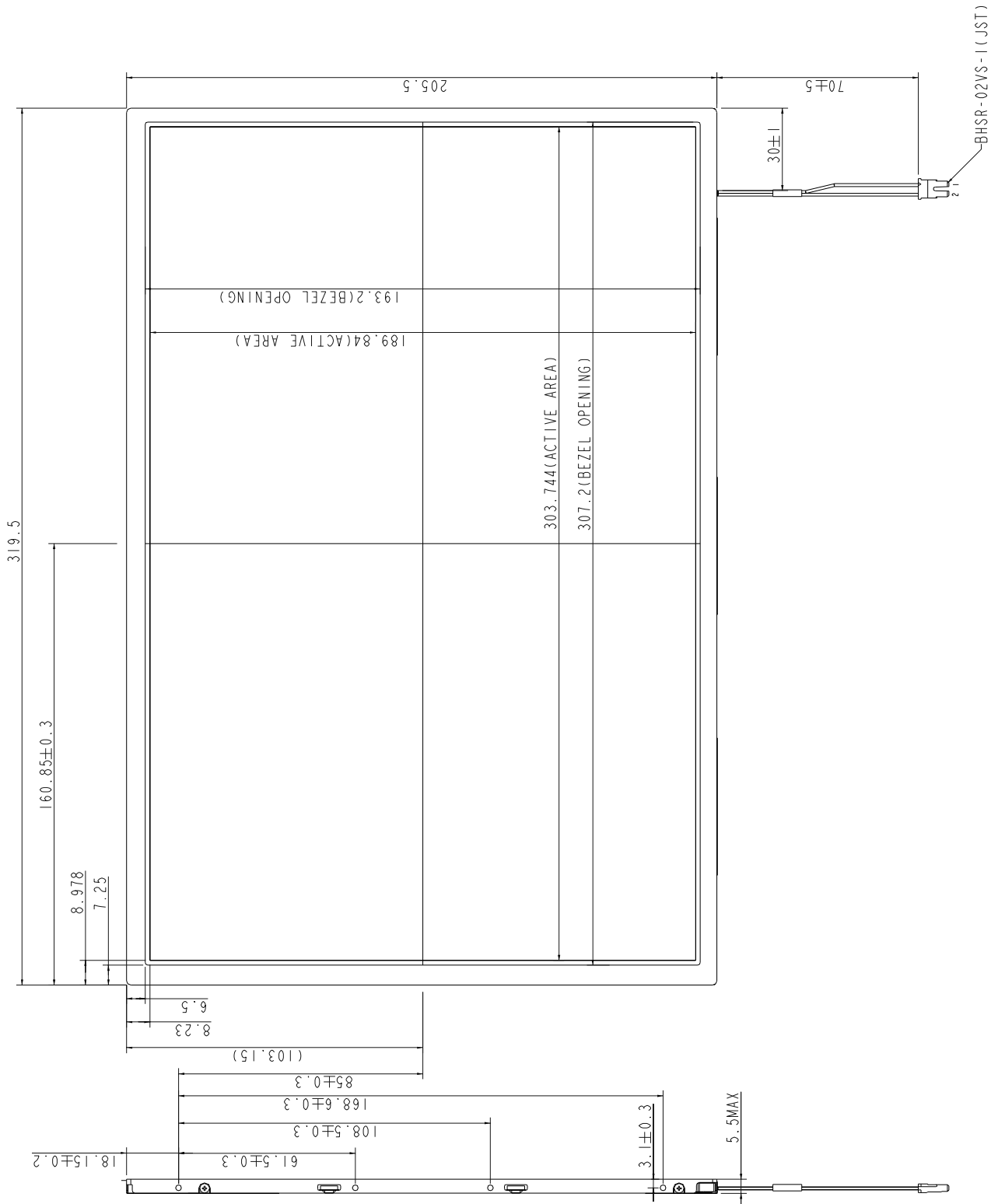
INVERTER CIRCUIT (OUT SIDE)



7.MECHANICAL SPECIFICATION

(1) Front side

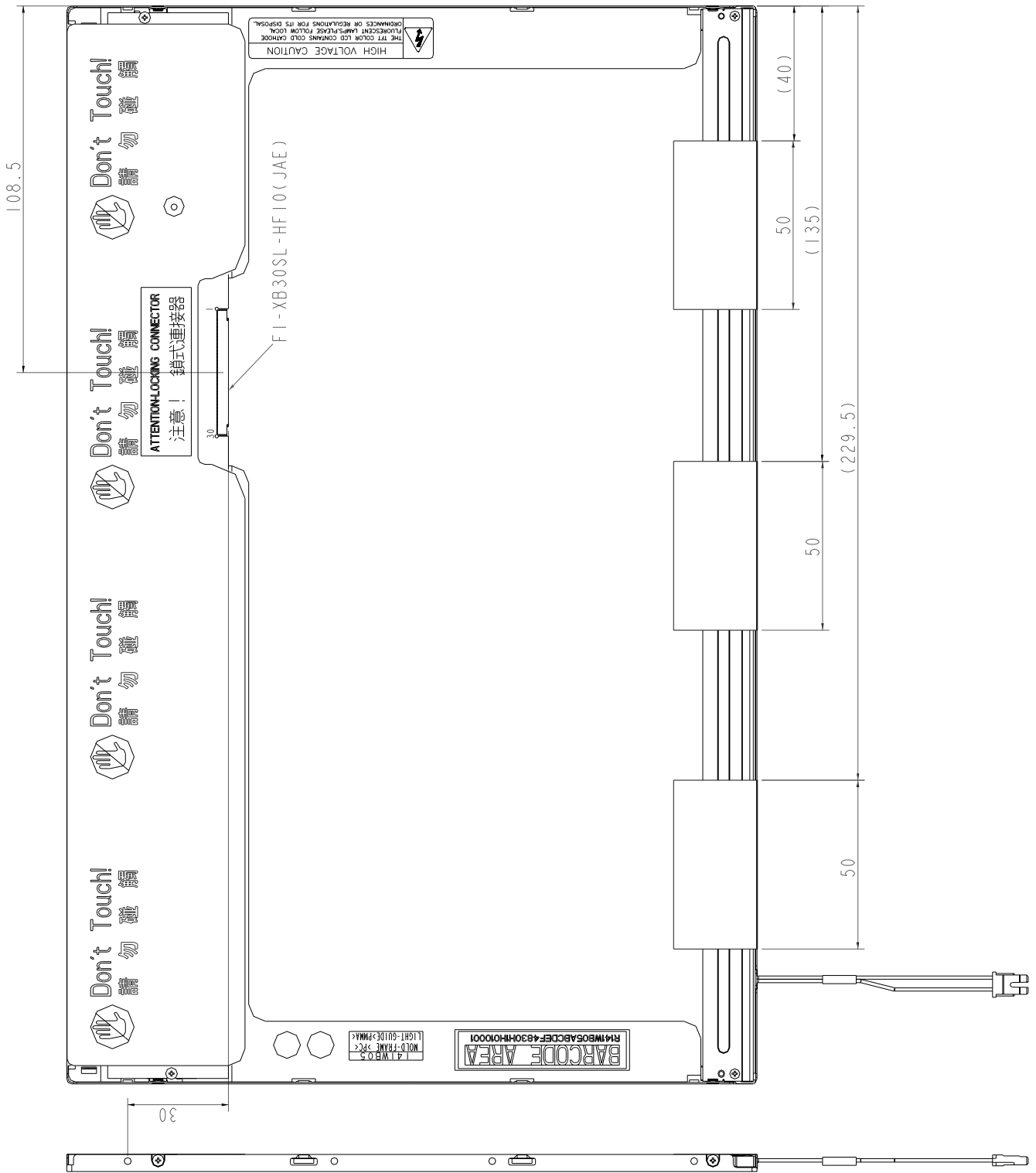
[Unit : mm]



The tolerance, not show in the figure, is ±0.5mm.

2) Rear side

[Unit : mm]



The tolerance, not show in the figure, is ± 0.5 mm.

8. OPTICAL CHARACTERISTICS

Ta=25°C · VDD=3.3V

item	symbol	condition	min	typ	max	unit
contrast	CR	*1)	400	500	--	--
Luminance	L	*3) $I_L = 6 \text{ mA}$	200	--	--	cd/m^2
5P Luminance Uniformity	ΔL	*4)	80	--	--	%
13P Luminance Uniformity			60	--	--	%
Response Time	Tr	*6)	--	5	20	ms
	Tf		--	11		ms
View angle	Horizontal	*2) $CR \geq 10$	-35~35	-40 ~ 40	--	°
	Vertical		-35~15	-40 ~ 20	--	°
Crosstalk Ratio	CMR	*7)	--	--	1	%
Image sticking	tis	*8)	--	--	2	s
Color Temperature Coordinate	RED	x	0.559	0.589	0.619	--
		y	0.296	0.326	0.356	
	GREEN	x	0.285	0.315	0.345	
		y	0.510	0.540	0.570	
	BLUE	x	0.123	0.153	0.183	
		y	0.095	0.125	0.155	
	WHITE	x	0.283	0.313	0.343	
		y	0.299	0.329	0.359	

These items are measured using BM-5A (TOPCON) under the dark room condition (no ambient light).

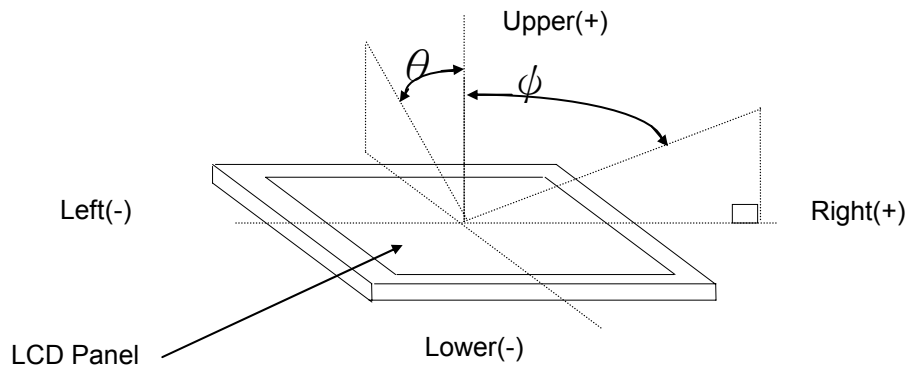
Measurement Condition: $I_L=6.0\text{mA}$

Inverter : SUMIDA PWS-400-9594

Definition of these measurement items is as follows:

(1)Definition of Contrast Ratio : $CR = \text{ON (White) Luminance} / \text{OFF (Black) Luminance}$

(2)Definition of Viewing Angle(θ, ψ)



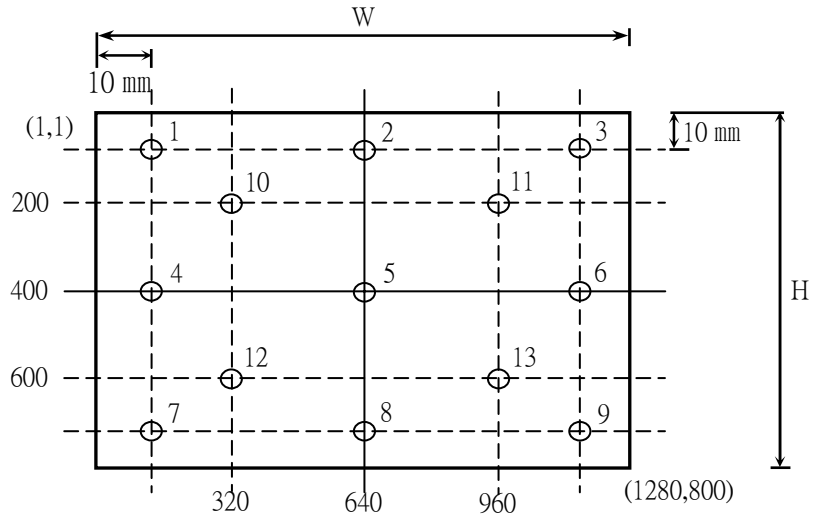
(3) Definition of Luminance and Luminance uniformity :

Definition of Average Luminance of White (L)

Measure White Luminance on the below center(5) · 5 point(5,10,11,12,13)

$$L = [L(5) + L(10) + L(11) + L(12) + L(13)] / 5$$

L(X) is corresponding to the luminance of the point X at below Figure.



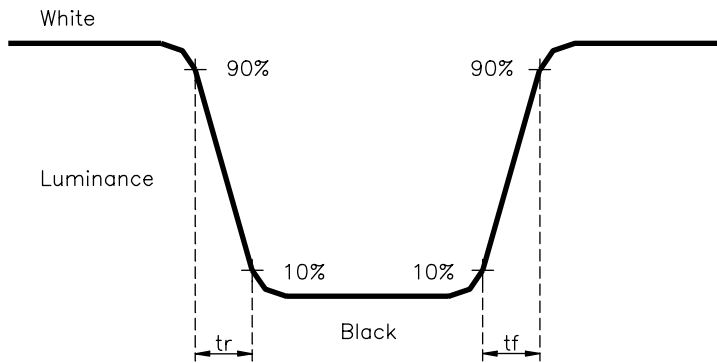
(4) Definition of Luminance Uniformity

$$\Delta L = [L(\text{MIN}) / L(\text{MAX})] \times 100$$

(5) Definition of Contrast Ratio Uniformity

$$\Delta \text{CR} = [\text{CR}(\text{MAX}) / \text{CR}(\text{MIN}) - 1] \times 100$$

(6) Definition of Response Time



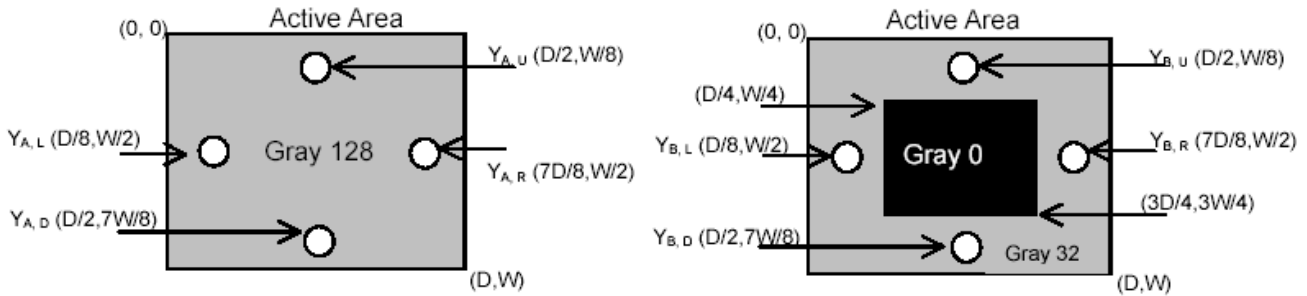
(7) Definition of Cross talk Modulation Ratio

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

Y_A 、 Y_B measure position and definition

Y_A means luminance at gray level 128(exclude gray level 0 pattern)

Y_B means luminance at gray level 128(include gray level 0 pattern)

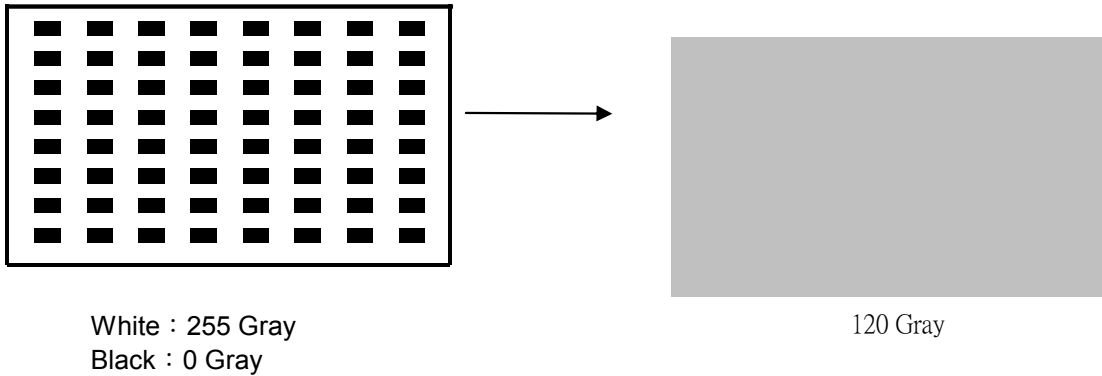


(8) Definition of Image Sticking

Environment conditions: $25 \pm 10^\circ\text{C}$; 250~300 Lux

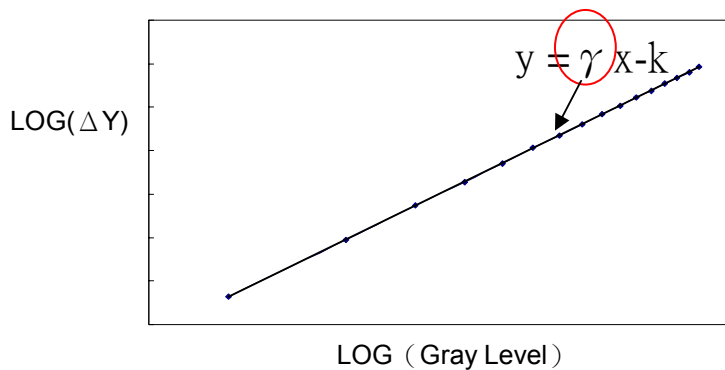
Continuously display the test pattern showing in the below figure for 4 hours.

Then switch to 120 gray pattern, and the previous image should not persist more than 3 sec.



(9) Definition Gamma(VESA)

Based on Customer Sample, take the average value as a standard center value and the variation range of Gamma value caused by loop voltage error should be between ± 0.2 . the below figure shows how to obtain the gamma curve and γ (from gray level: 0、16、32-----224、240、255).



9.RELIABILITY TEST CONDITIONS

(1)Temperature and Humidity

TEST ITEMS	CONDITIONS
HIGH TEMPERATURE OPERATION	50°C,240h
HIGH TEMPERATURE STORAGE	60°C,240h
LOW TEMPERATURE OPERATION	0°C,240h
LOW TEMPERATURE STORAGE	-20°C,240h
HIGH TEMPERATURE HIGH HUMIDITY OPERATION	50° C , 90%RH ,240h
HIGH TEMPERATURE HIGH HUMIDITY STORAGE	60°C , 90%RH, 48h
THERMAL SHOCK(No operation)	BETWEEN-20°C (1min)AND 60°C (1min) · 100 CYCLES

(2) Shock & Vibration

ITEMS	CONDITIONS
SHOCK (NON-OPERATION)	<ul style="list-style-type: none"> ● Shock level: 220G(2450m/s²) ● Waveform: half sinusoidal wave, 2ms ● Number of shocks: one shock input in each direction of three mutually perpendicular axes for a total of six shock inputs.
VIBRATION (NON-OPERATION)	<ul style="list-style-type: none"> ● Vibration level: 1.5G , sinusoidal wave, perpendicular axis(each x,y,z axis: 1hr , ● Frequency range: 5 to 500 Hz ● Sweep speed : 0.5 octave / min

(3) ESD Test

Test Item	Test statements
Connector	200 pF, 0 Ω, ±250 V By using contact-mode to discharge each pin one time (every 1sec) and then check the module frame.
Module	1. Test statements:150 pF, 330 Ω, ±15kV Under non-operation testing conditions, by using air-mode to discharge each test point 25 times (discharge time space:1s) continuously and then check the module frame. 2. Test statements:150pF, 330Ω, ±2KV Under operation testing conditions, by using contact mode to discharge the front bezel and using air mode to discharge the points of panel.

NOTE:test position (1)LCD glass and metal bezel(2)I/F connector pins

(4) Judgment standard

The judgment of the above test should be made as follow:

Pass: Normal display image with no obvious non-uniformity and no line defect.

Partial transformation of the module parts should be ignored.

Fail: No display image, obvious non-uniformity, or line defects.

10. HANDLING PRECAUTIONS FOR TFT-LCD MODULE

Please pay attention to the followings in handling- TFT-LCD products.

10.1 ASSEMBLY PRECAUTION

- (1) Please use the mounting hole on the module side in installing and do not beading or wrenching LCD in assembling. And please do not drop, bend or twist LCD module in handling.
- (2) Please design display housing in accordance with the following guidelines.
 - Housing case must be destined carefully so as not to put stresses on LCD all sides and not to wrench module. The stresses may cause non-uniformity even if there is no non-uniformity statically.
 - Keep sufficient clearance between LCD module back surface and housing when the LCD module is mounted. Approximately 1.0 mm of the clearance in the design is recommended taking into account the tolerance of LCD module thickness and mounting structure height on the housing.
 - When some parts, such as, FPC cable and ferrite plate, are installed underneath the LCD module, still sufficient clearance is required, such as 0.5mm. This clearance is, especially, to be reconsidered when the additional parts are implemented for EMI countermeasure.
 - Design the inverter location and connector position carefully so as not to give stress to lamp cable, or not to interface the LCD module by the lamp cable.
 - Keep sufficient clearance between LCD module and the others parts, such as inverter and speaker so as not to interface the LCD module. Approximately 1.0mm of the clearance in the design is recommended.
- (3) Please do not push or scratch LCD panel surface with any-thing hard. And do not soil LCD panel surface by touching with bare hands. (Polarizer film, surface of LCD panel is easy to be flawed.)
- (4) Please do not press any parts on the rear side such as source TCP, gate TCP, control circuit board and FPCs during handling LCD module. If pressing rear part is unavoidable, handle the LCD module with care not to damage them.
- (5) Please wipe out LCD panel surface with absorbent cotton or soft clothe in case of it being soiled.
- (6) Please wipe out drops of adhesives like saliva and water on LCD panel surface immediately. They might damage to cause panel surface variation and color change.
- (7) Please do not take a LCD module to pieces and reconstruct it. Resolving and reconstructing modules may cause them not to work well.
- (8) Please do not touch metal frames with bare hands and soiled gloves. A color change of the metal frames can happen during a long preservation of soiled LCD modules.
- (9) Please pay attention to handling lead wire of backlight so that it is not tugged in connecting with inverter.

10.2 OPERATING PRECAUTIONS

- (1) Please be sure to turn off the power supply before connecting and disconnecting signal input cable.
- (2) Please do not change variable resistance settings in LCD module. They are adjusted to the most suitable value. If they are changed, it might happen LCD does not satisfy the characteristics specification.
- (3) Please consider that LCD backlight takes longer time to become stable of radiation characteristics in low temperature than in room temperature.
- (4) A condensation might happen on the surface and inside of LCD module in case of sudden change of ambient temperature.
- (5) Please pay attention to displaying the same pattern for very long time. Image might stick on LCD. If then, time going on can make LCD work well.
- (6) Please obey the same caution descriptions as ones that need to pay attention to ordinary electronic parts.

10.3 PRECAUTIONS WITH ELECTROSTATICS

- (1) This LCD module use CMOS-IC on circuit board and TFT-LCD panel, and so it is easy to be affected by electrostatics. Please be careful with electrostatics by the way of your body connecting to the ground and so on.
- (2) Please remove protection film very slowly on the surface of LCD module to prevent from electrostatics occurrence.

10.4 STORAGE PRECAUTIONS

- (1) When you store LCDs for a long time, it is recommended to keep the temperature between 0°C ~40°C without the exposure of sunlight and to keep the humidity less than 90%RH.
- (2) Please do not leave the LCDs in the environment of high humidity and high temperature such as 60°C 90%RH.
- (3) Please do not leave the LCDs in the environment of low temperature; below -20°C.

10.5 SAFETY PRECAUTIONS

- (1) When you waste LCDs, it is recommended to crush damaged or unnecessary LCDs into pieces and wash

them off with solvents such as acetone and ethanol, which should later be burned.

- (2) If any liquid leaks out of a damaged-glass cell and comes in contact with the hands, wash off thoroughly with soap and water.

10.6 OTHERS

- (1) A strong incident light into LCD panel might cause display characteristics' changing inferior because of polarizer film, color filter, and other materials becoming inferior. Please do not expose LCD module direct sunlight and strong UV rays.
- (2) Please pay attention to a panel side of LCD module not to contact with other materials in preserving it alone.
- (3) For the packaging box, please pay attention to the followings:
 - Packaging box and inner case for LCD are designed to protect the LCDs from the damage or scratching during transportation. Please do not open except picking LCDs up from the box.
 - Please do not pile them up more than 3 boxes. (They are not designed so.) And please do not turn over.
 - Please handle packaging box with care not to give them sudden shock and vibrations. And also please do not throw them up.
 - Packing box and inner case for LCDs are made of cardboard. So please pay attention not to get them wet. (Such like keeping them in high humidity or wet place can occur getting them wet.)

11. PACKING FORM

- Package quantity in one carton: 15 pieces.
- Carton size: 485(L)×365(W)×365(H) (unit : mm)
- For domestic transportation only.

12. SAFETY

We will try our best comply the directive 2002/95/EC of the European, and that we will do our possible not to use or use exceeding the limits of banned substances. We also comply with product-related environmental laws and regulations in manufacturing process and do our best to achieve global environmental protection standards.

APPENDIX [A] - ISP Enhanced Extended Display Identification Data (EEDID)

LCD MODULE NAME : CLAA141WB05A

Byte# (dec)	Byte# (hex)	Field Name and Comments	Value (hex)	Value (binary)
Header				
0	0		0	0000 0000
1	1		FF	1111 1111
2	2		FF	1111 1111
3	3		FF	1111 1111
4	4		FF	1111 1111
5	5		FF	1111 1111
6	6		FF	1111 1111
7	7		0	0000 0000
Vender / Product ID / EDID Version				
8	8	EISA manufacturer code = CPT (1 st byte)	0E	0000 1110
9	9	(2 nd byte)	14	0000 1110
10	0A	Product code LSB =85	85	1000 0101
11	0B	Product code MSB =17	17	0000 0111
12	0C	ID (32-bit) serial number (preferred, but optional, zero if not used)	0	0000 0000
13	0D		0	0000 0000
14	0E		0	0000 0000
15	0F		0	0000 0000
16	10	Week of manufacture (preferred, but optional, zero if not used)	29	0010 1001
17	11	Year of manufacture (preferred, but optional, zero if not used)	10	0001 0000
18	12	EDID Structure version # = 1	1	0000 0001
19	13	EDID Revision # = 3	3	0000 0011
Display Parameter				
20	14	Video input definition (Digital I/P, non TMDS CRGB)	80	1000 0000
21	15	Max H image size (30) (rounded to cm)	1E	0001 1110
22	16	Max V image size (19) (rounded to cm)	13	0001 0011
23	17	Display gamma =2.2 (=gamma*100)-100	78	0111 1000
24	18	Features (no DPMS, Active off, RGB, timing BLK1)	0A	0000 1010
Panel Color Coordinates				
25	19	Red/Green low Bits	AD	1010 1101
26	1A	Blue/White Low Bits	D	0000 1101
27	1B	Red X Rx = 0.589	96	1001 0110
28	1C	Red Y Ry = 0.326	53	0101 0011
29	1D	Green X Gx = 0.315	50	0101 0000
30	1E	Green Y Gy = 0.540	8A	1000 1010
31	1F	Blue X Bx = 0.153	27	0010 0111
32	20	Blue Y By = 0.125	20	0010 0000
33	21	White X Wx = 0.313	50	0101 0000
34	22	White Y Wy = 0.329	54	0101 0100
Established Timings				
35	23	Established Timing I not used	0	0000 0000
36	24	Established Timing II not used	0	0000 0000
37	25	Manufacturer's Timings not used	0	0000 0000
Standard Timing ID				
38	26	Standard Timing Identification 1 not used	1	0000 0001
39	27	Standard Timing Identification 1 not used	1	0000 0001
40	28	Standard Timing Identification 2 not used	1	0000 0001
41	29	Standard Timing Identification 2 not used	1	0000 0001
42	2A	Standard Timing Identification 3 not used	1	0000 0001
43	2B	Standard Timing Identification 3 not used	1	0000 0001
44	2C	Standard Timing Identification 4 not used	1	0000 0001
45	2D	Standard Timing Identification 4 not used	1	0000 0001
46	2E	Standard Timing Identification 5 not used	1	0000 0001
47	2F	Standard Timing Identification 5 not used	1	0000 0001
48	30	Standard Timing Identification 6 not used	1	0000 0001
49	31	Standard Timing Identification 6 not used	1	0000 0001

50	32	Standard Timing Identification 7 not used	1	0000 0001
51	33	Standard Timing Identification 7 not used	1	0000 0001
52	34	Standard Timing Identification 8 not used	1	0000 0001
53	35	Standard Timing Identification 8 not used	1	0000 0001
Detailed Timing Descriptor #1				
54	36	Pixel Clock (LSB)	C7	1100 0111
55	37	Pixel Clock (MSB)	1B	0001 1011
56	38	Horizontal Active = 1280 pixels Notes2 (lower 8 bits)	0	0000 0000
57	39	Horizontal Blanking = 160 pixels (lower 8 bits)	A0	1010 0000
58	3A	Horizontal Active : Horizontal Blanking(thbp) (upper 4:4 bits)	50	0101 0000
59	3B	Vertical Avtive = 800 lines	20	0010 0000
60	3C	Vertical Blanking(tvbp) = 23 lines (DE Blanking min for DE-only panels) lines	17	0001 0111
61	3D	Vertical Active : Vertical Blanking(tvbp) (upper 4:4 bits)	30	0011 0000
62	3E	Horizontal Sync. Offset (thfp)= 48 pixels (front porch)	30	0011 0000
63	3F	Horizontal Sync Pulse Width = 32 pixels(WHL)	20	0010 0000
64	40	Vertical Sync Offset (tvfp)= 3 lines, Sync Width(tWVL) = 6 lines	36	0011 0110
65	41	Horizontal Vertical Sync Offset/Width upper 2bits	0	0000 0000
66	42	Horizontal Image Size = 304mm (lower 8bits)	30	0011 0000
67	43	Vertical Image Size = 190mm (lower 8bits)	BE	1011 1110
68	44	Horizontal & Vertical Image Size (upper 4:4bits)	10	0001 0000
69	45	Horizontal Border = X (Zero for internal LCD)	0	0000 0000
70	46	Vertical Border = X (Zero for internal LCD)	0	0000 0000
71	47	Non-interlaced, Normal display, no stereo, Digital separate sync, H/V pol negatives	18	0001 1001
Detailed Timing Descriptor #2: Alternative Panel Timing				
72	48	Flag	0	0000 0000
73	49	Flag	0	0000 0000
74	4A	Flag	0	0000 0000
75	4B	Data Type Tag: Descriptor Defined by Manufacture	0F	0000 FFFF
76	4C	Flag	0	0000 0000
77	4D		20	0010 0000
78	4E		20	0010 0000
79	4F		20	0010 0000
80	50		20	0010 0000
81	51		20	0010 0000
82	52		20	0010 0000
83	53		20	0010 0000
84	54		20	0010 0000
85	55		20	0010 0000
86	56		20	0010 0000
87	57		20	0010 0000
88	58		20	0010 0000
89	59		20	0010 0000
Notes 1. See figure A1 Timing Waveform Parameter for definitions 2. Horizontal Active(HA) (byte 38h) is ture active pixels. HApixelClks value (bytes 55&56) is HA for XGA, and HA/2 for SXGA and above resolutions.				
Detailed Timing Descriptor #3: ASCII String: Supplier Name				
90	5A	Flag	0	0000 0000
91	5B	Flag	0	0000 0000
92	5C	Flag	0	0000 0000
93	5D	Data Type Tag: (Monitor) ASCII String	FE	1111 1110
94	5E	Flag	0	0000 0000
95	5F	"C",67	43	0100 0011
96	60	"P",80	50	0101 0000
97	61	"T",84	54	0101 0100
98	62		20	0010 0000
99	63		20	0010 0000
100	64		20	0010 0000
101	65		20	0010 0000
102	66		20	0010 0000
103	67		20	0010 0000
104	68		20	0010 0000
105	69		20	0010 0000

106	6A		20	0010 0000
107	6B	(if <13 char, then terminate with ASCII code 0Ah, and set remaining char = 20h)	20	0010 0000
Detailed Timing Descriptor #4: ASCII String: Supplier P/N				
108	6C	Flag	0	0000 0000
109	6D	Flag	0	0000 0000
110	6E	Flag	0	0000 0000
111	6F	Data Type Tag: (Monitor) ASCII String	FE	1111 1110
112	70	Flag	0	0000 0000
113	71	"C",67	43	0100 0011
114	72	"L",76	4C	0100 1100
115	73	"A",65	41	0100 0001
116	74	"A",65	41	0100 0001
117	75	"1",49	31	0011 0001
118	76	"4",52	34	0011 0100
119	77	"1",49	31	0011 0001
120	78	"W",87	57	0101 0111
121	79	"B",66	42	0100 0010
122	7A	"0",48	30	0011 0000
123	7B	"5",53	35	0011 0101
124	7C	"A",65	41	0100 0001
125	7D	(if <13 char, then terminate with ASCII code 0Ah, and set remaining char = 20h)	20	0010 0000
126	7E	Extension Flag (# of optional 128-byte EDID extension blocks to follow, typ=0)	0	0000 0000
127	7F	Checksum (the 1-byte sum of all 128 bytes in this EDID block shall equal zero)	B1	1011 0001

Note : 1. Code 16 (Week of manufacture) & code 17(Year of manufacture), they will change when the date of producing change .

Note : 2. Code 127(checksum), it will change when note1 change .

APPENDIX 2 : Label Format

