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Sunlight Readable LCD!

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LITEMAX CM2225

Sunlight Readable 22” WXGA LCD Display

(1st Edition 8/20/2007)

All information is subject to change without notice.

Approved by	Checked by	Prepared by
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Record Revision

Version and Date	Page	Old Description	New Description	Remark

Contents

Handling Precautions

1) Since front polarizer is easily damaged, be extremely careful when handling panel.
2) Be sure to turn off power supply when inserting or disconnecting from input connectors.
3) Wipe off water immediately. Long contact with water may cause discoloration or spots.
4) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.
5) Since the panel is made of glass, it may break or crack if dropped or bumped on a hard surface.
6) Since CMOS LSI is used in this module, be careful of static electricity by grounding those handling the display.
7) Do not open nor modify the module assembly.
8) Do not press or touch the panel surface with hands or tools.
9) Do not press or move the reflector sheet at the back of the module in any direction.
10) In case the module has to be put back into the packing container slot from where it was taken, do not press the center of the CCFL reflector edge. Instead, press at the far ends of the CCFL reflector edge softly. Otherwise the TFT module may be damaged.
11) **At the insertion or removal of the signal Interface Connector, be sure not to rotate nor tilt the interface connector of the TFT module.
12) After installation of the TFT module into an enclosure (Desktop monitor Bezel, for example), do not twist nor bend the TFT Module even momentarily. Design the enclosure so that no bending/twisting forces are applied to the TFT module. Otherwise the TFT module may be damaged.

General Description

Overview

The M220Z1-L01 model is a 22 inch wide TFT-LCD module with a 4-CCFL Backlight Unit and a 30-pin 2ch-LVDS interface. This module supports 1680 x 1050 WSXGA+ (16:10 wide screen) mode and displays up to 16.7 millions colors. The inverter module for the Backlight Unit is not built in.

Features

- Super wide viewing angle
- High contrast ratio
- Fast response time
- High color saturation (EBU Like Specifications)
-WSXGA+ (1680 x 1050 pixels) resolution
- DE (Data Enable) only mode
- LVDS (Low Voltage Differential Signaling) interface

Application

- Workstation & desktop monitor
- Display terminals for AV application

General Specificati0ns

Item	Specification	Unit	Note
Diagonal size	558.68	mm	
Active Area	473.76x296.1	mm	(1)
Bezel Opening Area	477.7 (H) x 300.1 (V)	mm	
Driver Element	a-Si TFT active matrix	-	-
Pixel Number	1680 x R.G.B. x 1050	pixel	-
Pixel Pitch	0.282(H) x 0.282(V)	mm	-
Pixel Arrangement	RGB vertical stripe	-	-
Display Colors	16.7 millions	color	-
Transmissive Mode	Normally White	-	-
Surface Treatment	Hard coating (3H), AG (Haze 25%)	-	-

Mechanical Specifications

Item		Min.	Typ.	Max.	Unit	Note
Module Size	Horizontal(H)	493.2	493.7	494.2	mm	(1)
	Vertical(V)	319.6	320.1	320.6	mm	
	Depth(D)	16	16.5	17	mm	
Weight				2900	g	
I/F connector mounting position		The mounting inclination of the connector makes the screen center within ±0.5 mm as the horizontal.				

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions

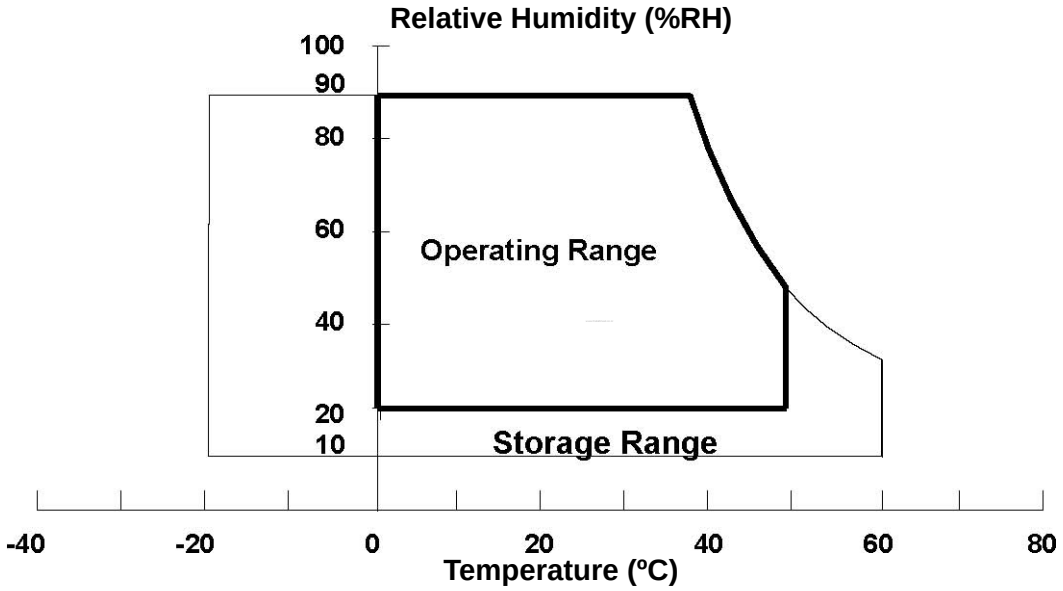
Absolute Maximum Ratings

Absolute Ratings Of Environment

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Storage Temperature	T_{ST}	-20	+60	ºC	(1)
Operating Ambient Temperature	T_{OP}	0	+50	ºC	(1), (2)
Shock (Non-Operating)	S_{NOP}	-	50	G	(3), (5)
Vibration (Non-Operating)	V_{NOP}	-	1	G	(4), (5)
LCD Cell Life Time	L_{CELL}	50,000	-	Hrs	MTBF based

Note (1) Temperature and relative humidity range is shown in the figure below.
- (a) 90% RH Max. (Ta ≦ 40 ºC).
- (b) Wet-bulb temperature should be 39 ºC Max. (Ta > 40 ºC).
- (c) No condensation.

Note (2) The temperature of panel surface should be 0 ºC Min. and 60 ºC Max.



Note (3) 11 ms, half-sine wave, 1 time for ± X, ± Y, ± Z.
Note (4) 10 ~ 300 Hz, sweep rate 10 min / cycle , 30 min for X,Y,Z axis
Note (5) Upon the Vibration and Shock tests, the fixture used to hold the module must be firm and rigid enough to prevent the module from twisting or bending by the fixture.

Electrical Absolute Ratings

TFT LCD Module

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	Vcc	-0.3	+5.5	V	(1)
Logic Input Voltage	V_{IN}	-0.3	+4.3	V	

Backlight Unit

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Lamp Voltage	V_L	-	2.5K	V_{RMS}	(1), (2), I_L = 7.0 mA
Lamp Current	I_L	3.0	8.0	mA_{RMS}	(1), (2)
Lamp Frequency	F_L	40	80	KHz	

Note (1) Permanent damage might occur if the module is operated at conditions exceeding the maximum values.
Note (2) Specified values are for lamp (Refer to 3.2 for further information).

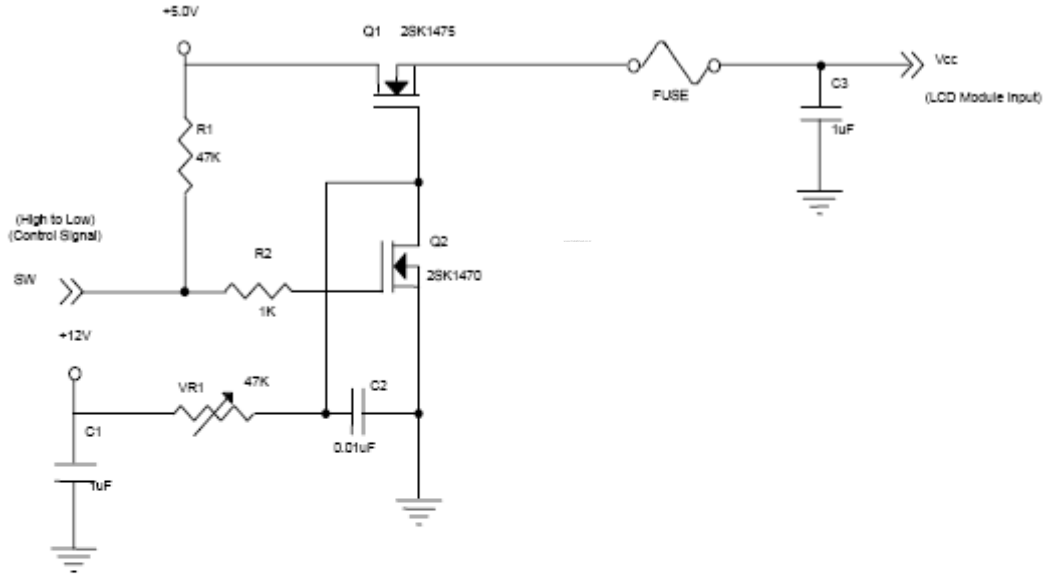
Electrical Characteristics

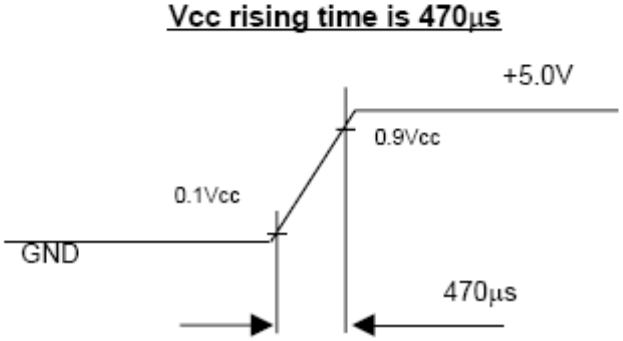
TFT LCD Module Ta=25±2ºC

Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Power Supply Voltage		Vcc	4.5	5.0	5.5	V	-
Ripple Voltage		V_{RP}	-		100	mV	-
Rush Current		I_{RUSH}	-		3	A	(2)
Power Supply Current	White	Icc	-	580		mA	(3)a
	Black		-	1100		mA	(3)b
	f_V = 75Hz, Vcc=4.5V		-	-	1230	mA	(4)
LVDS differential input voltage		Vid	-100	-	+100	mV	
LVDS common input voltage		Vic		1.2		V	

Note (1) The module is recommended to operate within specification ranges listed above for normal function.

Note (2) Measurement Conditions:





Note (3) The specified power supply current is under the conditions at Vcc = 5.0 V, Ta = 25 ± 2 ºC, f_v = 60 Hz, whereas a power dissipation check pattern below is displayed.

a. White Pattern

Active Area

b. Black Pattern

Active Area

Note (4) The specified power supply current is under the conditions at Vcc = 4.5 V, Ta = 25 ± 2 ºC, f_v = 75 Hz, whereas a power dissipation check pattern (Black Pattern) below is displayed.

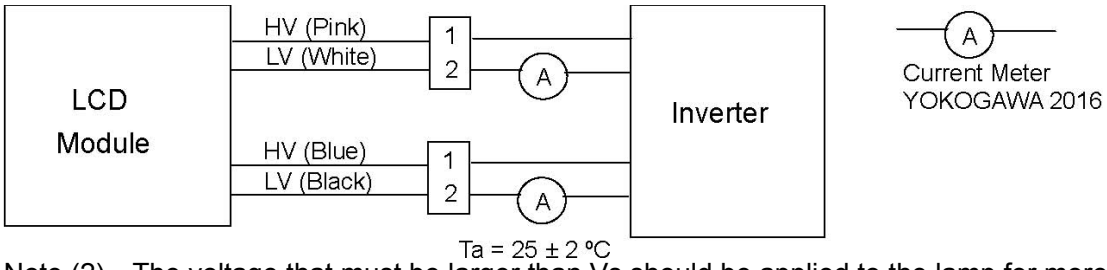
Black Pattern

Active Area

Backlight Unit

Parameter	Symbol				Unit	Note
		. Min.	Typ	Max.		
Lamp Input Voltage	V_L	738	820	902	V_{RMS}	I_L = (7.0) mA
Lamp Current	I_L	3	7.0	8	mA_{RMS}	(1)
Lamp Turn On Voltage	V_S	-	-	1560(25°C)	V_{RMS}	(2)
		-	-	1800(0°C)	V_{RMS}	(2)
Operating Frequency	F_L	40	60	80	KHz	(3)
Lamp Life Time	L_{BL}	50000		-	Hrs	(5) I_L = (7.0) mA
Power Consumption	P_L	-	22.96	-	W	(4), I_L = (7.0) mA

Note (1) Lamp current is measured by utilizing high-frequency current meters as shown below:



Note (2) The voltage that must be larger than Vs should be applied to the lamp for more than 1 second after startup. Otherwise, the lamp may not be turned on normally.

Note (3) The lamp frequency may produce interference with horizontal synchronization frequency from the display, which might cause line flow on the display. In order to avoid interference, the lamp frequency should be detached from the horizontal synchronization frequency and its harmonics as far as possible.

Note (4) $P_L = I_L \times V_L$ X 4CCFLs

Note (5) The lifetime of lamp can be defined as the time in which it continues to operate under the condition Ta = 25 ±2 °C and I_L = 7 mArms until one of the following events occurs:

(a) When the brightness becomes or lower than 50% of its original value.

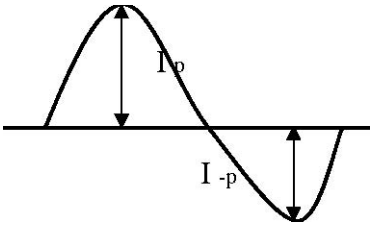
(b) When the effective ignition length becomes or lower than 80% of its original value. (Effective ignition length is defined as an area that has less than 70% brightness compared to the brightness in the center point.)

Note (6) The waveform of the voltage output of inverter must be area-symmetric and the design of the inverter must have specifications for the modularized lamp. The performance of the Backlight, such as lifetime or brightness, is greatly influenced by the characteristics of the DC-AC inverter for the lamp. All the parameters of an inverter should be carefully designed to avoid producing too much current leakage from high voltage output of the inverter. When designing or ordering the inverter please make sure that a poor lighting caused by the mismatch of the Backlight and the inverter (miss-lighting, flicker, etc.) never occurs. If the above situation is confirmed, the module should be operated in the same manners when it is installed in your instrument.

The output of the inverter must have symmetrical (negative and positive) voltage waveform and symmetrical current waveform.(Unsymmetrical ratio is less than 10%) Please do not use the inverter which has unsymmetrical voltage and unsymmetrical current and spike wave. Lamp frequency may produce interface with horizontal synchronous frequency and as a result this may cause beat on the display. Therefore lamp frequency shall be as away possible from the horizontal synchronous frequency and from its harmonics in order to prevent interference.

Requirements for a system inverter design, which is intended to have a better display performance, a better power efficiency and a more reliable lamp. It shall help increase the lamp lifetime and reduce its leakage current.

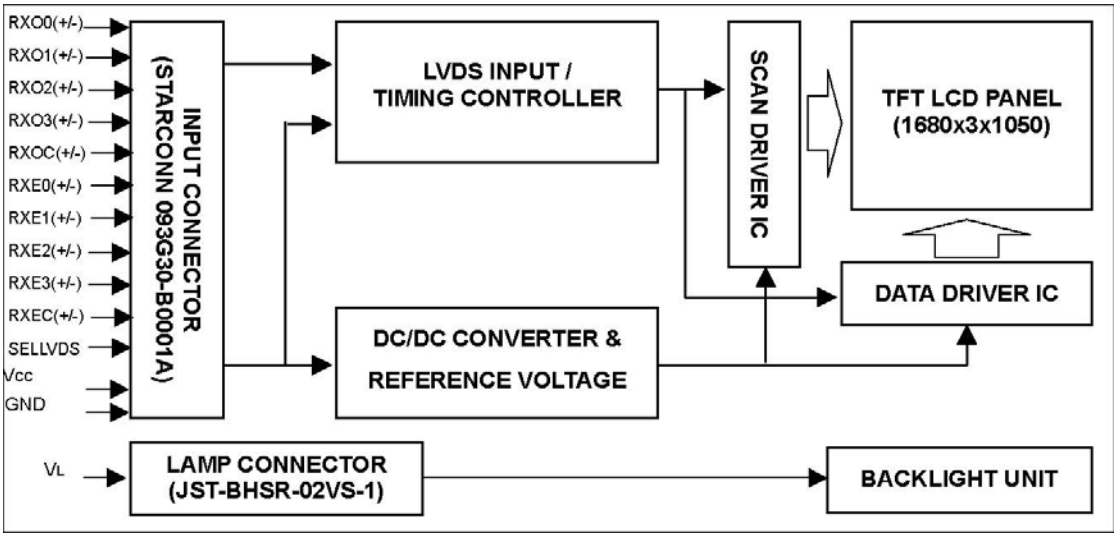
a. The asymmetry rate of the inverter waveform should be 10% below;
b. The distortion rate of the waveform should be within $\sqrt{2}$ ± 10%;
c. The ideal sine wave form shall be symmetric in positive and negative polarities.



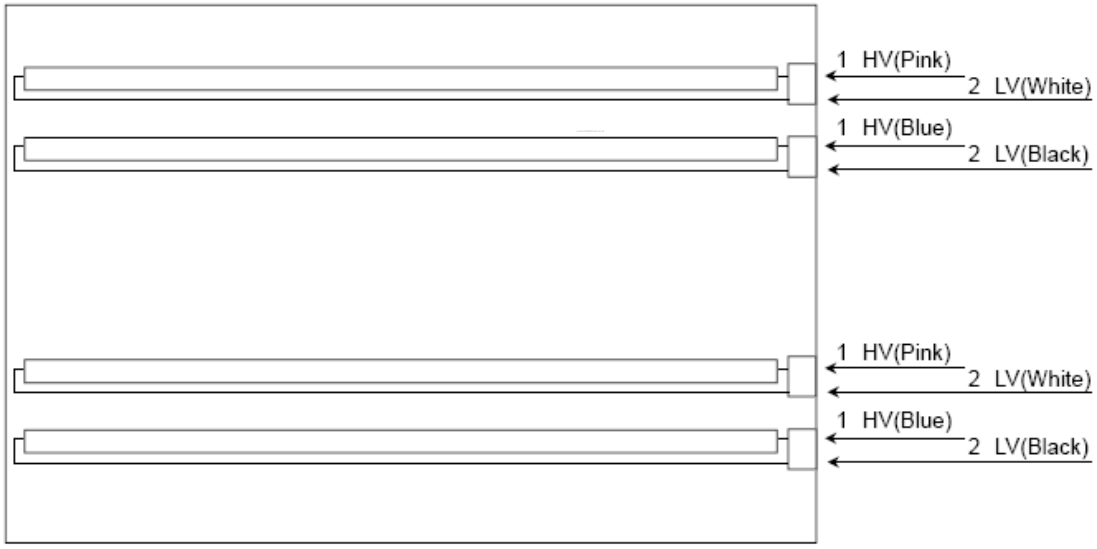
* Asymmetry rate:
$|I_p - I_{-p}| / I_{rms} * 100\%$
* Distortion rate
I_p (or I_{-p}) / I_{rms}

Block Diagram

TFT LCD Module



Backlight Unit



Input Terminal Pin Assignment

TFT LCD Module

Pin	Name	Description
1	RXO0-	Negative LVDS differential data input. Channel O0 (odd)
2	RXO0+	Positive LVDS differential data input. Channel O0 (odd)
3	RXO1-	Negative LVDS differential data input. Channel O1 (odd)
4	RXO1+	Positive LVDS differential data input. Channel O1 (odd)
5	RXO2-	Negative LVDS differential data input. Channel O2 (odd)
6	RXO2+	Positive LVDS differential data input. Channel O2 (odd)
7	GND	Ground
8	RXOC-	Negative LVDS differential clock input. (odd)
9	RXOC+	Positive LVDS differential clock input. (odd)
10	RXO3-	Negative LVDS differential data input. Channel O3(odd)
11	RXO3+	Positive LVDS differential data input. Channel O3 (odd)
12	RXE0-	Negative LVDS differential data input. Channel E0 (even)
13	RXE0+	Positive LVDS differential data input. Channel E0 (even)
14	GND	Ground
15	RXE1-	Negative LVDS differential data input. Channel E1 (even)
16	RXE1+	Positive LVDS differential data input. Channel E1 (even)
17	GND	Ground
18	RXE2-	Negative LVDS differential data input. Channel E2 (even)
19	RXE2+	Positive LVDS differential data input. Channel E2 (even)
20	RXEC-	Negative LVDS differential clock input. (even)
21	RXEC+	Positive LVDS differential clock input. (even)
22	RXE3-	Negative LVDS differential data input. Channel E3 (even)
23	RXE3+	Positive LVDS differential data input. Channel E3 (even)
24	GND	Ground
25	TEST	Test pin should be tied to ground or open.
26	NC	Not connection.
27	SELLVDS	SELLVDS pin should be tied to ground or open.
28	VCC	+5.0V power supply
29	VCC	+5.0V power supply
30	VCC	+5.0V power supply

Note (1) Connector Part No.: 093G30-B0001A(STARCONN) or FI-XB30SSL-HF(JAE) or EQUIVALENT.

Note (2) Mating Connector Part No.:FI-X30H ; FI-X30C* ; FI-X30M* ; FI-X30HL(-T),FI-X30C*L(-T) [JAE]

Note (3) The first pixel is odd. Note (4) Input signal of even and odd clock should be the same timing.

SELLVDS = Low or Open								
LVDS Channel E0	LVDS output	D7	D6	D4	D3	D2	D1	D0
	Data order	EG0	ER5	ER4	ER3	ER2	ER1	ER0
LVDS Channel E1	LVDS output	D18	D15	D14	D13	D12	D9	D8
	Data order	EB1	EB0	EG5	EG4	EG3	EG2	EG1
LVDS Channel E2	LVDS output	D26	D25	D24	D22	D21	D20	D19
	Data order	DE	NA	NA	EB5	EB4	EB3	EB2
LVDS Channel E3	LVDS output	D23	D17	D16	D11	D10	D5	D27
	Data order	NA	EB7	EB6	EG7	EG6	ER7	ER6
LVDS Channel O0	LVDS output	D7	D6	D4	D3	D2	D1	D0
	Data order	OG0	OR5	OR4	OR3	OR2	OR1	OR0
LVDS Channel O1	LVDS output	D18	D15	D14	D13	D12	D9	D8
	Data order	OB1	OB0	OG5	OG4	OG3	OG2	OG1
LVDS Channel O2	LVDS output	D26	D25	D24	D22	D21	D20	D19
	Data order	DE	NA	NA	OB5	OB4	OB3	OB2
LVDS Channel O3	LVDS output	D23	D17	D16	D11	D10	D5	D27
	Data order	NA	OB7	OB6	OG7	OG6	OR7	OR6

Backlight Unit

Pin	Symbol	Description	Remark
1	HV	High Voltage	Pink
2	LV	Low Voltage	White
1	HV	High Voltage	Blue
2	LV	Low Voltage	Black

Note (1) Note (1) Connector Part No.: JST-BHSR-02VS-1 or equivalent
Note (2) Note (2) User's connector Part No.: JST-SM02B-BHSS-1-TB (JST) or equivalent

Color Data Input Assignment

The brightness of each primary color (red, green and blue) is based on the 8-bit gray scale data input for the color. The higher the binary input, the brighter the color. The table below provides the assignment of color versus data input.

Color		Data Signal																							
		Red							Green								Blue								
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	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	1	1	1	1	1	1
Gray Scale Of Red	Red(0) / Dark	0	0	0	0	0	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	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	Red(253)	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(254)	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale Of Green	Green(0) / Dark	0	0	0	0	0	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	0	0	0	0	1	0	0	0	0	0	0	0	0
	Green(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
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	Green(253)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0
	Green(254)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
	Green(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Gray Scale Of Blue	Blue(0) / Dark	0	0	0	0	0	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	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	0	0	0	0	0	0	1	0
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	Blue(253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1
	Blue(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
	Blue(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Note (1) 0: Low Level Voltage, 1: High Level Voltage

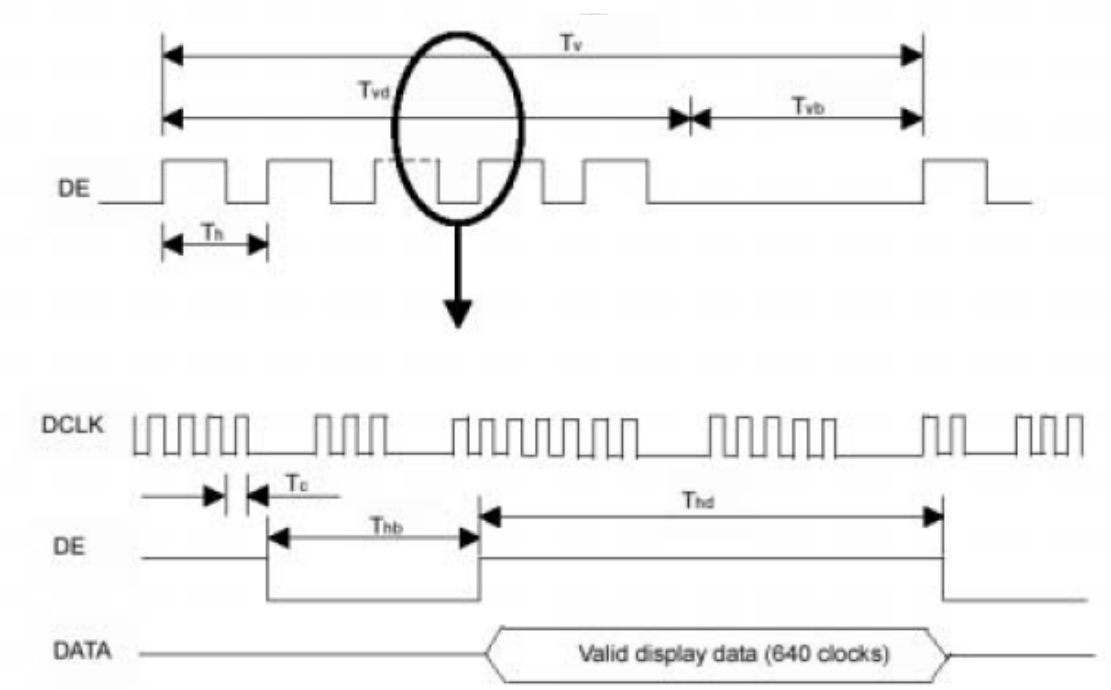
Interface Timing

6.1 INPUT SIGNAL TIMING SPECIFICATIONS The input signal timing specifications are shown as the following table and timing diagram**.**

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
LVDS Clock	Frequency	Fc	-	59.5	74.5	MHz	-
	Period	Tc	13.4	16.8	-	ns	
	High Time	Tch	-	4/7	-	Tc	-
	Low Time	Tcl	-	3/7	-	Tc	-
LVDS Data	Setup Time	Tlvs	600	-	-	ps	-
	Hold Time	Tlvh	600	-	-	ps	-
Vertical Active Display Term	Frame Rate	Fr	50	60	76	Hz	Tv=Tvd+Tvb
	Total	Tv	1060	1080	1195	Th	-
	Display	Tvd	1050	1050	1050	Th	-
	Blank	Tvb	Tv-Tvd	30	Tv-Tvd	Th	-
Horizontal Active Display Term	Total	Th	890	920	1000	Tc	Th=Thd+Thb
	Display	Thd	840	840	840	Tc	-
	Blank	Thb	Th-Thd	80	Th-Thd	Tc	-

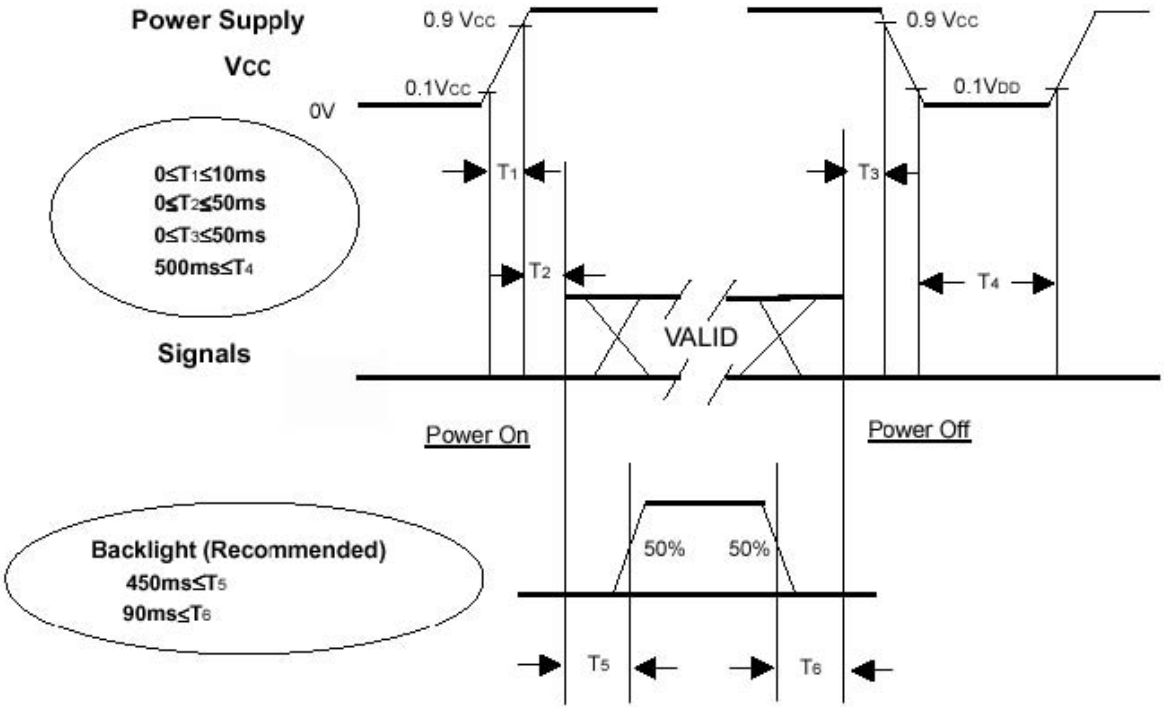
Note (1) Because this module is operated by DE only mode, Hsync and Vsync input signals should be set to low logic level or ground. Otherwise, this module would operate abnormally.

INPUT SIGNAL TIMING DIAGRAM



Power On/Off Sequence

To prevent a latch-up or DC operation of LCD module, the power on/off sequence should follow the conditions shown in the following diagram.



Power ON/OFF Sequence

Note.

(1) The supply voltage of the external system for the module input should be the same as the definition of Vcc.
(2) Please apply the lamp voltage within the LCD operation range. When the backlight turns on before the LCD operation of the LCD turns off, the display may, instantly, function abnormally.
(3) In case of VCC = 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 on/off periods.
(5) Interface signal shall not be kept at high impedance when the power is on

Optical Characteristics

Test Conditions

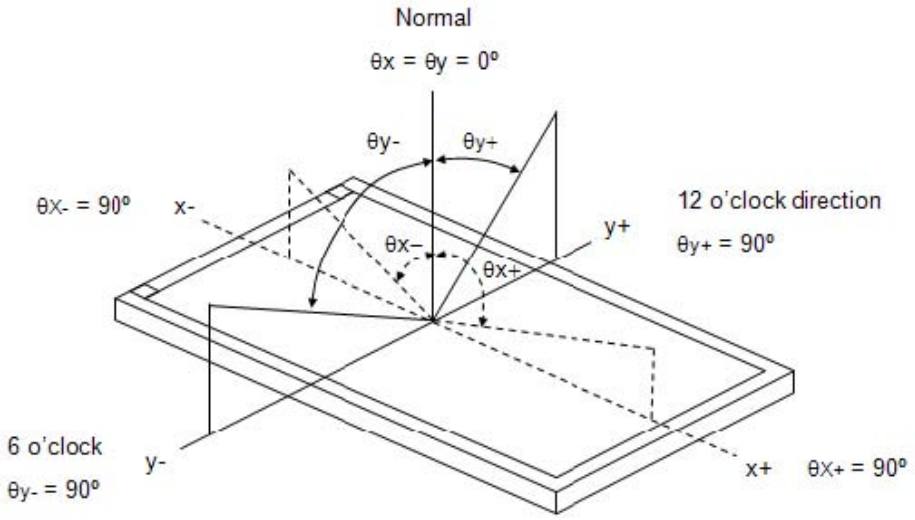
Item	Symbol	Value	Unit
Ambient Temperature	Ta	25±2	^{o}C
Ambient Humidity	Ha	50±10	%RH
Supply Voltage	V_{CC}	5.0	V
Input Signal	According to typical value in "3. ELECTRICAL CHARACTERISTICS"		
Inverter Current	I_L	7.0	mA
Inverter Driving Frequency	F_L	61	KHz
Inverter	SUMIDA H05 5307		

Optical Specifications

The relative measurement methods of optical characteristics are shown in 7.2. The following items should be measured under the test conditions described in 7.1 and stable environment shown in Note (6).

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Color Chromaticity	Red	Rx	θ_x=0°, θ_Y =0° CS-1000T	Typ – 0.03	0.644	Typ + 0.03		(1), (5)
		Ry			0.333			
	Green	Gx			0.286			
		Gy			0.605			
	Blue	Bx			0.152			
		By			0.076			
	White	Wx			0.313			
		Wy			0.329			
Center Luminance of White		L_C		250	300	---	cd/m^2	(4), (5)
Contrast Ratio		CR		450	700	---	-	(2), (6)
Response Time		T_R	θ_x=0°, θ_Y =0°	---	2	7	ms	(3)
		T_F		---	3	8	ms	
White Variation		δW	θ_x=0°, θ_Y =0°	---	1.3	1.5	-	(5), (6)
Viewing Angle	Horizontal	θ_x+	CR>10	75	85	---	Deg.	(1), (5)
		θ_x-		75	85	---		
	Vertical	θ_Y+		70	80	---		
		θ_Y-		70	80	---		

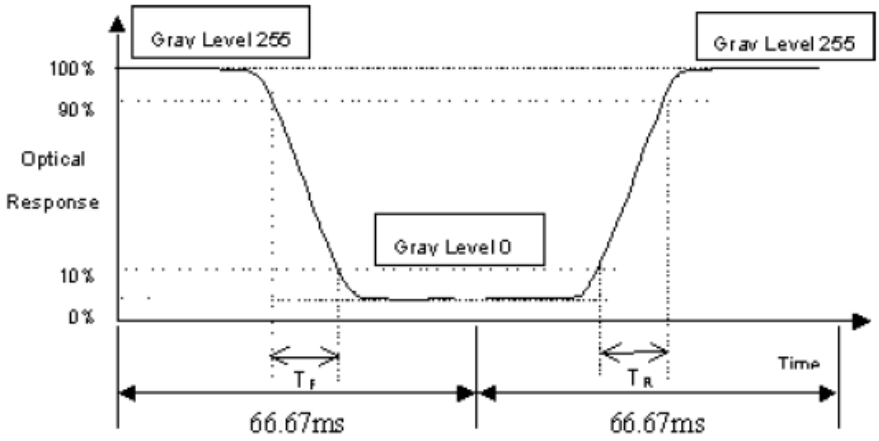
Note (1) Definition of Viewing Angle (θx, θy):



Note (2) Definition of Contrast Ratio (CR):

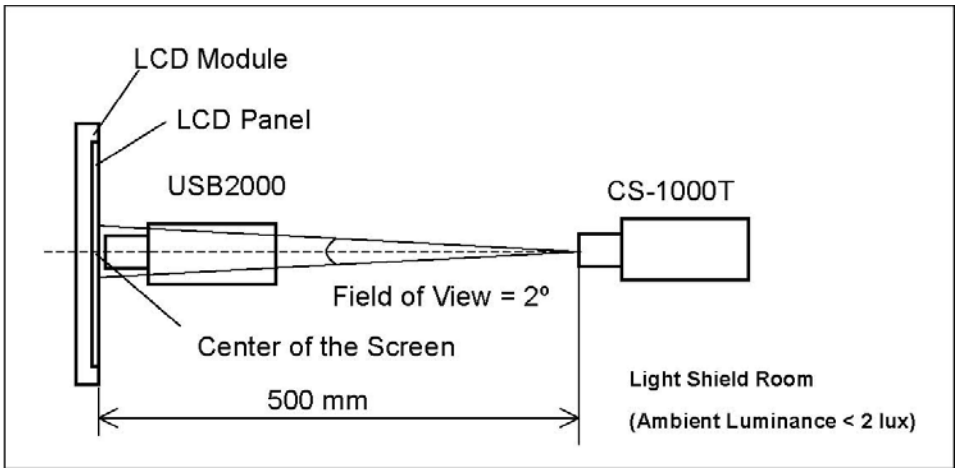
The contrast ratio can be calculated by the following expression.
Contrast Ratio (CR) = L255 / L0
L255: Luminance of gray level 255
L 0: Luminance of gray level 0
CR = CR (7)
CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (6).
Note (3) Definition of Response Time (T_R, T_F):

Note (3) Definition of Response Time (TR, TF):

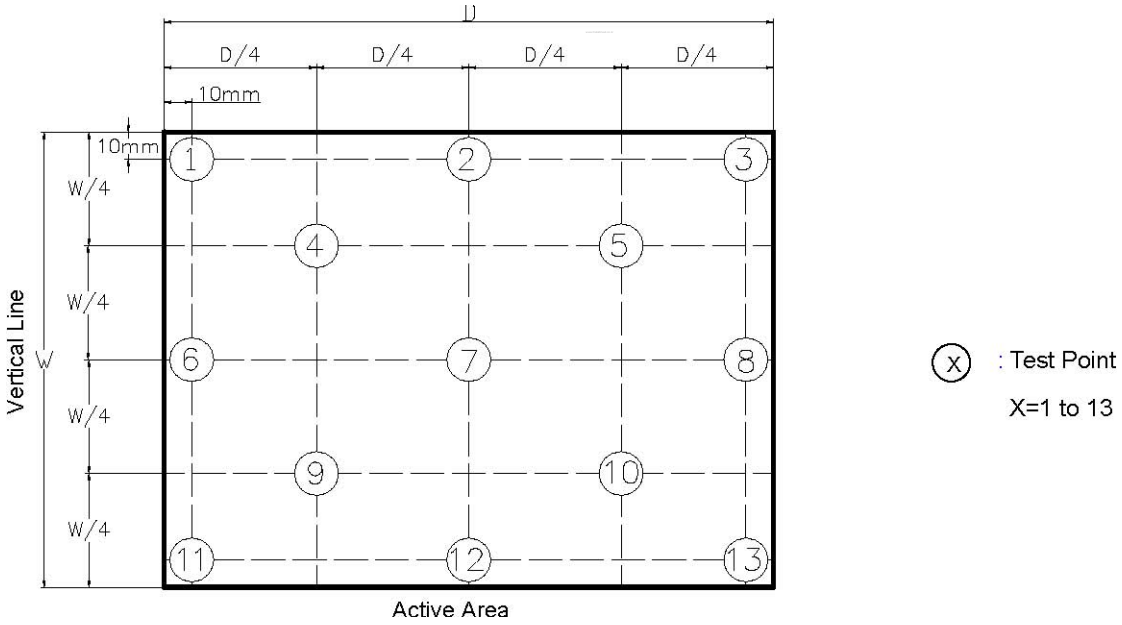


Note (4) Definition of Luminance of White (L_C): Measure the luminance of gray level 255 at center point L_C = L (7) L (x) is corresponding to the luminance of the point X at Figure in Note (6).

Note (5) Measurement Setup:
The LCD module should be stabilized at given temperature for 60 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 60 minutes in a windless room.



Note (6) Definition of White Variation (δW): Measure the luminance of gray level 255 at 13 points δW = Maximum [L (1) ~ L (13)] / Minimum [L (1) ~ L (13)]



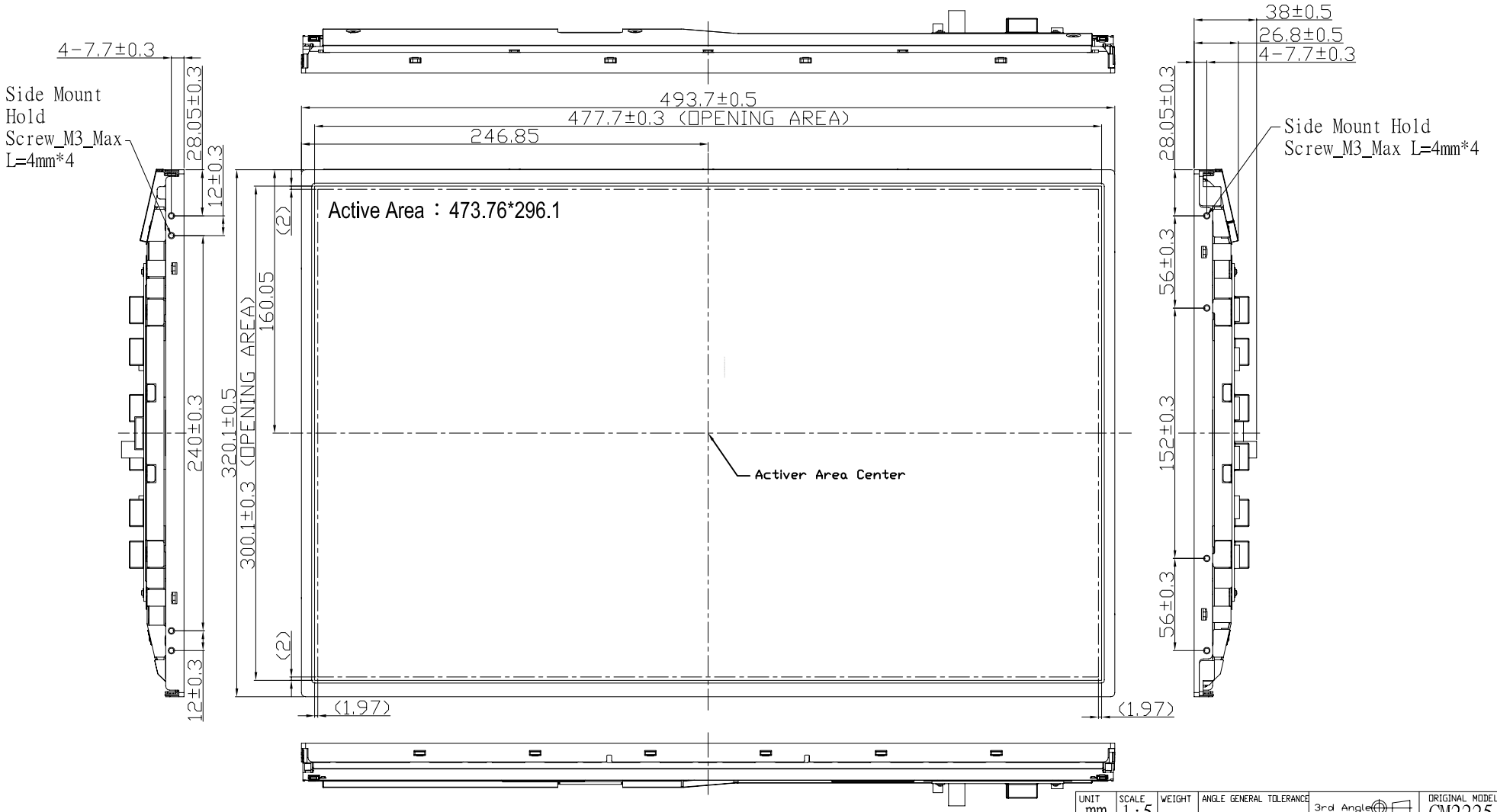
REV	ECN NO.	DESCRIPTION	SIGN	DATE
A	ECN-	Design Drawing	Penney_Chou	2007/08/14

Note：

1.Outline Tolerance ：0.5mm

2.Lamp Connector ：JST BHR-03VS-1

3.Lamp Cable ：U13239 AWG22 L=150±5mm



UNIT	SCALE	WEIGHT	ANGLE GENERAL TOLERANCE		ORIGINAL MODEL
mm	1:5	—	—	3rd Angle	CM2225

TITLE: ASSY_MODULE_CM2225 (M220Z1-L01/L02)

DRAWING NO.(PART NO.)

DESCRIPTION

APPROVED	CHECKED	DESIGNED
		Penney_Chou

DIM. \ LEVEL	General tolerance ± 1	2	3	SELECT LEVEL
0 ~ 4	0.05	0.1	0.2	
4 ~ 14	0.05	0.2	0.3	
14 ~ 63	0.1	0.3	0.5	
63 ~ 250	0.2	0.6	1.2	
250~ 600	0.3	0.8	2	
600~4000	0.5	1.2	3	

MATERIAL

FINISH

CRITICAL DIMENSION

SPC DIMENSION

LiteMax Electronic Inc.

SIZE	SHT	REV
A4	1-1	V0

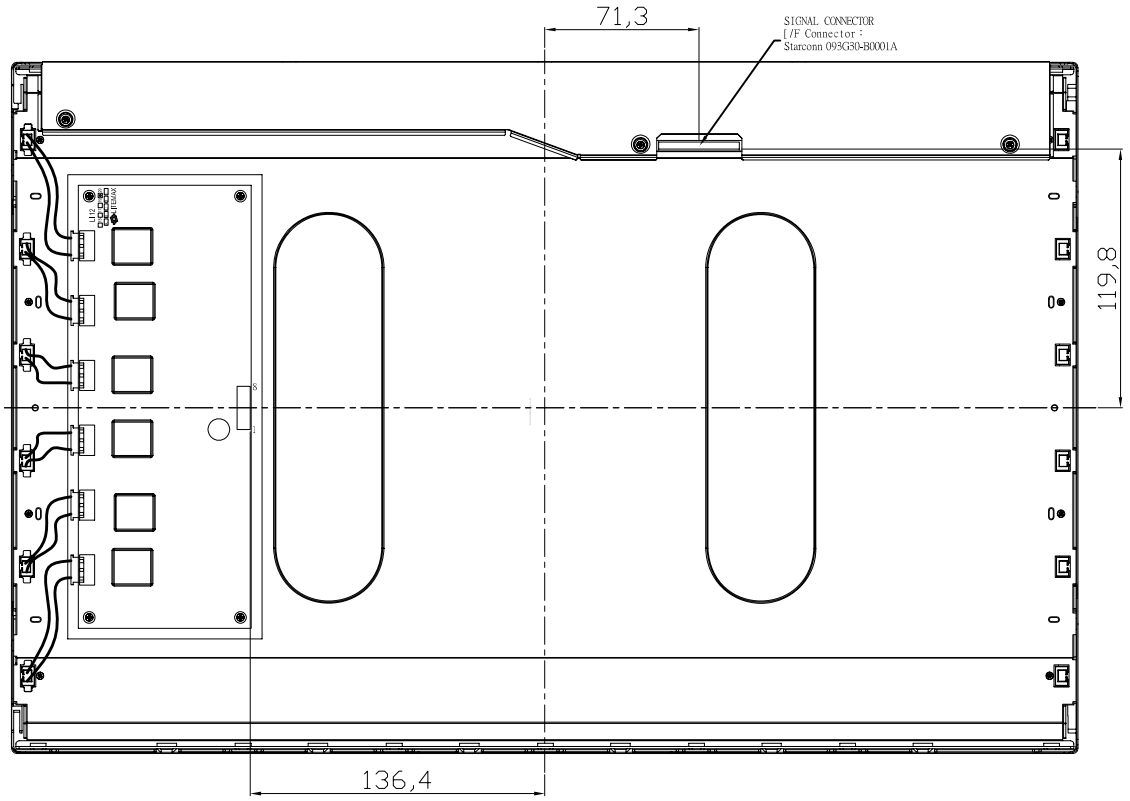
REV	ECN NO.	DESCRIPTION	SIGN	DATE
A	ECN-	Design Drawing	Penney_Chou	2007/08/14

Note：

1.Outline Tolerance ：0.5mm

2.Lamp Connector ：JST BHR-03VS-1

3.Lamp Cable ：U13239 AWG22 L=150±5mm



UNIT	SCALE	WEIGHT	ANGLE GENERAL TOLERANCE		ORIGINAL MODEL
mm	1:5	—	—	3rd Angle	CM2225

TITLE: ASSY_MODULE_CM2225 (M220Z1-L01/L02)

DRAWING NO.(PART NO.)

DESCRIPTION

APPROVED	CHECKED	DESIGNED
		Penney_Chou

DIM. \ LEVEL	General tolerance ± 1	2	3	SELECT LEVEL
0 ~ 4	0.05	0.1	0.2	
4 ~ 14	0.05	0.2	0.3	
14 ~ 63	0.1	0.3	0.5	
63 ~ 250	0.2	0.6	1.2	
250~ 600	0.3	0.8	2	
600~4000	0.5	1.2	3	

MATERIAL

FINISH

CRITICAL DIMENSION

SPC DIMENSION

LiteMax LiteMax Electronic Inc.

SIZE	SHT	REV
A4	1-1	V0