Chunghwa Picture Tubes, Ltd.
Technical Specification

To : **YIH HSING ENTERPRISE CO.,LTD.**
Date : **2005/06/30**

TFT LCD
CLAA154WA 03D

ACCEPTED BY :

APPROVED BY	CHECKED BY	PREPARED BY
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1. OVERVIEW

CLAA154WA03(with LVDS interface) is 15.4" color TFT-LCD (Thin Film Transistor Liquid Crystal Display) module composed of LCD panel , driver ICs , control circuit , and backlight.

By applying 6 bits digital data, 1280×800, 262K color images are displayed on the 15.4" 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)	331.2(H) x 207.0(V) (15.4-inch diagonal)
Number of Pixels	1280 x 3(H) x 800(V)
Pixel Pitch(mm)	0.2588(H) x 0.2588(V)
Color Pixel Arrangement	RGB vertical stripe
Display Mode	normally white TN
Number of Colors	262144 colors
Optimum Viewing Angle	6 o'clock
Brightness(cd/m^2)	220nit(center) ,lamp current 6mA(typ)
Power consumption(W)	6.5W
Module Size(mm)	344.5(W) x 222.5(H) x 6.2(D)(max)
Module Weight(g)	560(typ)
Backlight Unit	CCFL , 1 tube
Surface Treatment	Anti-Glare ; Hardness: 3H

[Note] :

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
Power Supply Voltage for LCD	VCC	-0.3	4.0	V
LVDS input Voltage	VIN	-0.3	VCC+0.3	V
Static Electricity ****1)***	VESDt	-250	250	V
	VESDc	-15	15	KV
ICC Rush Current ****2)***	I_{RUSH}		6.5	A
Operation Temperature ****3)***	Top	0	50	℃
Storage Temperature ****3)***	Tstg	-20	60	℃
Starting Lamp Voltage	V_{SL}	-	2000	V

[Note] : *1) Test Condition: IEC 1000-4-2 ,
VESDt : Contact discharge to input connector
VESDc : Contact discharge to module
*2) 50 μ sec , If Vcc rise time increase then I_{RUSH} decrease.
*3) Humidity ≦85% RH. without condensation.

3. ELECTRICAL CHARACTERISTICS

(1)TFT-LCD Ta = 25°C

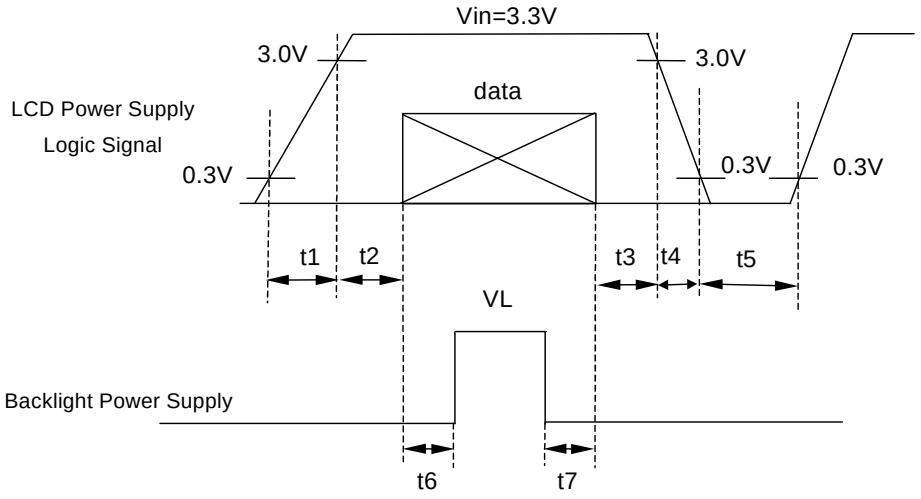
ITEM		SYMBOL	MIN	TYP	MAX	UNIT	Remark
Power Supply Voltage for LCD		VCC	3.0	3.3	3.6	V	
Power Supply Current for LCD		ICC	-	600	900	mA	
ICC Rush Current		I_{RUSH}			3.5	A	
Logic input Voltage	Input Voltage	VIN	0	-	VCC	V	
	Common Mode Voltage	VCM	1.125	1.25	1.375	V	
	Differential Input Voltage	|VID|	250	350	450	mV	
	Threshold Voltage(High)	VTH	-	-	100	mV	When VCM = + 1.2V
	Threshold Voltage(Low)	VTL	-100	-	-	mV	
Tolerance of VID		ΔVID	-	-	35	mV	
Tolerance of VCM		ΔVCM	-	-	35	mV	

[Note 1]

VCC=3.3V

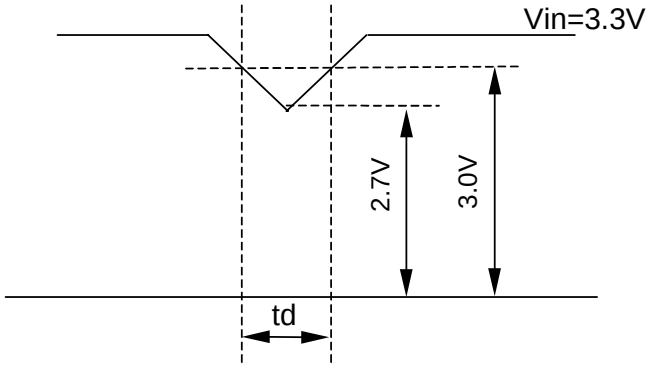
- VCC turn on conditions :

t1≦10ms　　1 sec≦t5
0.01 ms＜t2≦50 ms　　300 ms≦t6
0.01 ms＜t3≦50 ms　　300 ms≦t7
0.01 ms＜t4≦10 ms



Data: RGB DATA, DCLK, HD, VD, DENA

- VCC dip conditions :
  1) When 2.7V≦VCC<3.0V, td≦10 ms
  2) When VCC<2.7V
  VCC dip conditions should follow VCC turn on conditions.

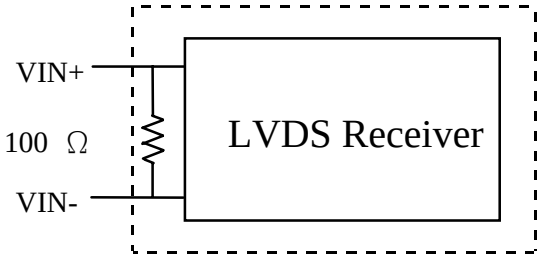


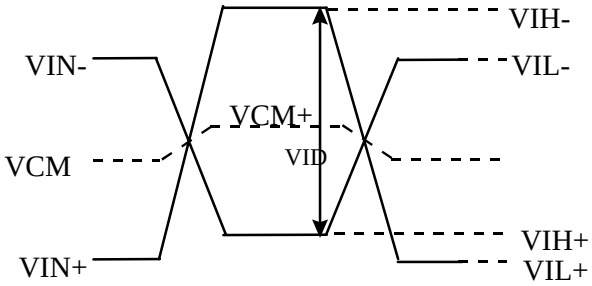
[Note 2]

- Typical value is measured when displaying horizontal gray scale line pattern
  64 gray level
  800 line mode
  VCC = +3.3V

[Note 3]

- LVDS Signal definition :



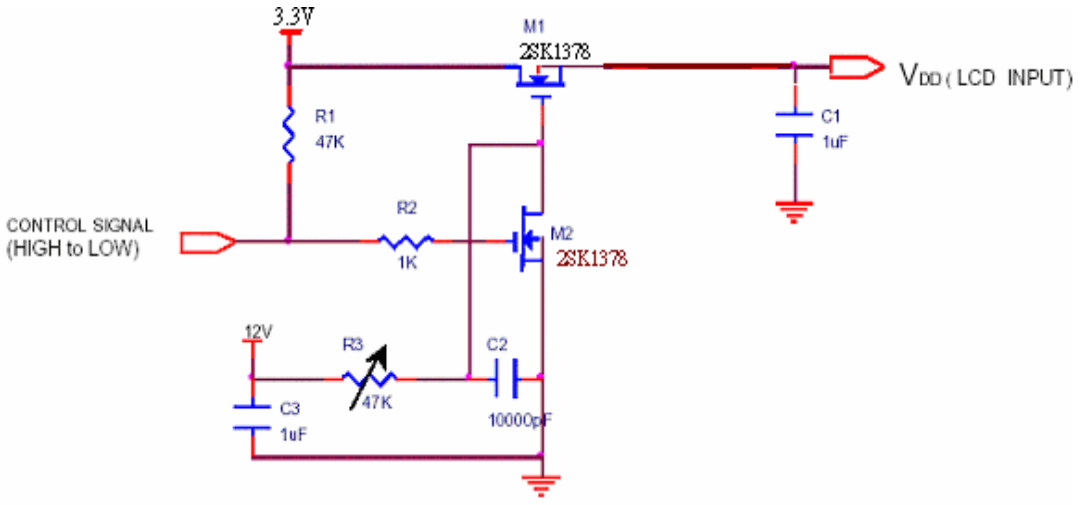


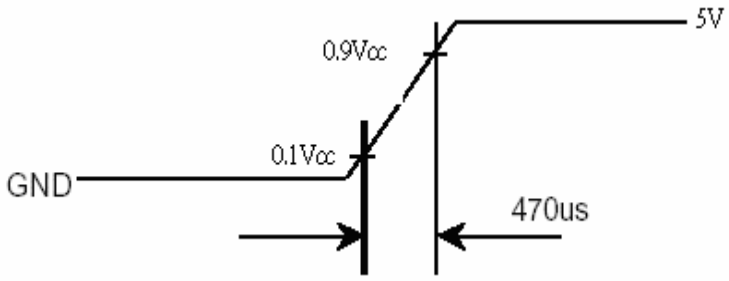
VID = VIN_+ - VIN-
△VCM = | VCM_+ - VCM- |
△VID = | VID_+ - VID- |
VID_+ = | VIH_+ - VIH- |
VID- = | VIL_+ - VIL- |
VCM = (VIN_+ - VIN-) / 2
VCM_+ = (VIH_+ - VIH-) / 2
VCM- = (VIL_+ - VIL-) / 2

VIN_+ = Positive differential DATA & CLK Input
VIN- = Negative differential DATA & CLK Input

[Note 4]

- Irush Measurement Condition :





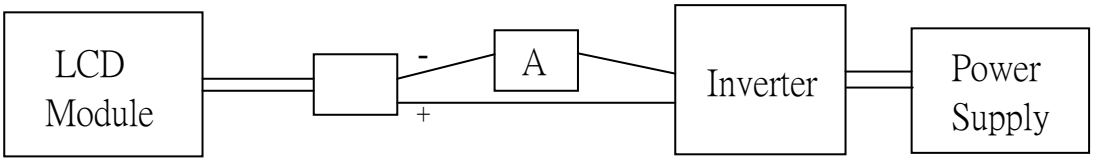
(2) Backlight system

Ta = 25°C

ITEM		SYMBOL	MIN	TYP	MAX	UNIT
Lamp Voltage		VL	660	730	800	V
Lamp Current ***1)***		IL	5.5	6.0	6.5	mA
Inverter Frequency		FI	50	-	60	KHz
Lamp life time ***2)***		Life L	10000	-	-	hr
Starting Lamp Voltage	Ta = 25℃	Vs	1460	-	-	V
	Tb = 0℃		1650	-	-	

[Note 1]

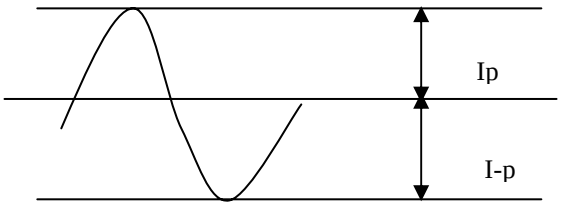
*1) Lamp Current measurement method (The current meter is inserted in cold line)
Standard inverter : HIU-766 , typical luminance = 195 cd/m^2 (5 point).
The time that module luminance reduced to 50% of initial value .
Base on Vs = (1460) V , Ta = 25°C, IL=6.0 mA continuous.



[Note 2]

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.

The degrees of unbalance: less than 10%
The ratio of wave height: less than $\sqrt{2}$ ±10%



The degrees of umbalance = $|Ip\text{-}I\text{-}p|/Irms*100(\%)$
The ratio of wave height = Ip(or I-p)/Irms
Ip: lamp current high side peak, I-p: lamp current low side peak

[Note 3]

Definition of the lamp life time
Luminance: L under 50% of specification
Starting Lamp Voltage: VS < 1460V, Ta=25℃
VS < 1650V, Tb=0℃

4. INTERFACE CONNECTION

(1) CN1 (INTERFACE SIGNAL)

＊Connector type : FI-XB30SL-HF10 (JAE made)

pin	Symbol	Function
1	VSS	Ground
2	VCC	+3.3V
3	VCC	+3.3V
4	V_EDID	DDC 3.3V Power
5	NC	VCOM test provided , but customer-end unused (open)
6	CLK_EDID	DDC Clock
7	DATA_EDID	DDC Data
8	R0M	minus signal of channel 0(LVDS)
9	R0P	plus signal of channel 0(LVDS)
10	Ground	Ground
11	R1M	minus signal of channel 1(LVDS)
12	R1P	plus signal of channel 1(LVDS)
13	Ground	Ground
14	R2M	minus signal of channel 2(LVDS)
15	R2P	plus signal of channel 2(LVDS)
16	Ground	Ground
17	RCLKM	minus signal of clock channel (LVDS)
18	RCLKP	plus signal of clock channel (LVDS)
19	Ground	Ground
20	NC	NC
21	NC	NC
22	NC	NC
23	NC	NC
24	NC	NC
25	NC	NC
26	NC	NC
27	NC	NC
28	NC	NC
29	NC	NC
30	NC	NC

(2) CN2 (BACK LIGHT)

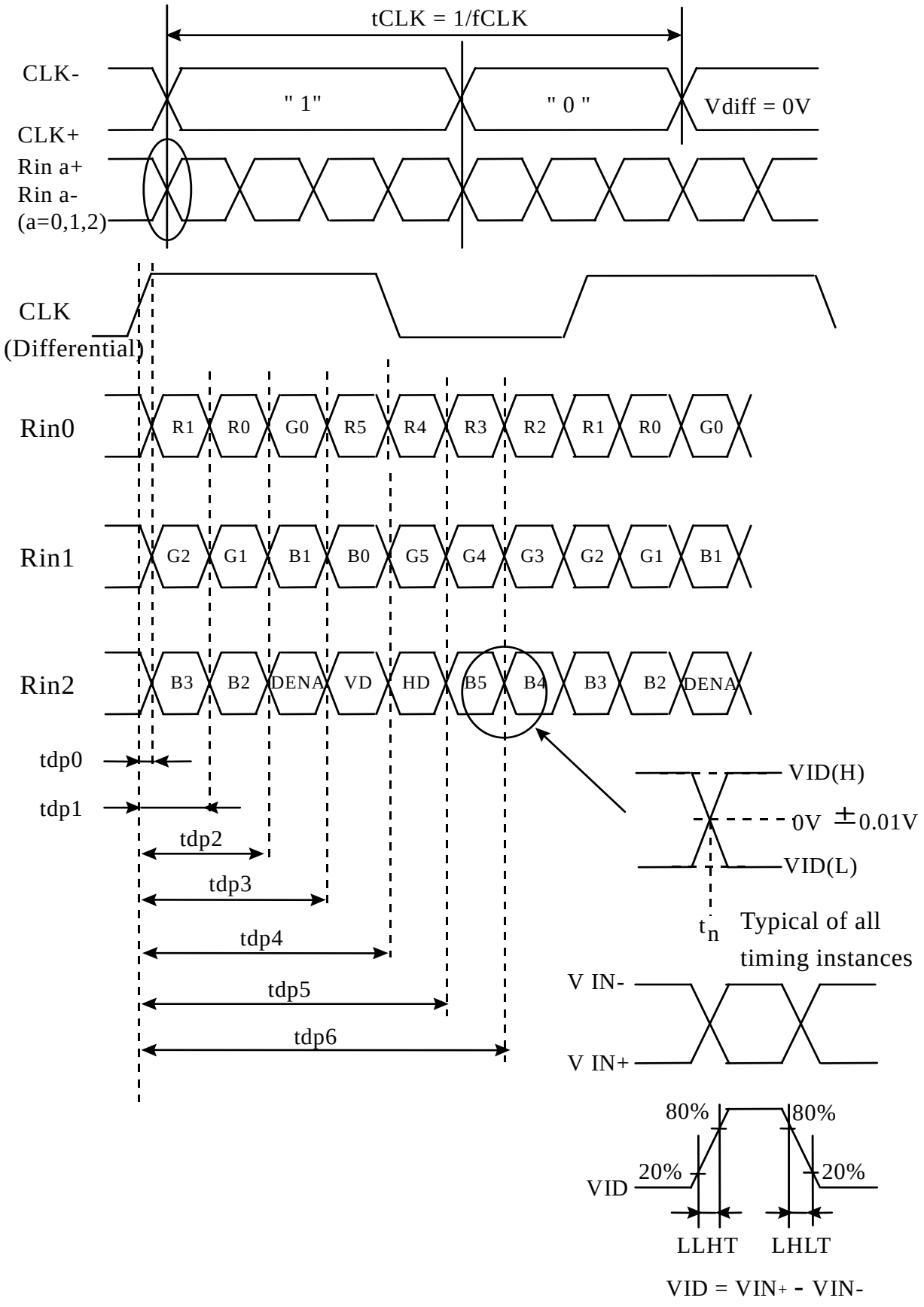
- Backlight-side connector : BHSR-02VS-1(JST made)
- Inverter-side connector : SM02B-BHSS-1(JST made)

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

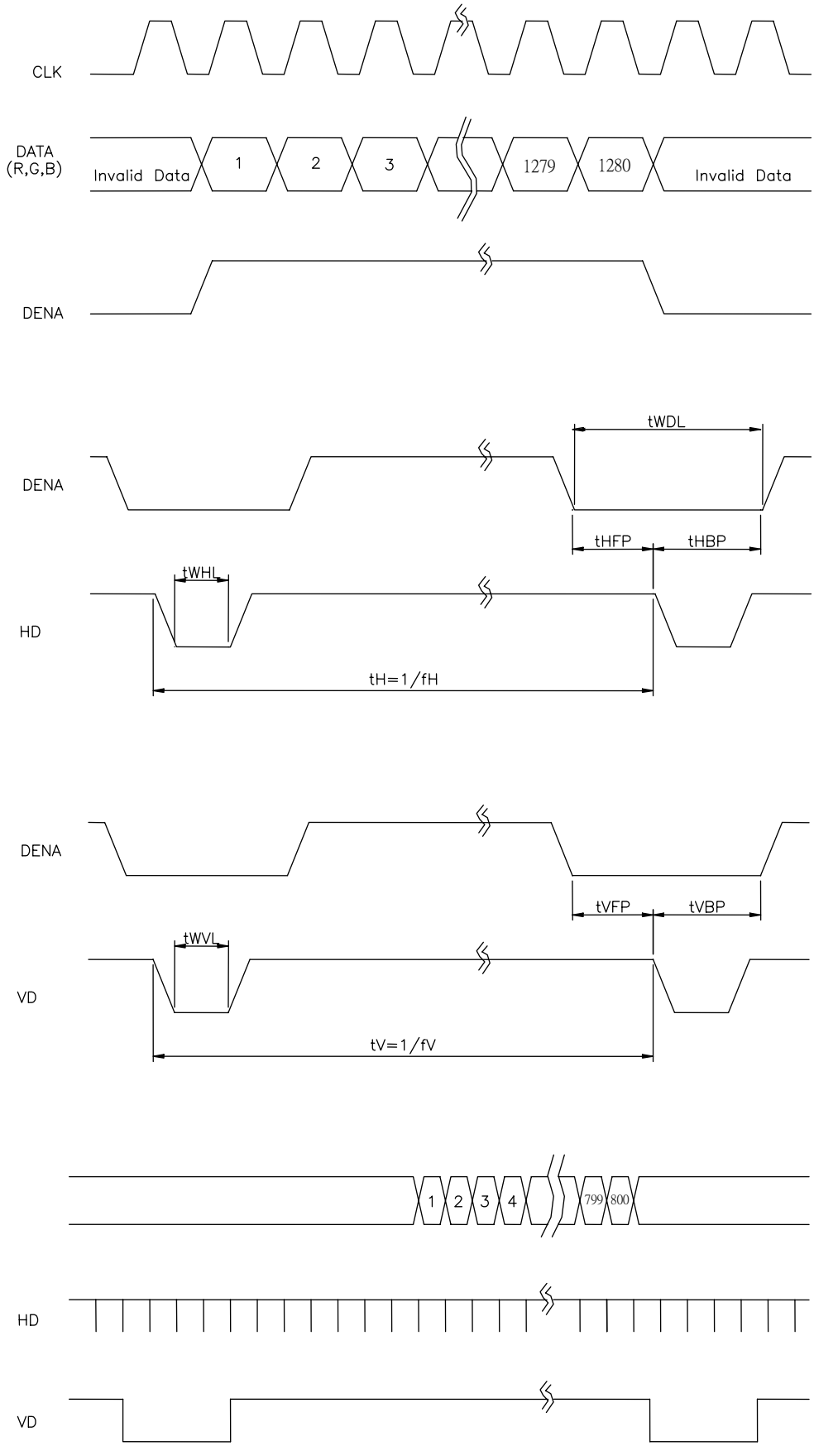
[Note] VBLH-VBLL = VL

5. Input Signal Timing

(1)LVDS (Rx) Input Signal Timing Chart



(2) LCD (Tx) Input Signal Timing Chart : (Rx output)



(2)Timing Specifications

ITEM				SYMBOL	MIN	TYP	MAX	UNIT
LVDS Input Timing	CLK frequency			fCLKin	-	68.9	-	MHz
	CLK period			tCLKin	-	14.5	-	ns
	LVDS High to Low transition time			LLHT	-	0.75	1.5	ns
	LVDS Low to High transition time			LHLT	-	0.75	1.5	ns
	Strobe position of Bit 0		f = 68.9MHz	Rspos0	0.7	1.1	1.4	ns
	Strobe position of Bit 1			Rspos1	2.9	3.3	3.6	ns
	Strobe position of Bit 2			Rspos2	5.1	5.5	5.8	ns
	Strobe position of Bit 3			Rspos3	7.3	7.7	8.0	ns
	Strobe position of Bit 4			Rspos4	9.5	9.9	10.2	ns
	Strobe position of Bit 5			Rspos5	11.7	12.1	12.4	ns
	Strobe position of Bit 6			Rspos6	13.9	14.3	14.6	ns
LCD input signal (LVDS Tx Input , Rx output)	DENA	Low width		tWDL	64	128	220	tCLK
		Horizontal Front Porch		tHFP	24	54	84	tCLK
		Horizontal Back Porch		tHBP	40	74	136	tCLK
		Vertical Front Porch		tVFP	0	3	6	tH
		Vertical Back Porch		tVBP	10	13	24	tH
	HD	Frequency		fH	45.9	48.96	51.3	kHz
		Period		tH	1344	1408	1500	tCLK
		Low width		tWHL	12	24	36	tCLK
	VD	Frequency		fV	55	60	62	Hz
		Period		tV	810	816	830	tH
		Low width		tWVL	1	3	7	tH

[Note]

1) Polarities of HD and VD are negative 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, and HD should appear during invalid period of frame cycle.
4) Data is latched at fall edge of DCLK in this specification.

(4) Color data definition

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
		MSB					LSB	MSB					LSB	MSB					LSB
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	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	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]

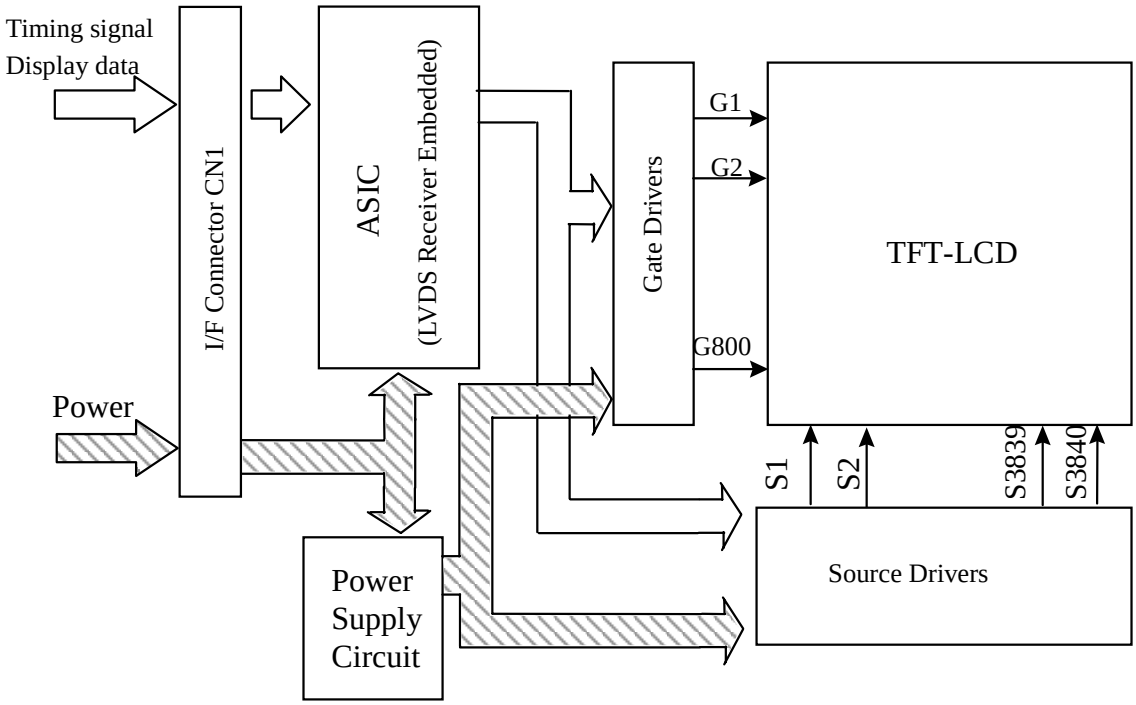
(1) Definition of gray scale:
Color(n) : n means level of gray scale .
Bigger n means brighter level.

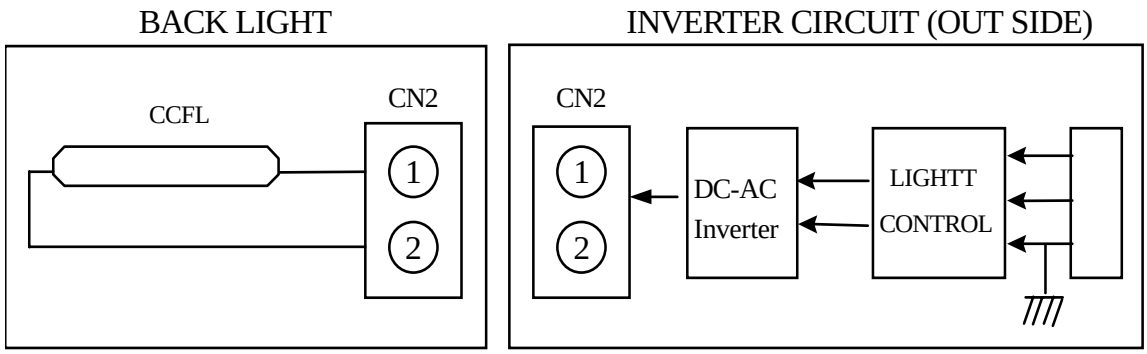
(2)Data : 1= High , 0 = Low

(5)Color Data Assignment

D(1,1)	D(2,1)	--	D(X,1)	--	D(1279,1)	D(1280,1)
D(1,2)	D(2,2)	--	D(X,2)	--	D(1279,2)	D(1280,2)
|	|	+	..	+	|	|
D(1,Y)	D(2,Y)	--	D(X,Y)	--	D(1279,Y)	D(1280,Y)
|	|	+	..	+	|	|
D(1,799)	D(2, 799)	--	D(X, 799)	--	D(1279,799)	D(1280,799)
D(1,800)	D(2, 800)	--	D(X, 800)	--	D(1279,800)	D(1280,800)

6. BLOCK DIAGRAM

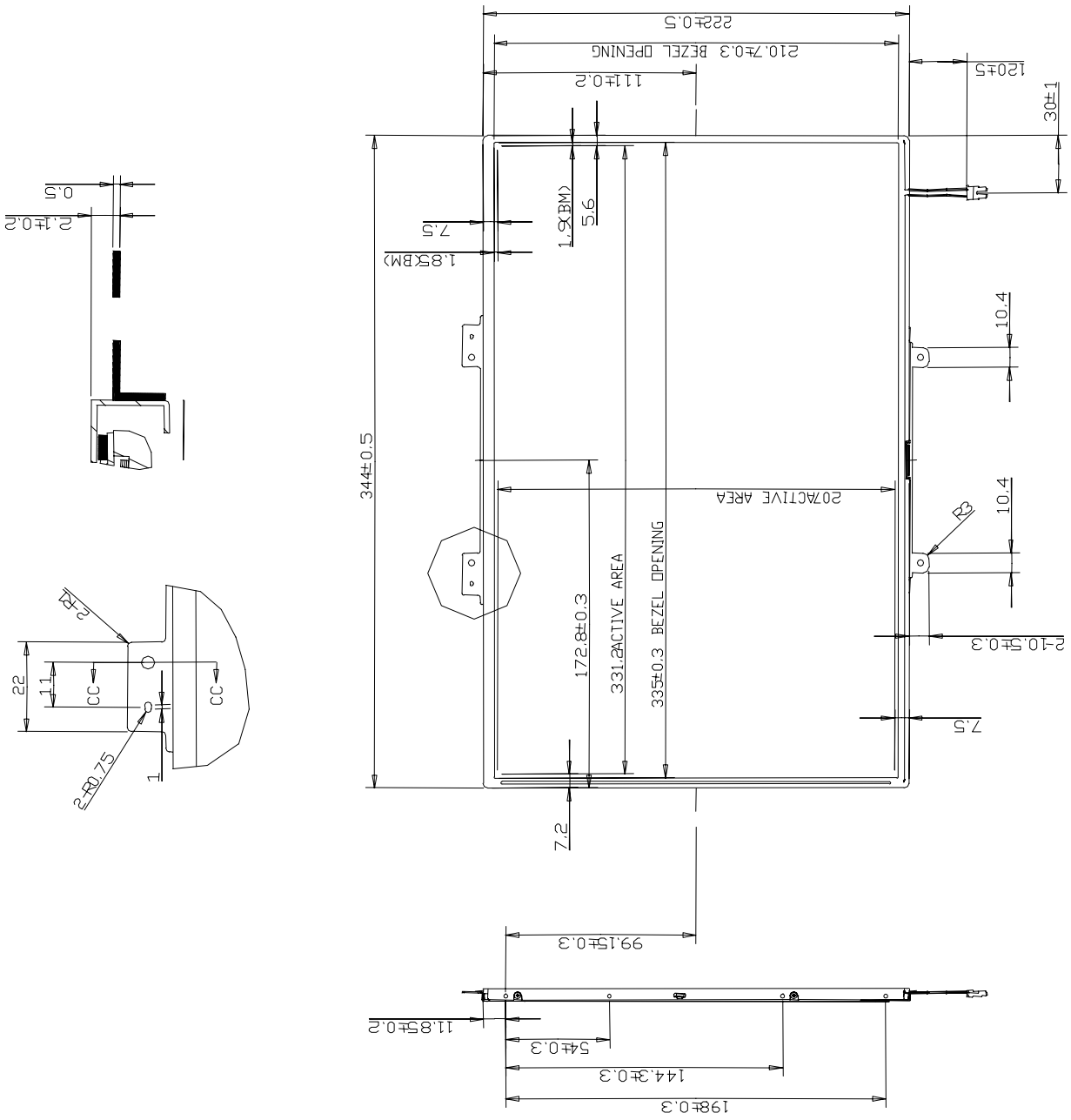




7. MECHANICAL DIMENSION

(1) Front side

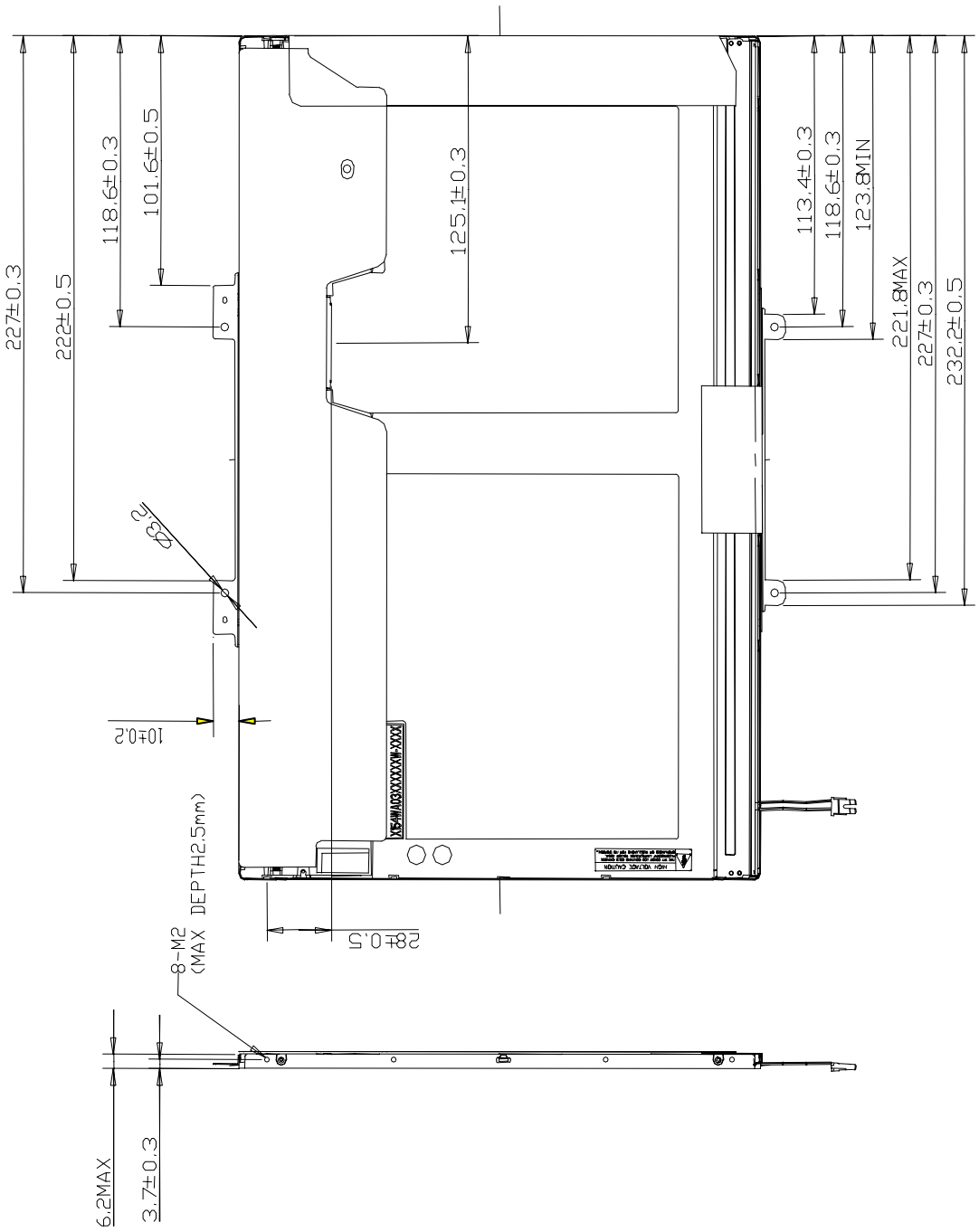
Unit : mm



[Note] Undefined tolerances to be ±0.5 mm

(2) Rear side

Unit : mm



[Note] Undefined tolerances to be ±0.5 mm

8. OPTICAL CHARACTERISTICS

Ta = 25°C

ITEM			SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Contrast Ratio			CR	θ= ϕ= 0°	450	550	--	--
Luminance	Center		L	θ= ϕ= 0°	200	220	--	cd/m²
	5 point	Normal	L	θ= ϕ= 0°	185	195	--	cd/m²
		Uniformity	ΔL	θ= ϕ= 0°	75	80	--	%
Response Time			Tr	θ= ϕ= 0°	--	5	9	ms
			Tf	θ= ϕ= 0°	--	11	16	ms
Image Sticking			Tis	2hour	--	--	(2)	sec
Crosstalk			CMR	θ=ϕ= 0°*3)	-	-	(1)	%
Viewing Angle	Horizontal		ϕ	CR≧10	-55~55	-60~60	--	°
	Vertical		θ		-50~40	-55~45	--	°
Color Coordinates	White		Wx Wy	θ= ϕ= 0°	0.283 0.299	0.313 0.329	0.343 0.359	--
	Red		Rx Ry		0.589 0.309	0.619 0.339	0.649 0.369	
	Green		Gx Gy		0.292 0.536	0.322 0.566	0.352 0.596	
	Blue		Bx By		0.126 0.104	0.156 0.134	0.186 0.164	

[Note]

These items are measured using BM-5A(TOPCON)under the dark room condition(no ambient light) after more than 30 minutes from turning on the lamp unless noted.

Condition: IL=6.0 mA, Inverter Frequency=50kHz~60kHz

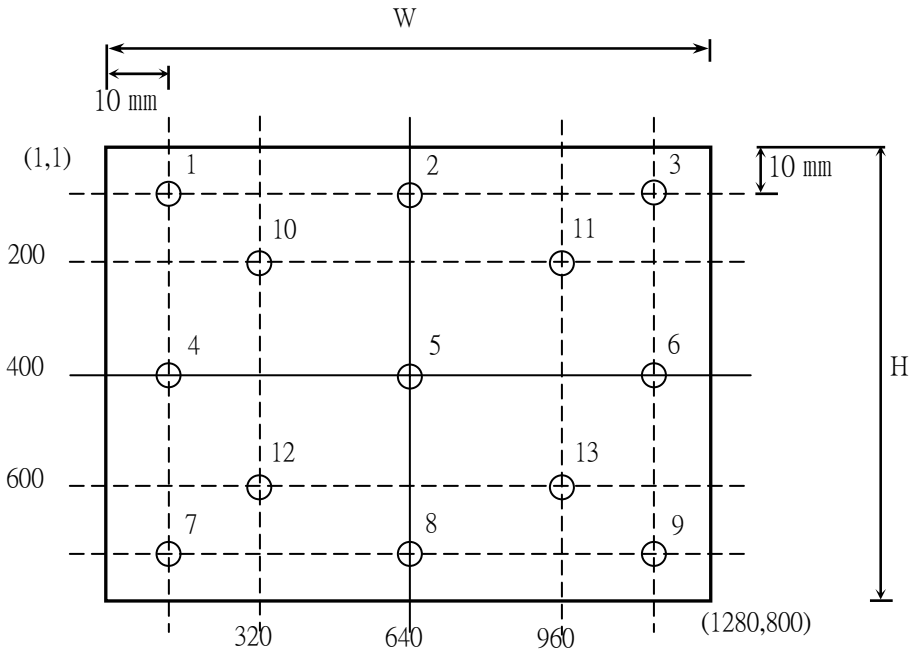
Definition of these measurement items are as follows:

(1)Definition of Contrast Ratio： CR=ON(White)Luminance/OFF(Black)Luminance

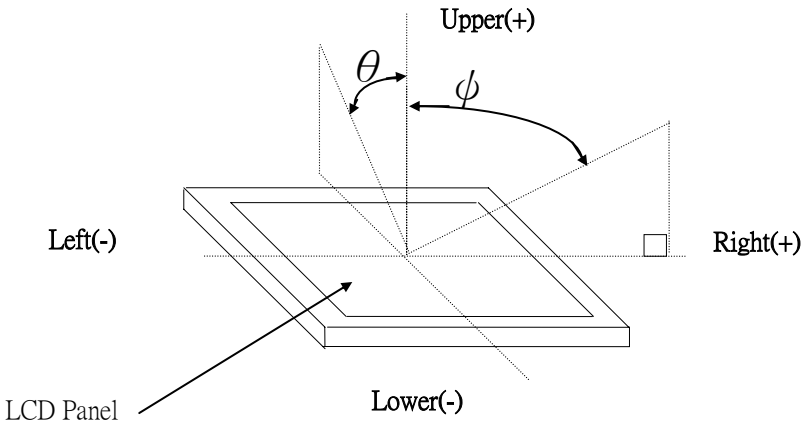
(2)Definition of Luminance and Luminance uniformity：

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

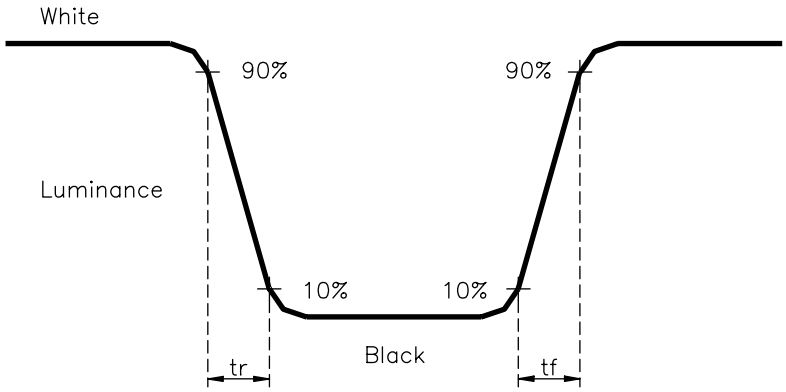
5 point：Δ L = (L_{MIN} /L_{MAX}) ×100%



(3)Definition of Viewing Angle(θ , ϕ)



(4)Definition of Response Time



(5)Definition of Contrast Ratio Uniformity

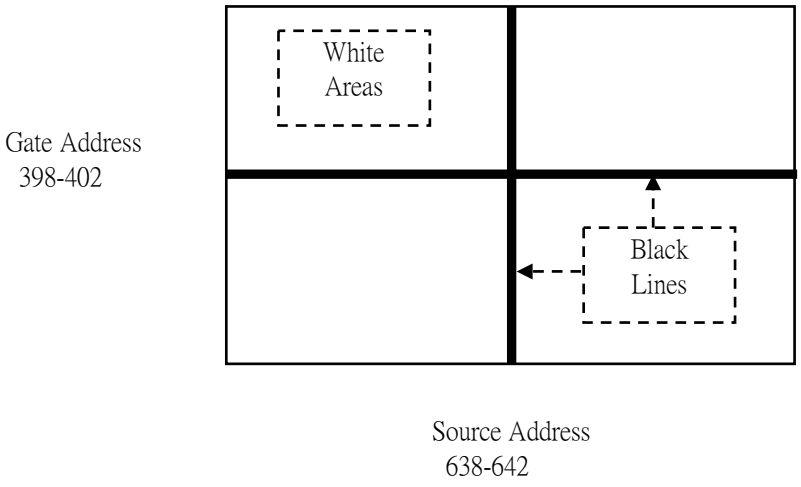
△ CR = [CR(MAX) / CR(MIN) - 1] x 100

(6)Definition of Luminance Uniformity

△ L = [L(MAX) / L(MIN)-1] x 100

(7) Definition of Image Sticking

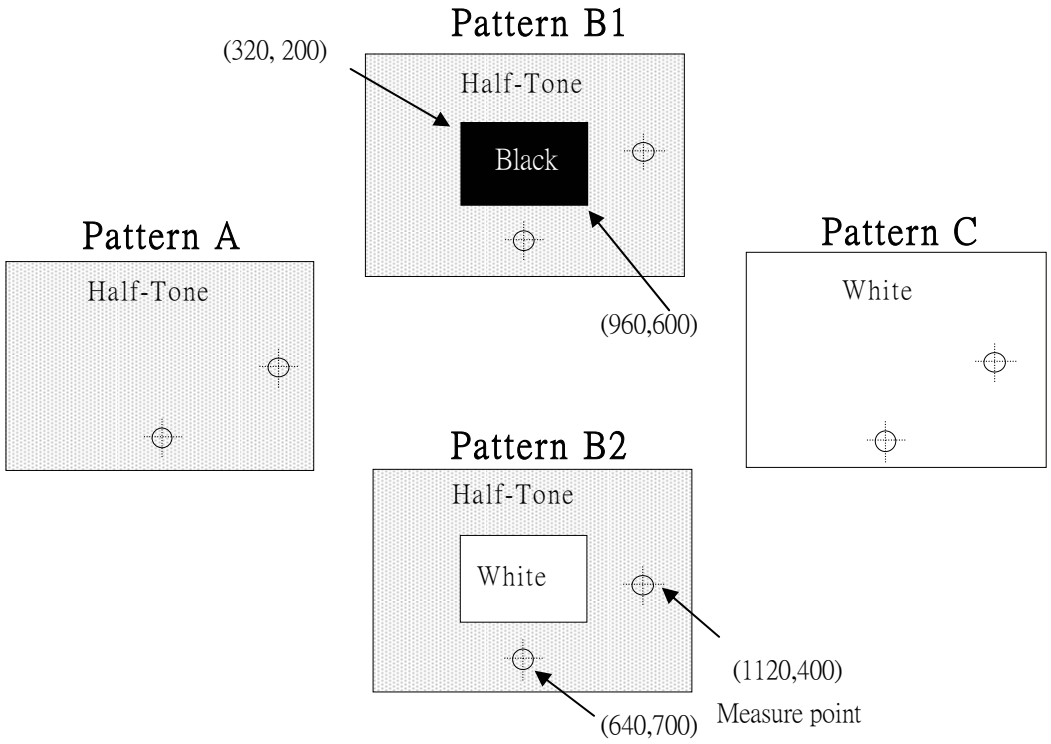
Continuously display the test pattern shown in the figure below for two-hours. Then display a completely white screen. The previous image shall not persist more than two seconds at 25℃.



(8) Definition of Cross talk Modulation Ratio

CMR = MAX (***(| (LB1-LA) / LC |) ×100*** , ***(| (LB2 – LA) / LC |) ×100***)

LA：Pattern A(Half-Tone pattern) Measure point Luminance
LB1,LB2： Pattern B1、Pattern B2 Measure point Luminance
LC：Pattern C(white pattern) Measure point Luminance



9. RELIABILITY TEST CONDITIONS

(1)Temperature and Humidity

TEST ITEMS	CONDITIONS
HIGH TEMPERATURE OPERATION	50℃,240h
HIGH TEMPERATURE STORAGE	60℃,240h
LOW TEMPERATURE OPERATION	0℃,240h
LOW TEMPERATURE STORAGE	-20℃,240h
HIGH TEMPERATURE HIGH HUMIDITY OPERATION	40℃,90%RH,240h
HIGH TEMPERATURE HIGH HUMIDITY STORAGE	60℃,90%RH(Max),48h
THERMAL SHOCK(No operation)	BETWEEN -20℃(1h)AND 60℃(1h),100 CYCLES

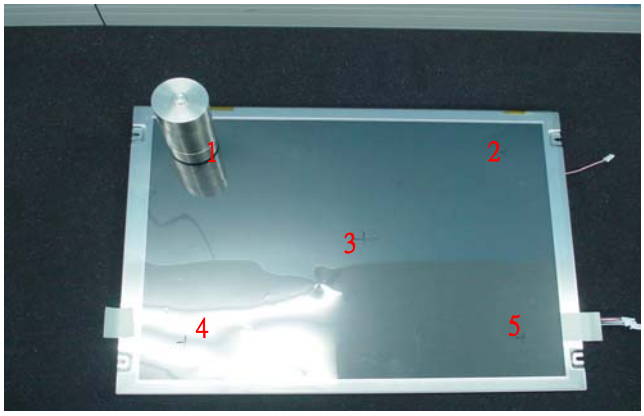
(2)Shock & Vibration

ITEMS	CONDITIONS
SHOCK (NON-OPERATION)	● Shock level: 2156 m/s^2 (220G) ● 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)	● Vibration level: 14.7 m/s^2 (1.5G) , sinusoidal wave, perpendicular axis(each x,y,z axis: 1hr, total 3 hrs) ● Frequency range: 5 to 500 Hz ● Sweep speed : 0.5 octave / min

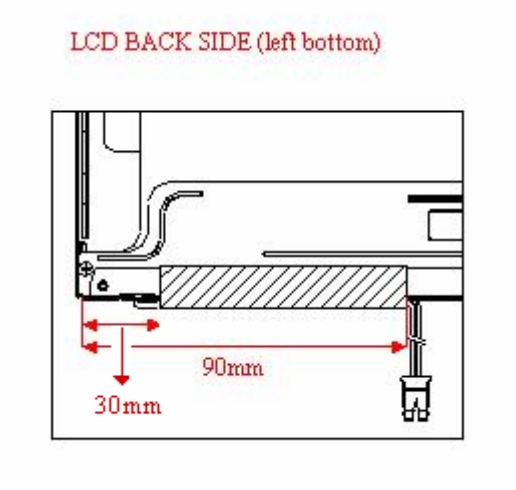
(3)Pressure Test

ITEMS	CONDITIONS

Pressure	● Pressure level: 4 Kg/cm^2 ● Test method: CPT uses the counterpoise loading to 5 points on the surface of the panel.



(4) LCD BACK SIDE



(5)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;

(A) 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.

(2.1) 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.

(2.2) 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.

(2.3) 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.

(2.4) 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.

(2.5) 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 cloth 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 wit inverter.

(B) 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 charge 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.

(C) PRECAUTFONS WITHELECTROSTATICS

(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.

(D) 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.

(E) 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 throughly with soap and water.

(F) 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 Land 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:

(3.1) 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.

(3.2) Please do not pile them up more than 5 boxes. (They are not designed so.) And please do not turn over.

(3.3) Please handle packaging box with care not to give them sudden shock and vibrations. And also please do not throw them up.

(3.4) 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.)

APPENDIX 1：EDID Code List

ISP Enhanced Extended Display Identification Data (EEDIDä) Requirements					
Byte#	Byte#		Value	Value	

(dec)	(hex)	Field Name and Comments	(hex)	(binary)	
0	0		0	0000 0000	Header
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	
8	8	EISA manufacturer code = **CPT** *(1st byte)*	0E	0000 1110	Vender / Product ID
9	9	*(2nd byte)*	14	0001 0100	
10	0A	Product code LSB =	9C	1001 1100	
11	0B	Product code MSB = (CLAA154WA03=5020)	13	0001 0011	
12	0C	ID (32-bit) serial number	0	0000 0000	
13	0D		0	0000 0000	
14	0E		0	0000 0000	
15	0F		0	0000 0000	
16	10	Week of manufacture	18	0000 0011	
17	11	Year of manufacture	E	0000 1110	
18	12	EDID Structure version # = 1	1	0000 0001	
19	13	EDID Revision # = 3	3	0000 0011	
20	14	Video input definition	80	1000 0000	Display Parameter
21	15	Max H image size (**33.12**)	21	0010 0001	
22	16	Max V image size (**20.7**)	15	0001 0101	
23	17	Display gamma =**2.2** *(=(gamma*100)-100)*	78	0111 1000	
24	18	Features *(no DPMS, Active off, RGB, timing BLK1)*	0A	0000 1100	
25	19	Red/Green low Bits	80	1000 0000	Panel Color Coordinates
26	1A	Blue/White Low Bits	6D	0110 1101	
27	1B	Red X Rx = 0.**600**	99	1001 1001	
28	1C	Red Y Ry = 0.**340**	57	0101 0111	
29	1D	Green X Gx = 0.**310**	4F	0100 1111	
30	1E	Green Y Gy = 0.**560**	8F	1000 1111	
31	1F	Blue X Bx = 0.**150**	26	0010 0110	
32	20	Blue Y By = 0.**130**	21	0010 0001	
33	21	White X Wx = 0.**313**	50	0101 0000	
34	22	White Y Wy = 0.**329**	54	0101 0100	
35	23	Established Timing I not used	0	0000 0000	Established Timings
36	24	Established Timing II not used	0	0000 0000	
37	25	Manufacturer's Timings not used	0	0000 0000	
38	26	Standard Timing Identification 1 not used	1	0000 0001	Standard Timing ID
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	
54	36	Pixel Clock *(LSB)*	EA	1011 1100	**Detailed Timing Descriptor #1**
55	37	Pixel Clock =68.9MHz 1280 X 800@60Hz *(MSB)*	1A	0001 1011	
56	38	Horizontal Active = **1280** pixels	0	0000 0000	
57	39	Horizontal Blanking = **128** pixels	80	1011 0000	
58	3A	Horizontal Active : Horizontal Blanking(**thbp**)	50	0101 0000	
59	3B	Vertical Avtive = **800** lines	20	0010 0000	
60	3C	Vertical Blanking(**tvbp**) = **16** lines	10	0001 0100	
61	3D	Vertical Active : Vertical Blanking(**tvbp**)	30	0011 0000	
62	3E	Horizontal Sync. Offset (**thfp**)= **32** pixels	20	0010 0000	
63	3F	Horizontal Sync Pulse Width = 3**2** pixels(**WHL**)	20	0010 0000	
64	40	Vertical Sync Offset (t**vfp**)= **1** lines,Sync Width(**tWVL**) = **3** lines	13	0001 0011	
65	41	Horizontal Vertical Sync Offset/Width upper 2bits	0	0000 0000	
66	42	Horizontal Image Size = **331.2mm**	4B	0100 1011	
67	43	Vertical Image Size = **207.0mm**	CF	1100 1111	
68	44	Horizontal & Vertical Image Size	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	19	0001 1001	
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 1111	
76	4C	Flag	0	0000 0000	
77	4D	value=HSPWmin/2 (pixel clks)**WHL**	0	0010 0000	
78	4E	value=HSPWmax/2 (pixel clks)**WHL**	0	0010 0000	
79	4F	value=**Thbp**min/2 (pixel clks) (for DE-only timing also, with Thfp=0)	0	0010 0000	
80	50	value=**Thbp**max/2 (pixel clks) (for DE-only timing also, with Thfp=0)	0	0010 0000	**Detailed Timing Descriptor #2:**
81	51	value=VSPWmin/2 (line pulses)**WVL**	0	0010 0000	
82	52	value=VSPWmax/2 (line pulses)**WVL**	0	0010 0000	
83	53	value=**Tvbp**min/2	0	0010 0000	
84	54	value=**Tvbp**max/2	0	0010 0000	
85	55	**Thp**min=value*2+HApixelClks (pixel clks) =32	20	1010 0000	
86	56	**Thp**max=value*2+HApixelClks (pixel clks)=110	6E	1111 1111	
87	57	**Tvp**min=value*2+Valines (line pulses)=5	5	0000 0010	
88	58	**Tvp**max=value*2+Valines (line pulses)=15	F	0011 0010	
89	59	Module revision	0	0000 0000	
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		0A	0000 1010	
99	63		20	0010 0000	**Detailed Timing Descriptor #3:**
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	
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	**Detailed Timing Descriptor #4:**
118	76	**"5",53**	35	0011 0101	
119	77	**"4",52**	34	0011 0100	
120	78	**"W",87**	57	0101 0111	
121	79	**"A",65**	41	0100 0001	
122	7A	**"0",48**	30	0011 0000	
123	7B	**"3",51**	33	0011 0011	
124	7C		A	0000 1010	
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	Extension Flag
127	7F	Checksum *(the 1-byte sum of all 128 bytes in this EDID block shall equal zero)*	C5	1100 0101	Checksum

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 .