CHI MEI OPTOELECTRONICS CORP.

Issue Date: June.01'2001
Model: M170E1 -04
Approval

TFT-LCD Approval Specification

Model No.: M170E1 -04

Customer : Pro ARCH TECHNOLOGY INC.

Approved by : _____

Note :

Liquid Crystal Division		
QRA Dept.	RD Dept.	System Dept.
Approval	Approval	Approval
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Version 3.0

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9. INCOMING INSPECTION DA

10. DEFINITION OF SHIPPING LABEL ON MODULE

REVISION HISTORY

Version	Date	Description
Ver3.0	Jun.01,'00	Issue Approval Specification for Pro ARCH.

GENERAL DESCRIPTION

OVERVIEW

This product is a 17.0" TFT Liquid Crystal Display Module with 2 dual CCFLs Backlight unit and 30 pins LVDS interface. This module supports 1280 x 1024 SXGA mode and can display 16 million colors. The inverter module for Backlight is not built in.

FEATURES

-SXGA (1280x1024 pixels) resolution

-2 dual CCFLs (Cold Cathode Fluorescent Lamp)

-DE only Mode

-LVDS (Low Voltage Differential Signaling) Interface

APPLICATION

-TFT-LCD Monitor

GENERAL SPECIFICATI0NS

Item	Spec.	Unit
Screen Size	17.0 Diagonal	inch
Bezel Opening Area	342.0(H) x 274.4(V)	mm
Effective Display Area	337.92(H) x 270.34(V)	mm
Driver Element	a-si TFT active matrix	-
Pixel Number	1280 x R.G.B. x 1024	pixel
Pixel Pitch	0.264(H) x 0.264(W)	mm
Pixel Arrangement	RGB vertical stripe	-
Display Colors	16M	color
Transmissive Mode	Normally White	-
Surface Treatment	Haze 25%,Hard-Coating,Anti-static	-

MECHANICAL SPECIFICATIONS

Item		Min.	Typ.	Max.	Unit
Module Size	Horizontal(H)	403.5	404	404.5	mm
	Vertical(V)	321.7	322.2	322.7	mm
	Depth(D)	-	-	21	mm
Weight		-	2,000	2,150	g

1. ABSOLUTE MAXIMUM RATINGS

1.1 ABSOLUTE RATINGS OF ENVIRONMENT

Item	Symbol	Values		Unit	Note
		Min.	Max.		
Storage temperature	Tst	-20	+60	ºC	(1)
Operating temperature (Ambient Temperature)	Top	0	+50	ºC	(1),(2)
Shock(non-operating)	Snop	-	30	G	(3),(5)
Vibration(non-operating)	Vnop	-	1.5	G	(4),(5)

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).

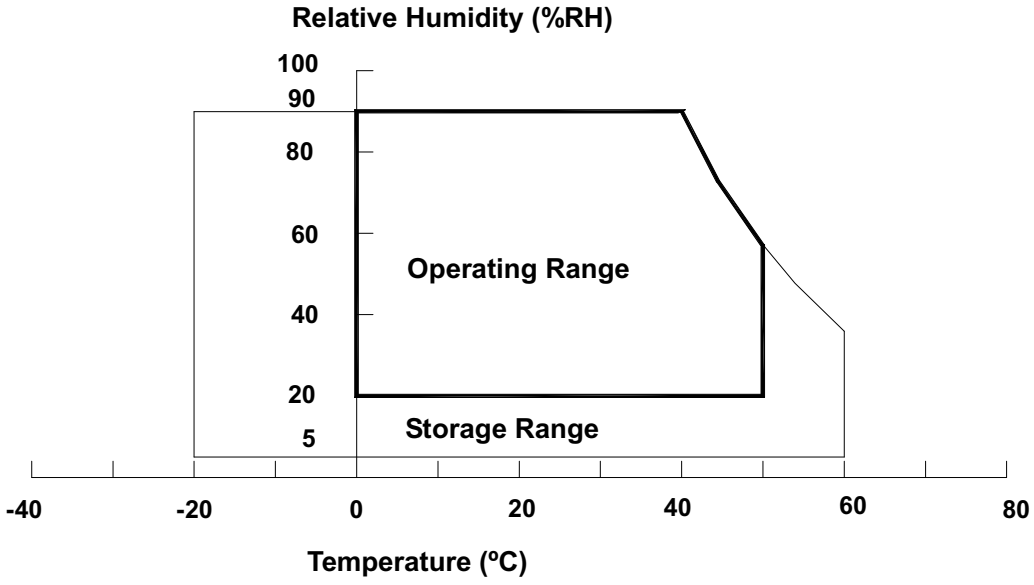
(c) No condensation.

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

Note (3) 6 ms, half sine wave, 1 time for ± X, ± Y, ± Z.

Note (4) 10 ~ 500 Hz, 0.5 Hr each X, Y, Z.

Note (5) At testing Vibration and Shock, the fixture in holding the module has 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

Item	Symbol	Values		Unit	Note
		Min.	Max.		
Power Supply Voltage	Vcc	-0.3	6.0	V	Ta = 25 ± 2 ºC
Input Signal Voltage	V_{IN}	-0.3	4.3	V	

(2)BACKLIGHT UNIT

Item	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Lamp Current	I_L	6.0	13.0	14.0	m A_{RMS}	(1),(2)
Lamp Frequency	F_L	30	45	80	KHz	(1)

Note (1) Permanent damage to device may occur if maximum values are exceeded. Function operation should be restricted to the conditions described under Normal Operating Conditions.

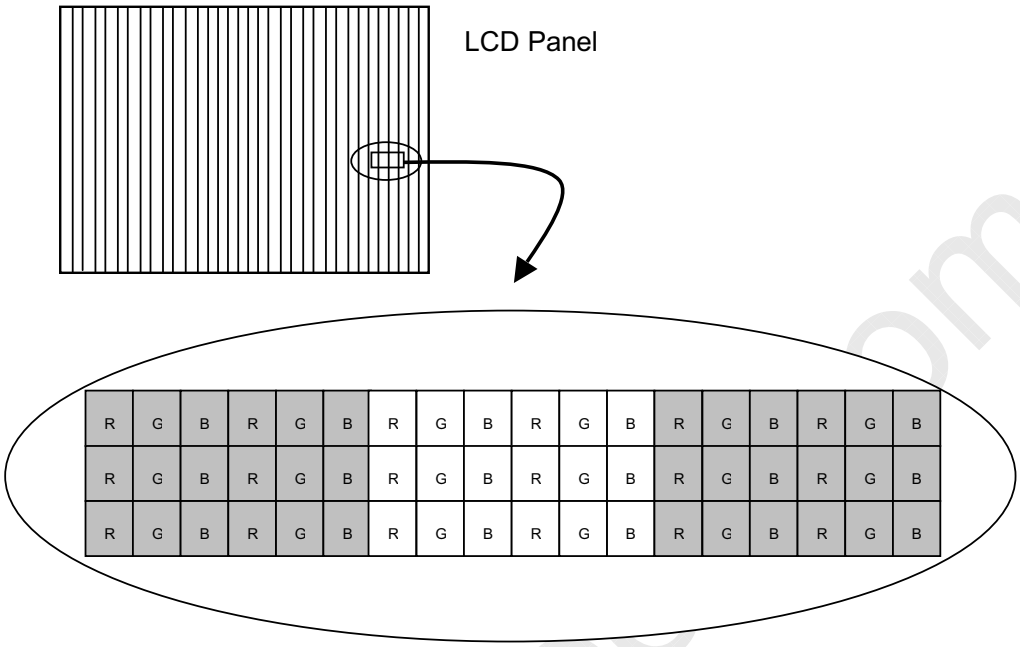
Note (2) Specified values are for a dual lamp (Refer to the Note (1) of 2.2 BACKLIGHT UNIT for further information).

2. ELECTRICAL SPECIFICATIONS

2.1 TFT LCD MODULE

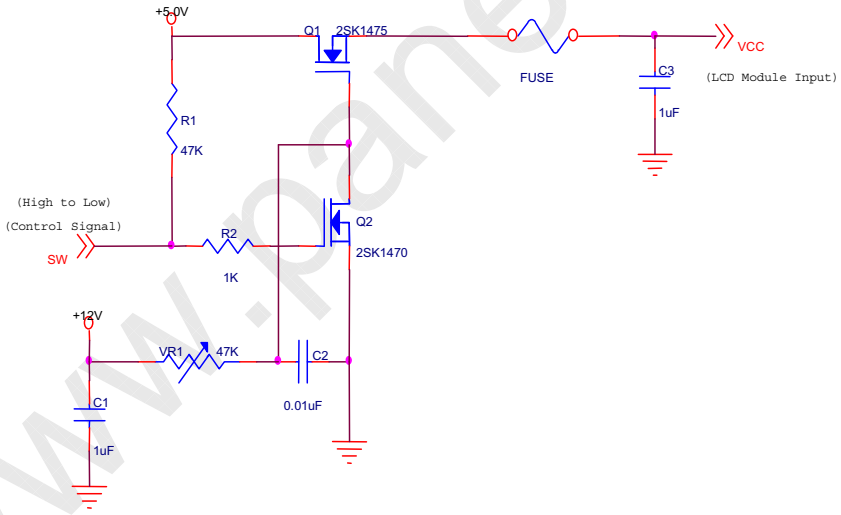
MODULE						
Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Power Supply Voltage	V_{CC}	4.5	5.0	5.5	V	-
Power Supply Current	I_{CC}	-	-	1000	mA	(1)
Ripple Voltage	Vrp	-	-	100	mV	-
LVDS differential input voltage	Vid	100	-	600	mV	
LVDS common input voltage	Vic	-	1.2	-	V	
Logic "H" input voltage (SELLVDS)	Vih	2.0	-	3.6	V	-
Logic "L" input voltage (SELLVDS)	Vil	Vss	-	0.8	V	-
Rush Current	Irush	-	-	1.5	A	(2)

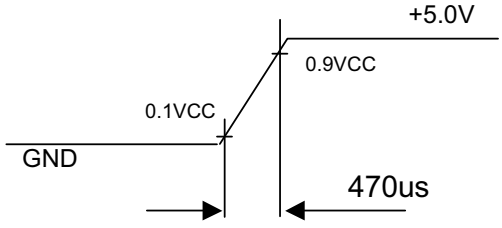
Note (1) Measured with 2 lines vertical stripe pattern.



Slash area is lighted off. The other white area is lighted on.

Note (2) Measurement Conditions

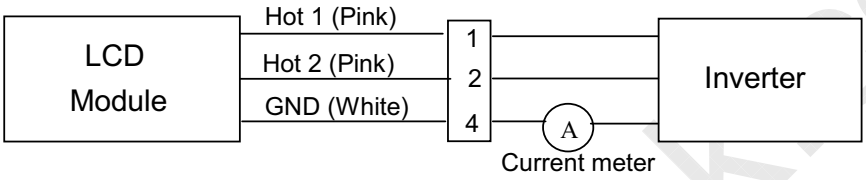




2.2 BACKLIGHT UNIT

BACKLIGHT (2 Dual CCFLs)						
Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Lamp Input Voltage	V_L	640	720	800	V_{RMS}	(1)
Lamp Current	I_L	6.0	13.0	14.0	mA_{RMS}	(1)
Lamp Turn On Voltage	V_S	-	-	1150	V_{RMS}	25°C
		-	-	1500	V_{RMS}	0 °C
Operating Frequency	F_L	30	45	80	KHz	(1)
Lamp Life Time	L_{BL}	50,000	-	-	Hrs	13mA
Power Consumption	P_L	-	9360	-	mW	(4)

Note (1) Lamp current is measured by utilizing a current meter for high frequency as shown below:



Note (2) The voltage shown above should be applied to the lamp for more than 1 second after startup. Otherwise the lamp may not be turned on.

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

Note (4) $P_L = I_L \times V_L$.

Note (5) The lifetime (Hr) of a lamp can be defined as the time in which it continues to operate under the condition Ta = 25±2℃ and I_L = 14.0 mArms until one of the following event occurs:

(a) When the brightness becomes 50% or lower than its original,

(b) When the effective ignition length becomes 80% or lowers than 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 designed with care so as not to produce 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. When the above situation is confirmed, the module should be operated in the same manners as it is installed in your instrument.

The connector information of Blacklight unit.

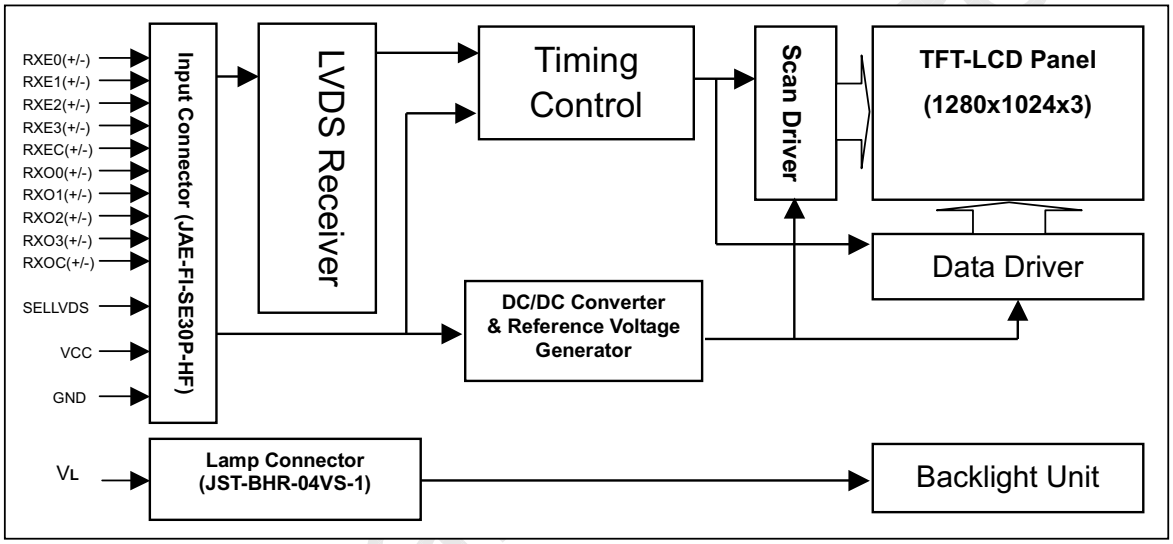
Pin	Symbol	Description	Remark
1	HV1	High Voltage	Pink
2	HV2	High Voltage	Pink
3	NC	No Connection	-
4	LV	Ground	White

Note (1) Connector Part No.: BHR-04VS-1 (JST)

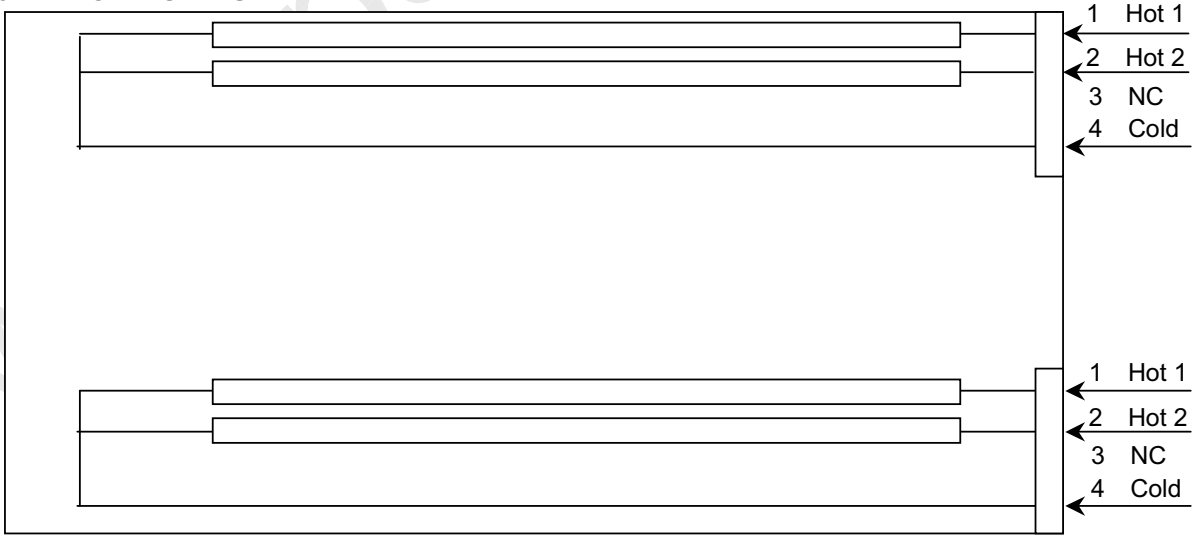
Note (2) User's connector Part No.: SM04 (4.0) B-BHS-1-TB (JST)

3. BLOCK DIAGRAM

3.1 TFT LCD MODULE



3.2 BACKLIGHT UNIT



4. INTERFACE SPECIFICATIONS

4.1 THE LVDS INTERFACE SIGNAL DESCRIPTION

Pin	Name	Description
1	VCC	+5.0V power supply
2	VCC	+5.0V power supply
3	VCC	+5.0V power supply
4	GND	Ground
5	GND	Ground
6	GND	Ground
7	SELLVDS	Select LVDS data order. Connect this pin to low. See the following table.
8	TEST	Test pin should be tied to ground.
9	GND	Ground
10	RXO3+	Positive LVDS differential data input. Channel O3 (odd)
11	RXO3-	Negative LVDS differential data input. Channel O3(odd)
12	RXOC+	Positive LVDS differential clock input. (odd)
13	RXOC-	Negative LVDS differential clock input. (odd)
14	RXO2+	Positive LVDS differential data input. Channel O2 (odd)
15	RXO2-	Negative LVDS differential data input. Channel O2 (odd)
16	RXO1+	Positive LVDS differential data input. Channel O1 (odd)
17	RXO1-	Negative LVDS differential data input. Channel O1 (odd)
18	RXO0+	Positive LVDS differential data input. Channel O0 (odd)
19	RXO0-	Negative LVDS differential data input. Channel O0 (odd)
20	RXE3+	Positive LVDS differential data input. Channel E3 (even)
21	RXE3-	Negative LVDS differential data input. Channel E3 (even)
22	RXEC+	Positive LVDS differential clock input. (even)
23	RXEC-	Negative LVDS differential clock input. (even)
24	RXE2+	Positive LVDS differential data input. Channel E2 (even)
25	RXE2-	Negative LVDS differential data input. Channel E2 (even)
26	RXE1+	Positive LVDS differential data input. Channel E1 (even)
27	RXE1-	Negative LVDS differential data input. Channel E1 (even)
28	RXE0+	Positive LVDS differential data input. Channel E0 (even)
29	RXE0-	Negative LVDS differential data input. Channel E0 (even)
30	GND	Ground

Note (1) Connector Part No.: FI-SE30P-HF (JAE)

Note (2) The first pixel is even.

Note (3) Input signal of even and odd clock should be the same timing.

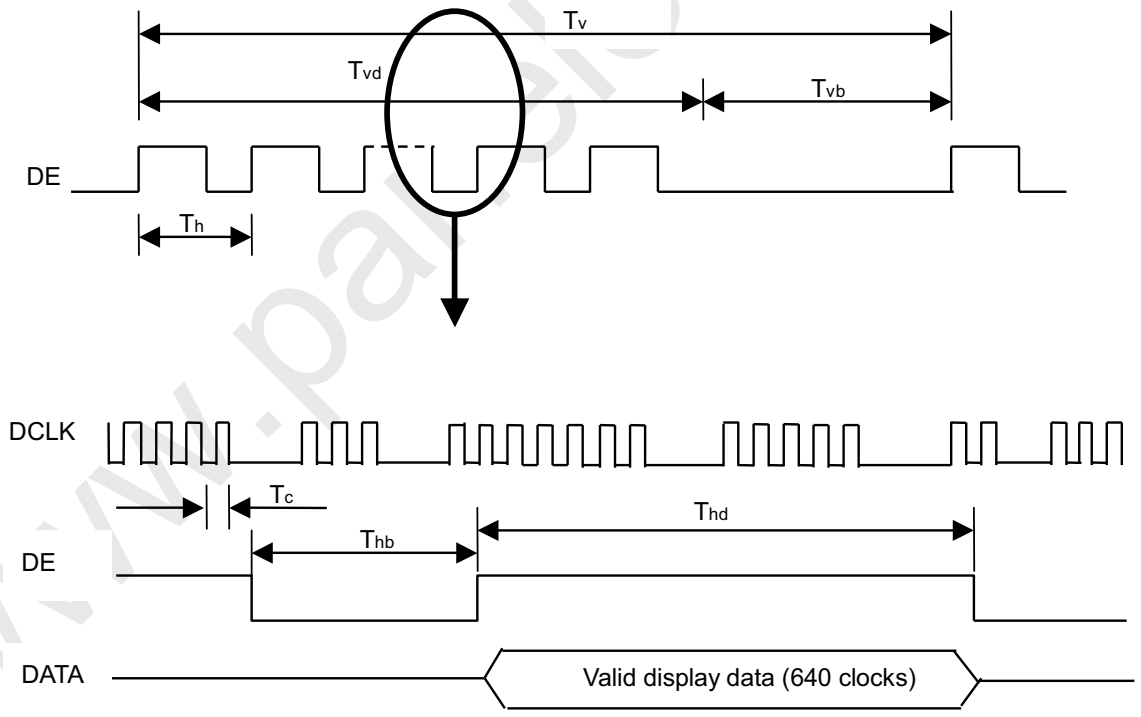
SELLVDS = Low or Open								
LVDS Channel E0	LVDS output	D7	D6	D4	D3	D2	D1	D0
	Data order	EG0	ER5	ER4	ER3	ER2	ER1	ER0
LVDS Channel E1	LVDS output	D18	D15	D14	D13	D12	D9	D8
	Data order	EB1	EB0	EG5	EG4	EG3	EG2	EG1
LVDS Channel E2	LVDS output	D26	D25	D24	D22	D21	D20	D19
	Data order	DE	NA	NA	EB5	EB4	EB3	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

4.2 AC TIMING SPECIFICATIONS (DE only mode)

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
LVDS clock	Frequency	Fc	31	54	(67.5)	MHz	
	Period	Tc	14.8	18.5	32.2	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	-	-	75	Hz	
	Total	Tv	1025	1066	1274	Th	Tv=Tvd+Tvb
	Display	Tvd	1024	1024	1024	Th	
	Blank	Tvb	1	42	250	Th	
Horizontal active display term	Total	Th	650	844	960	Tc	Th=Thd+Thb
	Display	Thd	640	640	640	Tc	
	Blank	Thb	10	204	320	Tc	

Note: HS and VS input signals should be fixed to low for stable operation. Otherwise, the module would operate abnormally.

INPUT SIGNAL TIMING DIAGRAM



4.3 COLOR DATA INPUT ASSIGNMENT

Color		Data Signal																							
		Red								Green								Blue							
		R7	R6	R5	R4	R3	R2	R1	R0	R7	R6	G5	G4	G3	G2	G1	G0	R7	R6	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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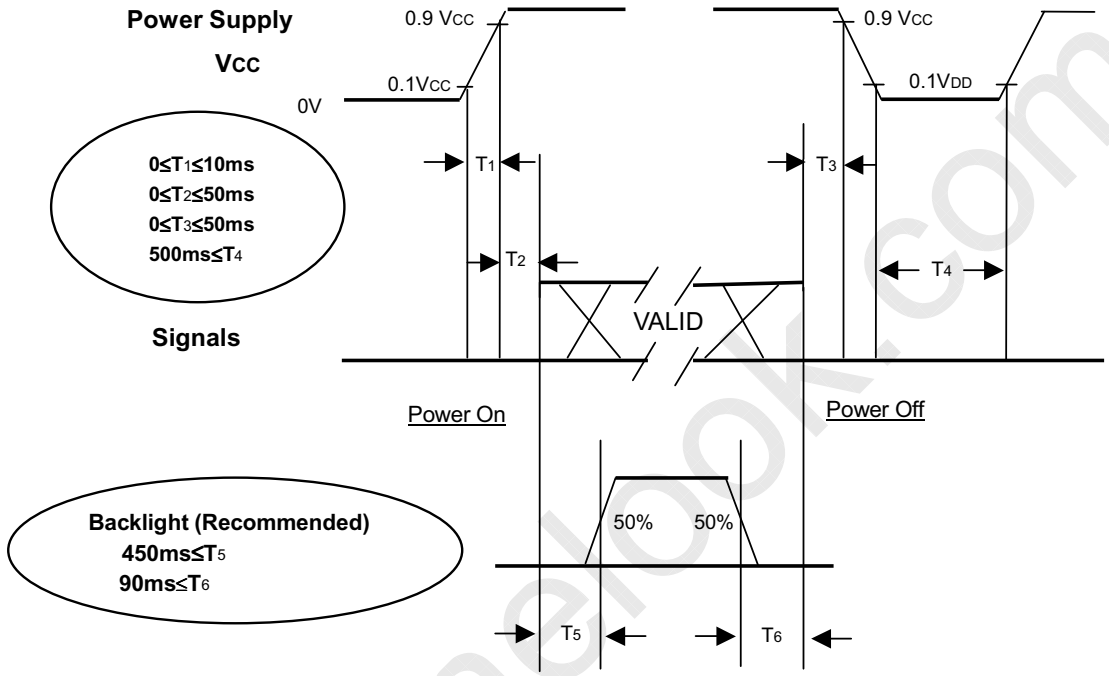
	Blue(253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1
	Blue(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
	Blue(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

4.4 POWER ON/OFF SEQUENCE

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

NOTE.

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

(2) Apply the lamp voltage within the LCD operation range. When the backlight turns on before the LCD operation or the LCD turns off before the backlight turns off, the display may momentarily become abnormal screen.

(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 of and on period.

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

5. OPTICAL CHARACTERISTICS

5.1 TEST CONDITIONS

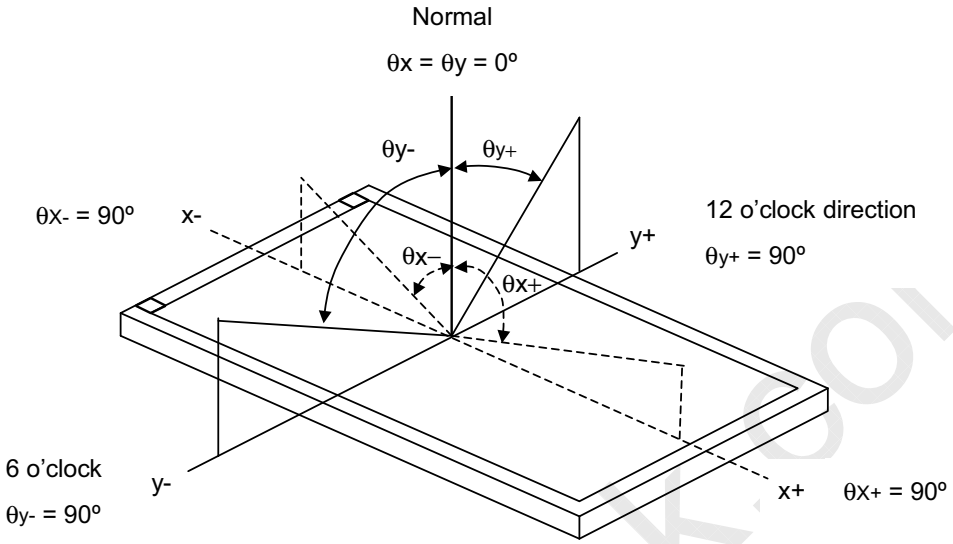
Item	Symbol	Value	Unit
Ambient Temperature	Ta	25±2	°C
Ambient Humidity	Ha	50±10	%RH
Supply Voltage	V_{cc}	5.0	V
Input Signal	According to typical value in "Electrical Characteristics"		
Inverter Current	I_L	13.0	mA
Inverter Driving Frequency	F_L	40	K Hz
Inverter	Sumida H05-4785		

The measuring method is shown in 5.2 OPTICAL SPECIFICATIONS. The following items are measured under stable conditions about 20 minutes after the module works. The optical characteristics should be measured under lamp current I_L = 13.0 m Arms and in a dark environment (≤ 2 lux) or equivalent state with the methods shown in Note (6).

5.2 OPTICAL SPECIFICATIONS

Item		Symbol	Conditions	Specifications			Unit	Note
				Min.	Typ.	Max.		
Contrast Ratio		CR	θ_x=0°, θ_Y =0° Viewing normal angle	250	300	-	-	(2),(6)
Response Time		t_{ON}		-	15	30	ms	(3)
		t_{OFF}		-	35	50	ms	
Luminance of white (Average Luminance)		L_{AVE}		200	230	-	cd/m^2	(4),(6)
Cross Talk		CT		-	-	5.0	%	(5),(6)
Luminance Uniformity Chromaticity	Red	Rx		0.61	0.63	0.65		(1), (6)
		Ry		0.34	0.36	0.38		
	Green	Gx		0.28	0.30	0.32		
		Gy		0.57	0.59	0.61		
	Blue	Bx		0.13	0.15	0.17		
		By		0.07	0.09	0.11		
	White	Wx		0.30	0.32	0.34		
		Wy		0.31	0.33	0.35		
Viewing Angle	Hor.	θ_x+	CR≥10	50	60	-	Deg.	
		θ_x-		50	60	-		
	Ver.	θ_Y+		30	40	-		
		θ_Y-		50	60	-		
White Variation		δW	θ_x=0°, θ_Y =0° Viewing normal angle	-	1.25	1.4		(6),(7)

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



Note (2) Definition of Contrast Ratio:

The contrast ratio can be calculated by the following expression.

Contrast Ratio (CR) = L255 / L0

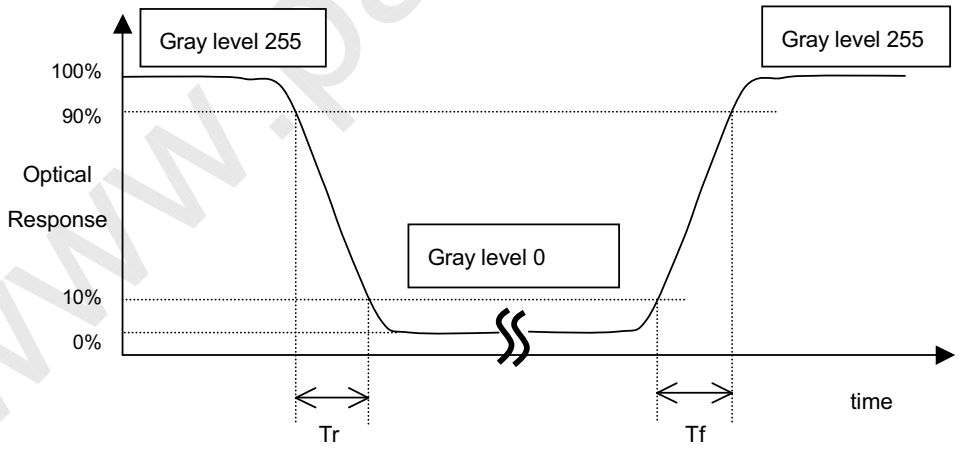
L255: Luminance on the white raster (gray level 255)

L 0: Luminance on the black raster (gray level 0)

CR = CR (5)

CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (7).

Note (3) Definition of Response time:



Note (4) Definition of Average Luminance of White:

Measure the luminance of gray level 255 at 5 points

L_{AVE} = [L (1)+ L (2)+ L (3)+ L (4)+ L (5)] / 5

L (x) is corresponding to the luminance of the point X at Figure in Note (7).

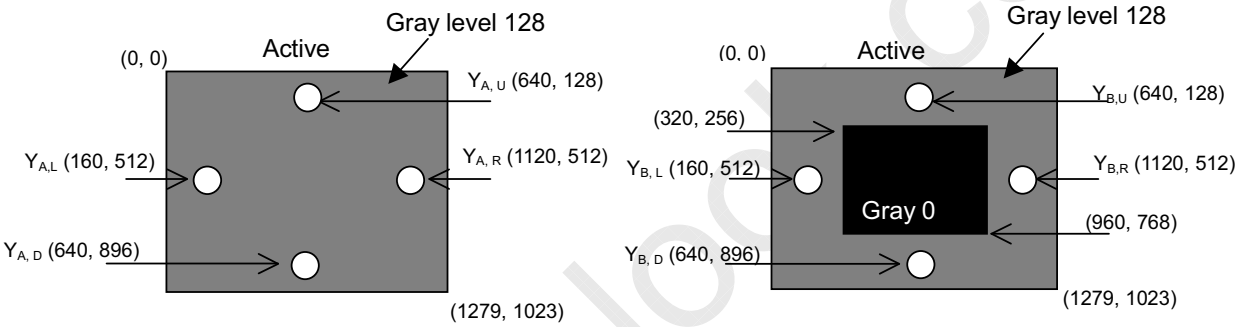
Note (5) Definition of Cross Talk (CT):

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

Where:

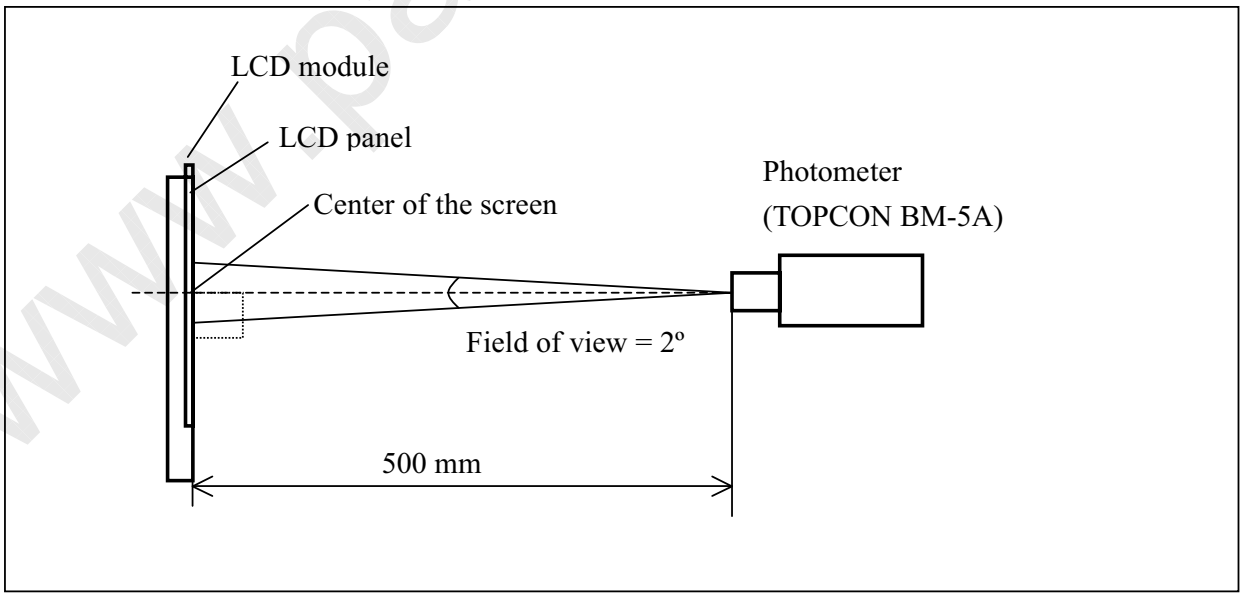
Y_A = Luminance of measured location without gray level 0 pattern (cd/m^2)

Y_B = Luminance of measured location with gray level 0 pattern (cd/m^2)



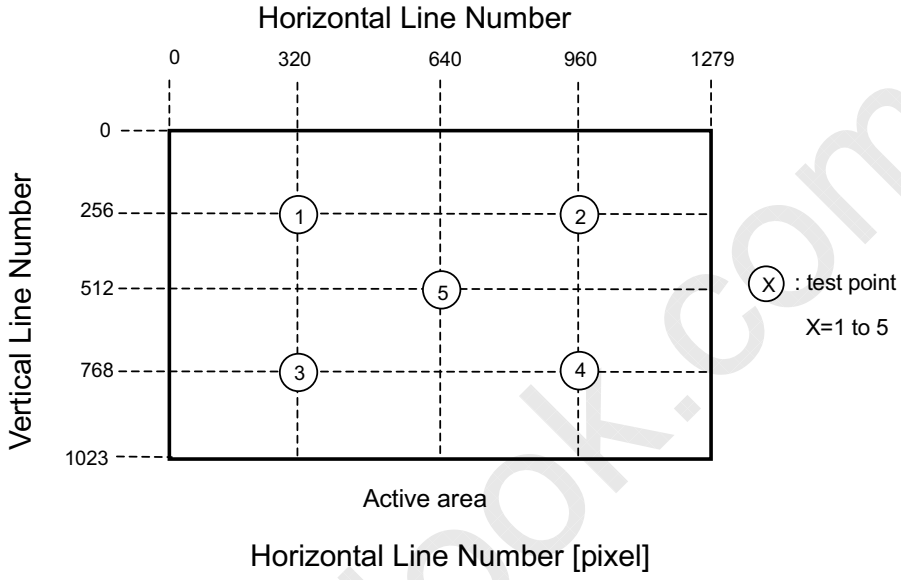
Note (6) Measuring setup:

The measurement supposes to be executed after stabilizing the panel at given temperature during 20 minutes in the case of abrupt temperature change. The measurement shall be executed after lighting at rating 20 minutes. In order to stabilize the luminance, LCD shall not be gotten winds.



Note (7) Definition of luminance uniformity δW (5 points, gray level 255):

δW = Maximum [L (1), L (2), L (3), L (4), L (5)] / Minimum [L (1), L (2), L (3), L (4), L (5)]



6. MECHNICAL DRAWING

Please refer to the attached drawings.

7. PRECAUTION

7. 1 ASSEMBLY AND HANDLING PRECAUTION

(1) Do not apply rough force such as bending or twisting to the module during assembly.

(2) To assembly and install module into user's system are only in clean working areas. The dust and oil may cause an electrical short or worsen the polarizer.

(3) It's not permitted to pressure or impulse the module because the LCD panel and backlight,

(4) Always follow the correct power sequence when user connects and operates the LCD module to prevent damage to the CMOS LSI chips during latchup.

(5) Do not pull the I/F connectors in or out while the module is operation.

(6) Do not disassembly the module.

(7) Use a soft dry cloth without chemicals for cleaning, because the surface of polarizer is very soft and easily scratched.

(8) Any moisture come into contact with the LCD module is dangerous because LCD modules is turned on with moisture on its surface may cause it damage.

(9) The high temperature or humidity may reduce the performance of module, to store LCD module within the specified storage condition.

(10)The ambient temperature is lower than 10ºC may reduce the display quality, for example, response time become slowly, the starting voltage of CCFL is higher than room temperature.

7.2 SAFETY PRECAUTION

(1) The startup voltage of backlight is approximately 1000 Volts. It may cause electrical shock during assembly with inverter. Do not disassemble the module or insert anything into the backlight unit.

(2) 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, skin or clothes, it has to be washed away thoroughly with soap.

(3) After the module's end of life, it is not harmful in case of normal operation and storage.

8. PACKAGING

8.1 PACKING SPECIFICATIONS

(1) 5 LCD modules / 1 Box

(2) Box dimensions : 534(L) X 316(W) X 462(H) mm

(3) Weight : approximately 8.0Kg (5 modules per box)

8.2 PACKING Method

Figures 8-1and 8-2 are the packing method.

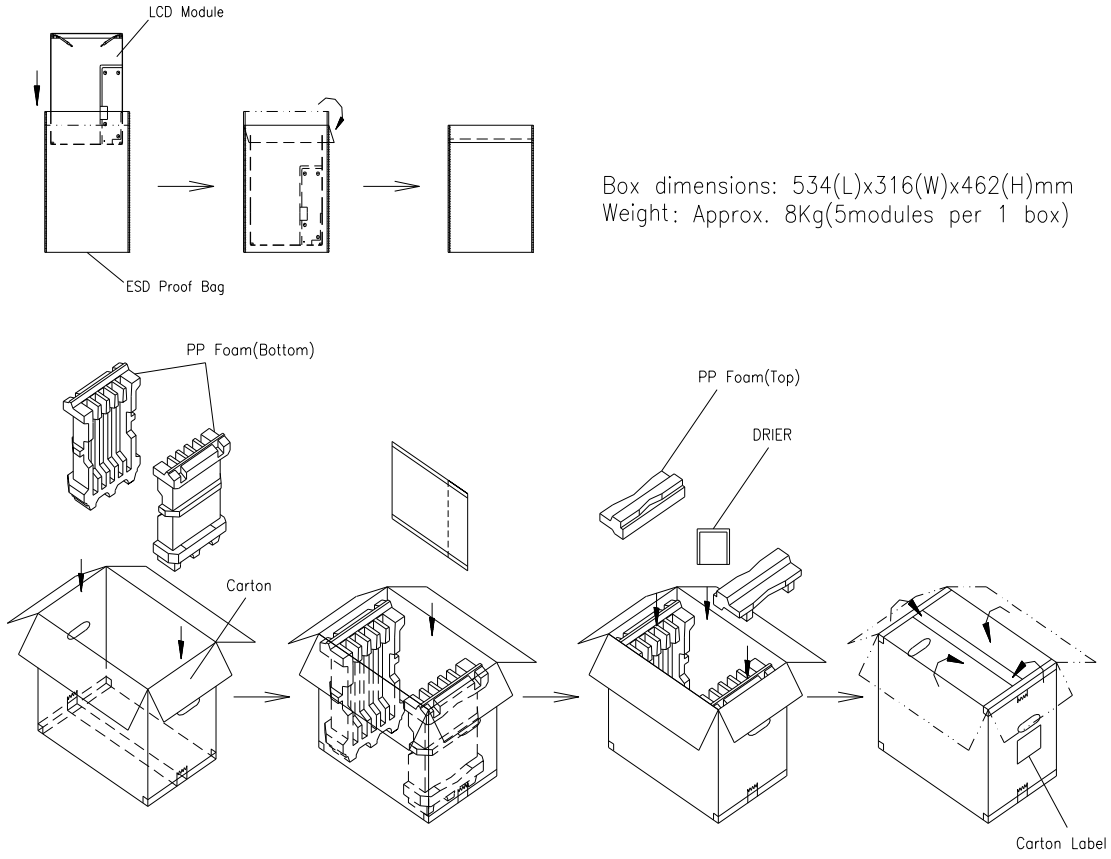


Figure. 8-1 Packing method

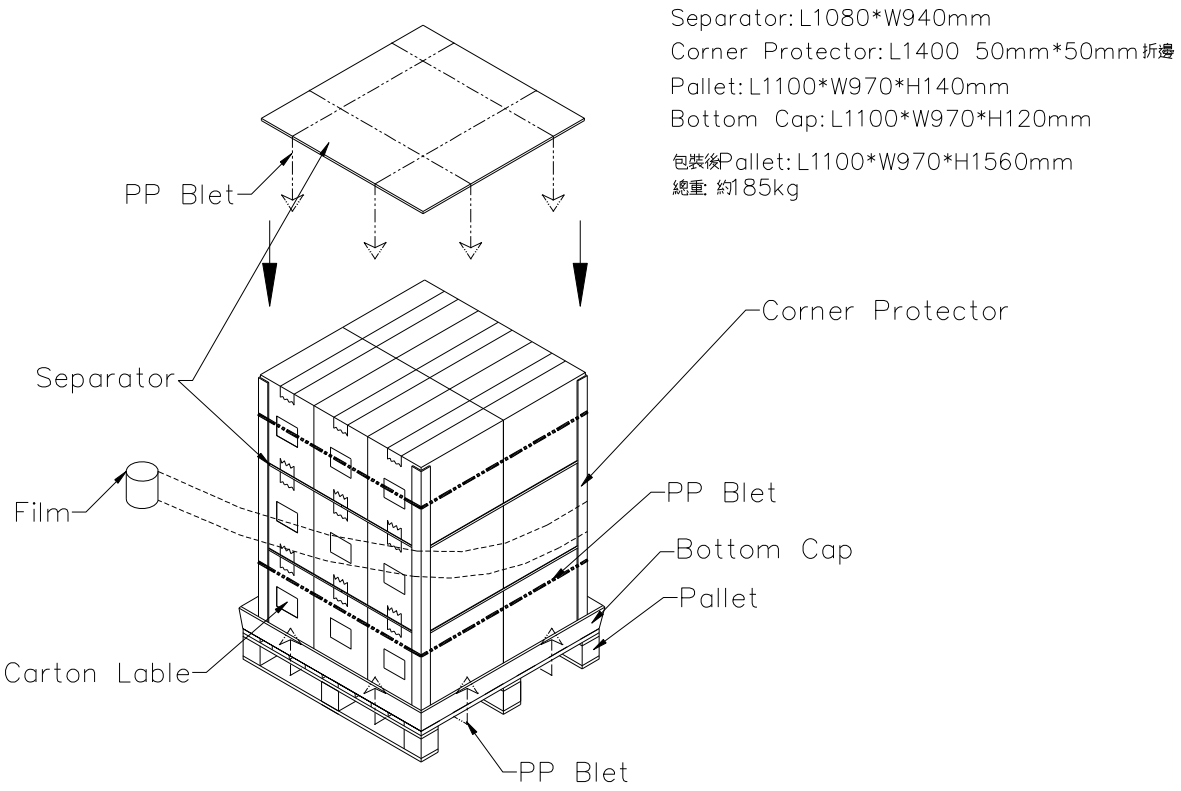


Figure. 8-2 Packing method

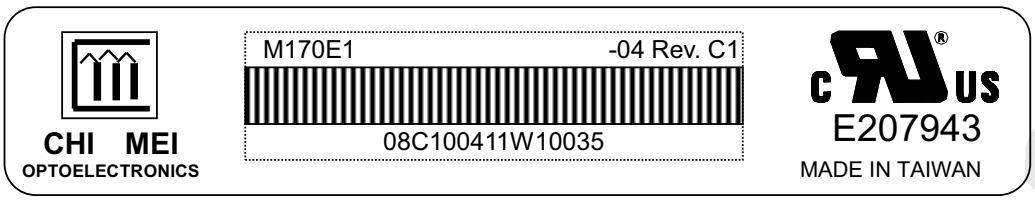
9. INCOMING INSPECTION DAY

The Supplier should be acquainted the inspection results (acceptance or rejection) by Customer, and the results are in accordance with the incoming inspection standard within 30 days after the date of the bills of lading.

Should Customer fail to so notify the Supplier within the said 30 days period. The Customer's right to reject the LCMS shall then lapse, and the said LCMS shall be deemed to have been accepted by the customer.

10. DEFINITION OF SHIPPING LABEL ON MODULE

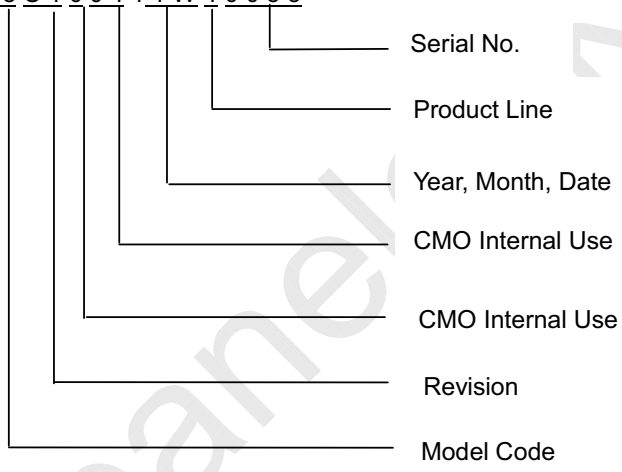
The barcode nameplate is pasted on each module as illustration, and its definition is as following explanation.



(1) Model Name : M170E1 -04

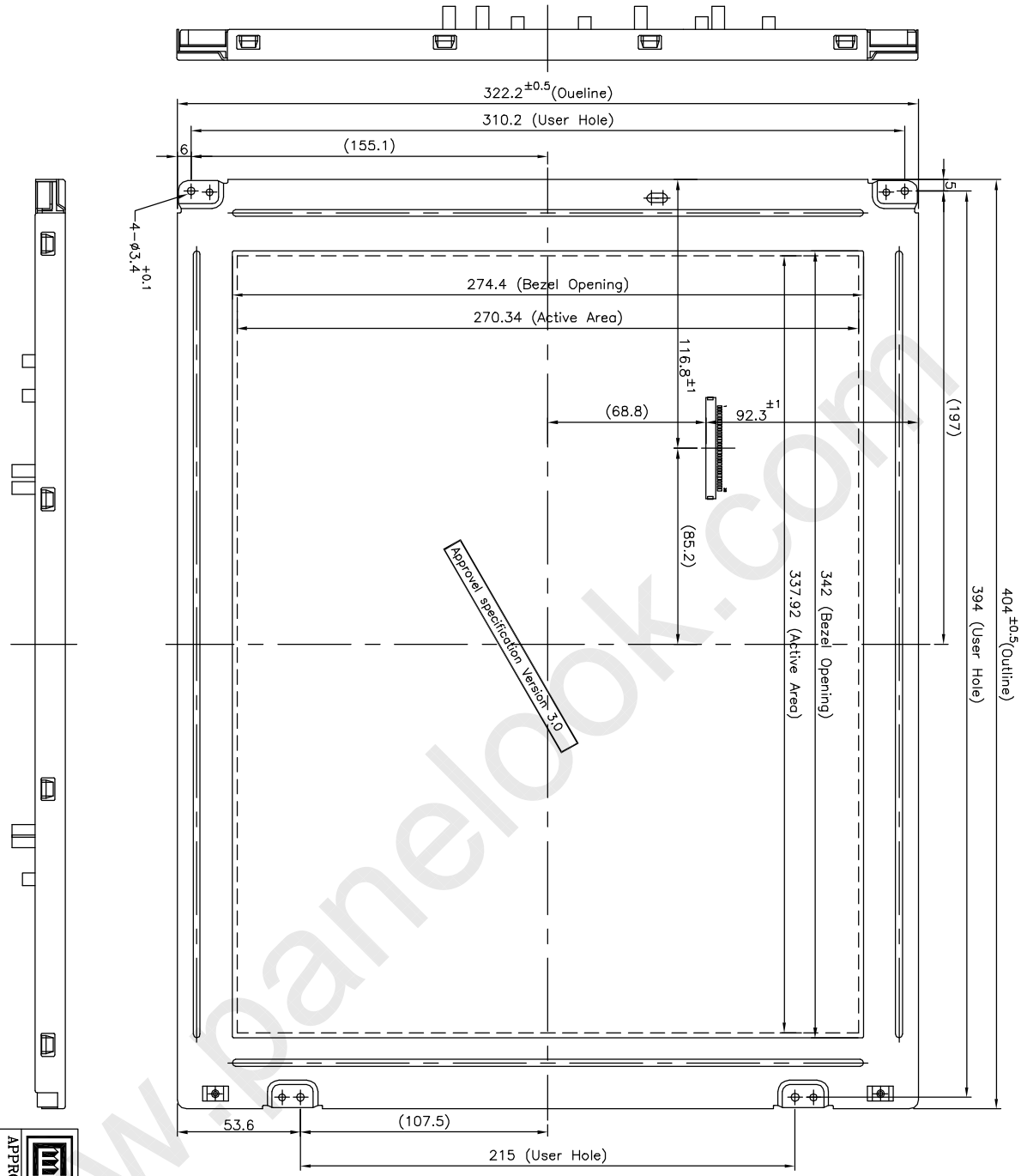
(2) Revision: Rev.XX, for example : C1, C2 …etc.

(3) Serial ID: 0 8 C 1 0 0 4 1 1 W 1 0 0 3 5

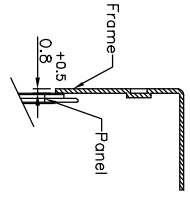


Serial ID included the information as follow:

1. Manufactured Date: Year: 0~9, for 2000~2009
   Month: 0~9, A~C, for Jan. ~ Dec.
   Day: 0~9, A~Y, for 1st to 31st, exclude I and O
2. Revision Code: cover all the change
3. Model code
4. Serial No.: Manufacturing sequence of product
5. Product Line: 1 -> Line1, 2 -> Line 2, etc.



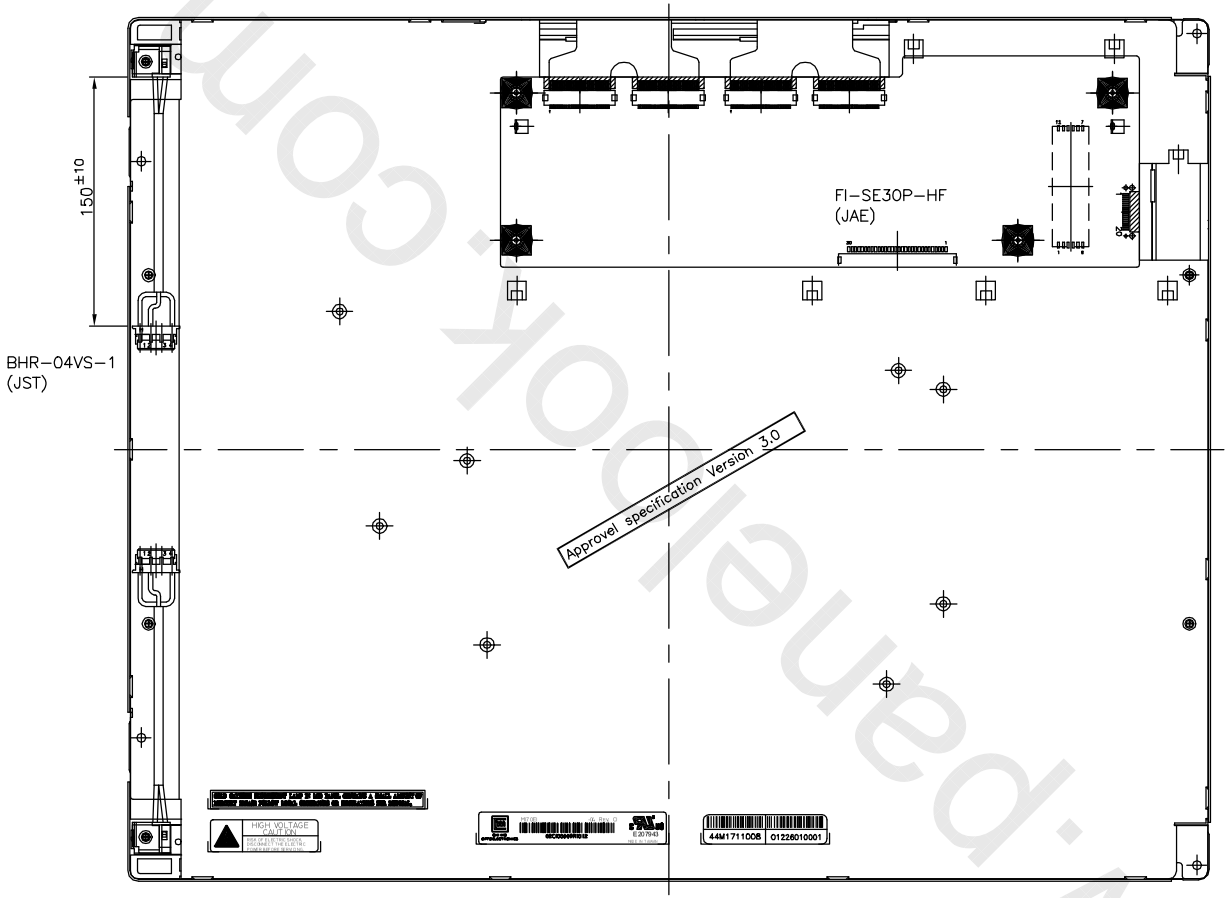
NOTES:
1. GENERAL TOLERANCE:±0.5



Panel Section

CHI MEI OPTOELECTRONICS CORP.

APPROVED: JACK FAN	DWG NO.: M170141051		
CHECKED: DAVID LIN	DATE: 05/18/2001		
DESIGNER: DAVIS WANG	PART NO.: MH0E101904		
DRAWER: DAVIS WANG	REV.: 1	UNIT: MM	SCALE: 1:2
TITTLE: Outline M170E1-04			SHEET: 1/2



NOTES:
1. GENERAL TOLERANCE:±0.5
2. INSERT BOSS TORGUE 2.5~3.0kgf-cm

CHI MEI
OPTOELECTRONICS CORP.

APPROVED: JACK FAN	DWG NO.: M170141051				
CHECKED: DAVID LIN	DATE: 05/18/2001				
DESIGNER: DAVIS WANG	PART NO.: MH0E101904				
DRAWER: DAVIS WANG	REV.: 1	UNIT:	SCALE:	SHEET:	
TITLE: Outline M170E1-04		MM	1:2	2/2	