NAN YA PLASTICS CORPORATION

SPECIFICATION OF
LCD MODULE
PRODUCT NO.: LCBH7Z221M4CS_

SPEC. NO: LM221-4A-△2

CUSTOMER
APPROVED BY
DATE:

LCD DEPARTMENT
ELECTRONIC MATERIALS DIVISION
NAN YA PLASTICS CORPORATION
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EDITED ON : JULY. 05, 2007

Q.C. DEPT.	DESIGN MANAGER	DESIGN CHECK	DESIGNER
			J.P Weng

RECORDS OF REVISION

SPEC. NO. : LM221-4A

DATE	REVISED NO.	REF. PAGE	SUMMARY	DESIGN	CHECK
06.15.06'	0	1~24/24	First Issue(6.5" HVGA COLOR)	J.P Weng	Louis Lee
11.24.06'	1	3/24	Modified Vcon & Luminance	J.P Weng	

1. MECHANICAL DATA

NO	ITEM	CONTENTS	UNIT
1	Product No.	LCBH7Z221M4CS_	–
2	Module Size	173 (W) x 73 (H) x 7.0 (D)	mm
3	Dot Size	0.065 (W) x 0.225 (H)	mm
4	Dot Pitch	0.08 (W) x 0.24 (H)	mm
5	Number of Dots	640xRGB (W) x 240 (H)	Dot
6	Duty	1/244	–
7	LCD Display Mode	Color STN / Normally Black	–
8	Rear Polarizer	Transmissive Type	–
9	Viewing Direction	6	O'clock
10	Backlight	CCFL	–
11	Controller IC	Excluded	–
12	DC/DC Converter	Included	
13	Weight	120 (Approx.)	g
14	CCFL Inverter	Recommended TAD-250(TDK)	–
15	Sodering	Lead Freee	–

Note :

LCBH7Z221M4CS_

Back Light
B : CCFL Back Light

Reflective/Transmissive
Z : other

Option
4 : Version
C : Polarizer with Anti-Glare
S : RoHS Compliance
T : Test Sample

Mode/View Angle
M : For 6 O'clock color STN module

RoHS Compliance.

Nan Ya guarantees that this project doesn't include any materials (6 materials) or includes less than specified quantities which are regulated by RoHS Compliance.

2. ABSOLUTE MAXIMUM RATINGS

(1) ELECTRICAL ABSOLUTE RATINGS

VSS=0V

ITEM	SYMBOL	MIN	MAX	UNIT	COMMENT
Power Supply for Logic	VDD−VSS	0	6.0	V	Ta=25°C
Input Voltage	VI	−0.3	VDD+0.3	V	Ta=25°C
Vcon Voltage	Vcon	0	VDD	V	Ta=25°C
Static Electricity	−	−	−	−	Note 1

Note 1 LCM should be grounded during handling LCM.

(2) ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	WIDE TEMP.			
	OPERATING		STORAGE	
	MIN.	MAX.	MIN.	MAX.
Ambient Temperature	0	50	−20	70
Humidity (Without Condensation)	Note 2,4		Note 3,4	
Vibration	Note 5			

Note 2 Ta ≦ 50°C : 75%RH max

Note 3 Please refer to item of reliability test.

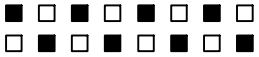
Note 4 Background color will change slightly depending on ambient temperature. That phenomenon is reversible.

Note 5

Frequency	5 Hz~13.95 Hz	13.95 Hz~33 Hz	33 Hz~51 Hz	51 Hz~500 Hz
Vibration Level	−	2X9.8 m/s²	−	5x9.8 m/s²
Vibration Width	0.2 inch	−	0.036 inch	−
Vibration Direction	X/Y/Z			
Vibration Time	20 min/cycle X 3 directions			

3. ELECTRICAL CHARACTERISTICS

3-1. ELECTRICAL CHARACTERISTICS OF LCM

ITEM		SYMBOL		CONDITION		MIN.	TYP.	MAX.	UNIT
Logic Circuit Power Supply		VDD-VSS		Ta=25°C		3.0	3.3	3.6	V
Input Voltage		VIH		H level		0.8VDD	–	VDD	V
		VIL		L level		0	–	0.2VDD	V
Contrast Adjust Voltage		Vcon-VSS		Duty=1/244 VDD=3.3V	Ta=0°C	0.4	–	–	V
					Ta=25°C	0.7	1.1	1.5	
					Ta=50°C	–	–	2.8	
Supply Current for Logic		IDD		VDD-VSS=3.3V Ta=25°C PATTERN : 		–	80	120	mA
LCM	Surface Luminance	L	Z221M4C	Ta=25°C Inverter : TAD-250 Vin=12V Vcrt=4.5V I_L=1.0mArms	PATTERN: (Dots All On of White Color)	70	85	–	cd/m²
			Z221M4C		PATTERN: (Dots All Off)	–	3.5	–	

3-2.ELECTRICAL CHARACTERISTICS OF BACKLIGHT

Used CCFL Rating Temp.=25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
Lamp voltage	V_L	–	474	–	Vrms	–
Lamp current	I_L	1	1.5	3	mArms	–
Lamp power consumption	P_L	–	0.71	–	W	(*1)
Starting voltage	Vs	–	–	820	Vrms	At 25°C
		–	–	1070	Vrms	At 0°C
Lamp life time	L_L	–	5000	–	hrs	IL = 1.5 mArms (*2)

(*1) Power consumption excluded inverter loss .

(*2) Lamp life time is defined as follows : The final brightness is at 50% of original brightness .

3-3.ELECTRICAL CHARACTERISTICS OF RECOMMENDED INVERTER TDK TAD-250

3-3-1 GENERAL SPECIFICATIONS

OPERATION TEMPERATURE : 0°C~50°C

STORAGE TEMPERATURE : -20°C~80°C

DIMENSION : 95.0(L)mm x 19.5(W)mm x MAX 8.8(H)mm

3-3-2 PIN ASSIGNMENTS

INPUT (CP1) CONNECTOR :

MOLEX 53261-0590

NO.	SIGNAL
1	Vin
2	Gnd
3	Vrmt
4	Vctrl
5	NC

OUTPUT (CP2) CONNECTOR :

MITSUMI : M60-04-30-134P

NO.	SIGNAL
1	RTN
2	NC
3	NC
4	HV

3-3-3 RELATIONSHIP BETWEEN VIN & TUBE CURRENT

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
Input Voltage	VIN	10	12	15	V	
Control Terminal Input Voltage	Vrmt	3.5	5	10	V	ON State
		-0.5	0	0.4		OFF State
Tube Current Control Voltage	Vctrl	4.5	4.1	2.8	V	
Tube Current	IL	1	1.5	3	mA	

4.OPTICAL CHARACTERISTICS

4-1.Optical Char. of Normal Temp. Mode

AT V_{OP}

ITEM / MODE		Cr(Contrast Ratio)						θ(Viewing Angle)		ϕ(Viewing Angle)	
		0℃		25℃		50℃		25℃		25℃	
		MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.
Z	M	30	35	35	40	10	13	–	F: >60 R: 38	–	±50
note		NOTE 6						NOTE 5			

note:

Z: SPECIAL POLARIZER

M: FOR 6 O'CLOCK COLOR STN MODULE

AT ϕ=0° θ=0°

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
Response Time (rise)	Tr	0℃	350	650	950	ms	NOTE 2
		25℃	130	250	370		
		50℃	55	80	120		
Response Time (fall)	Tf	0℃	130	250	370	ms	NOTE 2
		25℃	55	80	120		
		50℃	30	60	90		

4-2.Color of CIE Coordinate

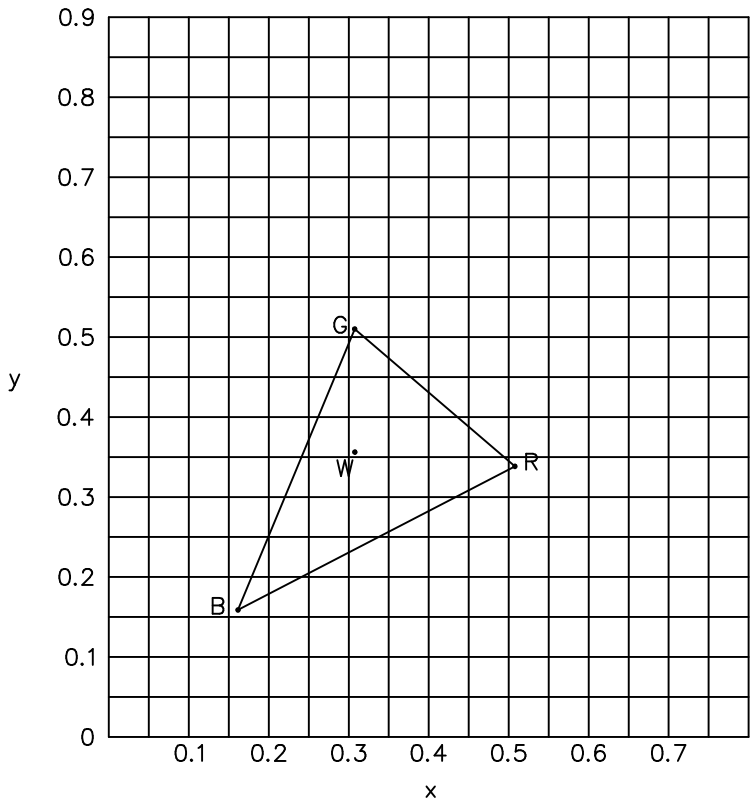
Ta = 25°C

ITEM		SYMBOL	CONDITION	VALUE	NOTE
Color of CIE Coordinate	Red	X	ϕ=0° , θ=0°	0.51	Note※
		y		0.33	
	Green	X	ϕ=0° , θ=0°	0.31	
		y		0.52	
	Blue	X	ϕ=0° , θ=0°	0.17	
		y		0.17	
	White	X	ϕ=0° , θ=0°	0.28	
		y		0.35	

Tolerance : ±0.05

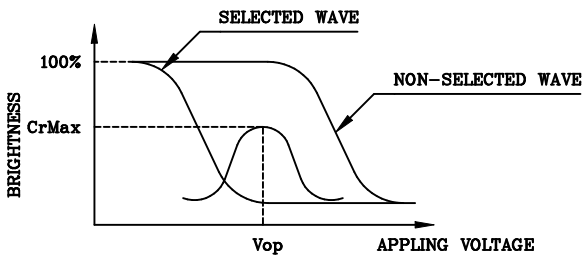
Note※ CIE chromaticity diagram shown on Fig.1

Fig.1

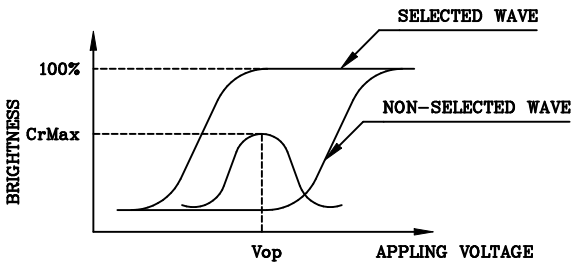


(NOTE 1)

Definition of Operation Voltage(Vop)



(positive type)



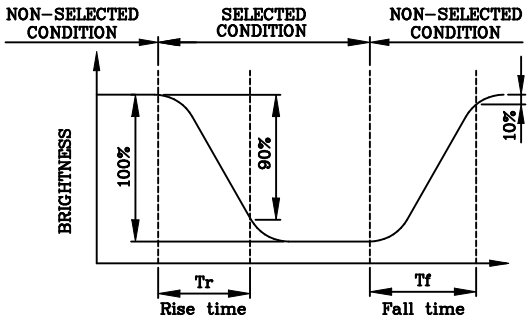
(negative type)

*Conditions

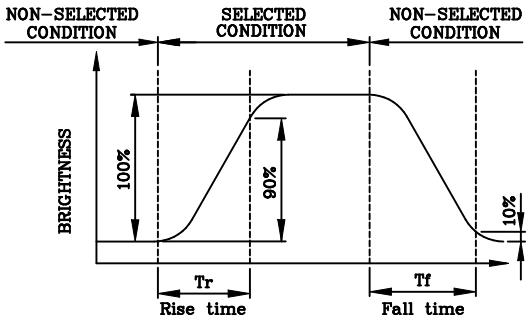
Viewing Angle : 0
Frame Frequency : 120Hz
Applying Waveform : 1/N duty 1/a bias

(NOTE 2)

Definition of Response Time(Tr,Tf)



(positive type)



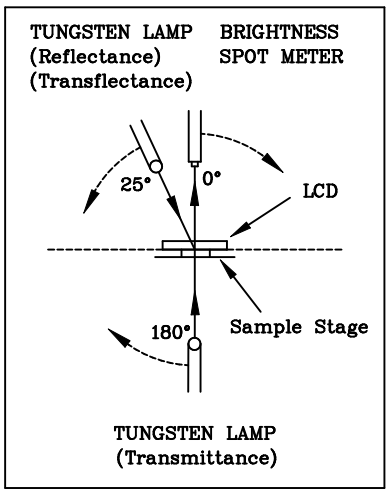
(negative type)

*Conditions

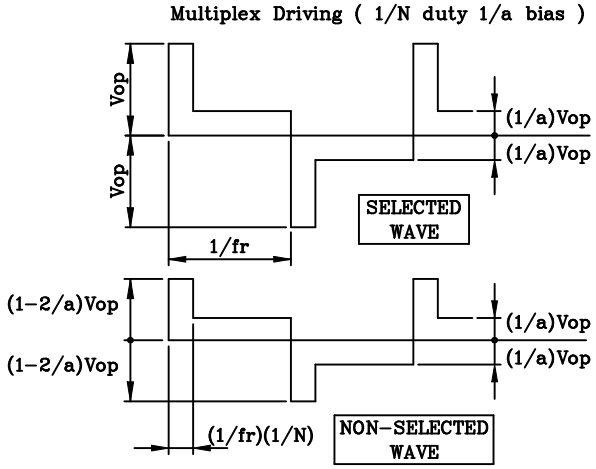
Operating Voltage : Vop
Viewing Angle (θ,ϕ) : (0,0)
Frame Frequency : 120Hz
Applying Waveform : 1/N duty 1/a bias

(NOTE 3)

Description of Measuring Equipment and Driving Waveforms

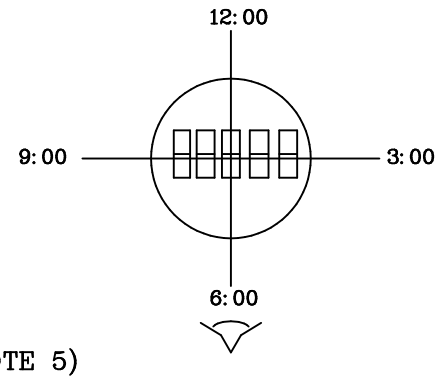


Multiplex Driving (1/N duty 1/a bias)



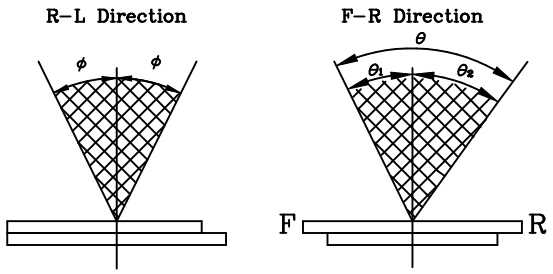
(NOTE 4)

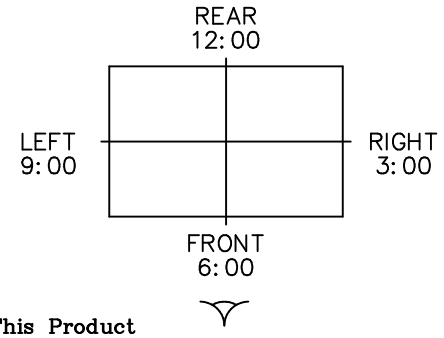
Definition of Viewing Direction



(NOTE 5)

Definition of Viewing Angle





*For This Product

The Viewing Direction Is 6 O'clock

So $\theta 1 > \theta 2$

$$\theta = \theta_1 + \theta_2$$

*Conditions

Operating Voltage : Vop

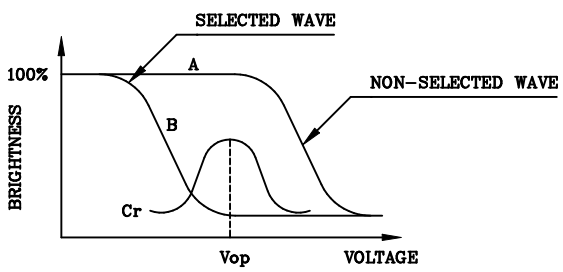
Frame Frequency : 120Hz

Applying Waveform : 1/N duty 1/a bias

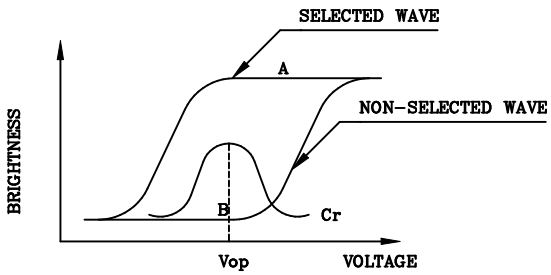
Contrast Ratio : larger than 2

(NOTE 6)

Definition of Contrast Ratio (Cr)



(positive type)



(negative type)

Contrast Ratio : Cr=A/B

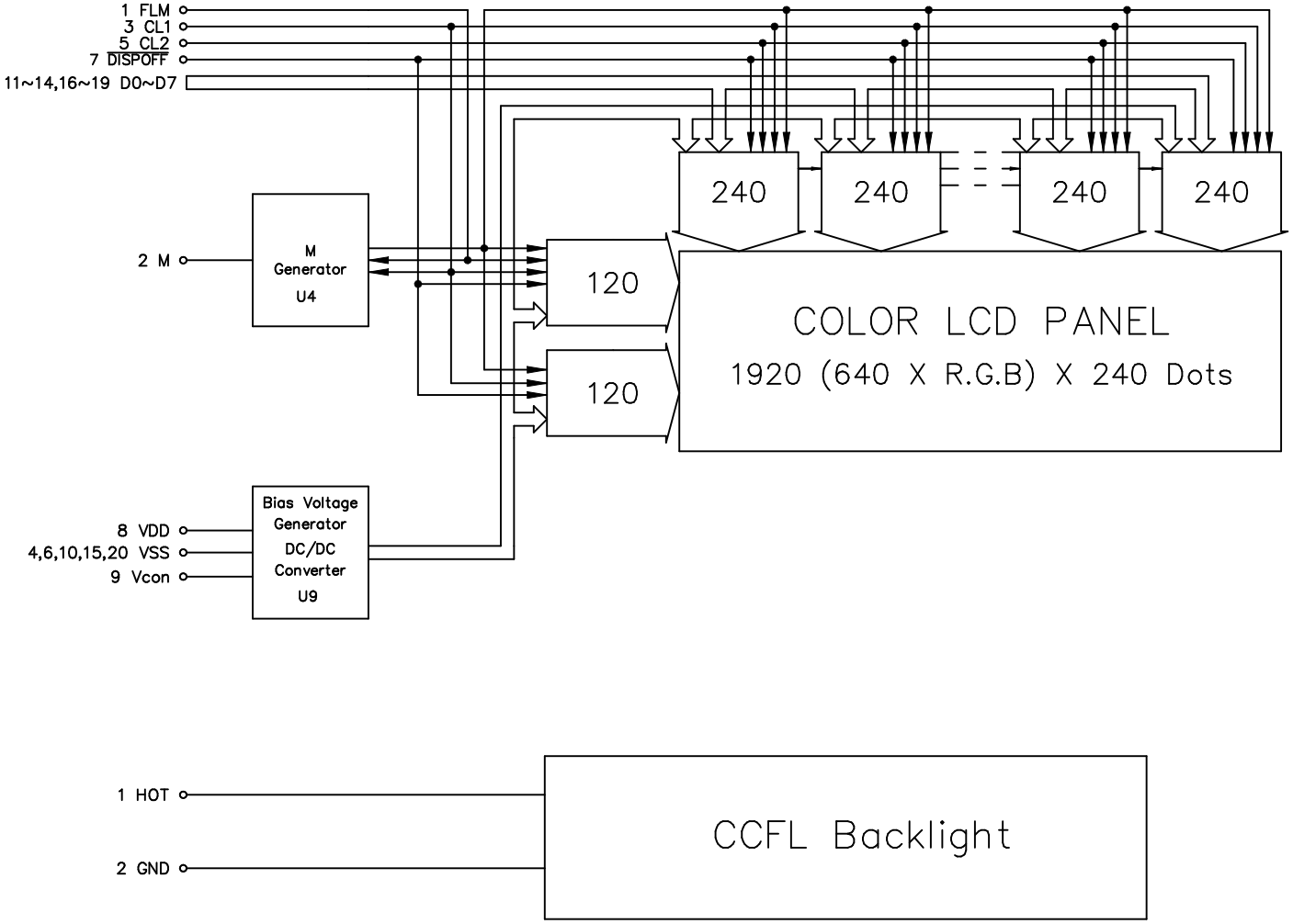
*Conditions

Viewing Angle : 0

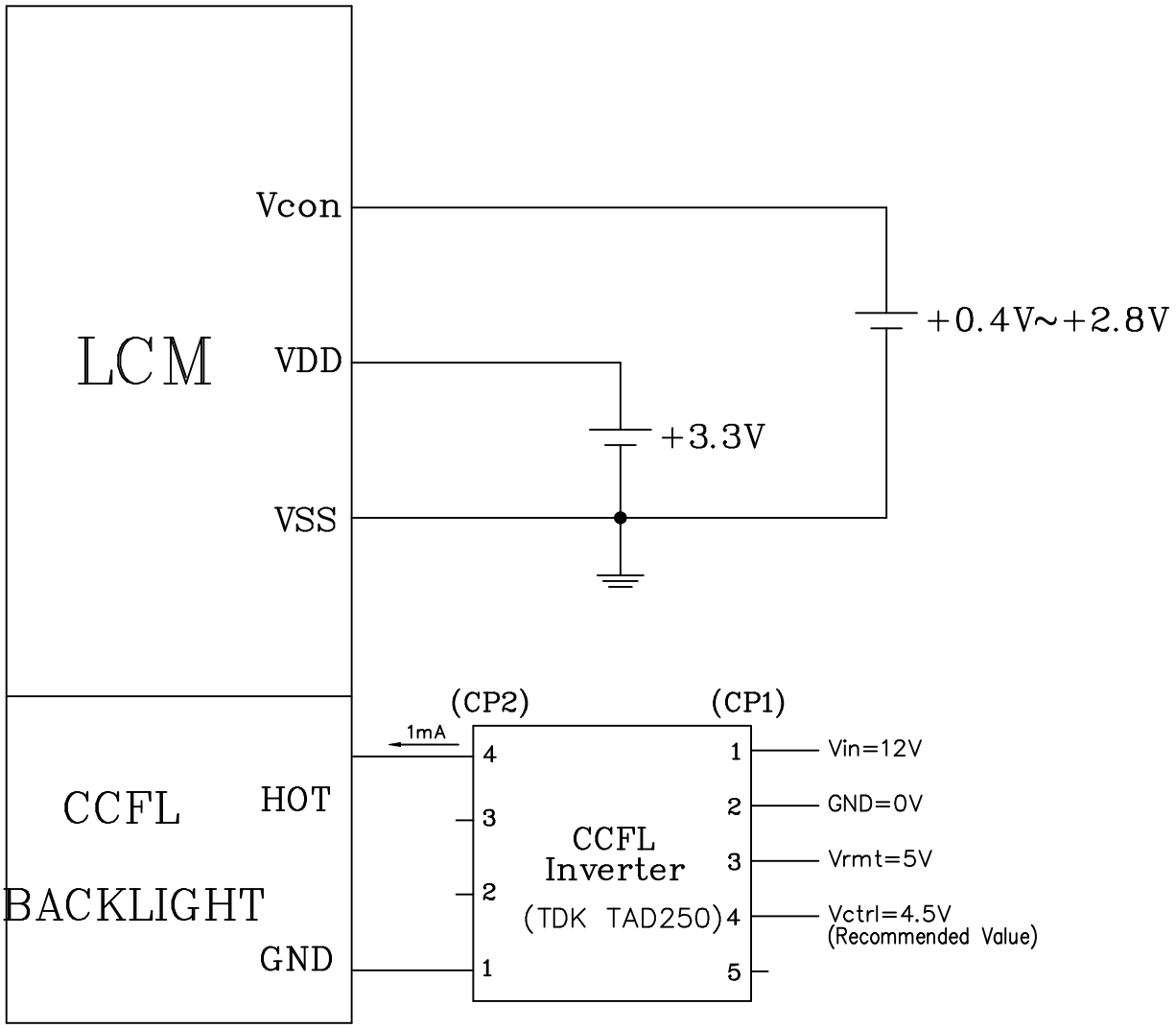
Frame Frequency : 120Hz

Applying Waveform : 1/N duty 1/a bias

5. BLOCK DIAGRAM



7. POWER SUPPLY



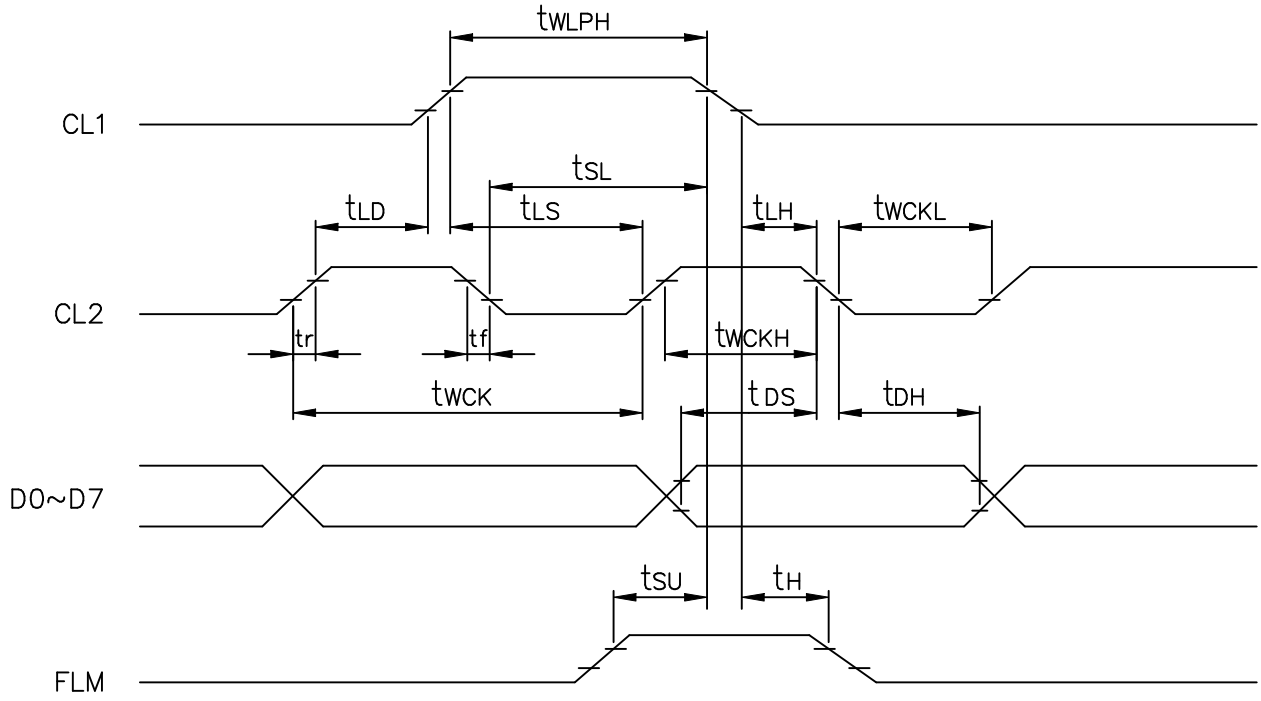
RECOMMEND CCFL INVERTER : TAD-250 (TDK)

8. TIMING CHARACTERISTICS

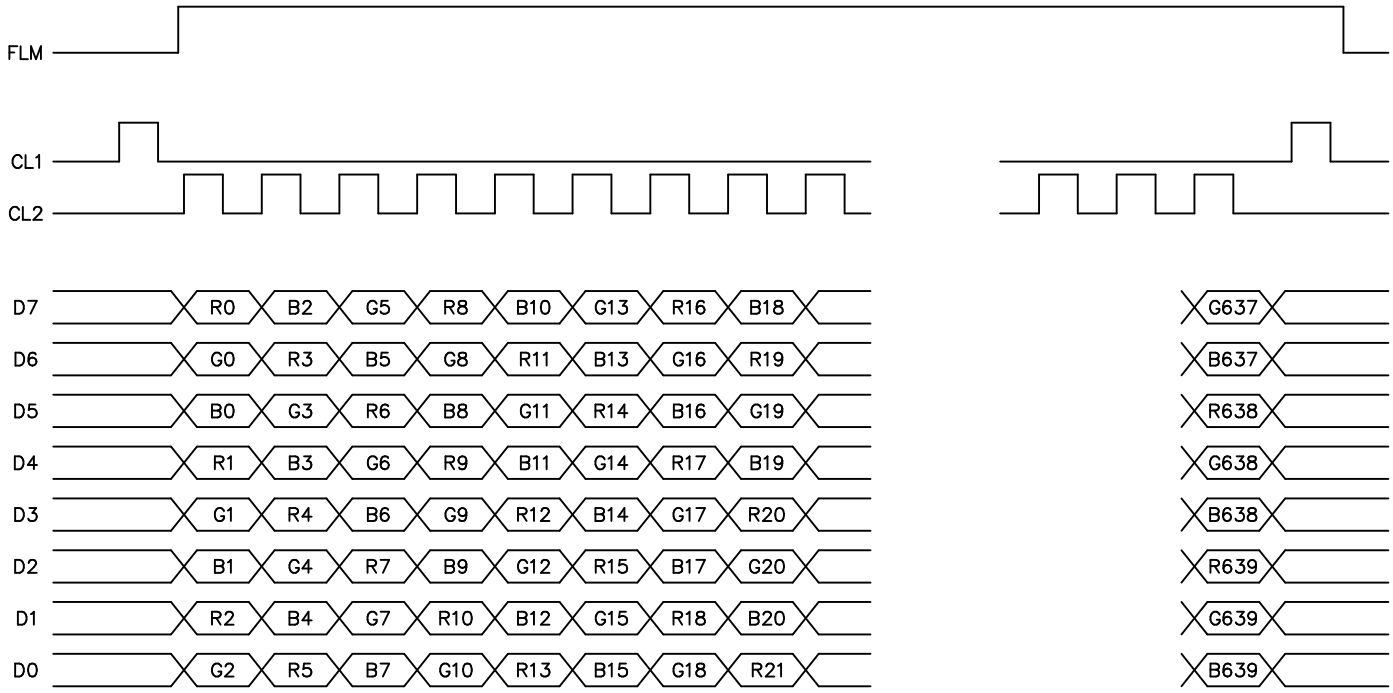
8-1. INTERFACE TIMING

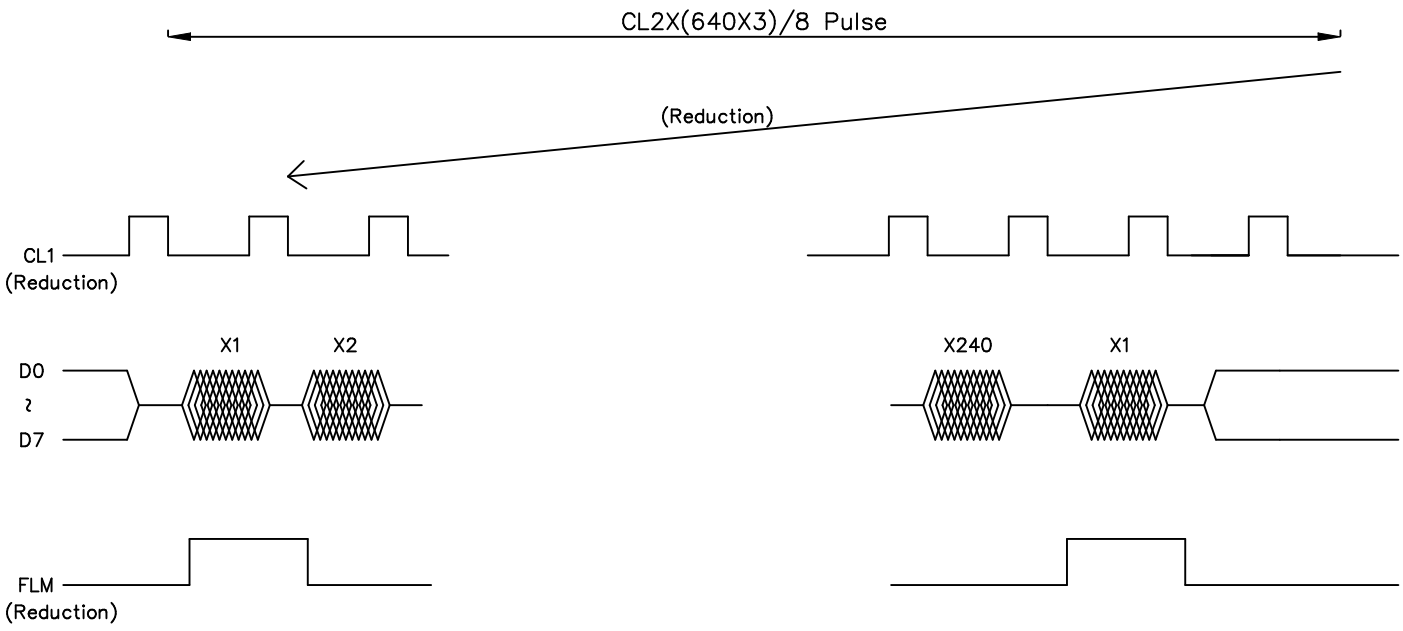
VDD=5.0V ± 10%

Parameter	SYMBOL	MIN.	MAX.	UNIT
CLOCK PULSE CYCLE TIME	t_{WCK}	50	–	ns
CLOCK PULSE HIGH LEVEL WIDTH	t_{WCKH}	15	–	ns
CLOCK PULSE LOW LEVEL WIDTH	t_{WCKL}	15	–	ns
LATCH PULSE HIGH LEVEL WIDTH	t_{WLPH}	20	–	ns
CL2→CL1 RISE TIME	t_{LD}	0	–	ns
CL2→CL1 FALL TIME	t_{SL}	25	–	ns
CL1→CL2 RISE TIME	t_{LS}	25	–	ns
CL1→CL2 FALL TIME	t_{LH}	25	–	ns
CLOCK PULSE RISE/FALL TIME	t_r , t_f	–	30	ns
DATA SETUP TIME	t_{DS}	10	–	ns
DATA HOLD TIME	t_{DH}	10	–	ns
FLM SETUP TIME	t_{SU}	100	–	ns
FLM HOLD TIME	t_H	30	–	ns

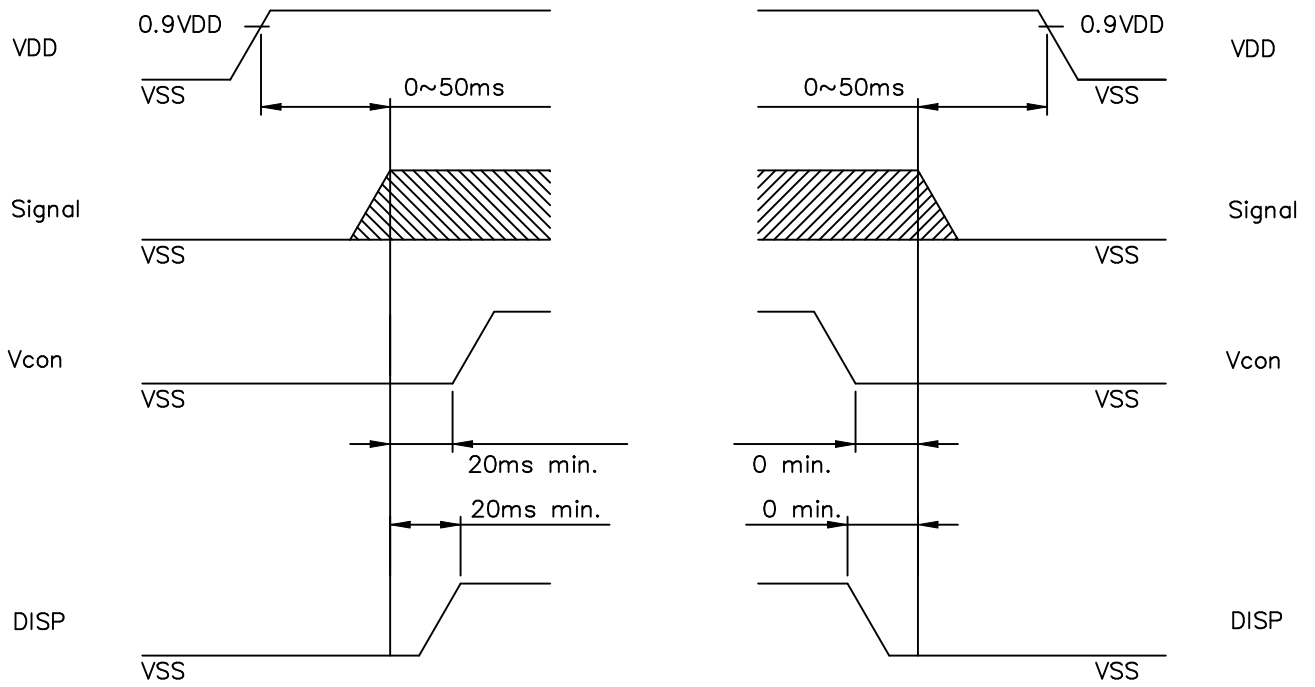


8-2. TIMING CHART





8-3. POWER ON/OFF TIMING



The missing pixels may occur when the LCM is driven beyond above power interface sequence.

8-4. DISPLAY PATTERN

COLUMN

	1	2	3	4	5	6	7	8		1913	1914	1915	1916	1917	1918	1919	1920
1	R0 D7	G0 D6	B0 D5	R1 D4	G1 D3	B1 D2	R2 D1	G2 D0		G637 D7	B637 D6	R638 D5	G638 D4	B638 D3	R639 D2	G639 D1	B639 D0
2	R0 D7	G0 D6	B0 D5	R1 D4	G1 D3	B1 D2	R2 D1	G2 D0		G637 D7	B637 D6	R638 D5	G638 D4	B638 D3	R639 D2	G639 D1	B639 D0

ROW

239	R0 D7	G0 D6	B0 D5	R1 D4	G1 D3	B1 D2	R2 D1	G2 D0		G637 D7	B637 D6	R638 D5	G638 D4	B638 D3	R639 D2	G639 D1	B639 D0
240	R0 D7	G0 D6	B0 D5	R1 D4	G1 D3	B1 D2	R2 D1	G2 D0		G637 D7	B637 D6	R638 D5	G638 D4	B638 D3	R639 D2	G639 D1	B639 D0

9. RELIABILITY TEST

NO	ITEM	CONDITION			STANDARD	NOTE
1	High Temp. Storage	70°C	120Hrs		Appearance without defect	
2	Low Temp. Storage	−20°C	120Hrs		Appearance without defect	
3	High Temp. & High Humi. Storage	50°C 90%RH	120Hrs		Appearance without defect	
4	High Temp. Operating Display	50°C	120Hrs		Appearance without defect	
5	Low Temp. Operating Display	0°C	120Hrs		Appearance without defect	
6	Thermal Shock	−20°C,30min → 70°C,30min ↑ (1cycle)			Appearance without defect	10 cycles

Inspection Provision

1.Purpose

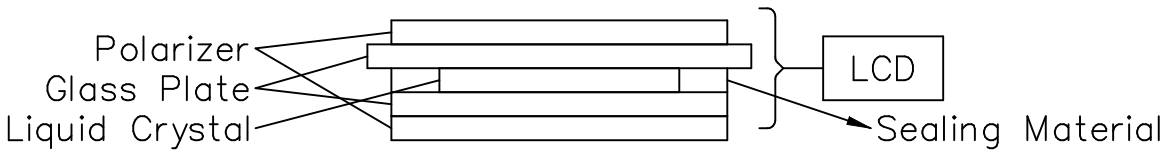
The NAN YA inspection provision provides outgoing inspection provision and its expected quality level based on our outgoing inspection of NAN YA LCD produces.

2.Applicable Scope

The NAN YA inspection provision is applicable to the arrangement in regard to outgoing inspection and quality assurance after outgoing.

3.Technical Terms

3-1 NAN YA Technical Terms



4.Outgoing Inspection

4-1 Inspection Method

MIL-STD-105E Level Ⅱ Regular inspection

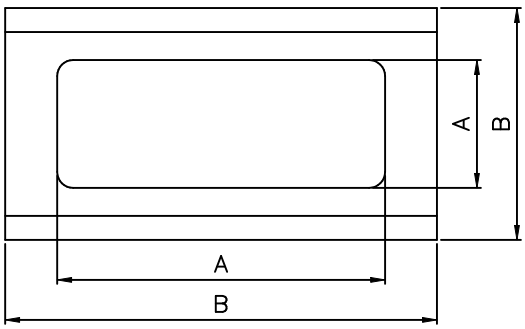
4-2 Inspection Standard

	Item		AQL(%)	Remarks
Major Defect	Dots	Opens Shorts Erroneous operation	0.4	faults which substantially lower the practicality and the initial purpose difficult to achieve.
	Solder appearance	Shorts Loose		
	Cracks	Display surface cracks		

	Dimensions	External from Dimensions	0.4	
Minor Defect	Inside the glass	Black spots	0.65	faults which appear to pose almost no obstacle to the practicality, effective use, and operation.
	Polarizing plate	Scratches, foreign Matter, air bubbles, and peeling		
	Dots	Pinhole, deformation		
	Color tone	Color unevenness		
	Solder appearance	Cold solder Solder projections		

4-3 Inspection Provisions
*Viewing Area Definition

Fig. 1



A : Zone Viewing Area
B : Zone Glass Plate Out Line

*Inspection place to be 500 to 1000 lux illuminance uniformly without glaring.
The distance between luminous source(daylight fluorescent lamp and cool white fluorescent lamp) and a sample to be 30cm to 50cm.

*Test and measurement are performed under the following conditions, unless otherwise specified.

Otherwise specfied.

Temperature	20± 15°C
Humidity	65± 20%R.H..
Pressure	860~1060hPa(mmbar)

In case of doubtful judgment, it is performed under the following conditions.

Temperature	20± 15°C
Humidity	65± 20%R.H..
Pressure	860~1060hPa(mmbar)

5.Specification for quality check

5-1 Electrical characteristics

NO.	Item	Criterion
1.	Non operational	Fail
2.	Miss operating	Fail
3.	Missing dot	Fail
4.	Contrast irregular	Fail
5.	Response time	Within Specified value

5-2 External Appearance Defect

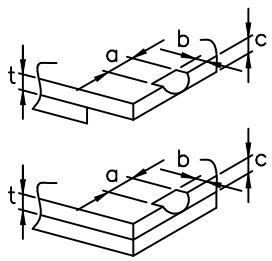
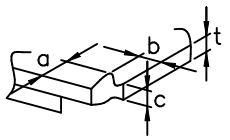
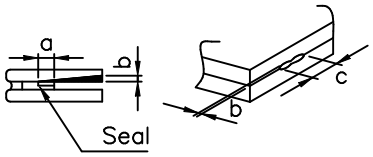
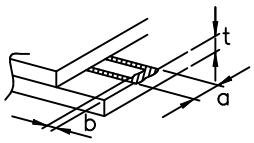
<table>
<tr><th>NO.</th><th>Item</th><th>Criterion</th></tr>
<tr><td>1.</td><td>Black spots, foreign matter, and white spots (Including light leakage due to pinholes of polarizing plates, etc.)</td><td>(1)-1-Spots
<table>
<tr><th>Average Diameter(mm): D</th><th>Number of pieces permitted</th><th>Minimum Space</th></tr>
<tr><td>D≦0.2</td><td>Ignore</td><td>-</td></tr>
<tr><td>0.2<D≦0.3</td><td>7</td><td>10mm</td></tr>
<tr><td>0.3<D≦0.4</td><td>3</td><td>30mm</td></tr>
<tr><td>0.4<D</td><td>0</td><td></td></tr>
</table>
Number of total pieces is set to within 5 pieces.

Note that when there are 2 pieces or more, they are not to be concentrated.
Set as: Average diameter = (Long diameter + Short diameter)/2

(1)-2-Blurred Spots(At lighting condition)
<table>
<tr><th>Average Diameter(mm): D</th><th>Number of pieces permitted</th></tr>
<tr><td>D≦0.3</td><td>Ignore</td></tr>
<tr><td>0.3<D≦0.75</td><td>5</td></tr>
<tr><td>0.75<D</td><td>0</td></tr>
</table>
Number of total pieces is set to within 5 pieces.

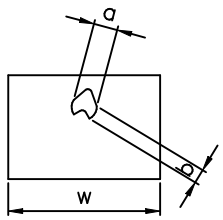
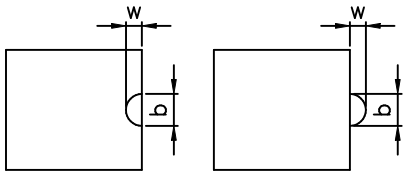
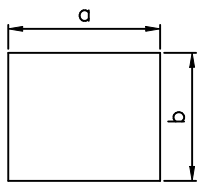
Note that when there are 2 pieces or more, they are not to be concentrated.
Set as: Average diameter = (Long diameter + Short diameter)/2</td></tr>
</table>

<table>
<tr><td>1.</td><td>Line</td><td>(1)-1-Lines
<table><tr><th>Width(mm): W</th><th>Length(mm): L</th><th>Number of pieces permitted</th></tr><tr><td>W≦0.03</td><td>Ignore</td><td>Ignore</td></tr><tr><td>0.03<W≦0.08</td><td>L≦4</td><td>2</td></tr><tr><td>0.08<W≦0.1</td><td>L≦1</td><td>1</td></tr></table>Object exceeding 0.1mm follow the standards of the spots form.
Note that when there are 2 pieces or more, they are not to be concentrated.
(1)-2-Blurred Lines(At lighting condition)
<table><tr><th>Width(mm): W</th><th>Length(mm): L</th><th>Number of pieces permitted</th></tr><tr><td>W≦0.03</td><td>Ignore</td><td>Ignore</td></tr><tr><td>0.03<W≦0.08</td><td>L≦3</td><td>6</td></tr><tr><td>0.08<W</td><td>3<L</td><td>None</td></tr></table>Object exceeding 0.1mm follow the standards of the spots form.
Note that when there are 2 pieces or more, they are not to be concentrated.</td></tr>
<tr><td>2.</td><td>Scratches(Glass, reflection plates, and polarizing plates)</td><td>In accordance with black spots.
(At non lighting condition)</td></tr>
<tr><td>3.</td><td>Color irregular</td><td>Not remarkable color irregular.</td></tr>
</table>

<table>
<tr><td>4.</td><td>Air bubbles polarizing plates, and reflection plates</td><td colspan="2">
<table>
<tr><th>Average Diameter (mm): D</th><th>Number of pieces permitted</th></tr>
<tr><td>D≦0.3</td><td>Ignore</td></tr>
<tr><td>0.3<D</td><td>0</td></tr>
</table>
Average diameter = (Long diameter + Short diameter)/2
Note that when there are 4 pieces or more, they are not to be concentrated.
</td></tr>
<tr><td rowspan="5">5.</td><td rowspan="5">Cracks</td><td>(1)General crack
 
</td><td>a≦5
b≦2
c≦t
Where, a and b are ignored when less that or equal 0.5. The numbers of pieces are set at up to 5 pieces.</td></tr>
<tr><td>(2)Corner crack
 
</td><td>a≦2.5
b≦2.5
c≦t
a+b≦4</td></tr>
<tr><td>(3)Seal portion crack
 
</td><td>a≦The seal width x 1/3
b≦t x 2/3
c≦5
The numbers of pieces are set at up to 5 pieces.</td></tr>
<tr><td>(4)ITO Pin crack
 
</td><td>a≦5
b≦1/3 pin length
c≦t</td></tr>
<tr><td>(5)Progressive cracks</td><td>All taken to be unacceptable.</td></tr>
</table>

6.	Outer dimensions	Should be with in the tolerance.
7.	Newton ring(touch panel)	Orbicular of interference fringes is not allowed in the optimum contrast within the active area under viewing angle.
8.	Soldering	Should be no defective soldering such as shorting, loose terminal cold solder, peeling of printed circuit board pattern, improper mouting position, etc.

5-3 Dot Appearance Defect

NO.	Item	Criteria
1.	Pinhole	 Dot display a and b are each ≦0.2mm The overall total is taken be with in 10 units. Note that they are not to be concentrated.
2.	Missing	 Dot display a and b are each ≦0.2mm The overall total is taken to be with in 10 units.
3.	Thick and thin display	 Taken to be within±1.5% of display character width(a) and height(b).

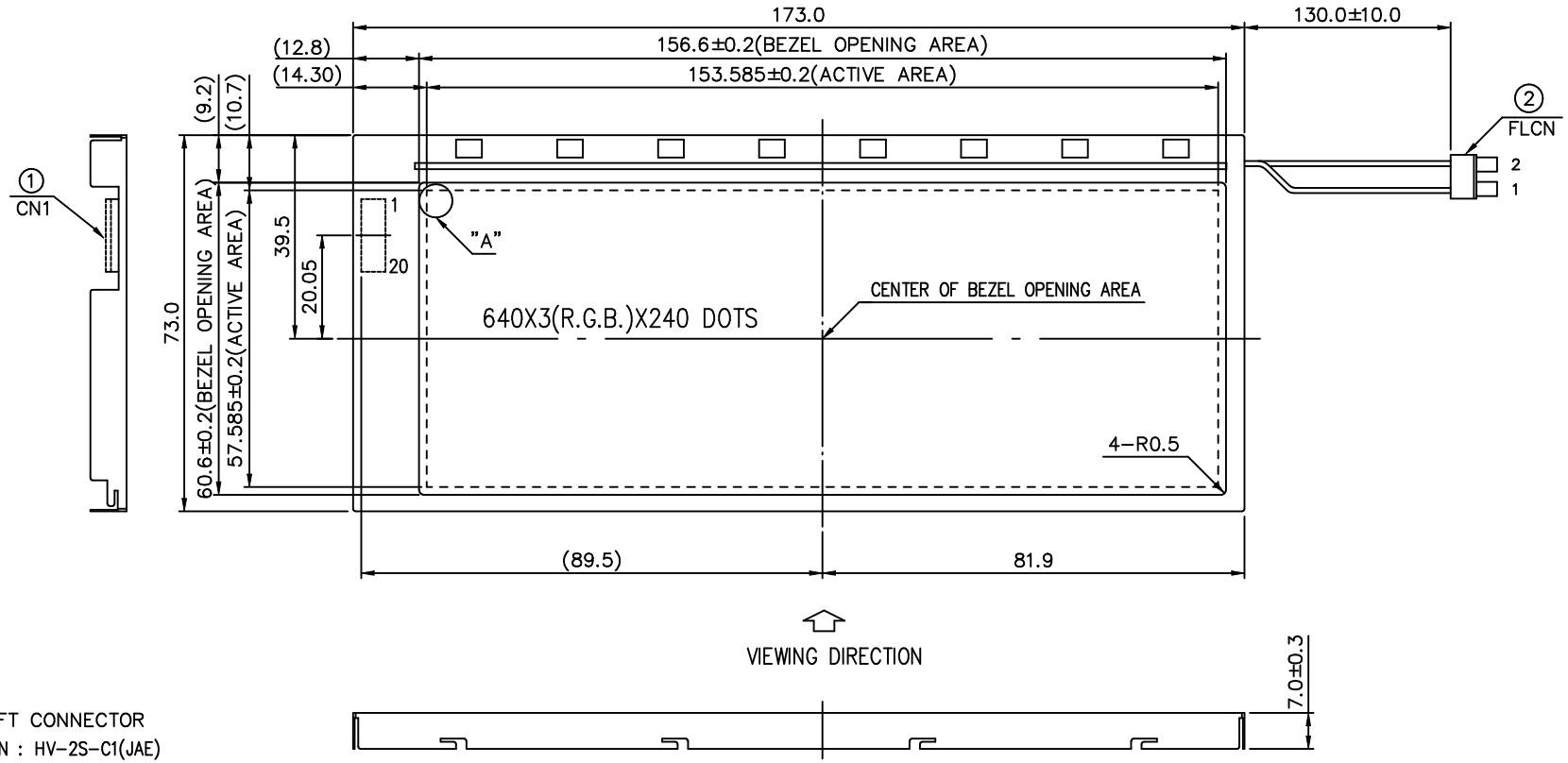
NOTE:

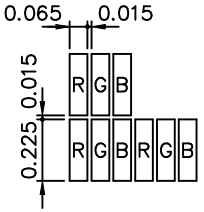
- SAFETY
  1. If the LCD panel breaks, be careful not to get the liquid crystal to touch your skin.
  2. If the liquid crystal touches your skin or clothes, please wash it off immediately by using soap and water.

- HANDLING
  1. Avoid static electricity which can damage the CMOS LSI.
  2. Do not remove the panel or frame from the module.
  3. The polarizing plate of the display is very fragile. So, please handle it very carefully.
  4. Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of plate.
  5. Do not use ketonics solvent & Aromatic solvent, use a soft cloth soaked with a cleaning naphtha solvent.

- STORAGE
  1. Store the panel or module in a dark place where the temperature is 25°C±5°C and the humidity is below 65% RH.
  2. Do not place the module near organics solvents or corrosive gases.
  3. Do not crush, shake, or jolt the module.

- TERMS OF WARRANT
  1. Acceptance inspection period
     The period is within one month after the arrival of contracted commodity at the buyer's factory site.
  2. Applicable warrant period
     The period is within twelve months since the date of shipping out under normal using and storage conditions.





A DETAIL

② CCFT CONNECTOR
FLCN : HV-2S-C1(JAE)
MATING CONNECTOR :
HV-2P-HF-E1400(JAE) or COMPATIABLE

Pin No.	Symbol
1	HOT
2	GND

NOTES:
1.RESOLUTION: 640X3(R.G.B.)X240 DOTS
2.BACKLIGHT: CCFL
3.FRAME MATERIAL: SUS430 (t=0.3)

① INTERFACE CONNECTOR
CN1 : FH12-20S-0.5SH(55)(HIROSE) MATING CABLE : FFC or FPC,N20,PITCH 0.5mm,
WIDTH 10.5mm,THICKNESS 0.3mm

PIN NO	SYMBOL	LEVEL	FUNCTION	PIN NO	SYMBOL	LEVEL	FUNCTION
1	FLM	"H"	Scan start-up signal	11	D0	H(ON),L(OFF)	Display Data signal
2	M	-	Control signal for AC driving	12	D1	H(ON),L(OFF)	Display Data signal
3	CL1	"H" → "L"	Input data latch signal	13	D2	H(ON),L(OFF)	Display Data signal
4	VSS	-	GND	14	D3	H(ON),L(OFF)	Display Data signal
5	CL2	"H" → "L"	Shift clock for input data	15	VSS	-	GND
6	VSS	-	GND	16	D4	H(ON),L(OFF)	Display Data signal
7	DISP	H(ON),L(OFF)	Display control signal	17	D5	H(ON),L(OFF)	Display Data signal
8	VDD	-	Power Supply for logic (+3.3V)	18	D6	H(ON),L(OFF)	Display Data signal
9	Vcon	-	Contrast adjustment voltage	19	D7	H(ON),L(OFF)	Display Data signal
10	VSS	-	GND	20	VSS	-	GND

GENERAL TOLERANCE LIST

DIMENSION	TOLERANCE
L ≦ 6	±0.25 (mm)
6 < L ≦ 18	±0.3 (mm)
18 < L ≦ 50	±0.4 (mm)
50 < L ≦ 125	±0.5 (mm)
125 < L	±0.6 (mm)
ANGLE	±1° (DEG)

REV. NO.	DESCRIPTION	DATE	DESIGN	CHECK	APPROVE
5					
4					
3					
2					
1	Modified the product no.	95.05.18	Campos Chen		

南亞塑膠工業股份有限公司
NAN YA PLASTICS CORPORATION

製品圖

⚠LCBH7Z221M4CS_

	NAME	DATE	THIRD ANGLE P.
APPROVE	TONY CHOU	95.03.21	
CHECK	Y. C. Liu	95.03.17	
DESIGN	Campos Chen	95.03.17	SCALE / UNIT
DRAWN	Campos Chen	95.03.17	1/1 / mm

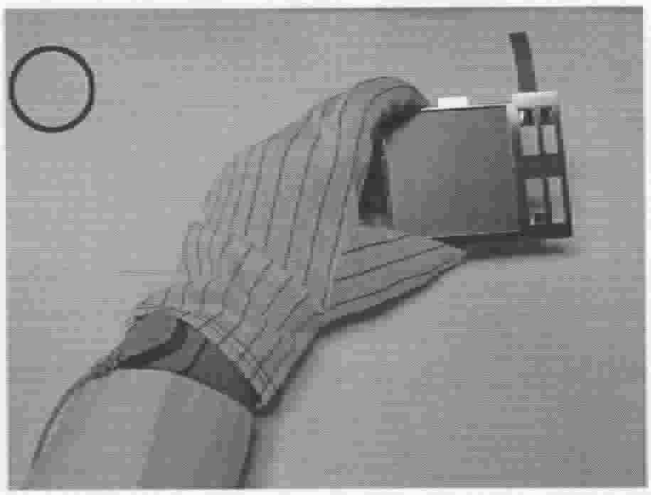
DWG NO. M221AD4A ⚠1

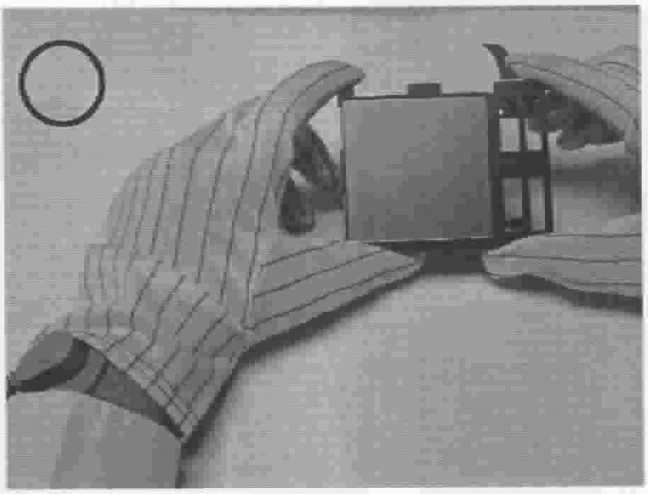
THE NOTES OF LCM USING

LCM is easy to damage.

Please follow the notes as bellows, and be careful of handling!

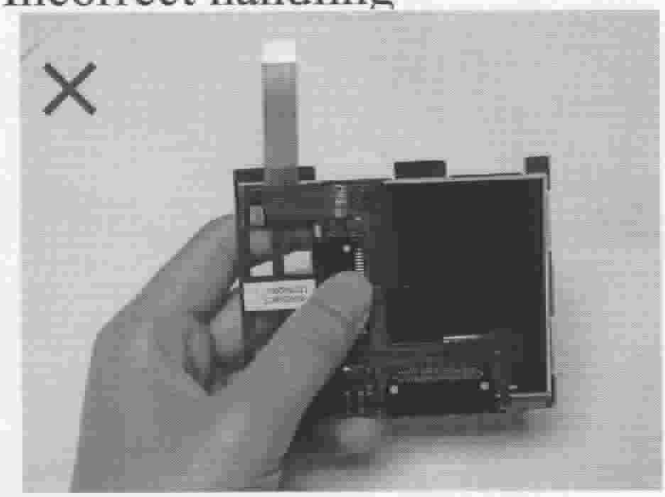
Correct handling



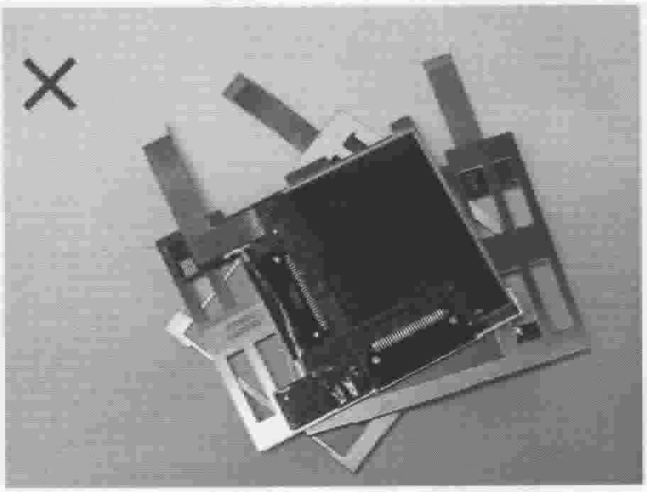


As above picture, please handle with glove by LCM edges and full EOS/ESD protection.

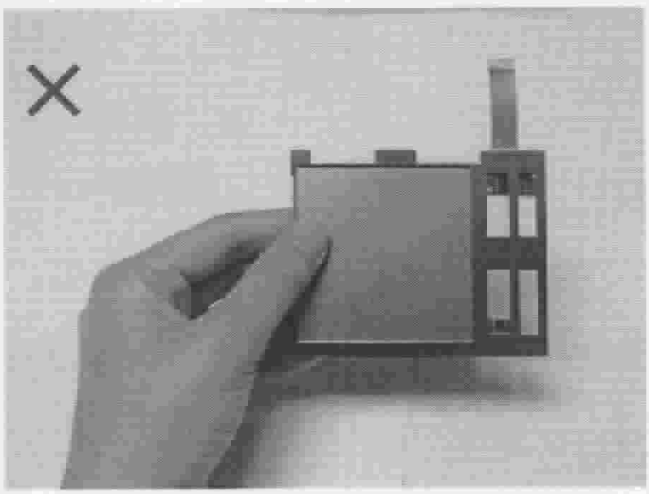
Incorrect handling



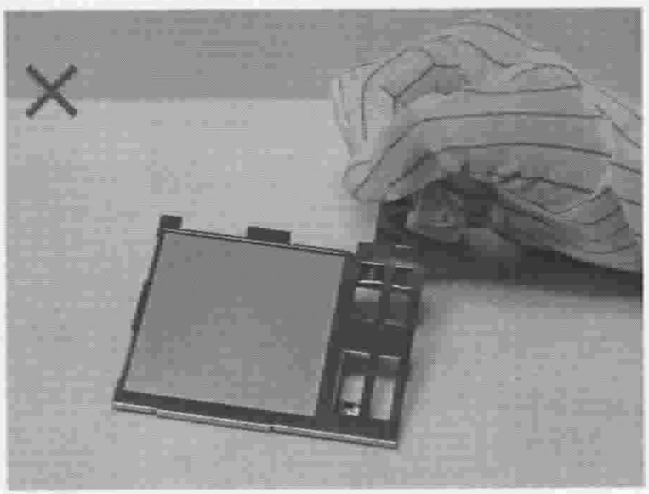
Please don't touch IC directly.



Please don't put one on another LCM.



Please don't hold the surface of LCM.

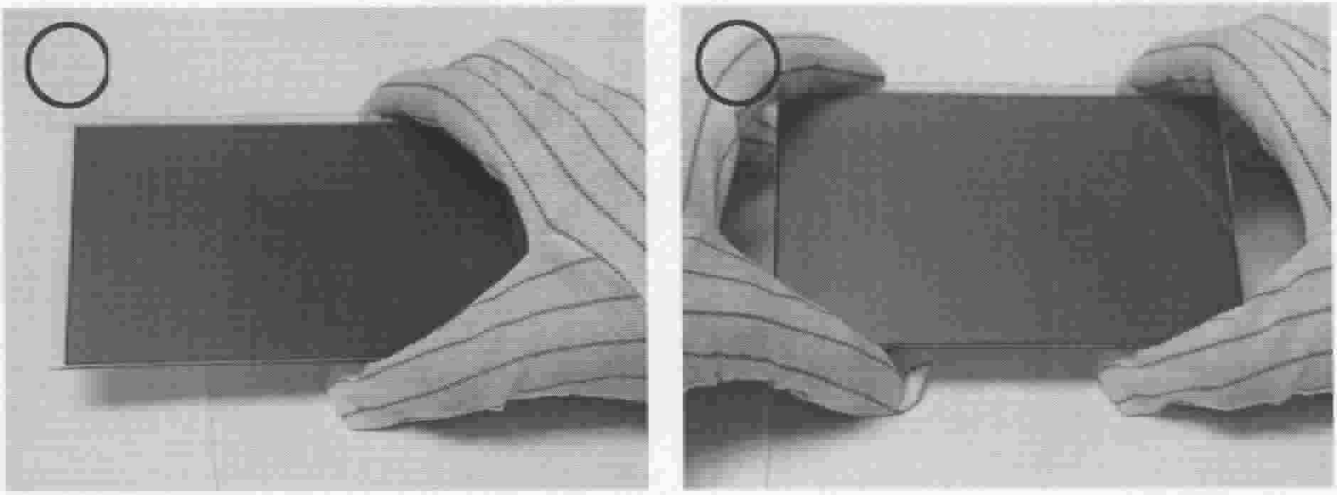


Please don't stretch interface of output.

THE NOTES OF LCD USING

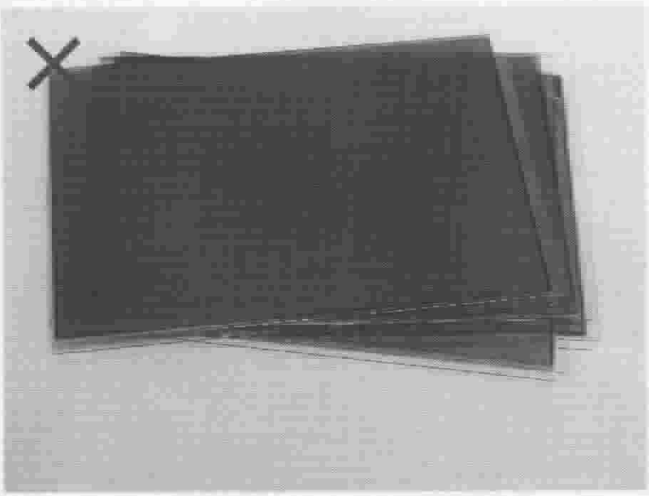
LCD is easy damage.
Please follow notes as bellows, and be careful of handling!

Correct handling

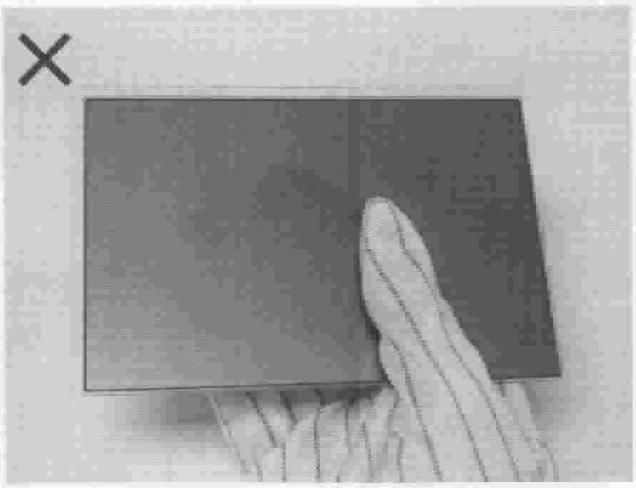


As above picture, please handle with glove by LCD edges and full EOS/ESD protection.

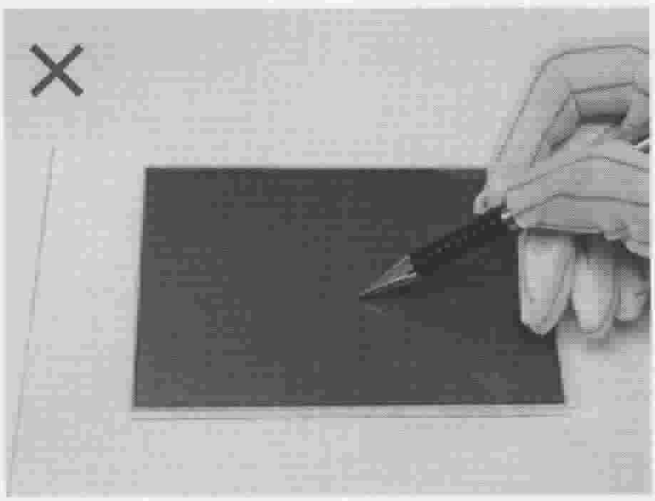
Incorrect handling



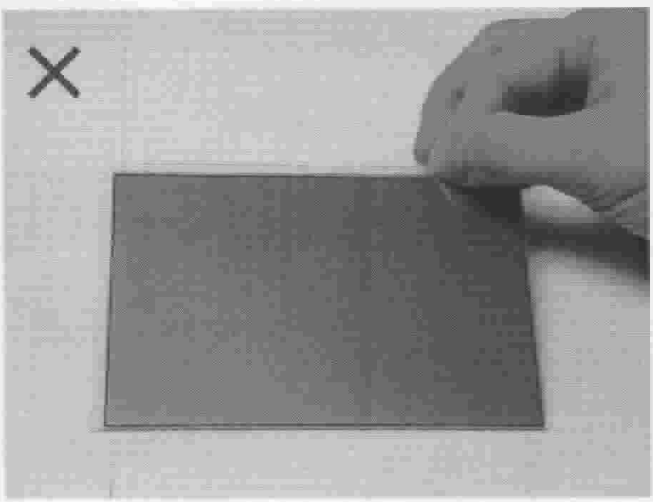
Please don't put one on another LCD.



Please don't hold the surface of LCD.



Please don't operate with sharp stick such as sharp pencil.



Please don't touch ITO glass without anti-static gloves.