All information is subject to change without notice. Please read bottom notes.

FEATURES

(1) 14.1 SXGA+(1400x1050 pixels) display size for Notebook PC.
(2) SPWG-B Style dimension
(3) 2ch-LVDS interface system (H-Sync, V-Sync) and EDID-ROM(address Type)
(4) Anti-Glare & Anti-Reflection on LCD surface. (ARC150T)

TENTATIVE

MECHANICAL SPECIFICATIONS

Item	Specifications
Dimensional Outline (typ.)	299.0 (*W*) x 227.9 (*H*) x 5.5max (*D*) mm
Number of Pixels	1400 (*W*) x 1050 (*H*) pixels
Active Area	285.6 (*W*) x 214.2 (*H*) mm
Viewing Area	287.6 (*W*) x 216.2 (*H*) mm
Pixel Pitch	0.204 (*W*) x 0.204 (*H*)mm
Weight (approximately)	(415) g (typ)
Backlight	Single CCFL, Sidelight type

ABSOLUTE MAXIMUM RATINGS

Item		Min.	Max.	Unit
Supply Voltage	(V_{DD})	-0.3	4.0	V
	(V_{FL})	0	2.0	kV(rms)
FL Driving Frequency (f_{FL})		-	100	KHz
Input Signal Voltage (V_{IN})		-0.3	V_{DD}+0.3	V
Operating Ambient Temperature [*1]		0	50	°C
Operating Temperature for Panel [*2]		0	60	°C
Storage Temperature		-20	60	°C
Storage Humidity (Max. wet bulb temperature = 39°C)		10	90	%(RH)

*1: Wet bulb temperature should be 39°C Max., and no condensation of water.
*2: The surface temperature caused by self heat radiation of cell itself is specified on this item.

ELECTRICAL SPECIFICATION (*T*a=25°C)

Item		Min.	Typ.	Max.	Unit	Remarks
Supply Voltage	(V_{DD})	3.0	3.3	3.6	V	
	(V_{FL})	---	625	---	V(rms)	I_{FL} =6.0mA(rms)
FL Start Voltage		1550	---	---	V(rms)	*T*a=0°C
Differential Input Voltage	(V_{ID})	100	---	600	mV	
Common Mode Input Voltage	(V_{CM})	0.5	-	1.5	V	
Current Consumption	(I_{DD}) [*3]	---	(380)	---	mA	
	(I_{FL}) [*4]	3.0	---	6.0	mA(rms)	
Power Consumption [*1] [*2]		---	(5.0)	---	W	I_{FL} =6.0mA(rms)

*3 : Refer to TH63LVDF84A-85 Specification by Thine Electronics, Inc.
*4: 8 color bars pattern
*5: Except the efficiency of FL inverter

OPTICAL SPECIFICATION (*T*a=25°C)

Item		Min.	Typ.	Max.	Unit	Remarks
Contrast Ratio (*CR*)		100	300	---	---	
Response Time	(t_{ON})	---	---	50	ms	
	(t_{OFF})	---	---	50	ms	
Luminance (*L*)		(135)	(170)	---	cd/m^2	I_{FL}=6.0mA(rms)

*5point

DIMENSIONAL OUTLINE

(Front)

TENTATIVE

Unit : mm

Standard tolerance : +/-0.5

2.8 ± 0.3 : RIGHT × 4 (FIXING TAP HEIGHT)

54 ± 0.3

144.3 ± 0.3

198 ± 0.3

(CABLE LENGTH)

65 ± 5

6.05 (REF.)

11 ± 1 (CABLE POSITION)

218 ± 0.3 (BEZEL OPENING)

214.2 ± 0.2 (ACTIVE AREA)

99.15 ± 0.3

7.05 (TYP.)

299 ± 0.5

No.1

125.1 ± 1 (I/F CONNECTOR POSITION)

150.15 ± 0.3

6.65 (TYP.)

285.6 ± 0.2 (ACTIVE AREA)

289.4 ± 0.3 (BEZEL OPENING)

7.35 (REF.)

(I/F CONNECTOR POSITION)

28 ± 1

RIGHT SIDE (FOUR PLACES)

M2 TAPPING
HOLE DEPTH
3.0 TYP., 2.5 min.

SECTION B-B
SCALE 5 : 1

LEFT SIDE (FOUR PLACES)

M2 TAPPING
HOLE DEPTH
3.0 TYP., 2.5 min.

SECTION A-A
SCALE 5 : 1

227.9 (TYP.) : 228.8 max.

212.9 (TYP.) 213.3 max.

198 ± 0.3

144.3 ± 0.3

54 ± 0.3

15 (TYP.)

15.3 max.

2.8 ± 0.3 : LEFT × 4 (FIXING TAP HEIGHT)

5.5 max.

8 × M2 TAPPING
(HOLE DEPTH: 2.5 min.)
TAPPING MAXIMUM TORQUE: 2.8 kgf·cm

2010- 02-16 (Ver.0.3)

BLOCK DIAGRAM

X-driver

DC/DC converter

Gray scale
Manipulation
Voltage
Generation
Circuit

Y-driver

Liquid Crystal Panel

1400 x 1050 pixels

Y-driver

C N 1

Connector

Panel
Controller
LVDS

Backlight

C N 2

SEQUENCE OF POWER SUPPLIES AND SIGNALS

10ms (Max.)

50us (Min.)

10ms (Max.)   500ms (Min.)

3.0V

3.0V

V_{DD}

0.2V

0.2V   0.2V

40ms (Max.)
0ms (Min.)

40ms (Max.)
0ms (Min.)

CLK-
IN0- - IN2-
CLK+
IN0+ - IN2+

10%

10%

10ms (Min.)

2sec (Min.)

0ms (Min.)

V_{SFL}

V_{FL}

Backlight
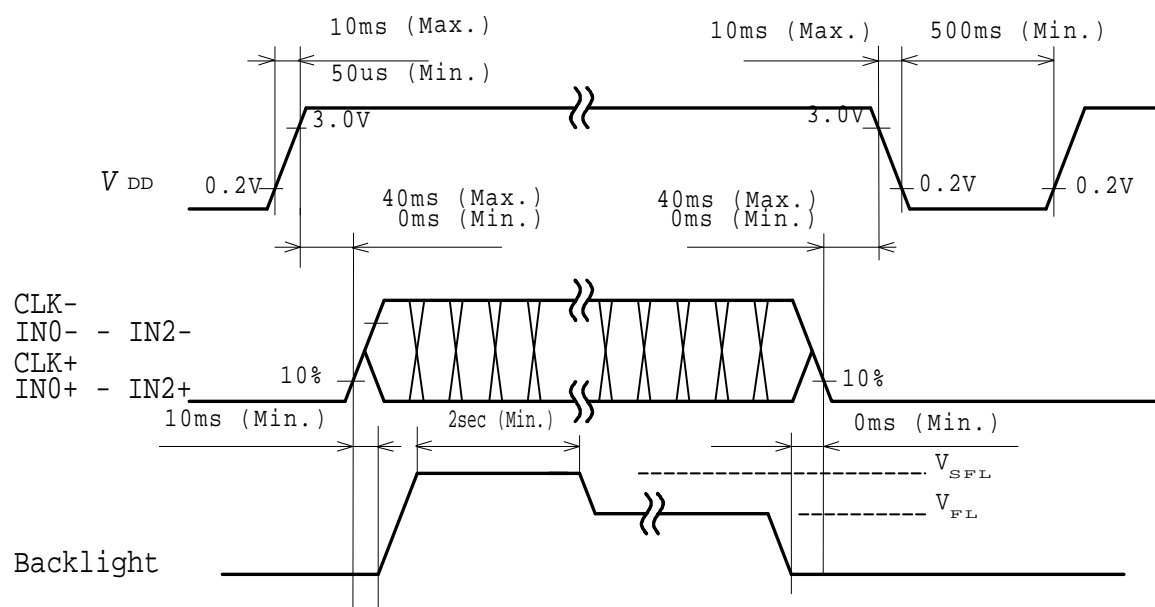
TIMING CHART

(1) Vertical Timing
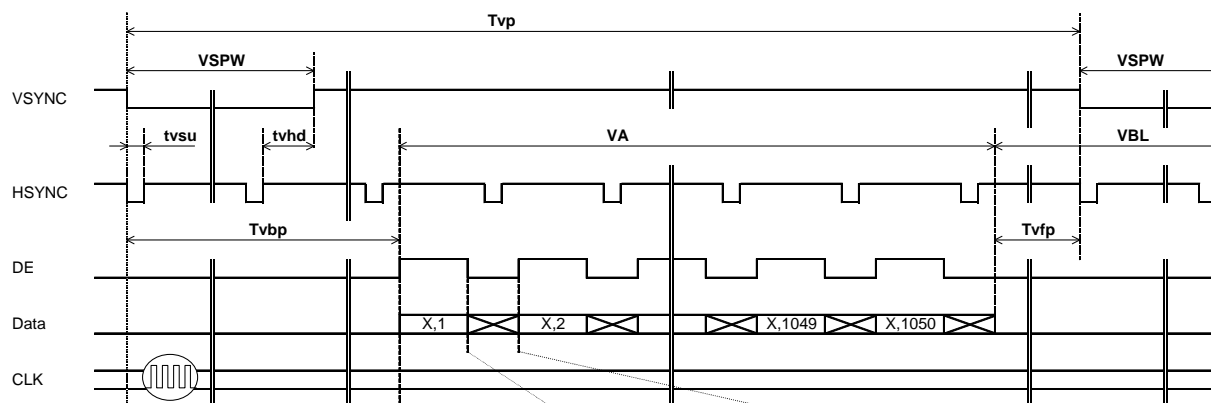
(2) Horizontal Timing

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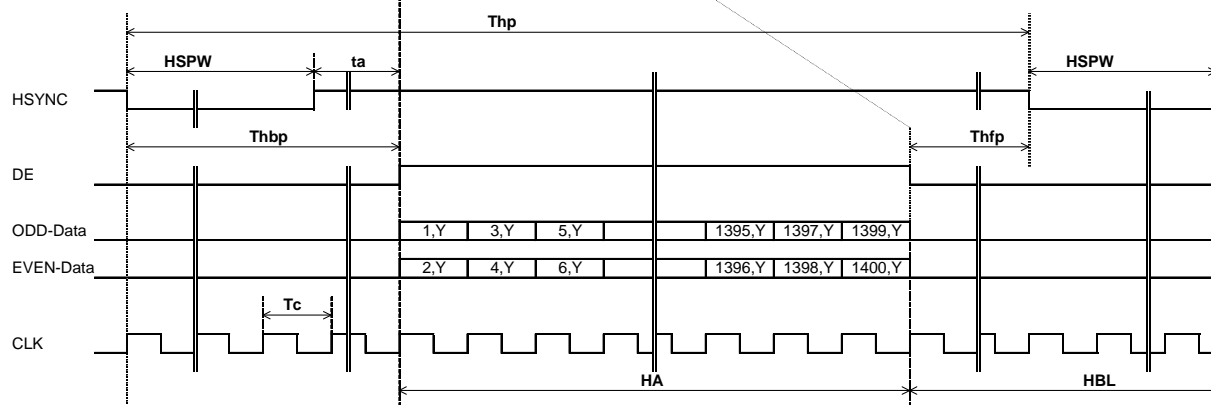
TIMING SPECIFICATION [1) 2) 3) 4) 5) 6) 7)]

Item	Symbol	min.	typ.	max.	unit
Horizontal Scanning Term	Thp	828	844	1024	Tc
H-sync Pulse Width	HSPW	8	-	-	Tc
Horizontal Front Porch	$t$hfp	8	-	-	Tc
Horizontal Back Porch	ta	8	-	-	Tc
Horizontal Blanking Term	HBL	128	144	324	Tc
Horizontal Display Term	HA	700	700	700	Tc
Frame Period	Tvp	1059	1066	1152	Thp
V-sync Pulse Width	VSPW	1	-	-	Thp
V-sync Set Up Time (to H-sync)	$t$vsu	8	-	-	Tc
V-sync Hold Time	$t$vhd	8	-	-	-
Vertical Front Porch	$t$vfp	1	-	-	-
Vertical Back Porch	Tvbp	4	-	-	-
Vertical Blanking Term	VBL	9	16	102	Thp
Vertical Display Term	VA	1050	1050	1050	Thp
DE Pulse Width	HA	700	700	700	Tc
Clock Period	Tc	17.96	18.519	19.597	ns

Note 1) Refer to "Timing Chart" and LVDS (THC63LVDF84A-85) specifications by THine Electronic, Inc..

Note 2) If ENAB is fixed to "H" or "L" level for certain period while NCLK is supplied, the panel displays black with some flicker.

Note 3) If NCLK is fixed to "H" or "L" level for certain period while ENAB is supplied, the panel may be damaged.

Note 4)   Please adjust LCD operating signal timing and FL driving frequency, to optimize the display quality. There is a possibility that flicker is observed by the interference of LCD operating signal timing and FL driving condition (especially driving frequency), even if the condition satisfies above timing specifications and recommended operating conditions.

Note5) Do not make tv, $tvdh$ and tvds fluctuate.
   If tv, $tvdh$, and $tvds$ are fluctuate, the panel displays black.

Note6) In case of using the long frame period, the deterioration of display quality, noise etc. may be occurred.

Note7) NCLK count of each Horizontal Scanning Time should be always the same.
   V-Blanking period should be "n" X "Horizontal Scanning Time". (n: integer)
   Frame period should be always the same.

CONNECTOR PIN ASSIGNMENT FOR INTERFACE

CN1   INPUT SIGNAL FI-XB30SRL-HF11 / JAE)
[Mating Connector :Wire Type   FI-X30H(Housing), FI-XC3-1-15000(Contact)
FPC Type   FI-X30M or FI-X30MR
Coax Type   FI-X30C or FI-X30C2(Housing), FI-X30CH-7000(Shell)]

Terminal No.	Symbol	Function
1	V_{SS}	GND
2	V_{DD}	POWER SUPPLY : +3.3V
3	V_{DD}	POWER SUPPLY : +3.3V
4	V_{EDID}	DDC 3.3V POWER SUPPLY : +3.3V
5	NC	Non-Connection
6	CLKEDID	DDC Clock
7	DATAEDID	DDC Data
8	RxOIN0-	Negative LVDS differential data input (Odd), [R0-R5, G0]
9	RxOIN0+	Positive LVDS differential data input (Odd), [R0-R5, G0]
10	VSS	GND
11	RxOIN1-	Negative LVDS differential data input (Odd), [G1-G5, B0-B1]
12	RxOIN1+	Positive LVDS differential data input (Odd), [G1-G5, B0-B1]
13	VSS	GND
14	RxOIN2-	Negative LVDS differential data input (Odd), [B2-B5, HS, VS, DE]
15	RxOIN2+	Positive LVDS differential data input (Odd), [B2-B5, HS, VS, DE]
16	VSS	GND
17	RxOCLKIN-	Negative LVDS differential clock input (Odd)
18	RxOCLKIN+	Positive LVDS differential clock input (Odd)
19	V_{SS}	GND
20	RxEIN0-	Negative LVDS differential data input (Even), [R0-R5, G0]
21	RxEIN0+	Positive LVDS differential data input (Even), [R0-R5, G0]
22	VSS	GND
23	RxEIN1-	Negative LVDS differential data input (Even), [G1-G5, B0-B1]
24	RxEIN1+	Positive LVDS differential data input (Even), [G1-G5, B0-B1]
25	VSS	GND
26	RxEIN2-	Negative LVDS differential data input (Even), [B2-B5, HS, VS, DE]
27	RxEIN2+	Positive LVDS differential data input (Even), [B2-B5, HS, VS, DE]
28	VSS	GND
29	RxECLKIN-	Negative LVDS differential clock input (Even)
30	RxECLKIN+	Positive LVDS differential clock input (Even)

Note 1) Please connect GND pin to ground. Don't use it as no-connect nor connection with high impedance.

Note 2) Please connect NC to nothing. Don't connect it to ground nor to other signal input.

CN2   CCFL POWER SOURCE
Connector : BHSR-02VS-1 / JAPAN SOLDERLESS TERMINAL MFG CO., LTD.

Mating Connector :   SM02B-BHS-1 / JAPAN SOLDERLESS TERMINAL MFG CO., LTD.

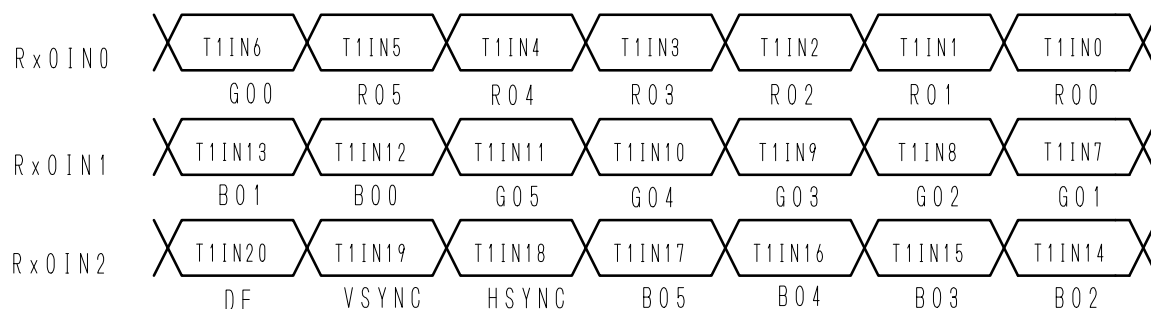| Terminal No.	Symbol	Function
1	V_{FLH}	CCFL Power Supply (high voltage)
2	V_{FLL}	CCFL Power Supply (low voltage)

RECOMMENDED TRANSMITTER (THC63LVDF63A,THC63LVDM63A,THC63LVDM63A-85)
TO LTD141ENCF INTERFACE ASSIGNMENT

Case1: 6bit Transmitter

ODD DATA(6bit Transmitter)

Input Terminal No.		Input Signal (Graphics controller output signal)		Output Signal Symbol	To LTD141ENCF Interface(CN1)	
Symbol	Terminal	Symbol	Function		Terminal	Symbol
T1IN0 / TA0	44	RO0	Red Pixels Display Data (LSB)	T1OUT0- T1OUT0+	No.8 No.9	RxOIN0- RxOIN0+
T1IN1 / TA1	45	RO1	Red Pixels Display Data			
T1IN2 / TA2	47	RO2	Red Pixels Display Data			
T1IN3 / TA3	48	RO3	Red Pixels Display Data			
T1IN4 / TA4	1	RO4	Red Pixels Display Data			
T1IN5 / TA5	3	RO5	Red Pixels Display Data (MSB)			
T1IN6 / TA6	4	GO0	Green Pixels Display Data (LSB)			
T1IN7 / TB0	6	GO1	Green Pixels Display Data	T1OUT1- T1OUT1+	No.11 No.12	RxOIN1- RxOIN1+
T1IN8 / TB1	7	GO2	Green Pixels Display Data			
T1IN9 / TB2	9	GO3	Green Pixels Display Data			
T1IN10 / TB3	10	GO4	Green Pixels Display Data			
T1IN11 / TB4	12	GO5	Green Pixels Display Data (MSB)			
T1IN12 / TB5	13	BO0	Blue Pixels Display Data (LSB)			
T1IN13 / TB6	15	BO1	Blue Pixels Display Data			
T1IN14 / TC0	16	BO2	Blue Pixels Display Data	T1OUT2- T1OUT2+	No.14 No.15	RxOIN2- RxOIN2+
T1IN15 / TC1	18	BO3	Blue Pixels Display Data			
T1IN16 / TC2	19	BO4	Blue Pixels Display Data			
T1IN17 / TC3	20	BO5	Blue Pixels Display Data (MSB)			
T1IN18 / TC4	22	NC	Non Connection (open)			
T1IN19 / TC5	23	NC	Non Connection (open)			
T1IN20 / TC6	25	NC	Non Connection (open)			
T1CLK IN / CLKIN	26	NCLK	Data Sampling Clock	T1CLK OUT- T1CLK OUT+	No.17 No.18	RxOCLK - RxOCLK +

Note 1) Please connect NC pin to nothing.   Don't connect it to ground nor to other signal input.

RxOIN0	T1IN6	T1IN5	T1IN4	T1IN3	T1IN2	T1IN1	T1IN0
	GO0	RO5	RO4	RO3	RO2	RO1	RO0

RxOIN1	T1IN13	T1IN12	T1IN11	T1IN10	T1IN9	T1IN8	T1IN7
	BO1	BO0	GO5	GO4	GO3	GO2	GO1

RxOIN2	T1IN20	T1IN19	T1IN18	T1IN17	T1IN16	T1IN15	T1IN14
	DE	VSYNC	HSYNC	BO5	BO4	BO3	BO2

EVEN DATA(6bit Transmitter)

Input Terminal No.		Input Signal (Graphics controller output signal)		Output Signal Symbol	To LTD141ENCF Interface(CN1)	
Symbol	Terminal	Symbol	Function		Terminal	Symbol
T2IN0 / TA0	44	RE0	Red Pixels Display Data (LSB)	T2OUT0- T2OUT0+	No.20 No.21	RxEIN0- RxEIN0+
T2IN1 / TA1	45	RE1	Red Pixels Display Data			
T2IN2 / TA2	47	RE2	Red Pixels Display Data			
T2IN3 / TA3	48	RE3	Red Pixels Display Data			
T2IN4 / TA4	1	RE4	Red Pixels Display Data			
T2IN5 / TA5	3	RE5	Red Pixels Display Data (MSB)			
T2IN6 / TA6	4	GE0	Green Pixels Display Data (LSB)	T2OUT1- T2OUT1+	No.23 No.24	RxEIN1- RxEIN1+
T2IN7 / TB0	6	GE1	Green Pixels Display Data			
T2IN8 / TB1	7	GE2	Green Pixels Display Data			
T2IN9 / TB2	9	GE3	Green Pixels Display Data			
T2IN10 / TB3	10	GE4	Green Pixels Display Data			
T2IN11 / TB4	12	GE5	Green Pixels Display Data (MSB)			
T2IN12 / TB5	13	BE0	Blue Pixels Display Data (LSB)			
T2IN13 / TB6	15	BE1	Blue Pixels Display Data			
T2IN14 / TC0	16	BE2	Blue Pixels Display Data	T2OUT2- T2OUT2+	No.26 No.27	RxEIN2- RxEIN2+
T2IN15 / TC1	18	BE3	Blue Pixels Display Data			
T2IN16 / TC2	19	BE4	Blue Pixels Display Data			
T2IN17 / TC3	20	BE5	Blue Pixels Display Data (MSB)			
T2IN18 / TC4	22	HSYNC	H-Sync			
T2IN19 / TC5	23	VSYNC	V-Sync			
T2IN20 / TC6	25	DE	Data Enable Signal			
T2CLK IN / CLKIN	26	NCLK	Data Sampling Clock	T2CLK OUT- T2CLK OUT+	No.29 No.30	RxECLK - RxECLK +

Note 1) Please connect NC pin to nothing.   Don't connect it to ground nor to other signal input.

RxEIN0	T2IN6	T2IN5	T2IN4	T2IN3	T2IN2	T2IN1	T2IN0
	GE0	RE5	RE4	RE3	RE2	RE1	RE0

RxEIN1	T2IN13	T2IN12	T2IN11	T2IN10	T2IN9	T2IN8	T2IN7
	BE1	BE0	GE5	GE4	GE3	GE2	GE1

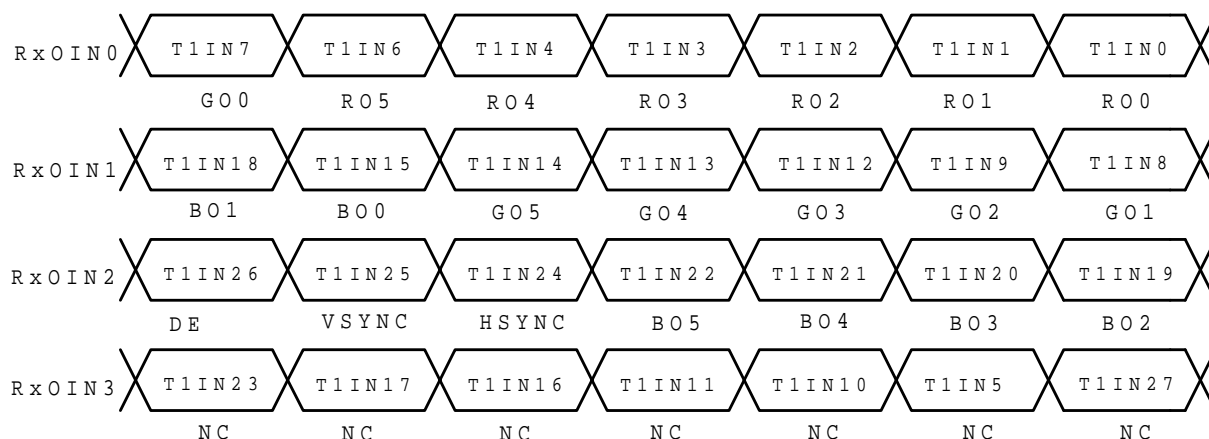| RxEIN2	T2IN20	T2IN19	T2IN18	T2IN17	T2IN16	T2IN15	T2IN14
	NC	NC	NC	BE5	BE4	BE3	BE2
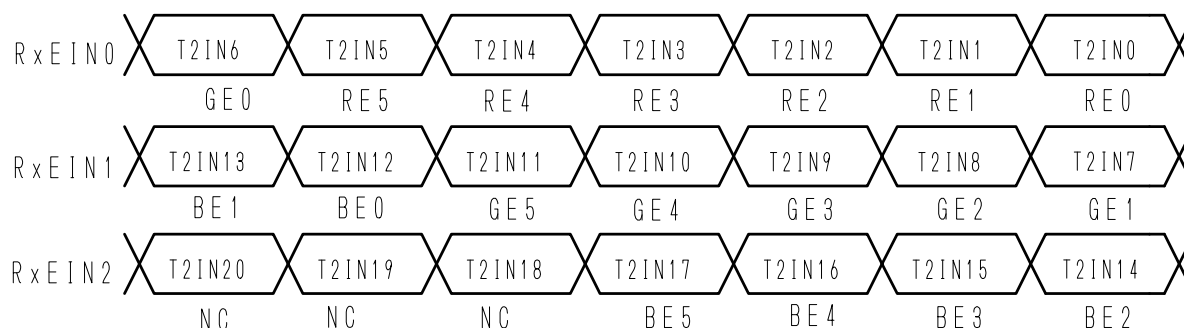
**RECOMMENDED TRANSMITTER (THC63LVDF63A,THC63LVDM63A,THC63LVDM63A-85)
TO LTD141ENCF INTERFACE ASSIGNMENT**

Case2: 8bit Transmitter

ODD DATA(8bit Transmitter)

Input Terminal No.		Input Signal (Graphics controller output signal)		Output Signal Symbol	To LTD141ENCF Interface(CN1)	
Symbol	Terminal	Symbol	Function		Terminal	Symbol
T1IN0 / TA0	51	RO0	Red Pixels Display Data (LSB)	T1OUT0- T1OUT0+	No.8 No.9	RxOIN0- RxOIN0+
T1IN1 / TA1	52	RO1	Red Pixels Display Data			
T1IN2 / TA2	54	RO2	Red Pixels Display Data			
T1IN3 / TA3	55	RO3	Red Pixels Display Data			
T1IN4 / TA4	56	RO4	Red Pixels Display Data			
T1IN5 / TA5	3	RO5	Red Pixels Display Data (MSB)			
T1IN6 / TA6	4	GO0	Green Pixels Display Data (LSB)			
T1IN7 / TB0	6	GO1	Green Pixels Display Data	T1OUT1- T1OUT1+	No.11 No.12	RxOIN1- RxOIN1+
T1IN8 / TB1	7	GO2	Green Pixels Display Data			
T1IN9 / TB2	11	GO3	Green Pixels Display Data			
T1IN10 / TB3	12	GO4	Green Pixels Display Data			
T1IN11 / TB4	14	GO5	Green Pixels Display Data (MSB)			
T1IN12 / TB5	15	BO0	Blue Pixels Display Data (LSB)			
T1IN13 / TB6	19	BO1	Blue Pixels Display Data			
T1IN14 / TC0	20	BO2	Blue Pixels Display Data	T1OUT2- T1OUT2+	No.14 No.15	RxOIN2- RxOIN2+
T1IN15 / TC1	22	BO3	Blue Pixels Display Data			
T1IN16 / TC2	23	BO4	Blue Pixels Display Data			
T1IN17 / TC3	24	BO5	Blue Pixels Display Data (MSB)			
T1IN18 / TC4	27	NC	Non Connection (open)			
T1IN19 / TC5	28	NC	Non Connection (open)			
T1IN20 / TC6	30	DE	Data Enable Signal			
T1IN21 / TD0	50	NC	Non Connection (open)	T1OUT3- T1OUT3+	NC NC	NC NC
T1IN22 / TD1	2	NC	Non Connection (open)			
T1IN23 / TD2	8	NC	Non Connection (open)			
T1IN24 / TD3	10	NC	Non Connection (open)			
T1IN25 / TD4	16	NC	Non Connection (open)			
T1IN26 / TD5	18	NC	Non Connection (open)			
T1IN27 / TD6	25	NC	Non Connection (open)			
T1CLK IN / CLKIN	31	NCLK	Data Sampling Clock	T1CLK OUT- T1CLK OUT+	No.17 No.18	RxOCLK - RxOCLK +

Note 1) Please connect NC pin to nothing.   Don't connect it to ground nor to other signal input.

RxOIN0	T1IN7	T1IN6	T1IN4	T1IN3	T1IN2	T1IN1	T1IN0
	GO0	RO5	RO4	RO3	RO2	RO1	RO0

RxOIN1	T1IN18	T1IN15	T1IN14	T1IN13	T1IN12	T1IN9	T1IN8
	BO1	BO0	GO5	GO4	GO3	GO2	GO1

RxOIN2	T1IN26	T1IN25	T1IN24	T1IN22	T1IN21	T1IN20	T1IN19
	DE	VSYNC	HSYNC	BO5	BO4	BO3	BO2

RxOIN3	T1IN23	T1IN17	T1IN16	T1IN11	T1IN10	T1IN5	T1IN27
	NC	NC	NC	NC	NC	NC	NC

2010- 02-16 (Ver.0.3)

EVEN DATA(8bit Transmitter)

Input Terminal No.		Input Signal (Graphics controller output signal)		Output Signal Symbol	To LTD141ENCF Interface(CN1)	
Symbol	Terminal	Symbol	Function		Terminal	Symbol
T2IN0 / TA0	51	RE0	Red Pixels Display Data (LSB)	T1OUT0- T1OUT0+	No.20 No.21	RxEIN0- RxEIN0+
T2IN1 / TA1	52	RE1	Red Pixels Display Data			
T2IN2 / TA2	54	RE2	Red Pixels Display Data			
T2IN3 / TA3	55	RE3	Red Pixels Display Data			
T2IN4 / TA4	56	RE4	Red Pixels Display Data			
T2IN5 / TA5	3	RE5	Red Pixels Display Data (MSB)			
T2IN6 / TA6	4	GE0	Green Pixels Display Data (LSB)			
T2IN7 / TB0	6	GE1	Green Pixels Display Data	T1OUT1- T1OUT1+	No.23 No.24	RxEIN1- RxEIN1+
T2IN8 / TB1	7	GE2	Green Pixels Display Data			
T2IN9 / TB2	11	GE3	Green Pixels Display Data			
T2IN10 / TB3	12	GE4	Green Pixels Display Data			
T2IN11 / TB4	14	GE5	Green Pixels Display Data (MSB)			
T2IN12 / TB5	15	BE0	Blue Pixels Display Data (LSB)			
T2IN13 / TB6	19	BE1	Blue Pixels Display Data			
T2IN14 / TC0	20	BE2	Blue Pixels Display Data	T1OUT2- T1OUT2+	No.26 No.27	RxEIN2- RxEIN2+
T2IN15 / TC1	22	BE3	Blue Pixels Display Data			
T2IN16 / TC2	23	BE4	Blue Pixels Display Data			
T2IN17 / TC3	24	BE5	Blue Pixels Display Data (MSB)			
T2IN18 / TC4	27	HSYNC	H-Sync			
T2IN19 / TC5	28	VSYNC	V-Sync			
T2IN20 / TC6	30	DE	Data Enable Signal			
T2IN21 / TD0	50	NC	Non Connection (open)	T1OUT3- T1OUT3+	NC NC	NC NC
T2IN22 / TD1	2	NC	Non Connection (open)			
T2IN23 / TD2	8	NC	Non Connection (open)			
T2IN24 / TD3	10	NC	Non Connection (open)			
T2IN25 / TD4	16	NC	Non Connection (open)			
T2IN26 / TD5	18	NC	Non Connection (open)			
T2IN27 / TD6	25	NC	Non Connection (open)			
T2CLK IN / CLKIN	31	NCLK	Data Sampling Clock	T1CLK OUT- T1CLK OUT+	No.29 No.30	RxECLK - RxECLK +

Note 1) Please connect NC pin to nothing.   Don't connect it to ground nor to other signal input.

RxEIN0 | T2IN7 GE0 | T2IN6 RE5 | T2IN4 RE4 | T2IN3 RE3 | T2IN2 RE2 | T2IN1 RE1 | T2IN0 RE0

RxEIN1 | T2IN18 BE1 | T1IN15 BE0 | T2IN14 GE5 | T2IN13 GE4 | T2IN12 GE3 | T2IN9 GE2 | T2IN8 GE1

RxEIN2 | T2IN26 NC | T2IN25 NC | T2IN24 NC | T2IN22 BE5 | T2IN21 BE4 | T2IN20 BE3 | T2IN19 BE2

RxEIN3 | T2IN23 NC | T2IN17 NC | T2IN16 NC | T2IN11 NC | T2IN10 NC | T2IN5 NC | T2IN27 NC
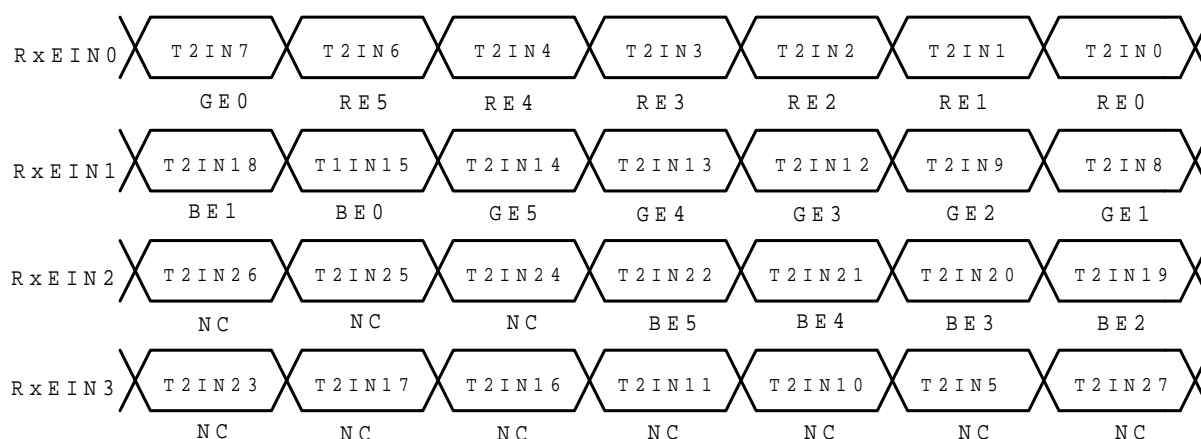
256k (k=1024) COLORS COMBINATION TABLE

	Display	R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0	Gray Scale Level
Basic Color	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	–
	Blue	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	–
	Green	L	L	L	L	L	L	H	H	H	H	H	H	L	L	L	L	L	L	–
	Light Blue	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	–
	Red	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	–
	Purple	H	H	H	H	H	H	L	L	L	L	L	L	H	H	H	H	H	H	–
	Yellow	H	H	H	H	H	H	H	H	H	H	H	H	L	L	L	L	L	L	–
	White	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	–
Gray Scale of Red	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L 0
	Dark	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L 1
		L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L 2
	↑ ↓	:						:						:						L3… L60
	Light	H	H	H	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L61
		H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L62
	Red	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	Red L63
Gray Scale of Green	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L 0
	Dark	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L 1
		L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L 2
	↑ ↓	:						:						:						L3… L60
	Light	L	L	L	L	L	L	H	H	H	H	L	H	L	L	L	L	L	L	L61
		L	L	L	L	L	L	H	H	H	H	H	L	L	L	L	L	L	L	L62
	Green	L	L	L	L	L	L	H	H	H	H	H	H	L	L	L	L	L	L	Green L63
Gray Scale of Blue	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L 0
	Dark	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L 1
		L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L 2
	↑ ↓	:						:						:						L3… L60
	Light	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	L	H	L61
		L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	L	L62
	Blue	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	Blue L63
Gray Scale of White & Black	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L 0
	Dark	L	L	L	L	L	H	L	L	L	L	L	H	L	L	L	L	L	H	L 1
		L	L	L	L	H	L	L	L	L	L	H	L	L	L	L	L	H	L	L 2
	↑ ↓	:						:						:						L3… L60
	Light	H	H	H	H	L	H	H	H	H	H	L	H	H	H	H	H	L	H	L61
		H	H	H	H	H	L	H	H	H	H	H	L	H	H	H	H	H	L	L62
	White	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	White L63

2010- 02-16 (Ver.0.3)

⚠ FOR SAFETY

LCD module is generally designed with precise parts to achieve light weighted thin mechanical dimensions.
In using our Modules, make certain that you fully understand and put into practice the warnings and safety precautions detailed in Engineering Information No.EE-D-001A,"CAUTIONS AND INSTRUCTIONS FOR TOSHIBA MOBILE DISPLAY LCD MODULES".
Refer to individual specifications and TECHNICAL DATA sheets (hereinafter called "TD") for more detailed technical information.

1) SPECIAL PURPOSES

A) Toshiba Mobile Display's Standard LCD Modules have not been customized for operation in extreme environments or for use in applications where performance failures could be life-threatening or otherwise catastrophic.

B) Since Toshiba Mobile Display's Standard LCD Modules have not been designed for operation in extreme environments, they must never be used in devices that will be exposed to abnormally high levels of vibration or shock which exceed Toshiba Mobile Display's published specification limits.

C) In addition, since Toshiba Mobile Display Standard LCD Modules have not been designed for use in applications where performance failures could be life-threatening or catastrophic, they must never be installed in aircraft navigation control systems (such as, but not limited to Traffic Collision Avoidance System and Air Traffic Indicator), in military defense or weapons systems, in critical industrial process-control systems (e.g., those involved in the production of nuclear energy), or in critical medical device or patient life-support systems.

2) DISASSEMBLING OR MODIFICATION

DO NOT DISASSEMBLE OR MODIFY the module. It may damage sensitive parts inside LCD module, and may cause scratches or dust on the display.
Toshiba Mobile Display doses not warrant the module, if customer disassembled or modified it.

3) BREAKAGE OF LCD PANEL

DO NOT INGEST liquid crystal material, DO NOT INHALE this material, and DO NOT CONTACT the material with skin, if LCD panel is broken and liquid crystal material spills out.
If liquid crystal material comes into mouth or eyes, rinse mouth or eyes out with water immediately.
If this material contact with skin or cloths, wash it off immediately with alcohol and rinse thoroughly with water.

4) GLASS OF LCD PANEL

BE CAREFUL WITH CHIPS OF GLASS that may cause injuring fingers or skin, when the glass is broken.

5) ELECTRIC SHOCK

DISCONNECT POWER SUPPLY before handling LCD module.
DO NOT TOUCH the parts inside LCD module and the fluorescent lamp's connector or cables in order to prevent electric shock, because high voltage is supplied to these parts from the inverter unit while power supply is turned on.

6) ABSOLUTE MAXIMUM RATINGS AND POWER PROTECTION CIRCUIT

DO NOT EXCEED the absolute maximum rating values under the worst probable conditions caused by the supply voltage variation, input voltage variation, variation in parts' constants, environmental temperature, etc., otherwise LCD module may be damaged.
Employ protection circuit for power supply, whenever the specification or TD specifies it.
Suitable protection circuit should be applied for each system design.

7) DISPOSAL
When dispose LCD module, obey to the applicable environmental regulations.