SPECIFICATION OF LCD MODULE

CUSTOMER 客户名称	
PART NO. 产品型号	**OTM733 B-W-1**
PRODUCTS TYPE 产品内容	
REMARKS 备注	
SIGNATURE BY CUSTOMER 客户签署：	

APPROVED BY 李伟浩 Optima EnC	CHECKED BY 王国选 Optima EnC	ORGANIZED BY 郝黎明 Optima EnC

深圳市晶汉达电子有限公司

08年12月04日

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

LCM System

1 **LCD Type**

■ STN ☐ FSTN ☐ DFSTN

2 **Viewing Angle**

■ Lower 6:00 ☐ Upper 12:00 ☐ Others

3 **Display Mode**

☐ Yellow Green positive ■ Blue Negative ☐ Grey positive

☐ FSTN positive ☐ FSTN negative

4 **Polarizer Mode**

☐ Reflective ☐ Transflective ■ Transmissive

5 **Connector**

☐ Pin ☐ Heat sealed ■ Zebra

6 **Thickness of Glass**

■ 1.1mm ☐ 0.4mm

☐ 0.55mm ☐ 0.7mm

7 **Backlight Mode**:

■ LED ☐ CCFL

8 **Backlight Color**

☐ Blue ☐ Amber ☐ Yellow Green

☐ Red ■ White ☐ Without backlight

9 **Temperature Grade**

☐ Normal temperature ■ Wide temperature ☐ Super wide temperature

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

•REVISION RECORD

REV. NO.	REV. DATE	DESCRIPTION OF REVISION	PAGE	REMARK
1.0	04/12/08	INITIAL RELEASE	ALL	

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

CONTENTS

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

1. FEATURES

•Display construction.....	128*64 DOTS
•Display mode.....	STN(BLUE)
•Display type.....	Negative Transmissive
•Backlight.....	LED/5.0V(White)
•Viewing direction.....	6 o'clock
•Operating temperature.....	-20 to 70 ℃
•Storage temperature	-30 to 80℃
•Driving voltage.....	Single power
•Driving method.....	1/64 duty, 1/9 bias
•Type.....	COB (Chip On Board)
•Controller/Drive IC.....	KS0108/KS0107
•Number of data line.....	8-bit parallel
•Connector.....	Pin

2. MECHANICAL DATA

ITEM		WIDTH	HEIGHT	THICKNESS	UNIT
Module size		93.0	70.0	11.5(MAX)	mm
Active area		66.52	33.24	-	mm
Viewing area		71.8	39.8	-	mm
Dot	Size	0.48	0.48	-	mm
	Pitch	0.52	0.52	-	mm
Diameter of mounting hole		Φ 3.0			mm
Weight		About 180			g

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

3. ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Value	Unit
Operating voltage	VDD	-0.3 to +7.0	V
Supply Voltage	V_{EE}	V_{DD}-19.0 to V_{DD}+0.3	V
Driveer Supply Voltage	V_B	-0.3 to V_{DD}+0.3	
	V_{LCD}	V_{EE} -0.3 to V_{DD}+0.3	V
Operating temperature	T_{OPR}	-20 to 70	℃
Storage temperature	Tsto	-30 to 80	℃

4. ELECTRICAL CHARACTERISTICS

(V_{DD} = +5V ± 10%, V_{SS} = 0V, V_{DD}-V_{EE} = 8 to 17V, Ta = -20 to 70 °C)

Characteristic	Symbol	Condition	Min	Typ	Max	Unit	Note
Input high voltage	V_{IH1}	–	0.7V_{DD}	–	V_{DD}	V	(1)
	V_{IH2}	–	2.0	–	V_{DD}	V	(2)
Input low voltage	V_{IL1}	–	0	–	0.3V_{DD}	V	(1)
	V_{IL2}	–	0	–	0.8	V	(2)
Output high voltage	V_{OH}	I_{OH} = -200μA	2.4	–	–	V	(3)
Output low voltage	V_{OL}	I_{OL} = 1.6mA	–	–	0.4	V	(3)
Input leakage current	I_{LKG}	V_{IN} = V_{SS} - V_{DD}	-1.0	–	1.0	μA	(4)
Three-state(off) input current	I_{TSL}	V_{IN} = V_{SS} - V_{DD}	-5.0	–	5.0	μA	(5)
Driver input leakage current	I_{DIL}	V_{IN} = V_{EE} - V_{DD}	-2.0	–	2.0	μA	(6)
Operating current	I_{DD1}	During display	–	–	100	μA	(7)
	I_{DD2}	During access Access cycle = 1MHz	–	–	500	μA	(7)
On resistance	R_{ON}	V_{DD}-V_{EE} = 15V I_{LOAD} = ± 0.1mA	–	–	7.5	KΩ	(8)

NOTES:

1. CL, FRM, M, RSTB, CLK1, CLK2
2. CS1B, CS2B, CS3, E, R/W, RS, DB0 - DB7
3. DB0 - DB7
4. Except DB0 - DB7
5. DB0 - DB7 at high impedance
6. V0L(R), V2L(R), V3L(R), V5L(R)
7. 1/64 duty, FCLK = 250kHz, frame frequency = 70HZ, output: no load
8. V_{DD} - V_{EE} = 15.5V
   V0L(R) > V2L(R) = V_{DD} - 2/7 (V_{DD}-V_{EE}) > V3L(R) = V_{EE} + 2/7 (V_{DD}-V_{EE}) > V5L(R)

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

4.1 LED ELECTRICAL/OPTLCAL CHARACTERISTICS

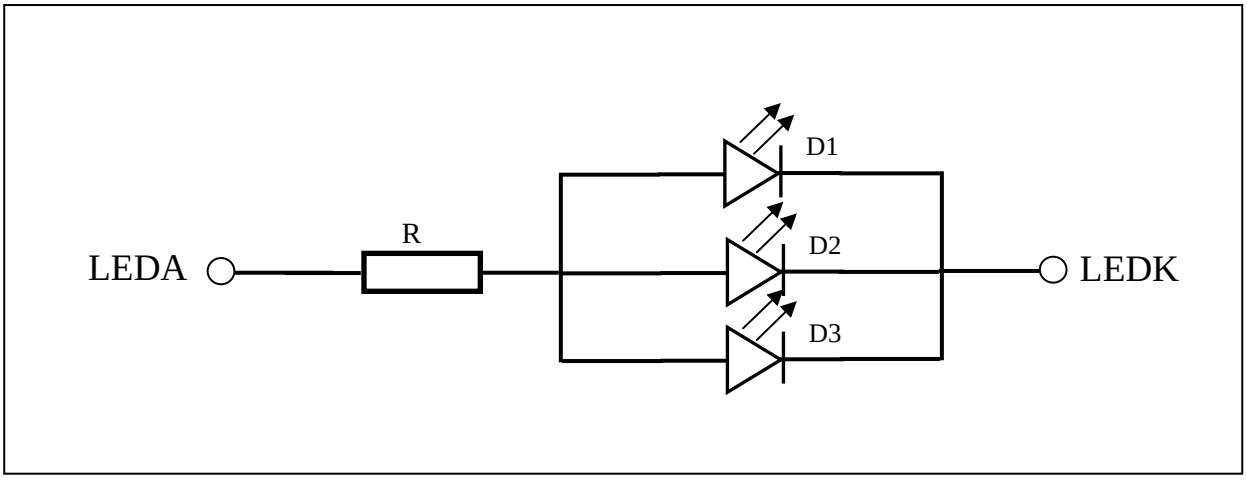
Item	Symbol	min	typ	max	Unit	Condition
Forward Voltage	Vf	-	5.0	5.2	V	If= 60 mA
Reverse Current	Ir	-	60	-	uA	Vr=10V
Dominant wave length	λd	-	X=0.29 Y=0.30	-	nm	If= 60 mA
Spectral Line Half width	Δλ	-	-	-	-	If= mA
Luminance	Lv	80	120	-	cd/㎡	If= 60 mA

4.2LED ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Condition	Rating	Unit
Reverse Voltage	Vr	Ta=25℃	5	V
Absolute maximum forward current	Ifm	Ta=25℃	75	mA
Power description	pd	Ta=25℃	375	mW

4.2.1 LED ARRAY BLOCK DIAGRAM

(LED DICE 1×3= 3 dices)



4.2.2 LED POWER SOURCE

	Option	Power source	Jumper setting
LED	A	19A/20K	J6、J7、R9、R17
	B	19K/20A	J5、J8、R9、R17

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

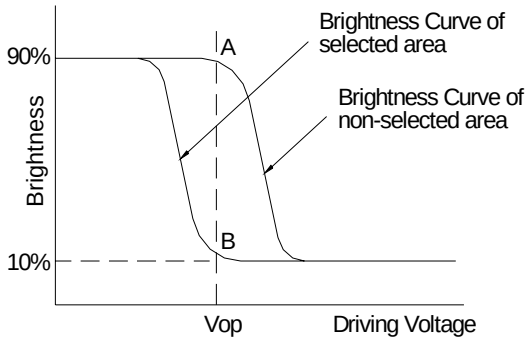
Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

5. ELECTRO-OPTICAL CHARACTERISTICS

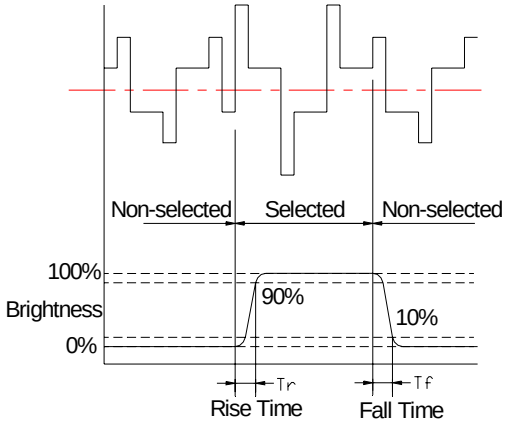
ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
Contrast ratio	K	φ=0	1.4	4	-	-	1
Response time (rise)	Tr	φ=0	-	250	300	ms	2
Response time (fall)	Tf	φ=0		250	350	ms	2
Viewing angle	φ	K ≥2.0	-40 -- +40			deg.	3
	θ		-30 -- +30				

Note 1: Definition of Contrast Ratio "K"

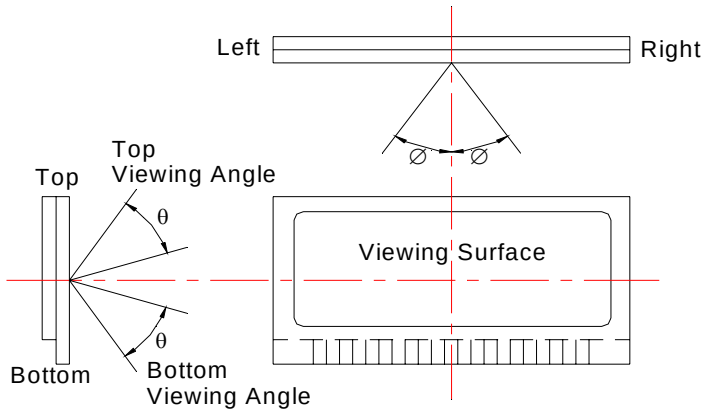
$$K = \frac{\text{Brightness of non-selected segment(A)}}{\text{Brightness of selected segment(B)}}$$



Note 2: Definition of Optical Response Time



Note 3: Definition of Viewing Angle

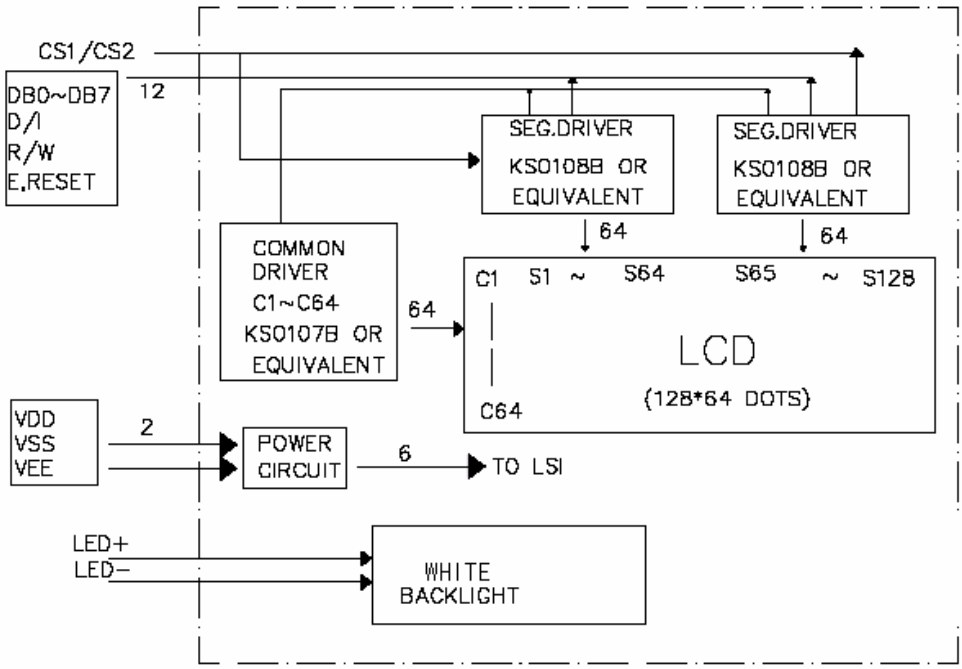


Please select either top or bottom viewing angle

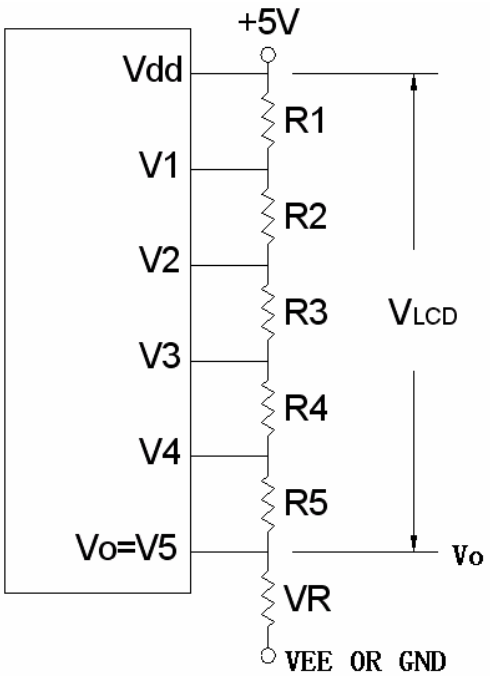
Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

6. BLOCK DIAGRAM



7. VOLTAGE REGULATOR CIRCUITS



Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

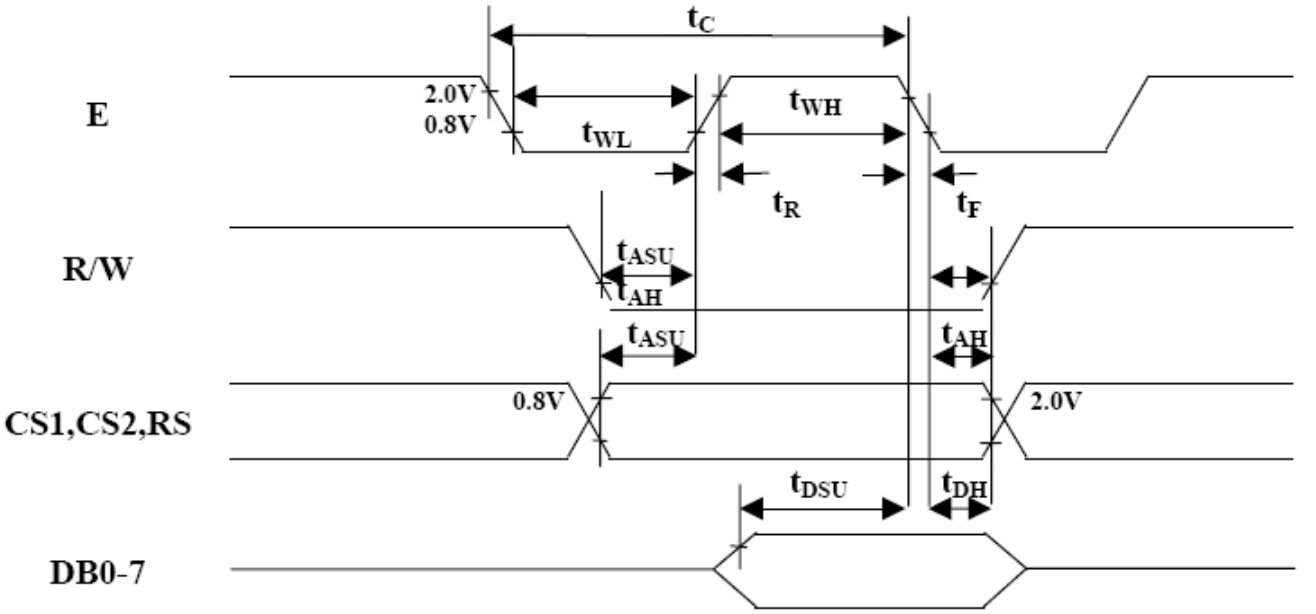
8. TIMING DIAGRAM

MPU Interface

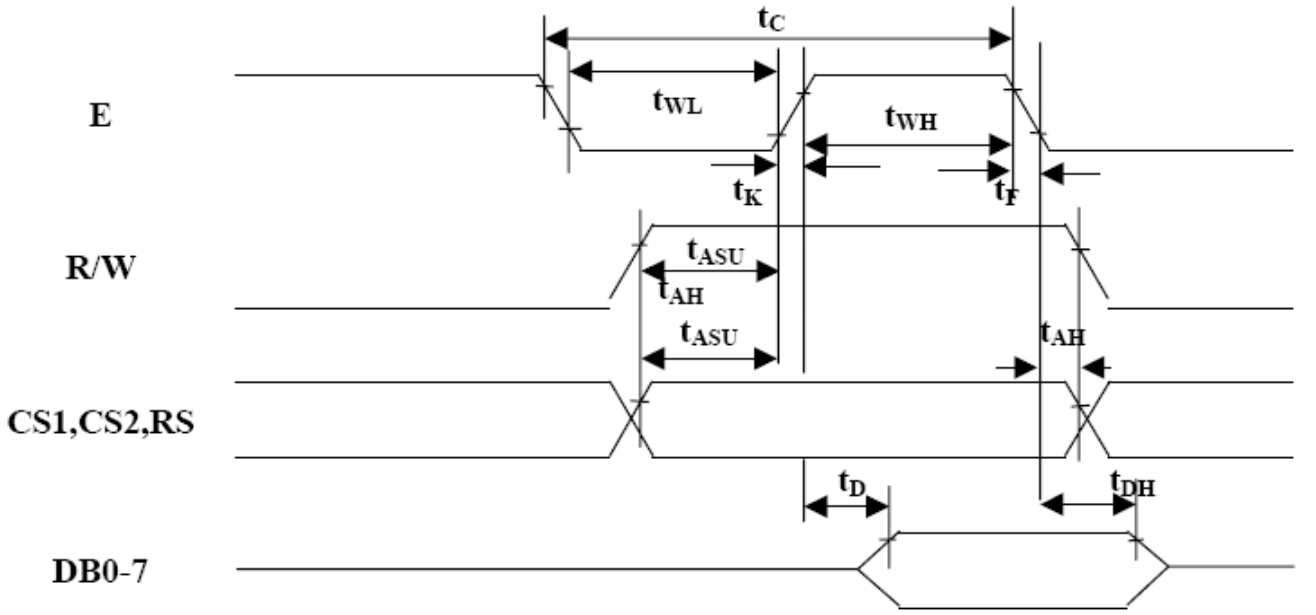
Characteristic	Symbol	Min	Typ	Max	Unit
E Cycle	t_C	1000	--	--	ns
E High Level Width	t_{WH}	450	--	--	ns
E Low Level Width	t_{WL}	450	--	--	ns
E Rise Time	t_R	--	--	25	ns
E Fall Time	t_F	--	--	25	ns
Address Set-Up Time	t_{ASU}	140	--	--	ns
Address Hold Time	t_{AH}	10	--	--	ns
Data Set-Up Time	t_{SU}	200	--	--	ns
Data Delay Time	t_D	--	--	320	ns
Data Hold Time (Write)	t_{DHW}	10	--	--	ns
Data Hold Time (Read)	t_{DHR}	20	--	--	ns

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767



MPU write timing



MPU read timing

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

9. INSTRUCTION SET

DISPLAY CONTROL INSTRUCTION

The display control instructions control the internal state of the S6B0108. Instruction is received from MPU to S6B0108 for the display control. The following table shows various instructions.

Instruction	RS	R/W	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0	Function
Display on/off	L	L	L	L	H	H	H	H	H	L/H	Controls the display on or off. Internal status and display RAM data is not affected. L: OFF, H: ON
Set address (Y address)	L	L	L	H	Y address (0 - 63)						Sets the Y address in the Y address counter.
Set page (X address)	L	L	H	L	H	H	H	Page (0 - 7)			Sets the X address at the X address register.
Display start line (Z address)	L	L	H	H	Display start line (0 - 63)						Indicates the display data RAM displayed at the top of the screen.
Status read	L	H	Busy	L	On/ Off	Reset	L	L	L	L	Read status. BUSY L: Ready H: In operation ON/OFF L: Display ON H: Display OFF RESET L: Normal H: Reset
Write display data	H	L	Write data								Writes data (DB0:7) into display data RAM. After writing instruction, Y address is increased by 1 automatically.
Read display data	H	H	Read data								Reads data (DB0:7) from display data RAM to the data bus.

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

10. INSTRUCTION SEQUENCE

INIT:

```
MOV A,#0C0H  ;Display 0star line
LCALL WC1
LCALL WC2
MOV A,#3FH     ;Display on
LCALL WC1
LCALL WC2
        RET
```


Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

13. QUALITY ASSURANCE

13.1.1 Temperature and Humidity(Ambient Temperature)

Temperature : 20 ± 5° C

Humidity : 65 ± 5%

131.1.2 Operation

Unless specified otherwise, test will be conducted under function state.

13.1.3 Container

Unless specified otherwise, vibration test will be conducted to the product itself without putting it in a container.

13.1.4 Test Frequency

In case of related to deterioration such as shock test.It will be conducted only once.

13.1.5 Test Method

No.	Parameter	Conditions	Regulations
1	High Temperature Operating	70±2℃	Note 3
2	Low Temperature Operating	-20 ±2℃	Note 3
3	High Temperature Storage	80±2℃	Note 3
4	Low Temperature Storage	-30±2℃	Note 3
5	Vibration Test (Non-operation state)	Total fixed amplitude : 1.5mm Vibration Frequency : 10 ~ 55Hz One cycle 60 seconds to 3 directions of X.Y.Z. for each 15 minutes	Note 3
6	Damp Proof Test (Non-operation state)	40℃±2℃, 90~95%RH, 96h	Note 1,2
7	Shock Test (Non-operation state)	To be measured after dropping from 60cm high once concrete surface in packing state	Note 3

Note 1: Returned under normal temperature and humidity for 4 hrs.

Note 2: No dew condensation to be observed.

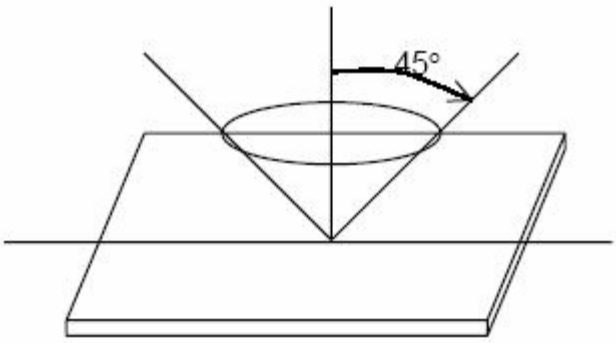
Note 3: No change on display and in operation under the test condition

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

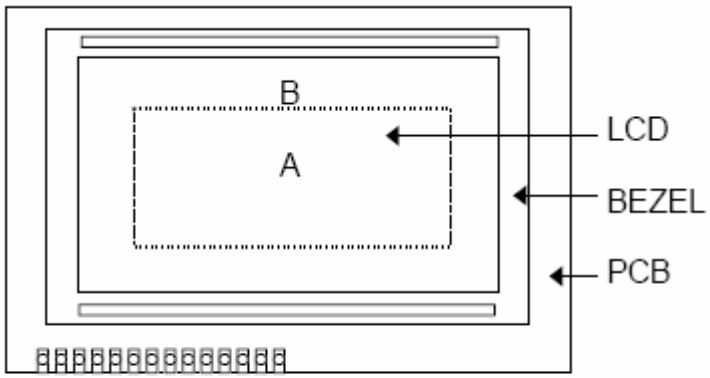
Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

13.2Inspection condition

13.2.1 Inspection conditions
The LCD shall be inspected under 40W white fluorescent light.



13.2.2 Definition of applicable Zones

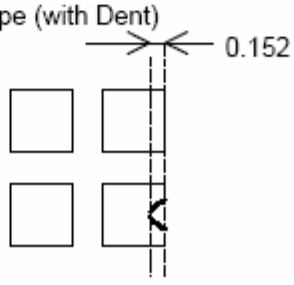


A : Display Area
B : Non-Display Area

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

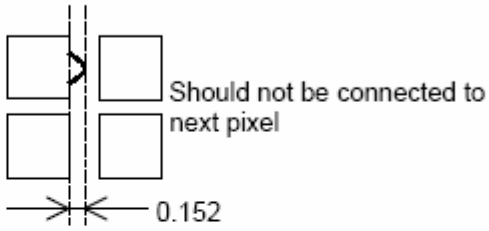
13.2.3 Inspection Parameters

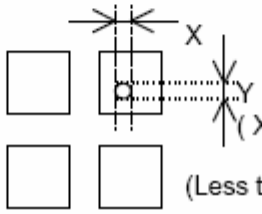
<table>
<tr><th>No.</th><th>Parameter</th><th>Criteria</th></tr>
<tr><td>1</td><td>Black or White spots</td><td>
<table>
<tr><th rowspan="2">Zone / Dimension</th><th colspan="2">Acceptable number</th><th rowspan="2">Class Of Defects</th><th rowspan="2">AQL Level</th></tr>
<tr><th>A</th><th>B</th></tr>
<tr><td>D < 0.15</td><td>*</td><td>*</td><td rowspan="4">Minor</td><td rowspan="4">2.5</td></tr>
<tr><td>0.15≤ D< 0.2</td><td>4</td><td>4</td></tr>
<tr><td>0.2 ≤ D ≤ 0.25</td><td>2</td><td>2</td></tr>
<tr><td>D ≤ 0.3</td><td>0</td><td>1</td></tr>
</table>
D = (Long + Short) / 2 * : Disregard
</td></tr>
<tr><td>2</td><td>Scratch, Substances</td><td>
<table>
<tr><th rowspan="2">Zone
X (mm) / Y(mm)</th><th colspan="2">Acceptable number</th><th rowspan="2">Class Of Defects</th><th rowspan="2">AQL Level</th></tr>
<tr><th>A</th><th>B</th></tr>
<tr><td>*</td><td>0.04 ≥ W</td><td>*</td><td>*</td><td rowspan="4">Minor</td><td rowspan="4">2.5</td></tr>
<tr><td>3.0 ≥ L</td><td>0.06 ≥ W</td><td>4</td><td>4</td></tr>
<tr><td>2.0 ≥ L</td><td>0.08 ≥ W</td><td>2</td><td>3</td></tr>
<tr><td>—</td><td>0.1 < W</td><td>0</td><td>1</td></tr>
</table>
X : Length Y : Width * : Disregard
Total defects should not exceed 4/module
</td></tr>
<tr><td>3</td><td>Air Bubbles
(between glass & polarizer)</td><td>
<table>
<tr><th rowspan="2">Zone / Dimension</th><th colspan="2">Acceptable number</th><th rowspan="2">Class of Defects</th><th rowspan="2">AQL Level</th></tr>
<tr><th>A</th><th>B</th></tr>
<tr><td>D ≤ 0.15</td><td>*</td><td>*</td><td rowspan="3">Minor</td><td rowspan="3">2.5</td></tr>
<tr><td>0.15 < D ≤ 0.25</td><td>2</td><td>*</td></tr>
<tr><td>0.25 < D</td><td>0</td><td>1</td></tr>
</table>
* : Disregard
Total defects shall not excess 3/module.
</td></tr>
<tr><td>4</td><td>Uniformity of Pixel</td><td>(1) Pixel shape (with Dent)
 

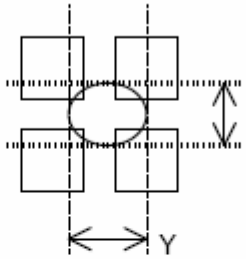
</td></tr>
</table>

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

<table>
<tr><td>4</td><td>Uniformity of Pixel</td><td colspan="2">(2) Pixel shape (with Projection)
 

(3) Pin hole
 

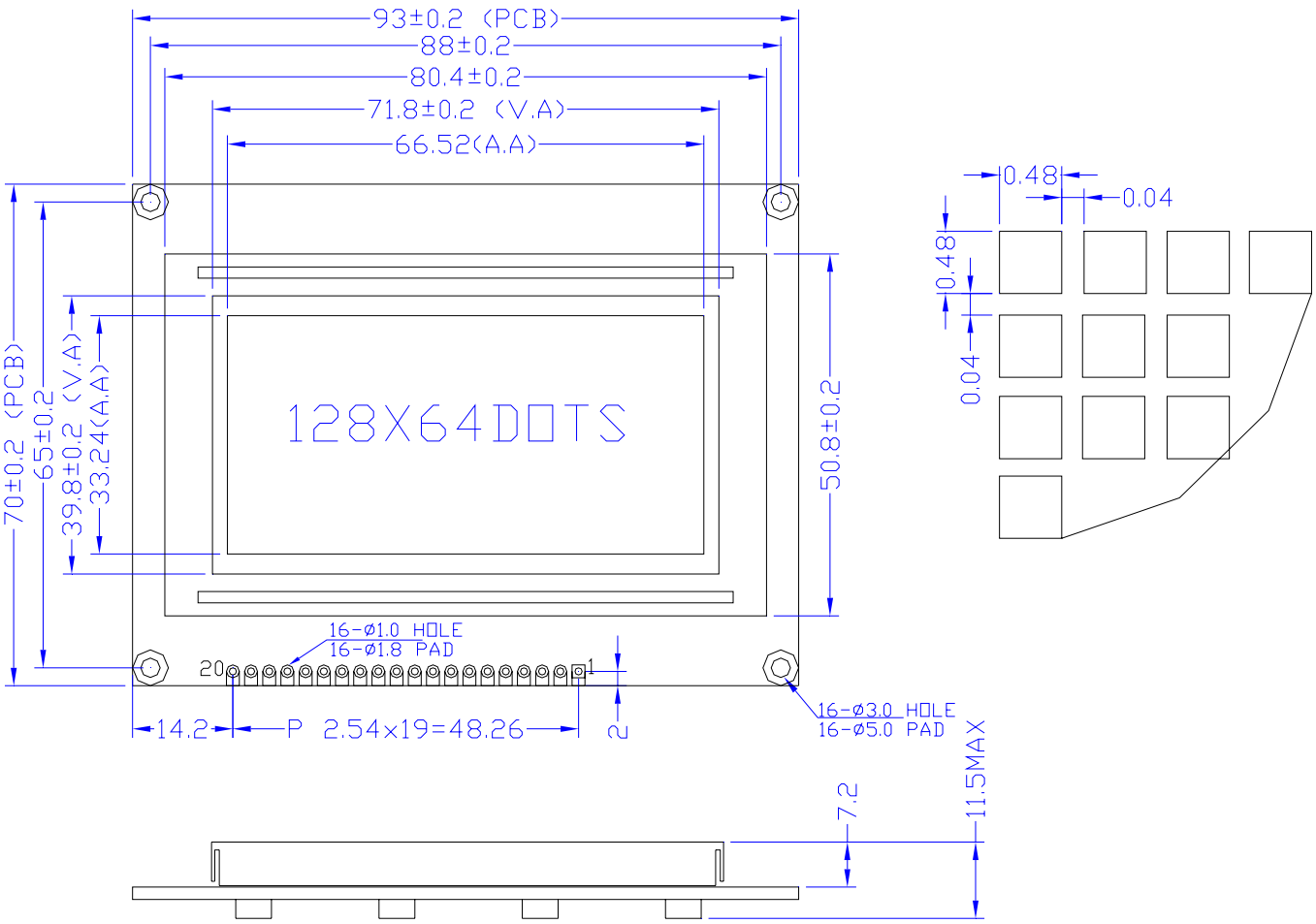
(X + Y)/2 ≤ 0.02mm
(Less than 0.1 mm is no counted)
(4) Deformation
 

X (X + Y) / 2 ≤ 0.3mm
Total acceptable number : 1/pixel, 5/cell</td></tr>
<tr><td rowspan="3">Class of defects</td><td rowspan="2">Major</td><td>AQL 0.65%</td><td>Definition
It is a defect that is likely to result in failure or to reduce materially the usability of the product for the intended function.</td></tr>
<tr><td>AQL 1.00%</td><td>It is a defect that is likely to assembly size and not result in functioning problem.</td></tr>
<tr><td>Minor</td><td>AQL 2.5%</td><td>It is a defect that will not result in functioning problem with deviation classified.</td></tr>
</table>

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

11. EXTERNAL DIMENSION



1	2	3	4	5	6	7	8	9	10
VSS	VDD	V0	D/I	R/W	E	DB0	DB1	DB2	DB3
11	12	13	14	15	16	17	18	19	20
DB4	DB5	DB6	DB7	CS1	CS2	RST	VEE	LEDA	LEDK

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

12.INTERFACE

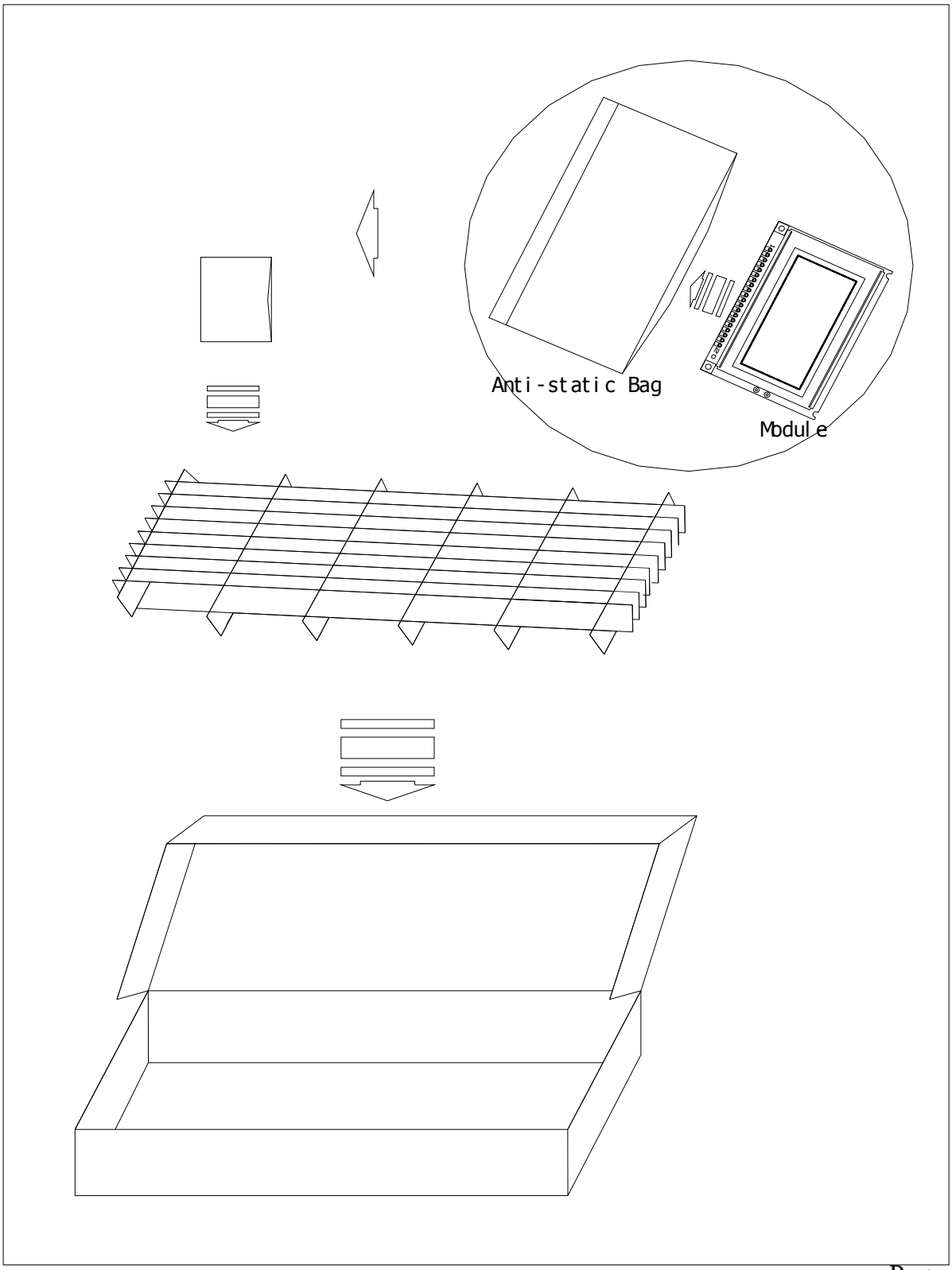
PIN NO.	SYMBOL	DESCRIPTION	FUNCTION
1	VSS	GROUND	0V (GND)
2	VDD	POWER SUPPLY FOR LOGIC CIRCUIT	+5V
3	V0	LCD CONTRAST ADJUSTMENT	
4	D/I	INSTRUCTION/DATA REGISTER SELECTION	D/I = 0 : INSTRUCTION REGISTER D/I = 1 : DATA REGISTER
5	R/W	READ/WRITE SELECTION	R/W = 0 : REGISTER WRITE R/W = 1 : REGISTER READ
6	E	ENABLE SIGNAL	
7	DB0	DATA INPUT/OUTPUT LINES	8 BIT: DB0-DB7
8	DB1		
9	DB2		
10	DB3		
11	DB4		
12	DB5		
13	DB6		
14	DB7		
15	CS1	CHIP SELECTION	CS1=1:CHIP SELECT SIGNAL FOR IC1
16	CS2	CHIP SELECTION	CS2=1:CHIP SELECT SIGNAL FOR IC2
17	RST	RESET SIGNAL	RSTB=0,DISPLAY OFF,DISPLAY FROM LINE 0.
18	VEE	LCD DRIVE NEGATIVE VOLTAGE	-15V
19	LEDA	SUPPLY VOLTAGE FOR LED+	+5.0V
20	LEDK	SUPPLY VOLTAGE FOR LED-	0V

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

13. PACKAGE INFORMATION

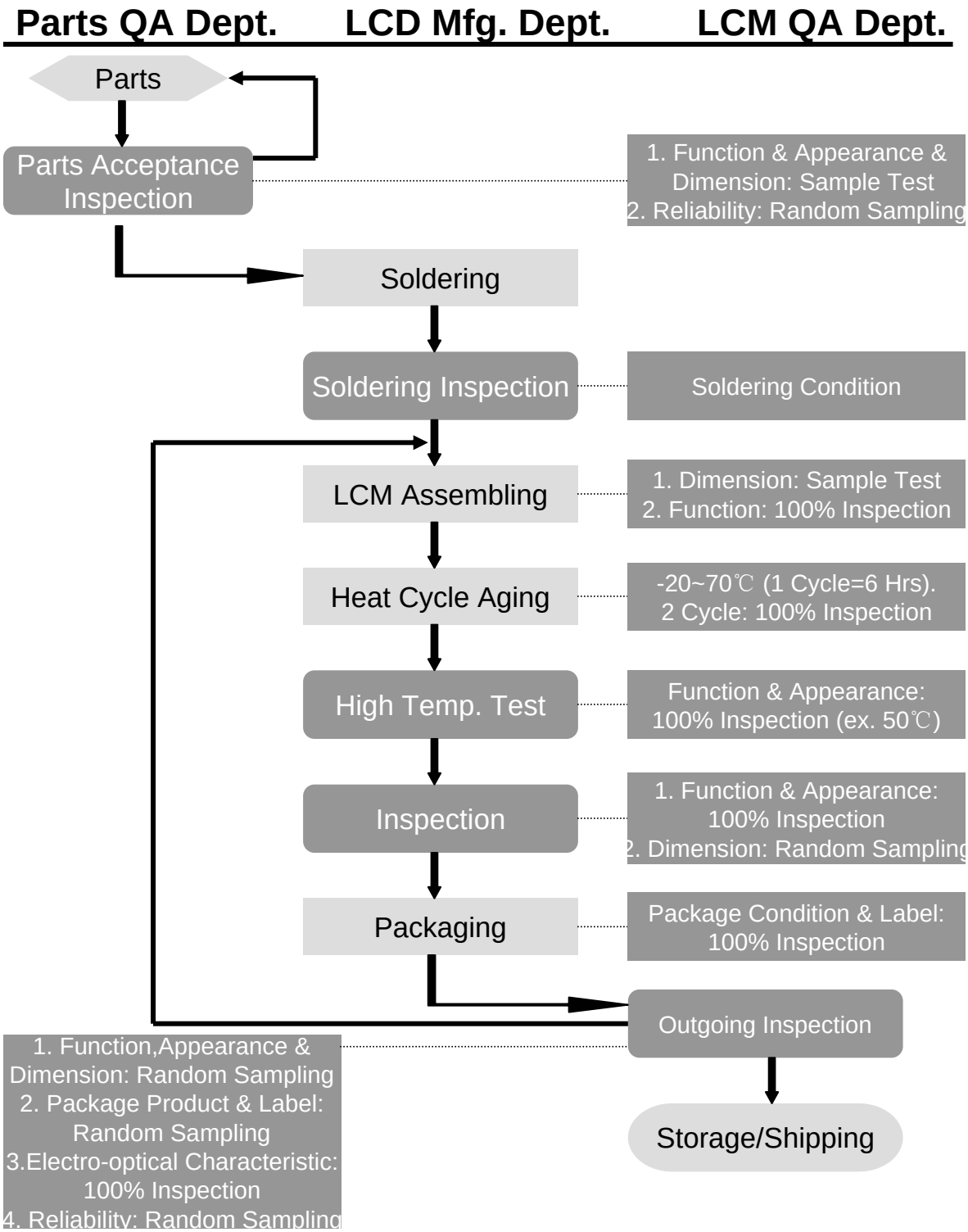
A Box include 50pcs



Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

14. QC/QA PROCEDURE



Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

15. RELIABILITY

•Operating life time:

Longer than 50000 hours (at room temperature without direct irradiation of sunlight)

•Reliability Characteristics:

Item	Test	Criterion
High temp	70℃ / 200 Hrs	■Total current consumption should be below double of initial value ■Contrast ratio should be within initial value±50% ■No defect in cosmetic and operational function is allowable
Low temp.	-20℃ / 200 Hrs	
High humidity	40℃ * 90%RH / 200 Hrs	
Thermal shock	-20℃→25℃→70℃→25℃ /5 Cycles (30min) (5min) (30min) (5min)	
Vibration	1.Operating time: Thirty minutes exposure in each direction (x, y, z) 2.Sweep Frequency (1min):10Hz→ 55Hz →10Hz 3.Amplitude: 0.75mm double amplitude	

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

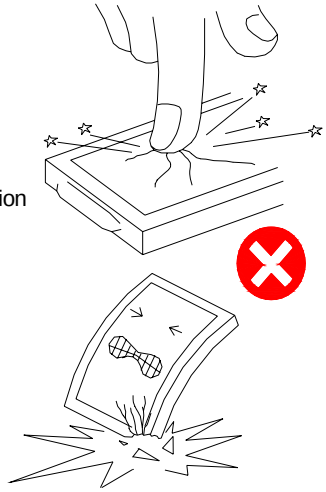
Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

16. Handling Precaution

1. Limitation of Application:
Optrex products are designed for use in ordinary electronic devices such as business machines, telecommunications equipment,measurement devices and etc. Please handle the products with care. (see below)
Optrex products are not designed,intended ,or authorized for use in any application which the failure of the product could result in a situation where personal injury or death may occur . these applications include, but are not limited to . life-sustaining equipment,nuclear control devices , aerospace equipment , devices related to hazardous or flammable materials , etc.[If Buyer intends to purchase or use the Optrex Products for such unintended or unauthorized applications , Buyer must secure prior written consent to such use by a responsible officer of Optrex Corporation.]Should Buyer purchase or use Optrex Products for any such unintended or unauthorized application [without such consent].Buyer shall indemnify and hold Optrex and its officers. employees. subsidiaries, affiliates and distributors harmless against all claims, costs, damages and expenses , and reasonable attorney's fees,arising out of , directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Optrex was negligent regarding the design or manufacture of the part.
2.Industrial Rights and Patents
Optrex shall not be responsible for any infringement of industrial property rights of third parties in any country arising out of the application or use of Optrex products, except which directly concern the structure or production of such products.

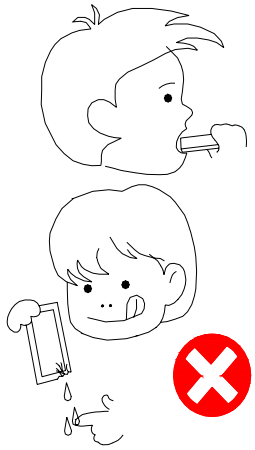
No Press and Shock!

If pressure to LCD, orientation may be disturbed.
LCD will broken by shock!



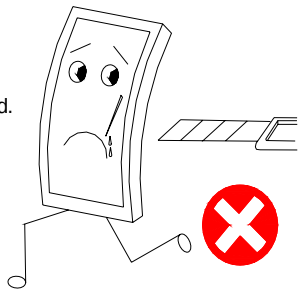
Don't Swallow or Touch Liquid Crystal!

Liquid Crystal may be leaked when display is broked.
If it accidentally gets your hands, wash then with water!



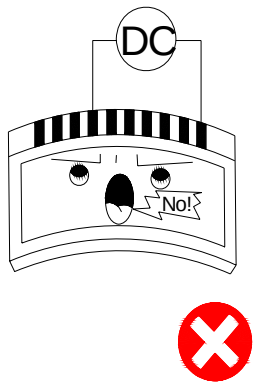
Don't not Scratch!

Polarizer is a soft material and can easily be scratched.



No DC Voltage to LCD!

DC volrage or driveing higher than the specified voltage will reduce the lifetime of the LCD.

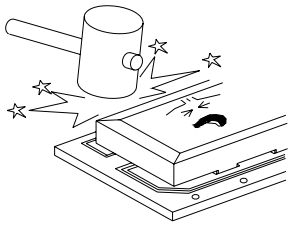


Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

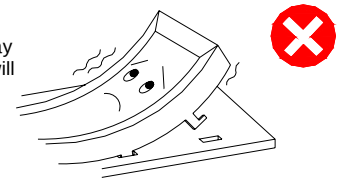
Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

Don't Press the Metallic Frame and Disassemble the LCM

Pressure on the metallic frame and PCB may deform the conductive rubber or break the liquid crystal cell and back light, which will cause defects.

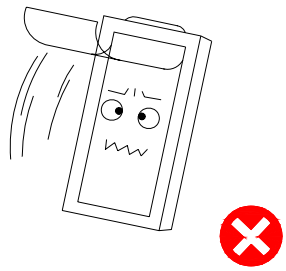


LCD may be shifted or conductive rubber may be reshaped, which will cause defects.



Slowly Peel Off Protective Film!

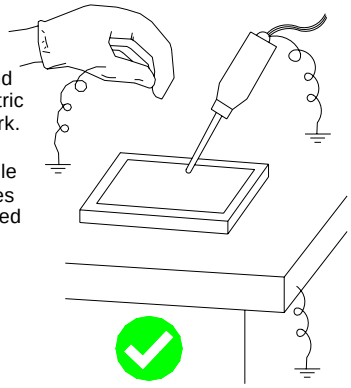
Avoid static electricity.



Avoid Static Electricity!

Please be sure to ground human body and electric apploances during work.

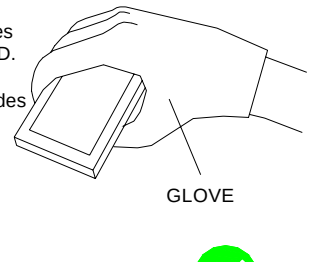
It is preferable to use conductive mat on table and wear cotton clothes or conduction processed fiber. Synthetic fiber is not recommended.



Wear Gloves While Handing!

It is preferable to wear gloves to avoid damaging the LCD.

Please do not touch electrodes with bare hands or make them dirty.

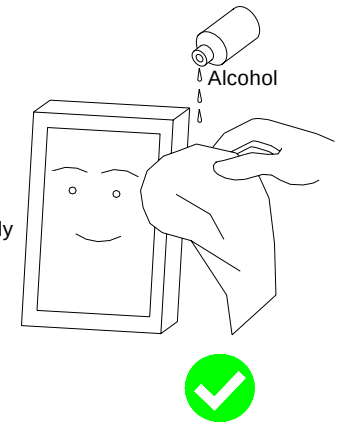


Keep Away From Extreme Heat and Humidity!

LCD deteriorates.

Use Alcohol to Clean Terminals!

When attaching with the heat seal or anisontropically conductive film, wipe off with alcohol before use.

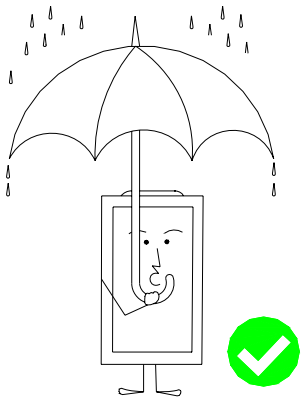


Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767

Don't Drop Water on LCD!

Note that the presence of waterdrops or dew in the LCD panel may deteriorate the polarizer or corrade electrode.



Precaution in Soldering LCD Module

Basic instructions: Solder I/O terminals only.
Use soldering iron without leakage.
(1)Soldering condition to I/O terminals
Temperature at tip of the iron: 280±10℃
Soldering time: 3~4 sec.
Type of solder: Eutectic solder (containing colophony-flux)
*Please do not use flux because it may soak into LCD Module or contaminate it.
*It is preferable to peel off protective film on display surface after soldering I/O terminals is finished.
(2)Remove connector or cable
*When you remove connector or cable soldered to I/O terminals, please confirm that solder is fully melted. If you remove by force, electrodes at I/O terminals may be damaged(or stripped off).
*It is recommended to use solder suction machine.

Long-term Storage

If it is necessary to store LCD modules for a long time, please comply with the following procedures.
If storage condition is not satisfactory, display(especially polarizer) may be deteriorated or soldering I/O terminals may become difficult(some oxide is generated at I/O terminals plating).
1.Store as delivered by Optrex
2.If you store as unpacked,put in anti-static bag,seal its opening and store where it is not subjected to direct sunshine nor fluorescent lamp.
3.Store at temperature 0 to +35℃ and at low humidity.Please refer to our specification sheets for storage temperature range and humidity condition.

Long-term Storage

Please use power supply with built-in surge protection circuit.

Na-3323, Chungang Circulation Complex, #1258, Guro Bon-Dong, Guro-Gu, Seoul, 152-721, Korea.

Tel ; 82-2-2612-4767 , Fax ; 82-2-6679-5767