SAMSUNG ELECTRONICS

Approval

LEAD-FREE

TO : Toshiba

DATE : July. 29, 2010

SAMSUNG TFT-LCD

MODEL NO. : LTN101NT05-T01

NOTE : Extension code [-T01]
→ LTN101NT05-T01
Surface type [**Glare**]

The information described in this SPEC is preliminary and can be changed without prior notice.

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SAMSUNG ELECTRONICS CO., LTD.

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REVISION HISTORY

Approval

Date	Revision No.	Page	Summary
June. 8, 2010	A00	All	The approval specification of LTN101NT05-T01 was issued first.
July. 29, 2010	A01	24-26	The quantity of small bow was updated (30→25 / typo error)

GENERAL DESCRIPTION

DESCRIPTION

LTN101NT05 is a color active matrix TFT (Thin Film Transistor) liquid crystal display (LCD) that uses amorphous silicon TFT as switching devices. This model is composed of a TFT LCD panel, a driver circuit and a backlight unit. The resolution of a 10.1" contains 1024 x 600 pixels and can display up to 262,144 colors. 6 O'clock direction is the optimum viewing angle.

FEATURES

- High contrast ratio
- SD (1024 x 600 pixels) resolution
- Low power consumption
- Fast Response
- LED Back Light with embedded LED Driver
- DE (Data enable) only mode
- 3.3V LVDS Interface
- Onboard EEDID chip
- Green product (RoHS compliant)
- Color Gamut 45%

APPLICATIONS

- Notebook PC
- If the usage of this product is not for PC application, but for others, please contact SEC

GENERAL INFORMATION

Item	Specification	Unit	Note
Display area	222.72(H) x 125.28(V) (10.1” wide diagonal)	mm	
Driver element	a-Si TFT active matrix		
Display colors	262,144		
Number of pixel	1024 x 600	pixel	
Pixel arrangement	RGB vertical stripe		
Pixel pitch	0.2175(H) x 0.2088(V) (TYP.)	mm	
Display Mode	Normally white		
Surface treatment	Haze 0, Hard-Coating 3H		

Mechanical Information

Item		Min.	Typ.	Max.	Unit	Note
Module	Horizontal (H)	234.5	235.0	235.5	mm	W/O Bracket
		245.0	245.5	246.0	mm	W Bracket
	Vertical (V)	136.5	137.0	137.5	mm	W/O PCB
		146.5	147.0	147.5	mm	W PCB
size	Depth (D)	-	-	3.6	mm	(1)
Weight		-	-	175	g	

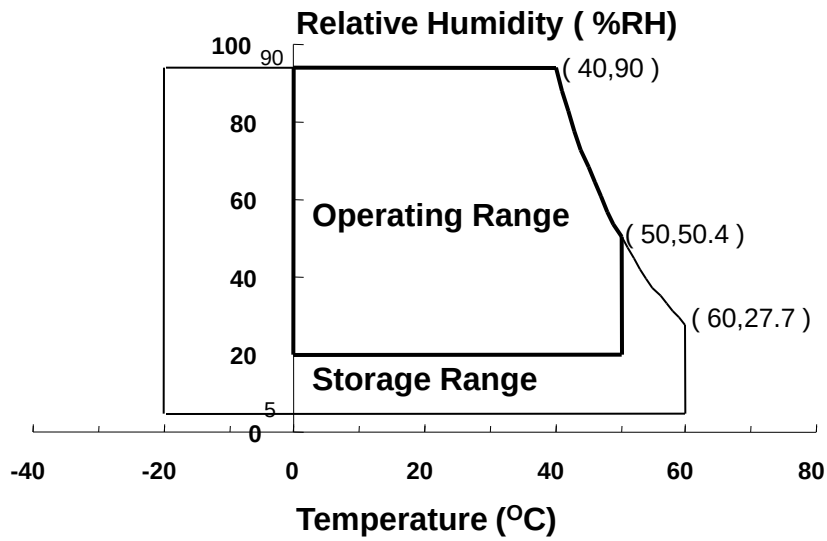
Note (1) Measurement condition of outline dimension
. Equipment : Bernier Calipers
. Push Force : 500g ·f (minimum)

1. ABSOLUTE MAXIMUM RATINGS

1.1 ENVIRONMENTAL ABSOLUTE RATINGS

Item	Symbol	Min.	Max.	Unit	Note
Storage temperate	TSTG	-20	60	°C	(1)
Operating temperate (Temperature of glass surface)	TOPR	0	50	°C	(1)
Shock (non-operating)	Snop	-	240	G	(2),(4)
Vibration (non-operating)	Vnop	-	2.41	G	(3),(4)

Note (1) Temperature and relative humidity range are shown in the figure below.
95 % RH Max. (40 °C ≥ Ta)
Maximum wet - bulb temperature at 39 °C or less. (Ta > 40 °C) No condensation



(2) 2ms, half sine wave, one time for ±X, ±Y, ± Z.
(3) 5 - 500 Hz, random vibration, 30min for X, Y, Z.
(4) At testing Vibration and Shock, the fixture in holding the Module to be tested have to be hard and rigid enough so that the Module would not be twisted or bent by the fixture.

1.2 ELECTRICAL ABSOLUTE RATINGS

(1) TFT LCD MODULE

V_{DD} =3.3V, V_{SS} = GND = 0V

Item	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V_{DD}	V_{DD} - 0.3	V_{DD} + 0.3	V	(1)
Logic Input Voltage	V_{IN}	V_{DD} - 0.3	V_{DD} + 0.3	V	(1)

Note (1) Within Ta (25 ± 2 °C)

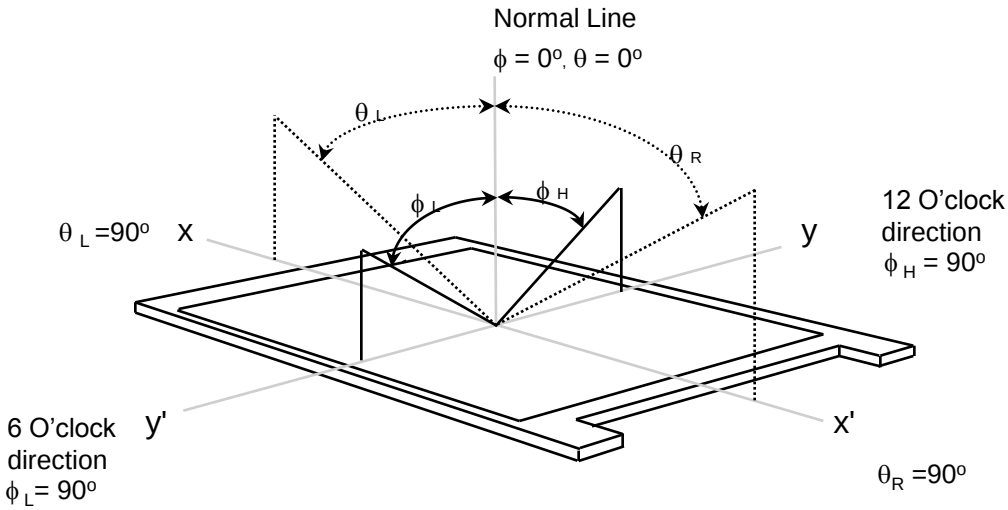
2. OPTICAL CHARACTERISTICS

The following items are measured under stable conditions. The optical characteristics should be measured in a dark room or equivalent state with the methods shown in Note (5).
Measuring equipment : TOPCON SR-3

* Ta = 25 ± 2 °C, V_{DD}=3.3V, fv= 60Hz, f_{DCLK} = (TBD)MHz, IF = (20.5) mA

Item		Symbol	Condition	Min.	Typ.	Max	Unit	Note
Contrast Ratio (5 Points)		CR	Normal Viewing Angle $\phi = 0$ $\theta = 0$	300	-	-	-	(1), (2), (5)
Response Time at Ta (Rising + Falling)		T_{RT}		-	16	25	msec	(1), (3)
Average Luminance of White (5 Points)		$Y_{L,AVE}$		170	200	-	cd/m^2	IF=20.0mA (1), (4)
Color Chromaticity (CIE)	Red	R_X		**0.550**	**0.580**	**0.610**	-	(1), (5) SR-3
		R_Y		**0.315**	**0.345**	**0.375**		
	Green	G_X		**0.310**	**0.340**	**0.370**		
		G_Y		**0.535**	**0.565**	**0.595**		
	Blue	B_X		**0.130**	**0.160**	**0.190**		
		B_Y		**0.090**	**0.120**	**0.150**		
	White	W_X		0.283	0.313	0.343		
		W_Y		0.299	0.329	0.359		
Viewing Angle	Hor.	θ_L	CR ≥ 10 At center	40	-	-	Degrees	(1), (5) SR-3
		θ_H		40	-	-		
	Ver.	ϕ_H		10	-	-		
		ϕ_L		30	-	-		
13 Points White Variation		δ_L		-	-	1.7	-	(6)

Note 1) Definition of Viewing Angle : Viewing angle range(10 ≤ C/R)

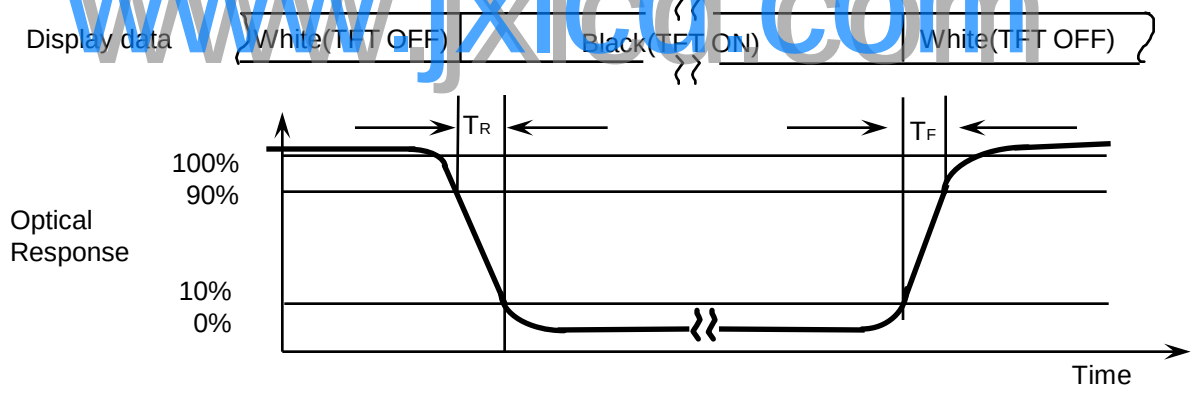


Note 2) Definition of Contrast Ratio (CR) : Ratio of gray max (Gmax) ,gray min (Gmin) at 5 points(4, 5, 7, 9, 10)

$$CR = \frac{CR(4) + CR(5) + CR(7) + CR(9) + CR(10)}{5}$$

Points : ④ , ⑤ , ⑦ , ⑨ , ⑩ at the figure of Note (6).

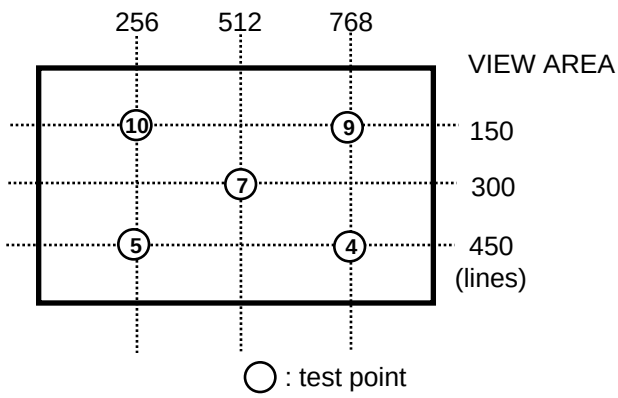
Note 3) Definition of Response time :



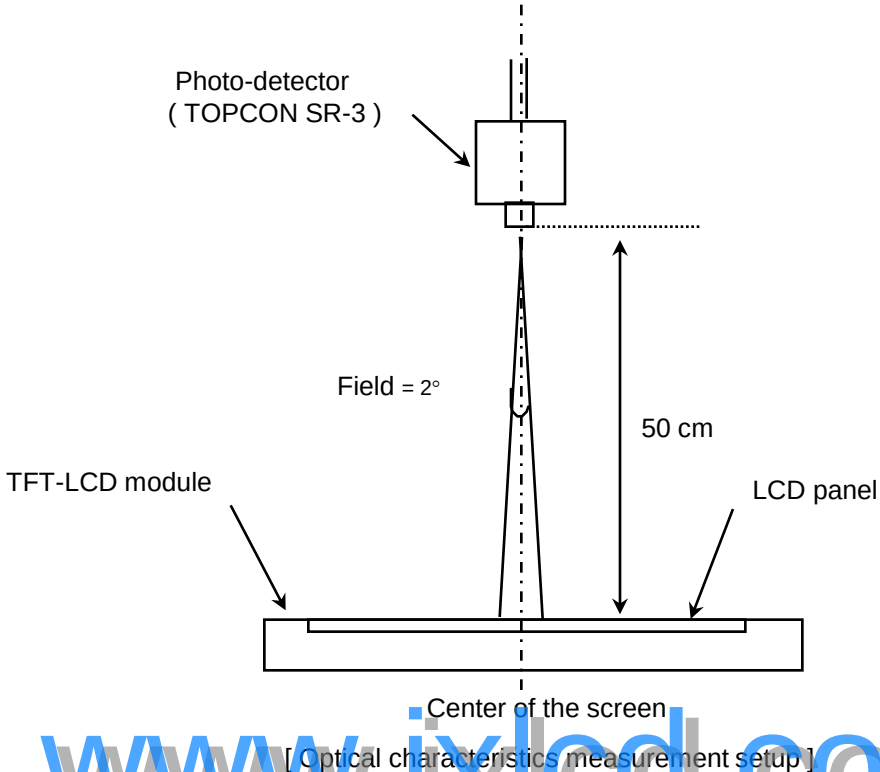
Note 4) Definition of Average Luminance of White : measure the luminance of white at 5 points.

Average Luminance of White ($Y_{L,AVE}$)

$$Y_{L,AVE} = \frac{Y_{L4} + Y_{L5} + Y_{L7} + Y_{L9} + Y_{L10}}{5}$$



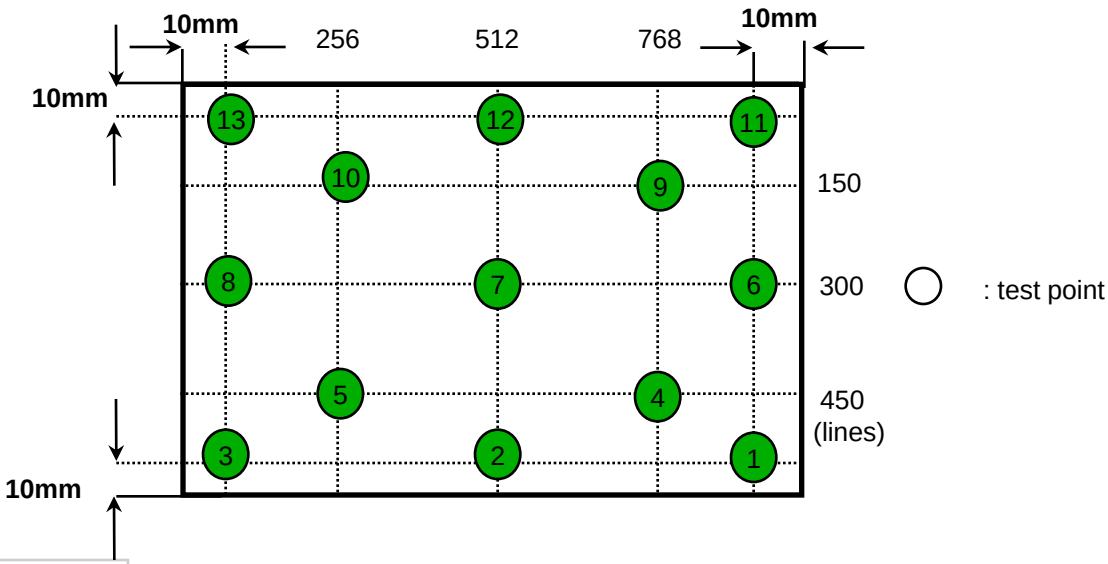
Note 5) After stabilizing and leaving the panel alone at a given temperature for 30 min , the measurement should be executed. Measurement should be executed in a stable, windless,and dark room. 30 min after lighting the backlight. This should be measured in the center of screen.
IF current : 19.0mA
Environment condition : Ta = 25 ± 2 °C



[Optical characteristics measurement setup]

Note 6) Definition of 13 points white variation (δ_L), CR variation(C_{VER}) [① ~ ⑬]

$$\delta_L = \frac{\text{Maximum luminance of 13 points}}{\text{Minimum luminance of 13 points}}$$



3. ELECTRICAL CHARACTERISTICS

3.1 TFT LCD MODULE

Ta= 25 ± 2°C

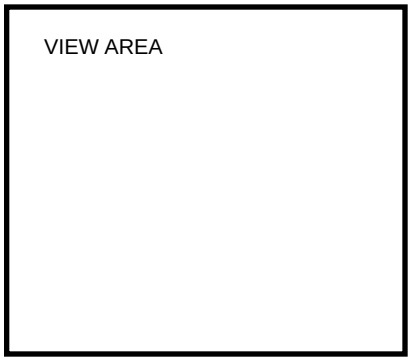
Item		Symbol	Min.	Typ.	Max.	Unit	Note
Voltage of Power Supply		V_{DD}	3.0	3.3	3.6	V	
Differential Input Voltage for LVDS Receiver Threshold	High	V_{IH}	-	-	+100	mV	V_{CM} = +1.2V
	Low	V_{IL}	-100	-	-	mV	
Vsync Frequency		fv	-	60	-	Hz	
Hsync Frequency		f_H	-	40.2	-	KHz	
Main Frequency		f_{DCLK}	-	54.0	-	MHz	
Rush Current		I_{RUSH}	-	-	1.5	A	(4)
Current of Power Supply	White	I_{DD}	-	190	-	mA	(2),(3)*a
	Mosaic		-	210	272	mA	(2),(3)*b
	V. stripe		-	220	-	mA	(2),(3)*c

Note (1) Display data pins and timing signal pins should be connected.(GND = 0V)

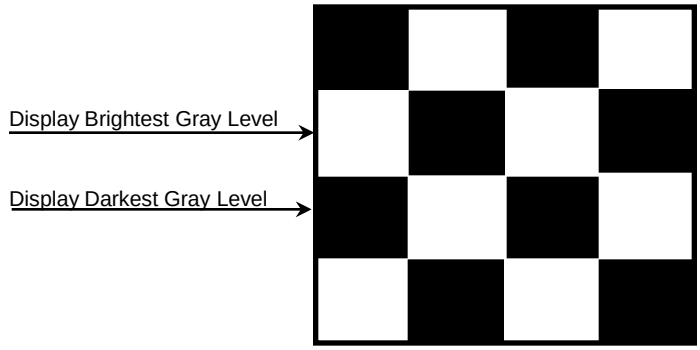
(2) f_V = 60Hz, f_{DCLK} = (TBD)MHZ, V_{DD} = 3.3V , DC Current.

(3) Power dissipation pattern

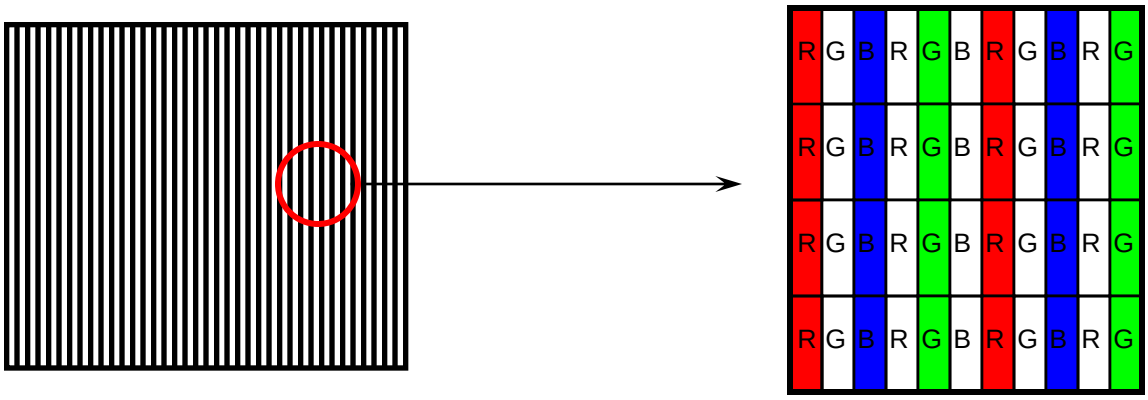
*a) White Pattern



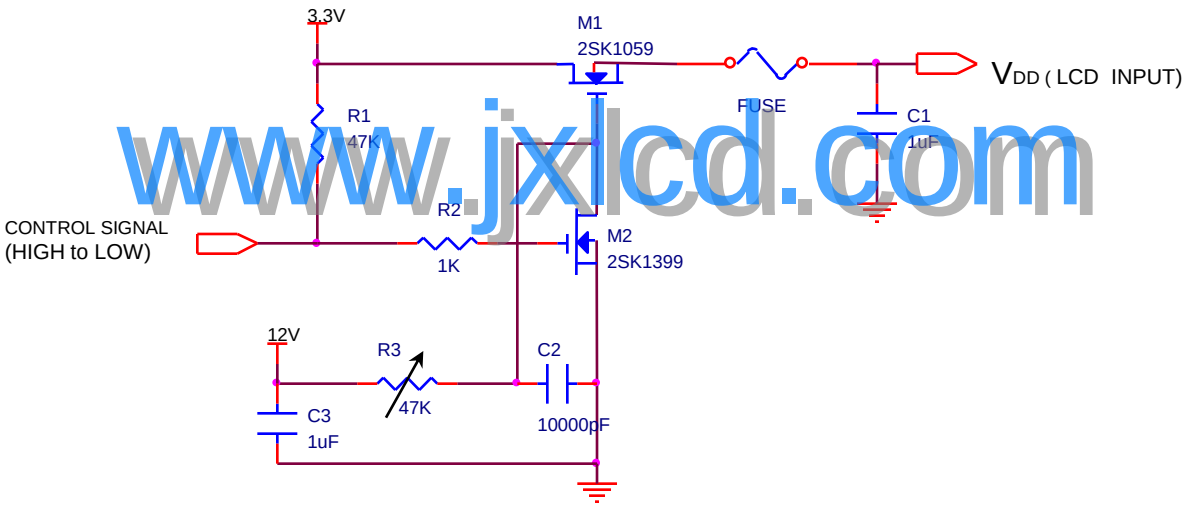
*b) Mosaic Pattern



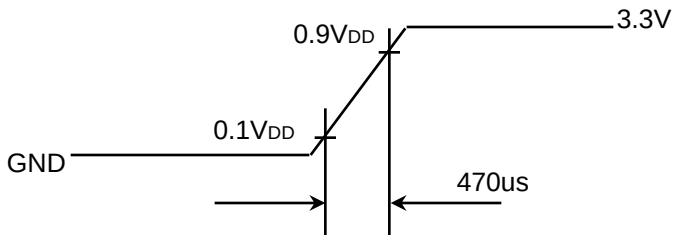
*c) 1dot Vertical stripe pattern



4) Rush current measurement condition



VDD rising time is 470us



3.2 BACK-LIGHT UNIT

Ta= 25 ± 2 °C

Item	Symbol	Min.	Typ.	Max.	Unit	Note
LED Forward Current	IF	19.5	20.5	21.5	mA	
LED Forward Voltage	VF	3.0	3.2	3.4	V	
LED Array Voltage	VP	-	25.6	-	V	VF X 8 LEDs
Power Consumption	P	-	1.74	2.05	W	IF X VF X 24LEDs
Operating Life Time	Hr	10000	-	-	Hour	(1)

Note (1) Life time (Hr) of LEDs can be defined as the time in which it continues to operate under the condition Ta= 25 ± 2 °C and IF = 19.0 mArms until one of the following event occurs.
1. When the brightness becomes 50% or lower than the original.

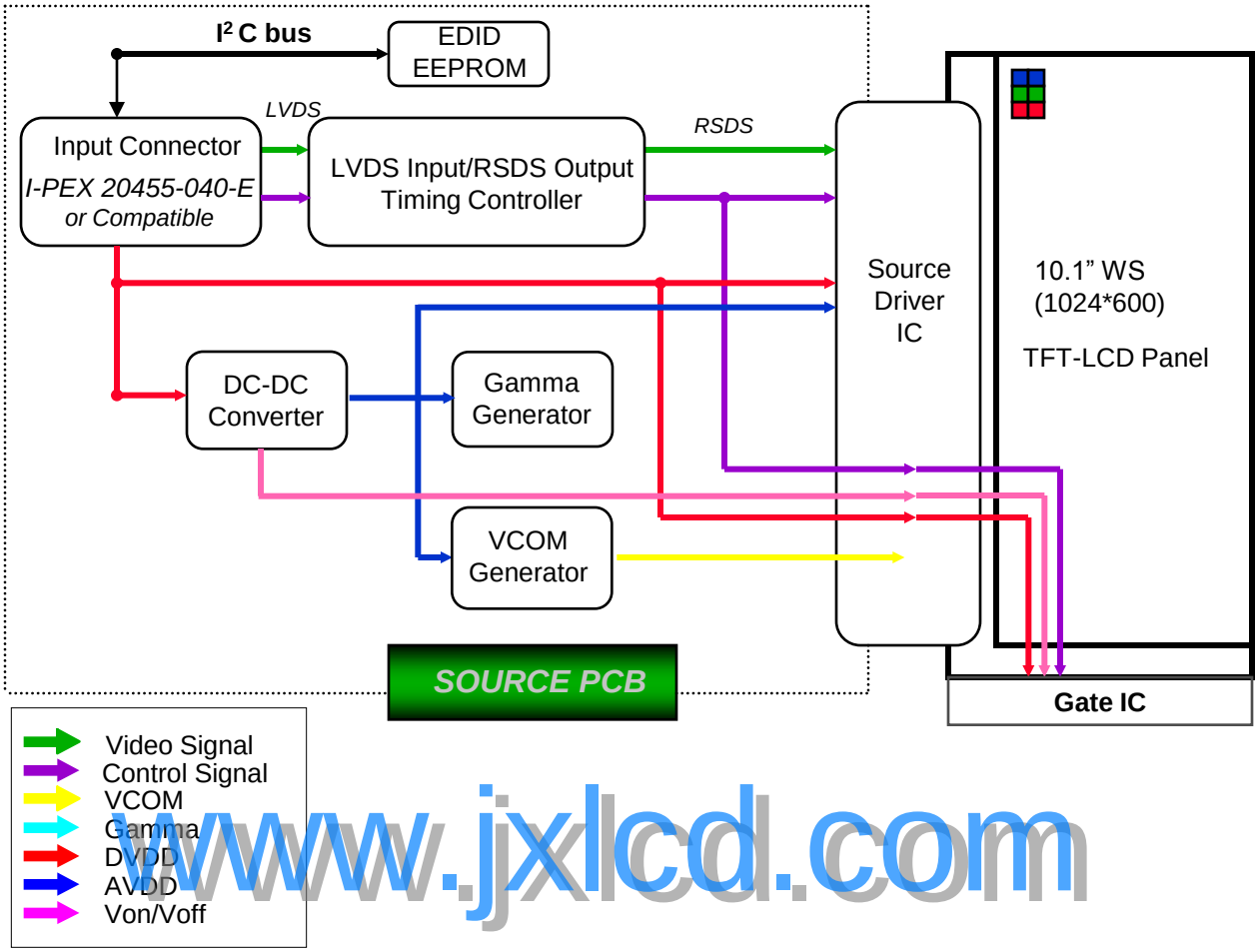
3.3 LED Driver

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Input Voltage	V_{in}	5.0	12	21	V	
Input Current	I	-	170	-	mA	-
Input Power	P_{in}	-	2.04	-	W	@200nit
Operating Frequency	F_o	-	1	-	MHz	-
Burst Ratio	D	1	-	100	%	PWM freq : 120Hz~1KHz
		5	-			PWM freq : 1KHz~10KHz
		10	-			PWM freq : 10KHz~30KHz
External PWM Dimming Control Frequency (BLIM)	F_{BLIM}	120	1K	30K	Hz	
Output Power	Pout	-	-	1.93	W	BLIM=100%
Efficiency	η	82	88	94	%	(Generally, Efficiency can be defined depends on Duty cycle , Vin and Dimming Freq.)

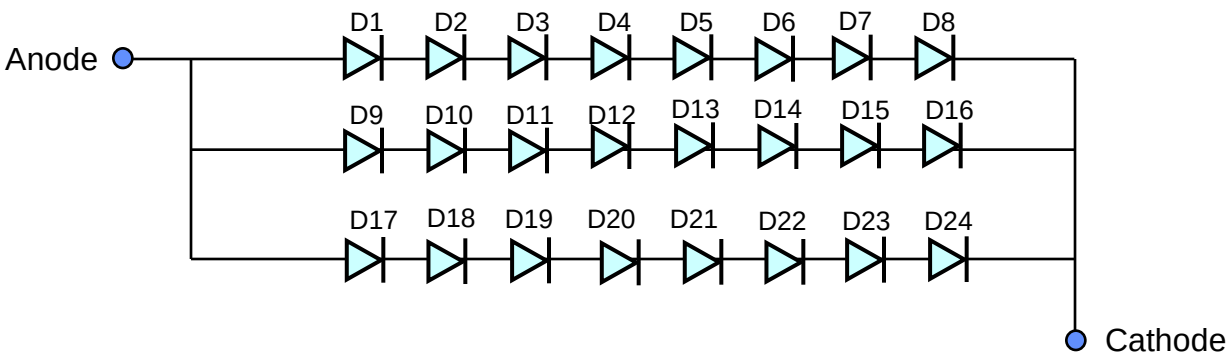
- LED Driver Manufacturer : Richtek

4. BLOCK DIAGRAM

4.1 TFT LCD Module



4.2 LED placement structure



5. INPUT TERMINAL PIN ASSIGNMENT

5.1. Input Signal & Power (LVDS, Connector : I-PEX 20455-040E or equivalent)

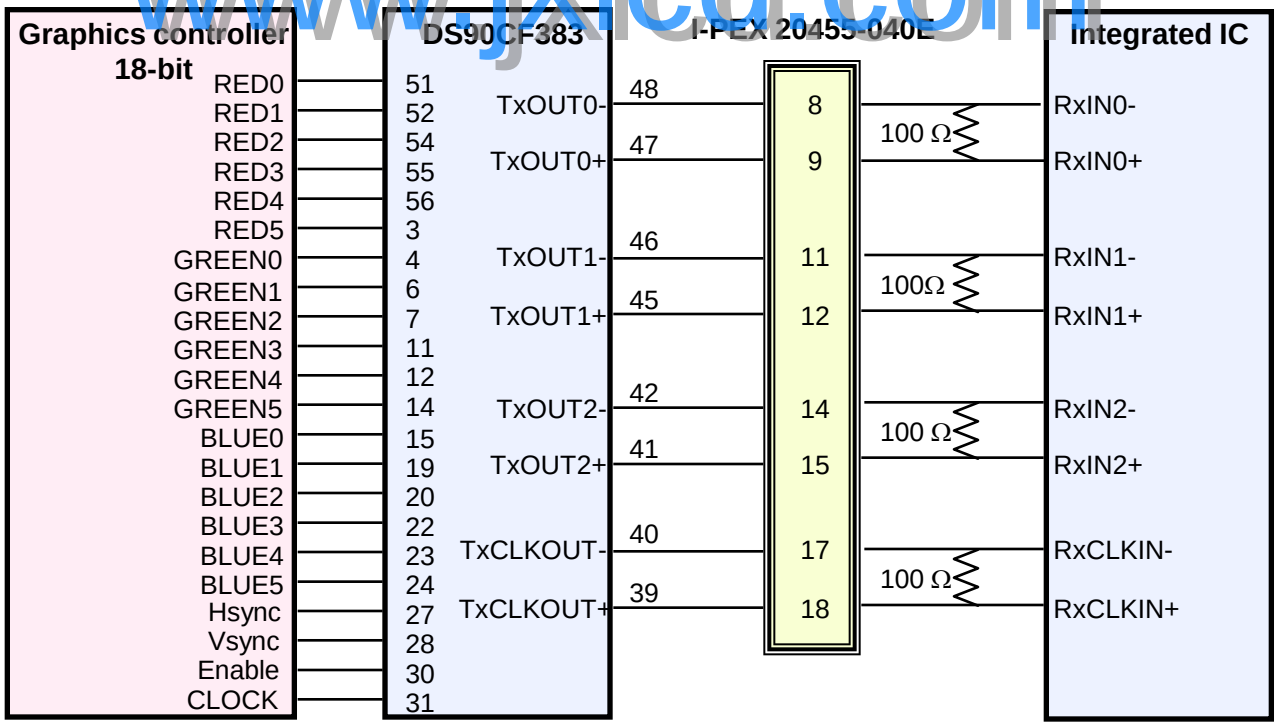
No.	Symbol	Function	Polarity	Remarks
1	NC	No Connect		
2	VDD	Power Supply +3.3V		
3	VDD	Power Supply +3.3V		
4	VEDID	EDID +3.3V Power		
5	NC	No Connect		
6	CLK_EDID	EDID Clock Input		
7	DATA_EDID	EDID Data Input		
8	RxOIN0-	-LVDS Differential Data (Odd R0-R5, G0)	Negative	
9	RxOIN0+	+LVDS Differential Data (Odd R0-R5, G0)	Positive	
10	VSS	Ground		
11	RxOIN1-	-LVDS Differential Data (Odd G1-G5,B0-B1)	Negative	
12	RxOIN1+	+LVDS Differential Data (Odd G1-G5,B0-B1)	Positive	
13	VSS	Ground		
14	RxOIN2-	-LVDS Differential Data (Odd B2-B5,HS,VS,DE)	Negative	
15	RxOIN2+	+LVDS Differential Data (Odd B2-B5,HS,VS,DE)	Positive	
16	VSS	Ground		
17	RxOCKIN-	-LVDS Odd Differential CLK	Negative	
18	RxOCKIN+	+LVDS Odd Differential CLK	Positive	
19	VSS	Ground		
20	NC	No Connect		
21	NC	No Connect		
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		

No.	Symbol	Function	Polarity	Remarks
31	VLED_GND	LED Ground		
32	VLED_GND	LED Ground		
33	VLED_GND	LED Ground		
34	NC	No Connect		
35	S_PWMIN	System PWM signal Input		
36	BL_ON	LED enable pin (+3V input, +5V tolerance)		
37	NC	No Connect		
38	VLED	LED Power Supply 7V-20V		
39	VLED	LED Power Supply 7V-20V		
40	VLED	LED Power Supply 7V-20V		

5.2 LVDS Interface : Transmitter DS90CF363 or Compatible

Pin No.	Name	RGB Signal	Pin No.	Name	RGB Signal
51	TxIN0	R0	14	TxIN14	G5
52	TxIN1	R1	15	TxIN15	B0
54	TxIN2	R2	19	TxIN18	B1
55	TxIN3	R3	20	TxIN19	B2
56	TxIN4	R4	22	TxIN20	B3
3	TxIN6	R5	23	TxIN21	B4
4	TxIN7	G0	24	TxIN22	B5
6	TxIN8	G1	27	TxIN24	Hsync
7	TxIN9	G2	28	TxIN25	Vsync
11	TxIN12	G3	30	TxIN26	DE
12	TxIN13	G4	31	TxCLKIN	Clock

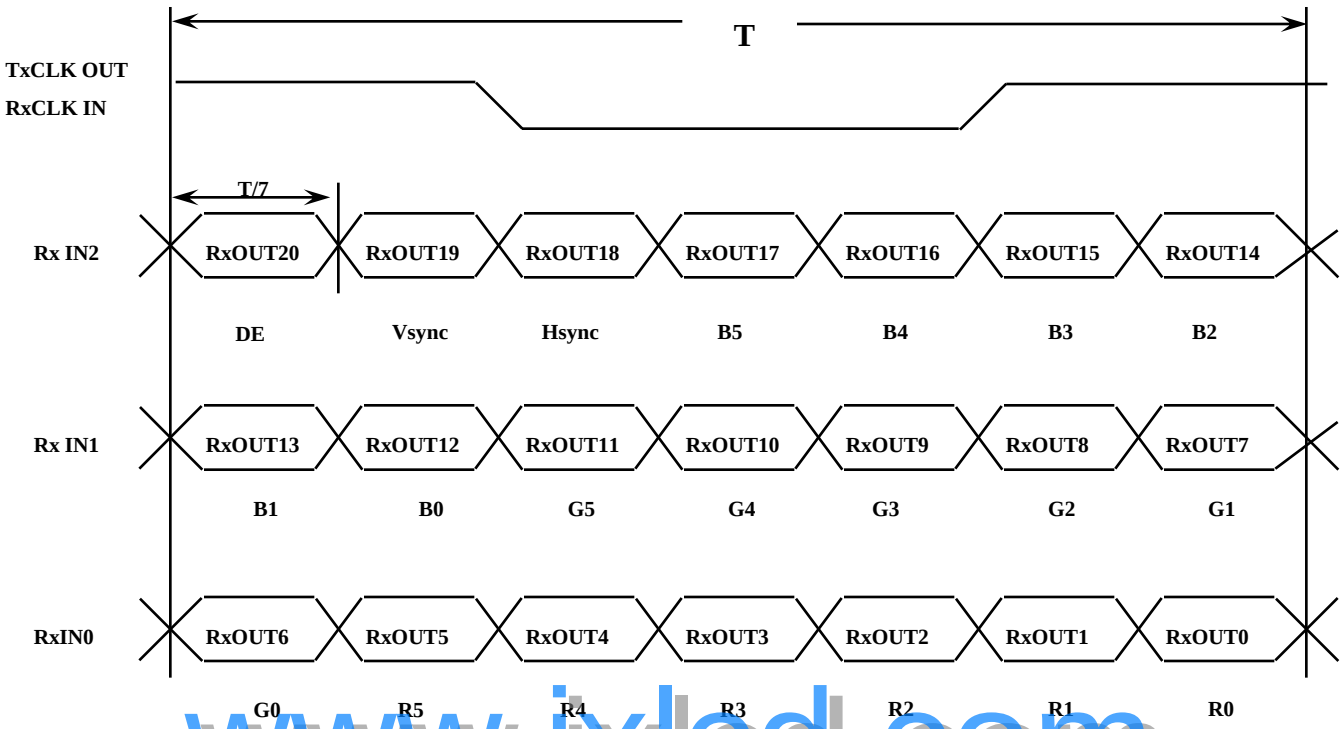
LVDS INTERFACE



Note : The LCD Module uses a 100ohm resistor between positive and negative lines of each receiver input.

5.3 Timing Diagrams of LVDS For Transmission

LVDS Receiver : Integrated T-CON

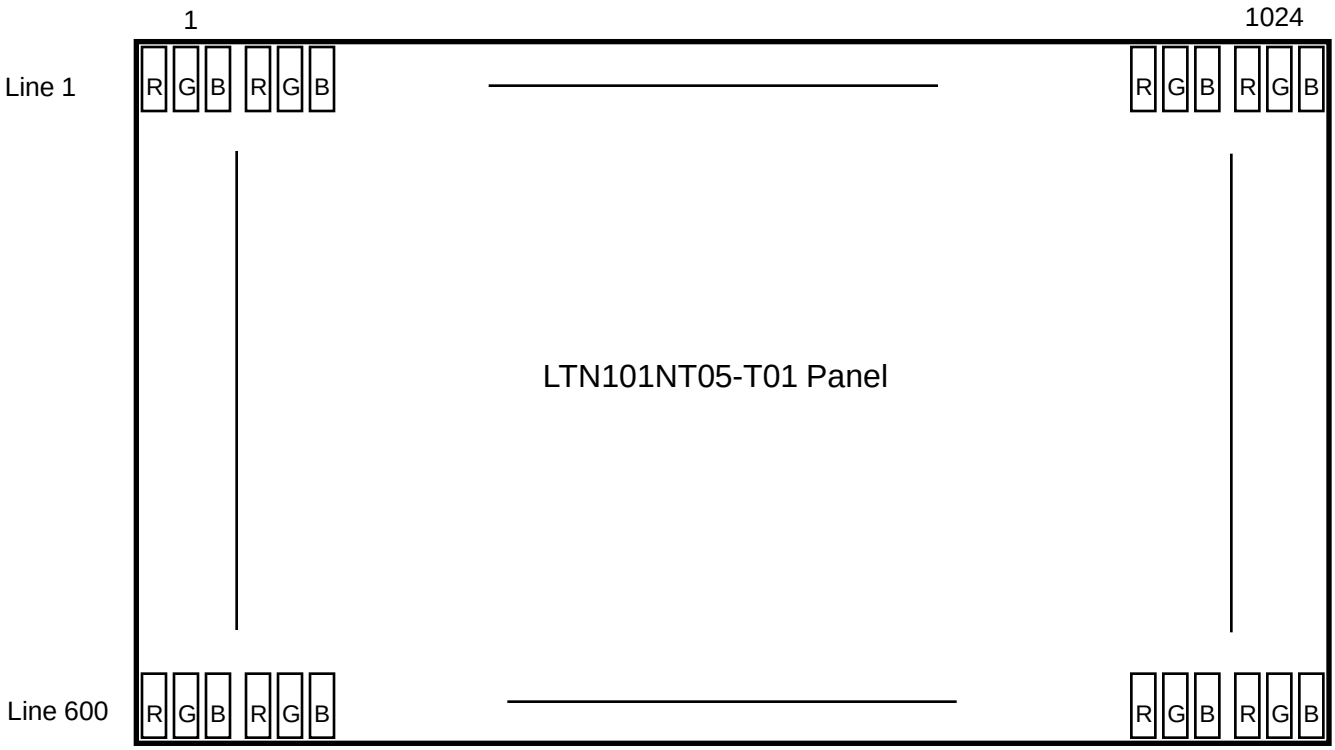


5.4 Input Signals, Basic Display Colors and Gray Scale of Each Color

Color	Display	Data Signal																		Gray Scale Level
		Red						Green						Blue						
		R0	R1	R2	R3	R4	R5	G0	G1	G2	G3	G4	G5	B0	B1	B2	B3	45	B5	
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	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	-
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	-
	Cyan	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	-
	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	-
Gray Scale Of Red	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R0
	Dark	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R1
	↑	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R2
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	R3~R60
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
	↓	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	R61
	Light	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	R62
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	R63
Gray Scale Of Green	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	G0
	Dark	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	G1
	↑	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	G2
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	G3~G60
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
	↓	0	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0	G61
	Light	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	G62
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	G63
Gray Scale Of Blue	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B0
	Dark	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	B1
	↑	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	B2
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	B3~B60
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
	↓	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	B61
	Light	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	B62
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	B63

Note 1) Definition of gray :
Rn: Red gray, Gn: Green gray, Bn: Blue gray (n=gray level)
Note 2)Input signal: 0 =Low level voltage, 1=High level voltage

5.5 Pixel Format in the display



5.6 DVR Address

Slave address of DVR is 9Eh and 9Fh

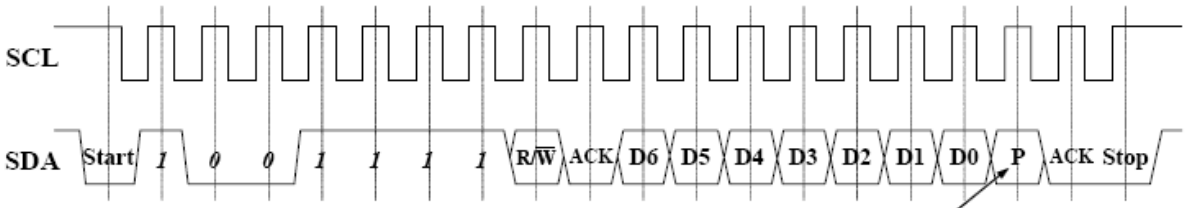
. 9Eh : reading

. 9Fh : writing

I²C Bus Format

Start	Slave Address							W R	ACK	Data								ACK	Stop
	1	0	0	1	1	1	1			D6	D5	D4	D3	D2	D1	D0	P		

ACK → Acknowledge P → Program



(1) When READ operation, P = don't-care.
(2) When WRITE operation,
P = 1 → Register Writing
P = 0 → E²PROM CELL Writing (Program)

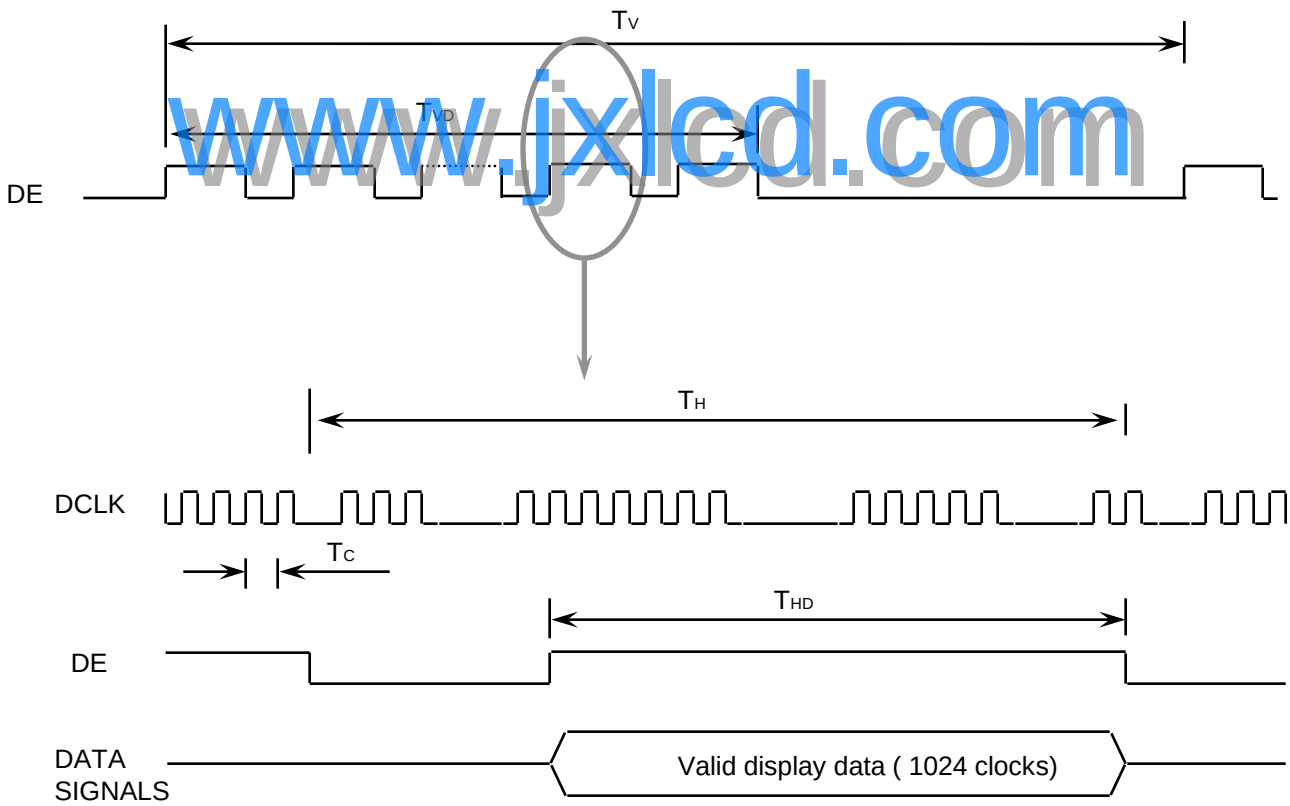
[DVR Sub Address]

6. INTERFACE TIMING

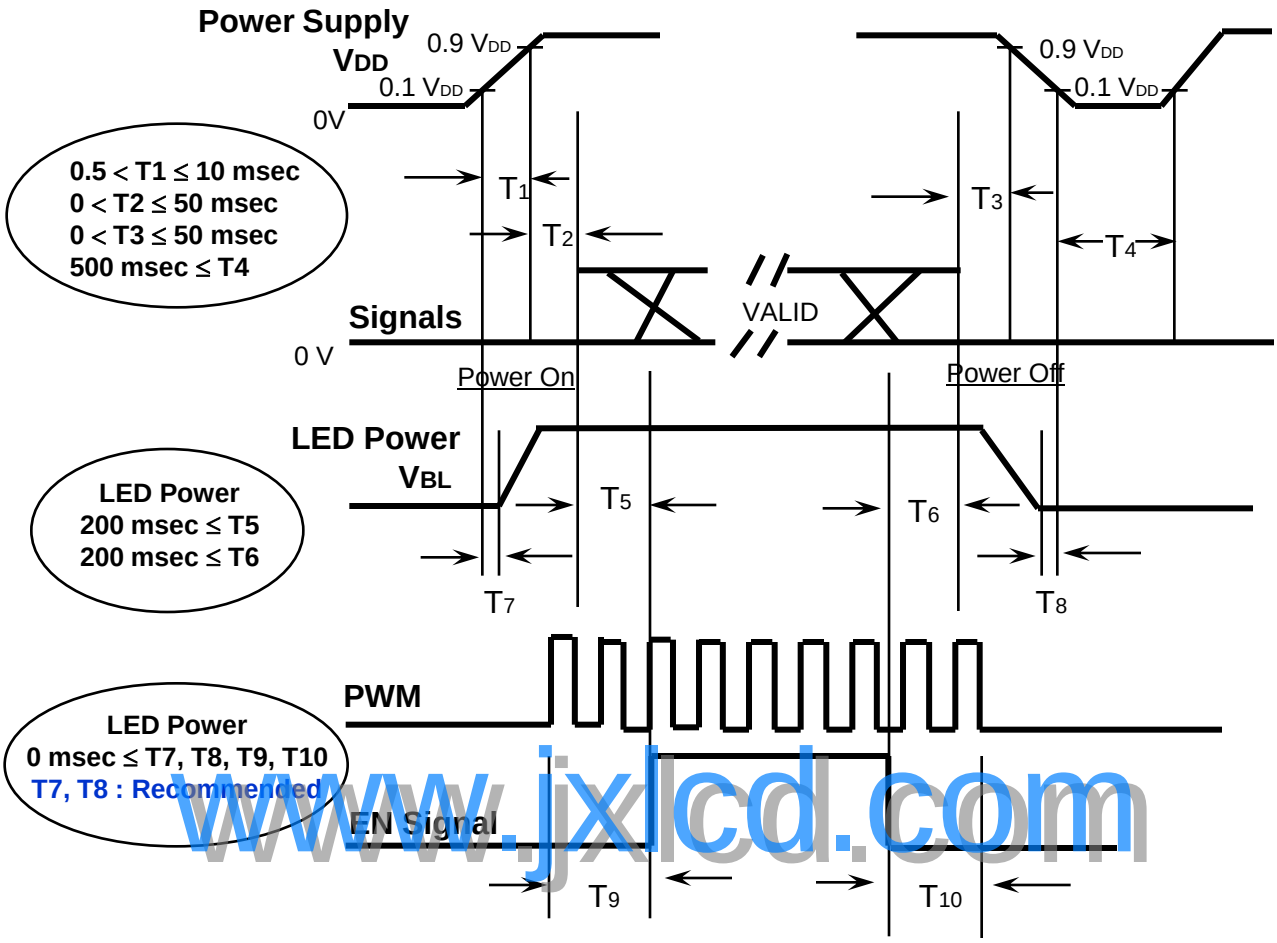
6.1 Timing Parameters

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
Frame Frequency	Cycle	TV	-	670	-	Lines	
Vertical Active Display Term	Display Period	TVD	-	600	-	Lines	
One Line Scanning Time	Cycle	TH	-	1344	-	Clocks	
Horizontal Active Display Term	Display Period	THD	-	1024	-	Clocks	

6.2 Timing diagrams of interface signal



: To prevent a latch-up or DC operation of the LCD module, the power on/off sequence should be as the diagram below.



Power ON/OFF Sequence

T1 : Vdd rising time from 10% to 90%

T2 : The time from Vdd to valid data at power ON.

T3 : The time from valid data off to Vdd off at power Off.

T4 : Vdd off time for Windows restart

T5 : The time from valid data to B/L enable at power ON.

T6 : The time from valid data off to B/L disable at power Off.

NOTE.

(1) The supply voltage of the external system for the module input should be the same as the definition of VDD.

(2) Apply the lamp voltage within the LCD operation range. When the back-light turns on before the LCD operation or the LCD turns off before the back-light turns off, the display may momentarily become white.

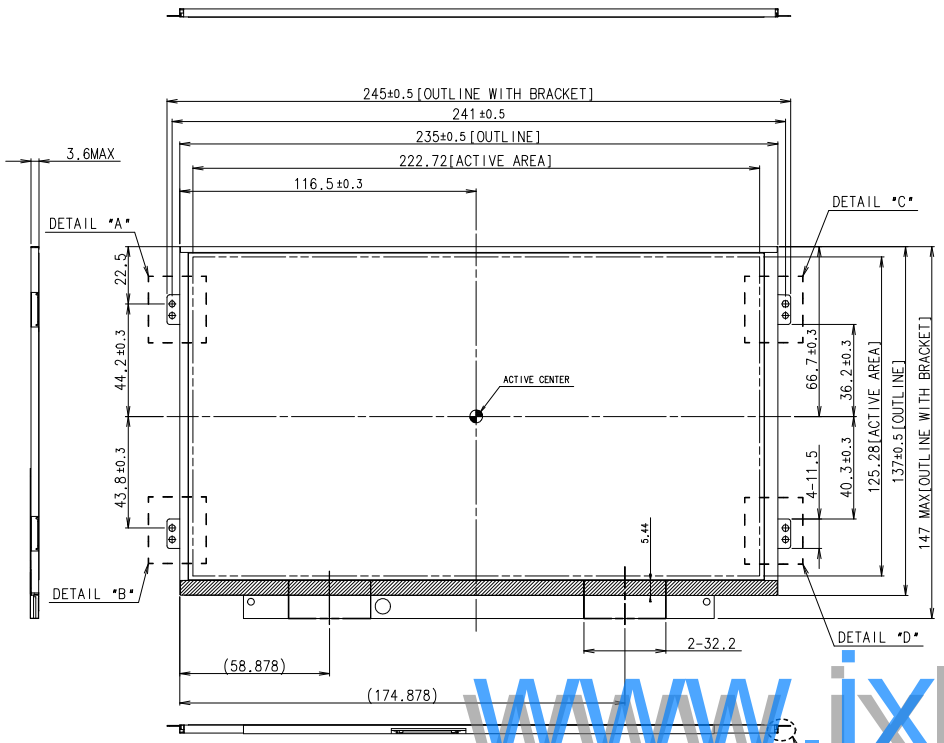
(3) In case of VDD = off level, please keep the level of input signals on the low or keep a high impedance.

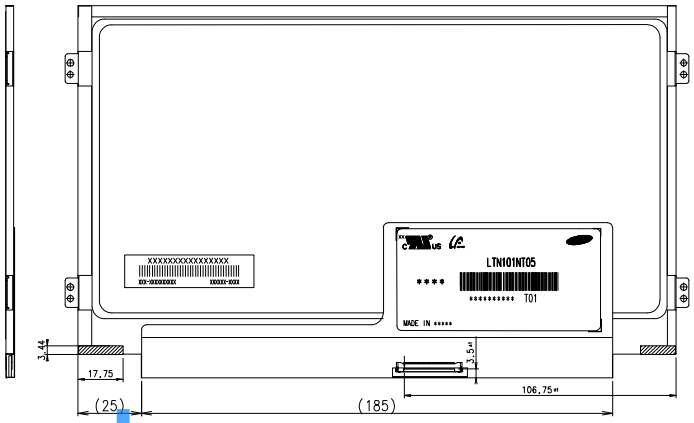
(4) T4 should be measured after the module has been fully discharged between power off and on period.

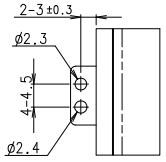
(5) Interface signal shall not be kept at high impedance when the power is on.

7. Mechanical Outline Dimension

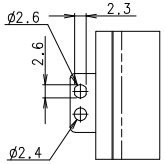
Refer to the next page



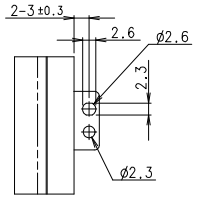




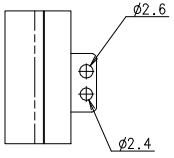
DETAIL "A"
SCALE (2:1)



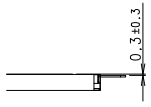
DETAIL "B"
SCALE (2:1)



DETAIL "C"
SCALE (2:1)



DETAIL "D"
SCALE (2:1)



DETAIL "E"
SCALE (2:1)

LTN101NT05-T01

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* NOTE

1. INPUT SIGNAL INTERFACE CONNECTOR TO BE SPECIFIED AS BELOW.
   - MAKER : I-PEX OR COMPATIBLE
   - INPUT CONNECTOR : I-PEX ,20455-#40#-##
2. CALIFERS MEASURUNG FORCE : 750 gf
3. WEIGHT SPEC : 175 g MAX
4. In order to avoid IC damage, it is not allow that overlapping of cables or antennas, camera , WLAN , WWAN over these COF locations.

REV	DATE	DESCRIPTION OF REVISION	DRA'N BY	DES'D BY	CHK'D BY	APP'D BY	REASON	CHG'D BY

UNIT	mm
SCALE	1/1
TOLERANCE	±0.5
E.W.SEO	10.04.01
SAMSUNG ELECTRONICS	SPEC. NO
MODEL NAME	LTN101NT05-T01
PART/SHEET NAME	OUTLINE DIMENSION
SHEET	1/1
CODE NO.	VER. 000

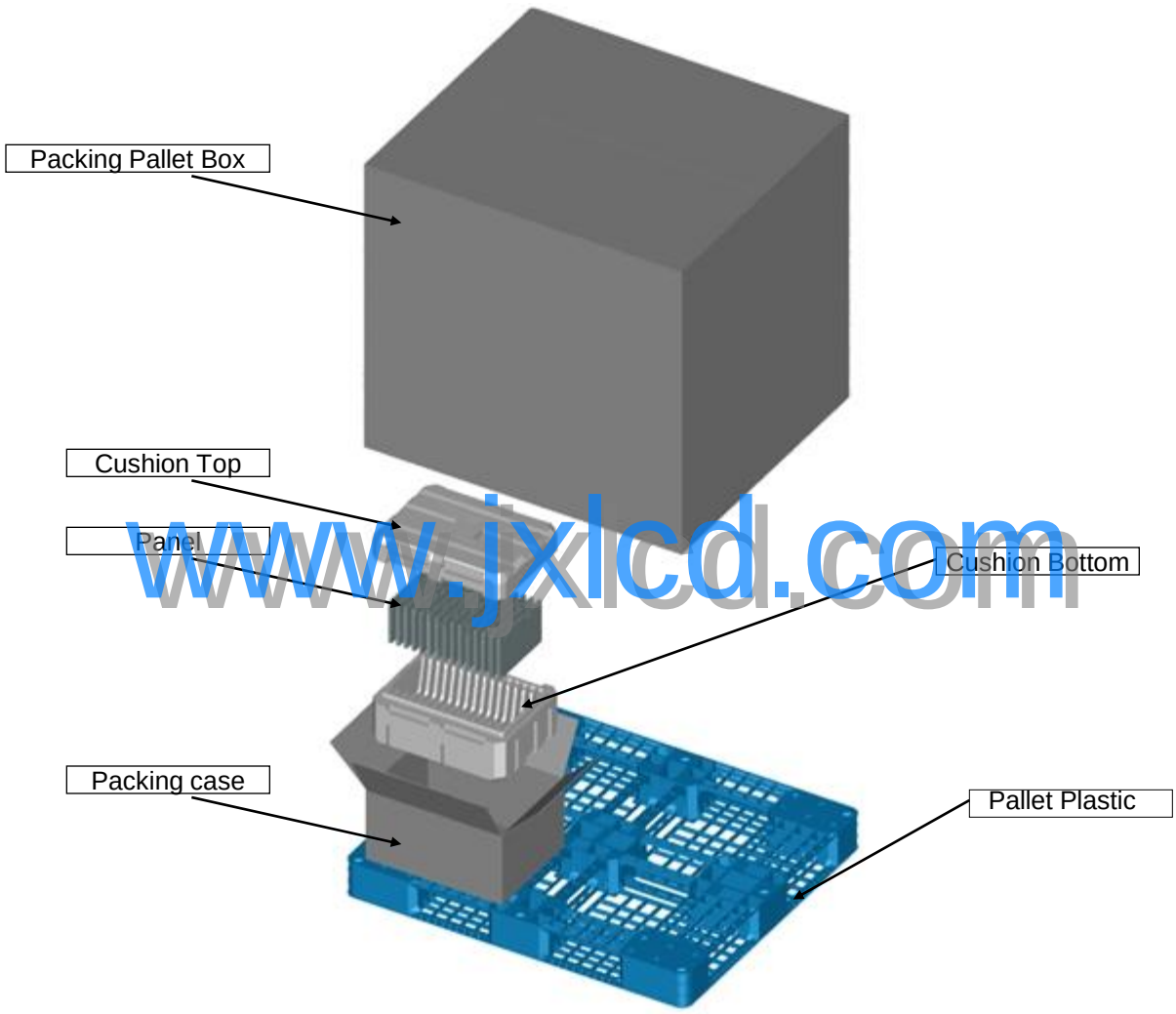
REVISION

8. PACKING

1. CARTON(Internal Package)

(1) Packing Form
Styrofoam cushion box as shock absorber

(2) Packing Method



PACKING CASE

Note 1)Total Weight : Approximately (7) kg
2) Acceptance number of piling : (25) sets
3) Carton size : 450(W) × 340(D) × 230(H)

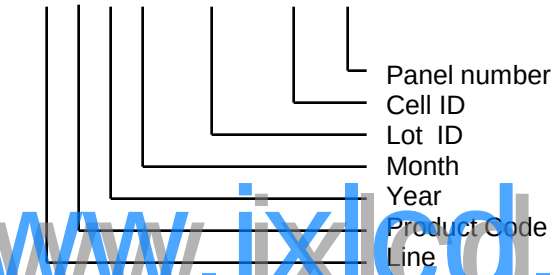
(3)Packing Material

No	Part name	Quantity
1	Static electric protective sack	25
2	Packing case (Inner box)	1 set
3	Pictorial marking	2 pcs
4	Silicagel (500 x 1)	2
5	Carton	1 set

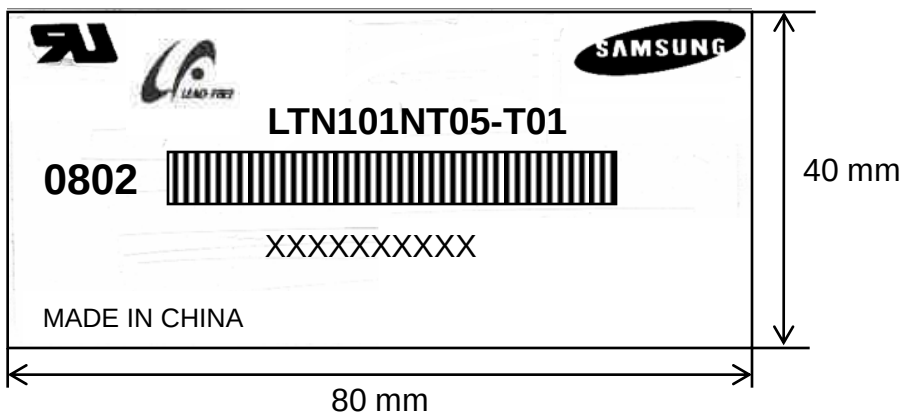
9. MARKINGS & OTHERS

A nameplate bearing followed by is affixed to a shipped product at the specified location on each product.

(1)Parts number : LTN101NT05-T01
(2)Revision code : 3 letters [T01]
(3)Lot number : X X X X XXX XX X

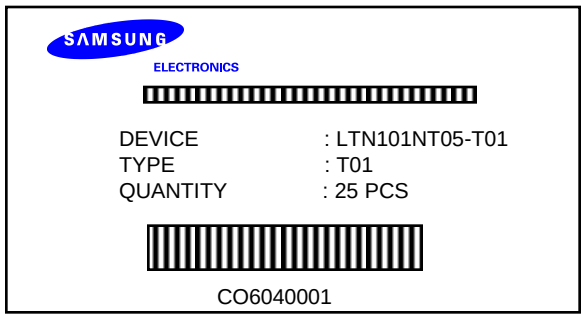


(5) Nameplate Indication



Parts name : LTN101NT05-T01
Lot number : XXXXXXXXXX
Inspected work week : 0802(2008 year, 2nd week)

(6) Packing small box attach



10. GENERAL PRECAUTIONS

1. Handling

(a) When the module is assembled, It should be attached to the system firmly using every mounting holes. Be careful not to twist and bend the modules.

(b) Refrain from strong mechanical shock and / or any force to the module. In addition to damage, this may cause improper operation or damage to the module and CCFT back-light.

(c) Note that polarizers are very fragile and could be easily damaged. Do not press or scratch the surface harder than a HB pencil lead.

(d) Wipe off water droplets or oil immediately. If you leave the droplets for a long time, Staining and discoloration may occur.

(e) If the surface of the polarizer is dirty, clean it using some absorbent cotton or soft cloth.

(f) The desirable cleaners are water, IPA (Isoprophyl Alcohol) or Hexane.
Do not use Ketone type materials(ex. Acetone), Ethyl alcohol, Toluene, Ethyl acid or Methyl chloride. It might permanent damage to the polarizer due to chemical reaction.

(g) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth . In case of contact with hands, legs or clothes, it must be washed away thoroughly with soap.

(h) Protect the module from static , it may cause damage to the C-MOS Gate Array IC.

(i) Use fingerstalls with soft gloves in order to keep display clean during the incoming inspection and assembly process.

(j) Do not disassemble the module.

(k) Do not pull or fold the lamp wire.

(l) Do not adjust the variable resistor which is located on the back side.

(m) Protection film for polarizer on the module shall be slowly peeled off just before use so that the electrostatic charge can be minimized.

(n) Pins of I/F connector shall not be touched directly with bare hands.

2. STORAGE

(a) Do not leave the module in high temperature, and high humidity for a long time. It is highly recommended to store the module with temperature from 0 to 35 °C and relative humidity of less than 70%.

(b) Do not store the TFT-LCD module in direct sunlight.

(c) The module shall be stored in a dark place. It is prohibited to apply sunlight or fluorescent light during the store.

3. OPERATION

(a) Do not connect,disconnect the module in the " Power On" condition.

(b) Power supply should always be turned on/off by following item 6.3 " Power on/off sequence ".

(c) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.

(d) The standard limited warranty is only applicable when the module is used for general notebook applications. If used for purposes other than as specified, SEC is not to be held reliable for the defective operations. It is strongly recommended to contact SEC to find out fitness for a particular purpose.

4. OTHERS

(a) Ultra-violet ray filter is necessary for outdoor operation.

(b) Avoid condensation of water. It may result in improper operation or disconnection of electrode.

(c) Do not exceed the absolute maximum rating value. (the supply voltage variation, input voltage variation, variation in part contents and environmental temperature, so on) Otherwise the module may be damaged.

(d) If the module displays the same pattern continuously for a long period of time,it can be the situation when the image "sticks" to the screen.

(e) This module has its circuitry PCB's on the rear side and should be handled carefully in order not to be stressed.

11. EDID

LTN101NT05-T01(1024 *600) EDID Sheet						
Address (HEX)	FUNCTION	Value HEX	BIN	DEC	ASCII or Data	Notes
00	Header	00	00000000	0		EDID Header
01		FF	11111111	255		
02		FF	11111111	255		
03		FF	11111111	255		
04		FF	11111111	255		
05		FF	11111111	255		
06		FF	11111111	255		
07		00	00000000	0		
08	ID Manufacturer Name	4C	01001100	76	S	3 character ID
					E	
09		A3	10100011	163	C	"SEC"
0A	ID Product Code	4E	01001110	78	[N]	
0B		35	00110101	53	[5]	
0C	32-bit serial no.	00	00000000	0		
0D		00	00000000	0		
0E		00	00000000	0		
0F		00	00000000	0		
10	Week of manufacture	00	00000000	0		
11	Year of manufacture	14	00010100	20	2010	2010
12	EDID Structure Ver.	01	00000001	1	1	EDID Ver. 1.0
13	EDID revision #	03	00000011	3	3	EDID Rev. 3
14	Video input definition	80	10000000	128		
15	Max H image size	16	00010110	22	22	22 cm(approx)
16	Max V image size	0D	00001101	13	13	13 cm(approx)
17	Display Gamma	78	01111000	120	2.2	Gamma 2.2
18	Feature support	0A	00001010	10		
19	Red/green low bits	93	10010011	147		10000111
1A	Blue/white low bits	35	00110101	53		11111110
1B	Red x/ high bits	94	10010100	148	0.580	Red x 0.580= 10010010
1C	Red y	58	01011000	88	0.345	Red y 0.345= 01010111
1D	Green x	57	01010111	87	0.340	Green x 0.340= 01010110
1E	Green y	90	10010000	144	0.565	Green y 0.565= 10001110
1F	Blue x	29	00101001	41	0.160	Blue x 0.160= 00101001
20	Blue y	1E	00011110	30	0.120	Blue y 0.120= 00100010
21	White x	50	01010000	80	0.313	White x 0.313= 01010000
22	White y	54	01010100	84	0.329	White y 0.329= 01010100
23	Established timing 1	00	00000000	0		
24	Established timing 2	00	00000000	0		
25	Established timing 3	00	00000000	0		
26	Standard timing #1	01	00000001	1		not used
27		01	00000001	1		

28	Standard timing #2	01	00000001	1		not used
29		01	00000001	1		
2A	Standard timing #3	01	00000001	1		not used
2B		01	00000001	1		
2C	Standard timing #4	01	00000001	1		not used
2D		01	00000001	1		
2E	Standard timing #5	01	00000001	1		not used
2F		01	00000001	1		
30	Standard timing #6	01	00000001	1		not used
31		01	00000001	1		
32	Standard timing #7	01	00000001	1		not used
33		01	00000001	1		
34	Standard timing #8	01	00000001	1		not used
35		01	00000001	1		
36	Detailed timing/monitor descriptor #1	1B	00011011	27	54.03	Main clock= 54.03 MHz
37		15	00010101	21		
38		00	00000000	0	1024	Hor active=1024 pixels
39		40	01000000	64	320	Hor blanking=320 pixels
3A		41	01000001	65		4bit : 4bit
3B		58	01011000	88	600	Vertcal active=600 lines
3C		46	01000110	70	70	Vertical blanking=70 lines
3D		20	00100000	32		4bit : 4bit
3E		18	00011000	24	24	H sync. Offset=24 pixels
3F		88	10001000	136	136	H sync. Width=136 pixels
40		36	00110110	54	3	V sync. Offset=3 lines
					6	V sync. Width=6 lines
41		00	00000000	0		2bit : 2bit :2bit :2bit
42		DF	11011111	223	223	H image size= 223 mm(approx)
43		7D	01111101	125	125	V image size = 125 mm(approx)
44		00	00000000	0		
45		00	00000000	0		No Horizontal Border
46		00	00000000	0		No Vertical Border
47		19	00011001	25		
48	Detailed timing/monitor	00	00000000	0		Manufacturer Specified (Timing)
49		00	00000000	0		
4A		00	00000000	0		
4B		0F	00001111	15		
4C		00	00000000	0		
4D		00	00000000	0		**Value**=HSPWmin / 2
4E		00	00000000	0		**Value**=HSPWmax / 2
4F		00	00000000	0		**Value**=Thbpmin /2

50	descriptor #2	00	00000000	0		**Value**=Thbpmax /2
51		00	00000000	0		**Value**=VSPWmin /2
52		00	00000000	0		**Value**=VSPWmax /2
53		00	00000000	0		**Value**=Tvbpmin / 2
54		00	00000000	0		**Value**=Tvbpmax / 2
55		71	01110001	113		Thpmin=**value***2 + HA pixelclks
56		EE	11101110	238		Thpmax=**value***2 + HA pixelclks
57		13	00010011	19		Tvpmin=**value***2 + VA lines
58		6E	01101110	110		Tvpmax=**value***2 + VA lines
59		00	00000000	0		Module revision
5A		00	00000000	0		
5B		00	00000000	0		
5C		00	00000000	0		ASCII Data String Tag
5D		FE	11111110	254		
5E		00	00000000	0		
5F		53	01010011	83	[S]	
60		41	01000001	65	[A]	
61	Detailed timing/monitor	4D	01001101	77	[M]	
62	descriptor #3	53	01010011	83	[S]	
63		55	01010101	85	[U]	
64		4E	01001110	78	[N]	
65		47	01000111	71	[G]	
66		0A	00001010	10	[^]	
67		20	00100000	32	[ ]	
68		20	00100000	32	[ ]	
69		20	00100000	32	[ ]	
6A		20	00100000	32	[ ]	
6B		20	00100000	32	[ ]	
6C		00	00000000	0		
6D		00	00000000	0		
6E		00	00000000	0		Monitor Name Tag (ASCII)
6F		FE	11111110	254		
70		00	00000000	0		
71		31	00110001	49	[1]	
72		30	00110000	48	[0]	
73	Detailed timing/monitor	31	00110001	49	[1]	
74	descriptor #4	4E	01001110	78	[N]	
75		54	01010100	84	[T]	
76		30	00110000	48	[0]	
77		35	00110101	53	[5]	
78		2D	00101101	45	[-]	
79		54	01010100	84	[T]	
7A		30	00110000	48	[0]	
7B		31	00110001	49	[1]	
7C		0A	00001010	10	[^]	
7D		20	00100000	32	[ ]	
7E	Extension Flag	00	00000000	0		
7F	Checksum	**AF**	10101111	175		