NAN YA PLASTICS CORPORATION

SPECIFICATION OF

LCD MODULE

PRODUCT NO.: LMCH9H214C1DS

SPEC. NO.: LM214-1F-⓪

CUSTOMER
APPROVED BY
DATE :

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

RECORDS OF REVISION						SPEC. NO. : LM214-1F
DATE	REVISED NO.	REF. PAGE	SUMMARY		DESIGN	CHECK
06.09.06'	0	1~24/24	First Issue		J.P. Weng	
					LM214-1F	
	0	1~24/24	First Issue		J.P. Weng	

1. MECHANICAL DATA

NO	ITEM	CONTENTS	UNIT
1	Product No.	LMCH9H214C1DS	−
2	Module Size	170.0(W) X 93(H) X MAX15.8(D)	mm
3	Dot Size	0.47 (W) x 0.47 (H)	mm
4	Dot Pitch	0.5 (W) x 0.5 (H)	mm
5	Number of Dots	240 (W) x 128 (H)	Dot
6	Duty	1/128	−
7	LCD Display Mode	STN : Yellow Mode	−
8	Rear Polarizer	Transflective(High Transparency)	−
9	Viewing Direction	6	O'clock
10	Backlight	LED	−
11	Controller	AX6963 or Compatible	−
12	DC/DC Converter	Excluded	−
13	Weight	200 (approx.)	g
14	Soldering	Lead Free	−

Note :

LMCH9H214C1DS

Back Light ⊢
C : LED Back Light

Reflective/Transmissive ⊢
H : Transflective(High Transparency)

Option
1 : Version
D : Wide Temperature
S : RoHS Compliance
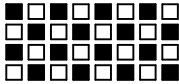
Mode/View Angle
C : Yellow , 6 O'clock
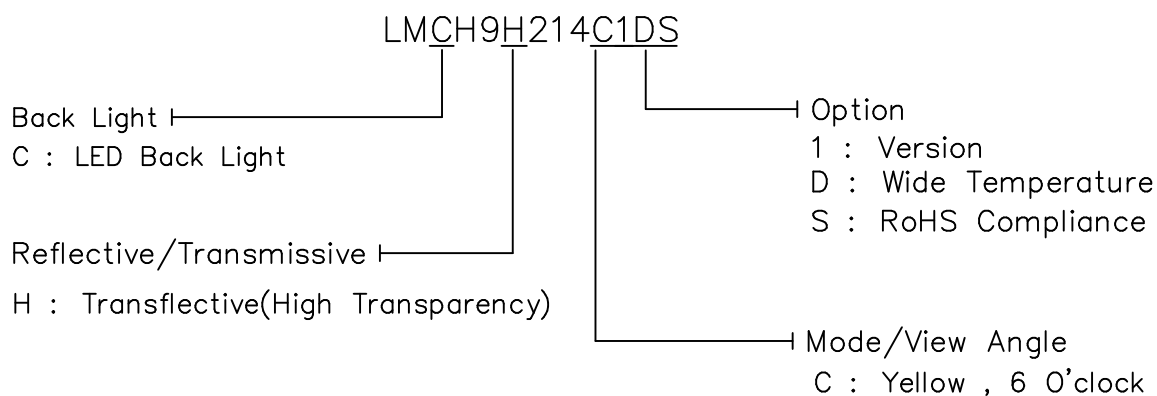
RoHS Compliance.

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.

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06.09.06' | | | | BY
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2. ABSOLUTE MAXIMUM RATINGS

(1) ELECTRICAL ABSOLUTE RATINGS

VSS=0V

	SYMBOL	MIN.	MAX.	UNIT	COMMENT
Power Supply for Logic	VDD−VSS	−0.3	5.5	V	
Power Supply for LCD Driver	VDD−VEE	0	25	V	
Input Voltage	VI	−0.3	VDD	V	
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	−20	70	−40	80
Humidity (Without Condensation)	Note 2,4		Note 3,4	

Note 2   Ta ≦ 70℃ : 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.

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3. ELECTRICAL CHARACTERISTICS

3−1. ELECTRICAL CHARACTERISTICS OF LCM

ITEM		SYMBOL	CONDITION		MIN.	TYP.	MAX.	UNIT
Power Supply for Logic		VDD−GND	Ta=25℃		4.5	5.0	5.5	V
Power Supply for LCD Driving		VDD−VEE	VDD=5.0V 1/128 Duty	−20℃	20.3	20.7	21.1	V
				0℃	19.6	20	20.4	
				25℃	19.4	19.8	20.2	
				50℃	19.1	19.5	19.9	
				70℃	18.2	18.6	19	
Input Voltage		VIH	H level		0.8VDD	−	VDD	V
		VIL	L level		GND	−	0.2VDD	
Supply Current		IDD	VDD = 5.0V VEE = −14.8V		−	10	15	mA
		IEE			−	3	5	
LCM Surface Luminance	L	LED IAK=720mA	PATTERN: DOTS ALL ON		−	8	15	cd/m^2
			PATTERN: DOTS ALL OFF		16	20	−	

3-2.ELECTRICAL CHARACTERISTICS OF BACKLIGHT

Used LED Rating (Constant Current Driving)   Temp.=25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
Peak forward current	I_P	—	—	1440	mA	—
Maximum reverse voltage	V_R	—	—	8	V	—
Applied forward current	I_{AK}	—	720	—	mA	—
Applied forward voltage	V_{AK}	3.9	4.1	4.3	V	—
LED power consumption	P_F	—	—	2.95	W	—
LED life time	L_L	—	40000	—	hrs	at I_{AK} = 720mA (*1)

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

IAK=720mA
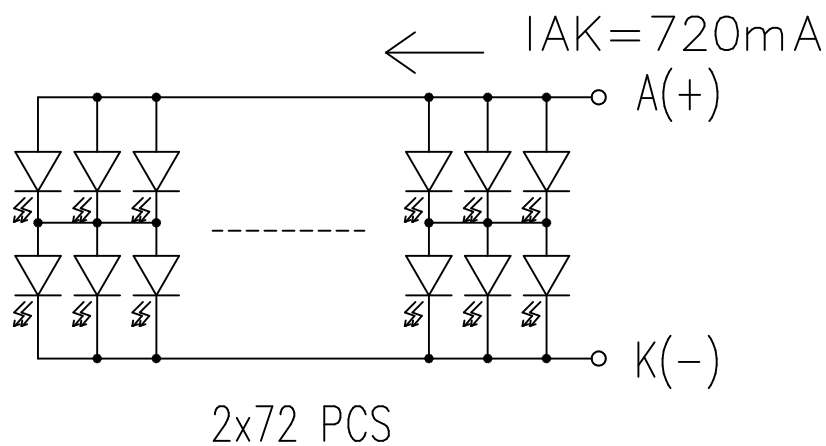
2x72 PCS

2x72 PCS LED

4.OPTICAL CHARACTERISTICS

(FOR WIDE TEMPERATURE MODE)

AT Vop

ITEM		Cr(Contrast Ratio)									θ(Viewing Angle)		ϕ(Viewing Angle)	
		−20℃		0℃		25℃		50℃		70℃		25℃		25℃	
MODE		MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.
H	C	2.5	4	3.5	5	3.5	5	2.5	4	2	3.5	−	71	−	±33
NOTE		NOTE 6										NOTE 5			

Note:

H : Transflective(High Transparency)

C : Yellow , 6 O'clock

AT $\phi=0°$ $\theta=0°$

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
Response Time (rise)	Tr	−20℃	2100	2700	4100	ms	NOTE 2
		0℃	500	600	900		
		25℃	160	200	300		
		50℃	80	100	150		
		70℃	50	60	90		
Response Time (fall)	Tf	−20℃	1000	1200	1800	ms	NOTE 2
		0℃	250	300	450		
		25℃	80	100	150		
		50℃	40	50	80		
		70℃	30	40	60		

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(NOTE 1)

Definition of Operation Voltage(Vop)
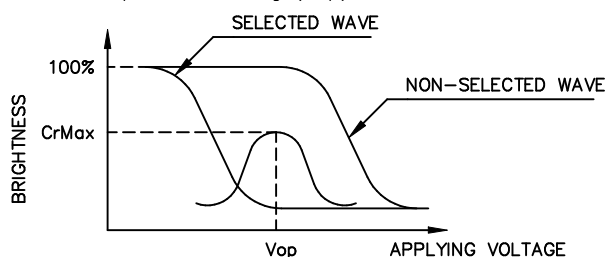
(positive type)
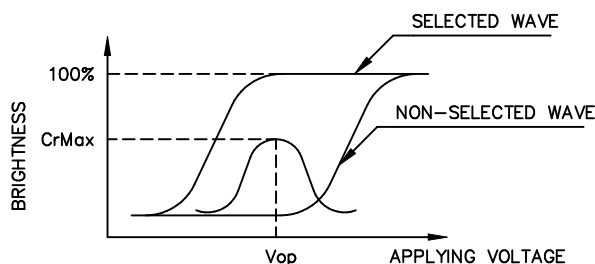
(negative type)

*Conditions
  Viewing Angle : 0
  Frame Frequency : 70Hz
  Applying Waveform : 1/N duty 1/a bias

(NOTE 2)

Definition of Response Time(Tr,Tf)
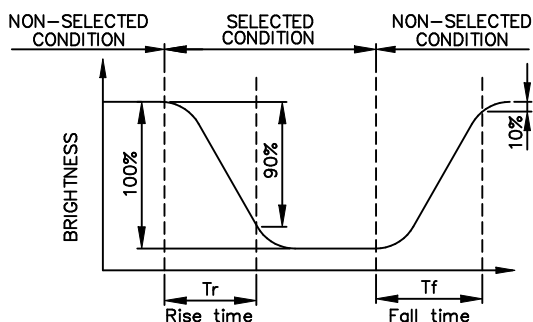
(positive type)
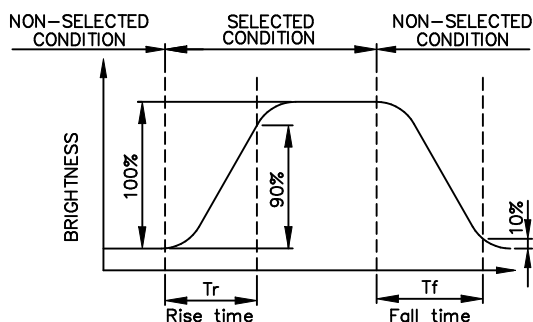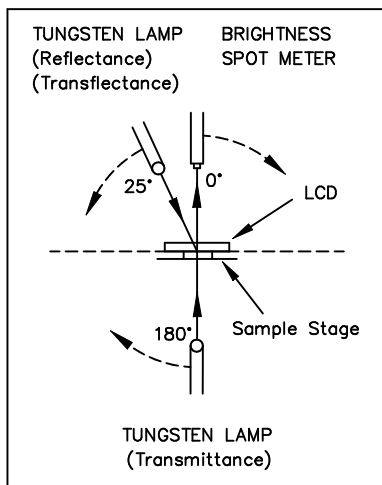

(negative type)

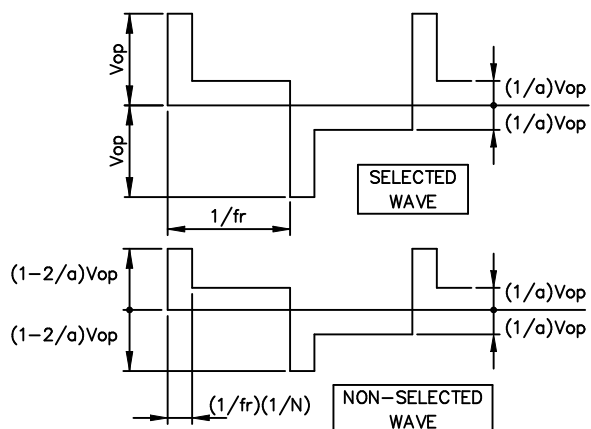*Conditions
  Operating Voltage : Vop
  Viewing Angle (θ,ϕ) : (0,0)
  Frame Frequency : 70Hz
  Applying Waveform : 1/N duty 1/a bias

(NOTE 3)
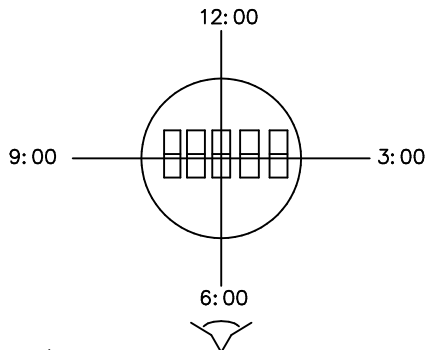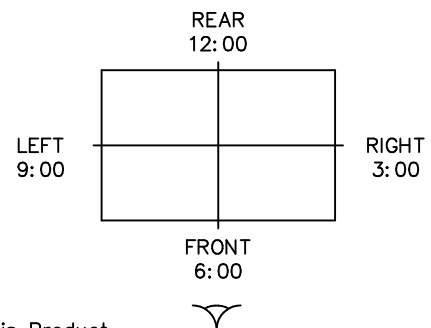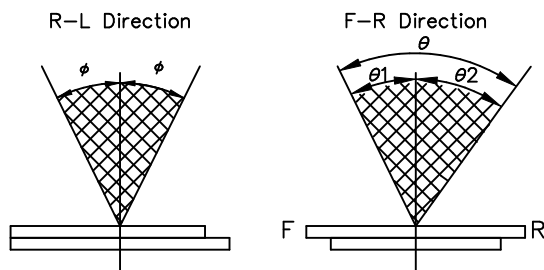
Description of Measuring Equipment and Driving Waveforms

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

(NOTE 4)
Definition of Viewing Direction

(NOTE 5)
Definition of Viewing Angle

R-L Direction   F-R Direction

*For This Product
The Viewing Direction Is 6 O'clock
So $\theta 1 > \theta 2$
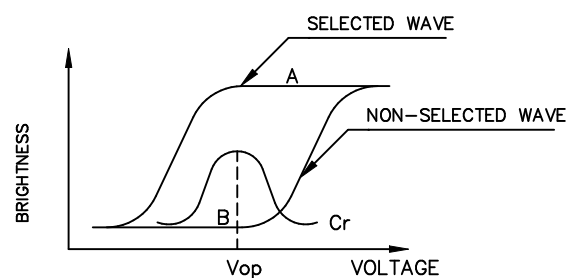
$$\theta = \theta 1 + \theta 2$$

*Conditions
Operating Voltage : Vop
Frame Frequency : 70Hz
Applying Waveform : 1/N duty 1/a bias
Contrast Ratio : larger than 2

(NOTE 6)
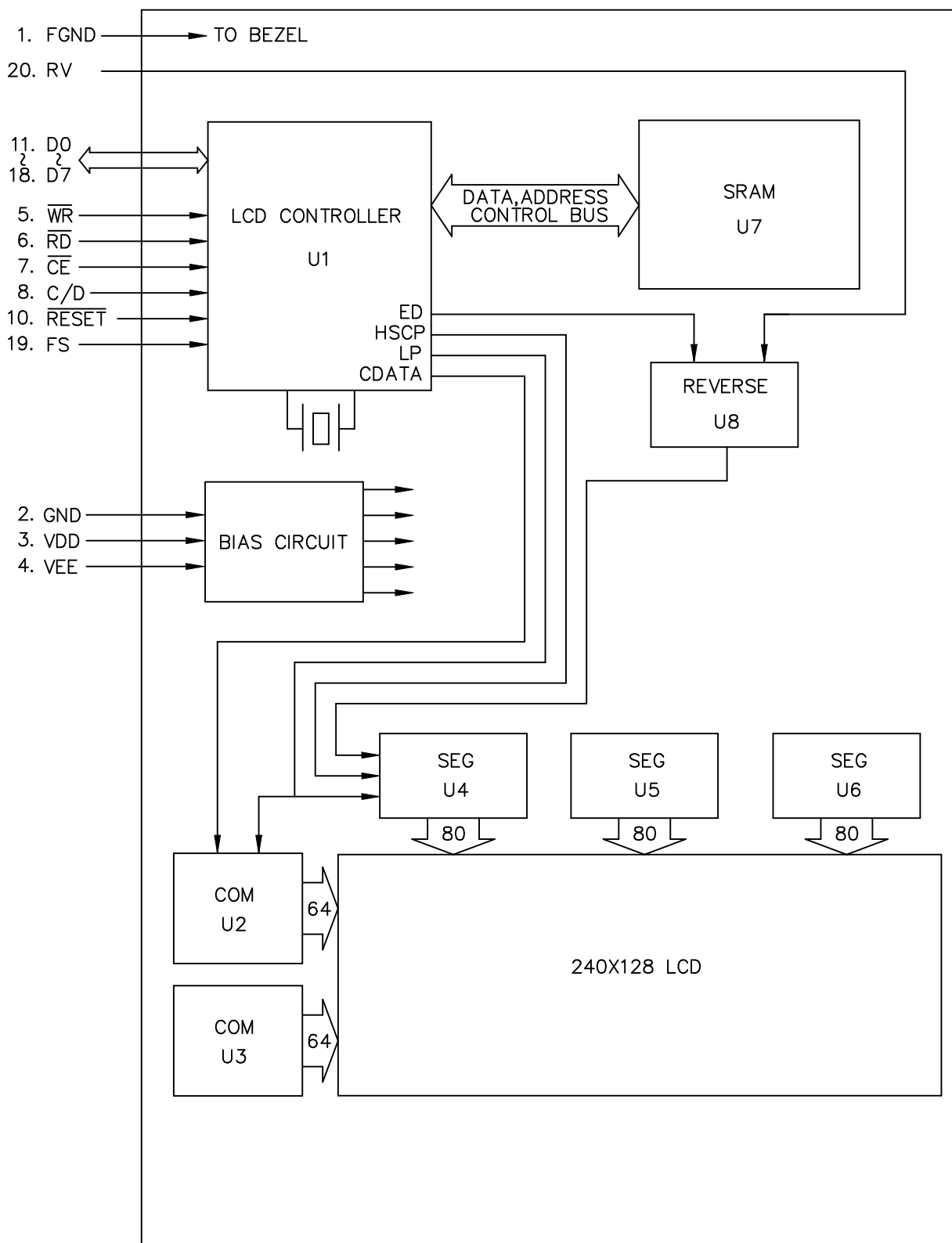Definition of Contrast Ratio (Cr)
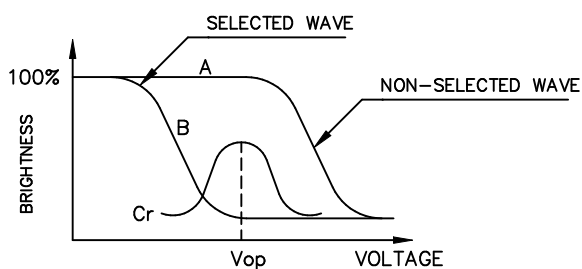
(positive type)   (negative type)

Contrast Ratio : Cr=A/B

*Conditions
Viewing Angle : 0
Frame Frequency : 70Hz
Applying Waveform : 1/N duty 1/a bias

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5. BLOCK DIAGRAM

6.INTERNAL PIN CONNECTION

PIN NO.	SYMBOL	FUNCTION
1	FGND	FRAME GROUND (0V)
2	GND	GROUND
3	VDD	POWER SUPPLY FOR LOGIC (+5V)
4	VEE	POWER SUPPLY FOR LC DRIVING
5	$\overline{\text{WR}}$	DATA WRITE
6	$\overline{\text{RD}}$	DATA READ
7	$\overline{\text{CE}}$	CHIP ENABLE
8	C/D	$\overline{\text{WR}}$="L",C/D="H" :COMMAND WRITE $\overline{\text{WR}}$="L",C/D="L" :DATA WRITE $\overline{\text{RD}}$="L",C/D="H" :STATUS READ $\overline{\text{RD}}$="L".C/D="L" :DATA READ
9	NC	NO CONNECTION
10	$\overline{\text{RESET}}$	CONTROLLER RESET
11	D0	DATA INPUT/OUTPUT
12	D1	DATA INPUT/OUTPUT
13	D2	DATA INPUT/OUTPUT
14	D3	DATA INPUT/OUTPUT
15	D4	DATA INPUT/OUTPUT
16	D5	DATA INPUT/OUTPUT
17	D6	DATA INPUT/OUTPUT
18	D7	DATA INPUT/OUTPUT
19	FS	FONT SELECT CONNECT TO VDD : 6X8 PIXELS/CHARACTER CONNECT TO GND : 8X8 PIXELS/CHARACTER
20	RV	DISPLAY DATA REVERSE RV=H : REVERSE DISPLAY RV=L : NORMAL DISPLAY

7.POWER SUPPLY
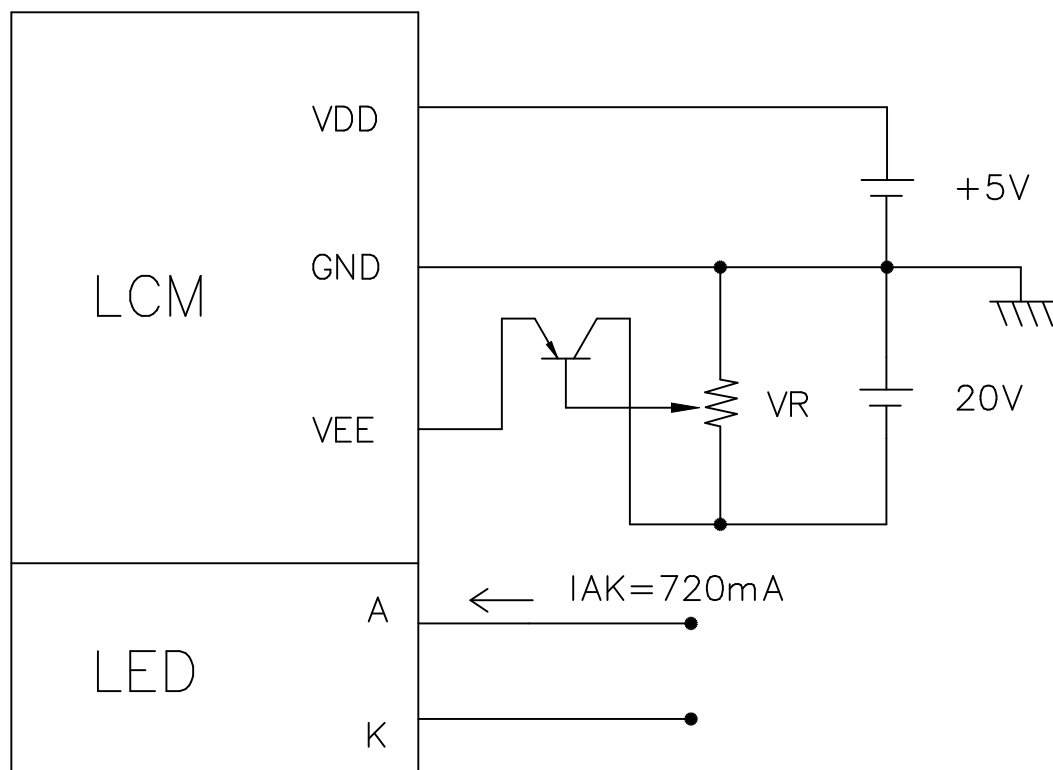
1. VR=10K~20K

8. TIMING CHARACTERISTICS

8−1. INTERFACE TIMING

@VDD = 5V±10%

ITEM	ITEM	CONDITION	MIN.	MAX.	UNIT
C/D SET UP TIME	t_{CDS}	Fig.	100	−	ns
C/D HOLD TIME	t_{CDH}	Fig.	10	−	ns
$\overline{CE}, \overline{RD}, \overline{WR}$ CLOCK WIDTH	t_{CP}, t_{RP}, t_{WP}	Fig.	80	−	ns
DATA SET UP TIME	t_{DS}	Fig.	80	−	ns
DATA HOLD TIME	t_{DH}	Fig.	40	−	ns
ACCESS TIME	t_{ACC}	Fig.	−	150	ns
DATA OUTPUT HOLD TIME	t_{OH}	Fig.	10	50	ns
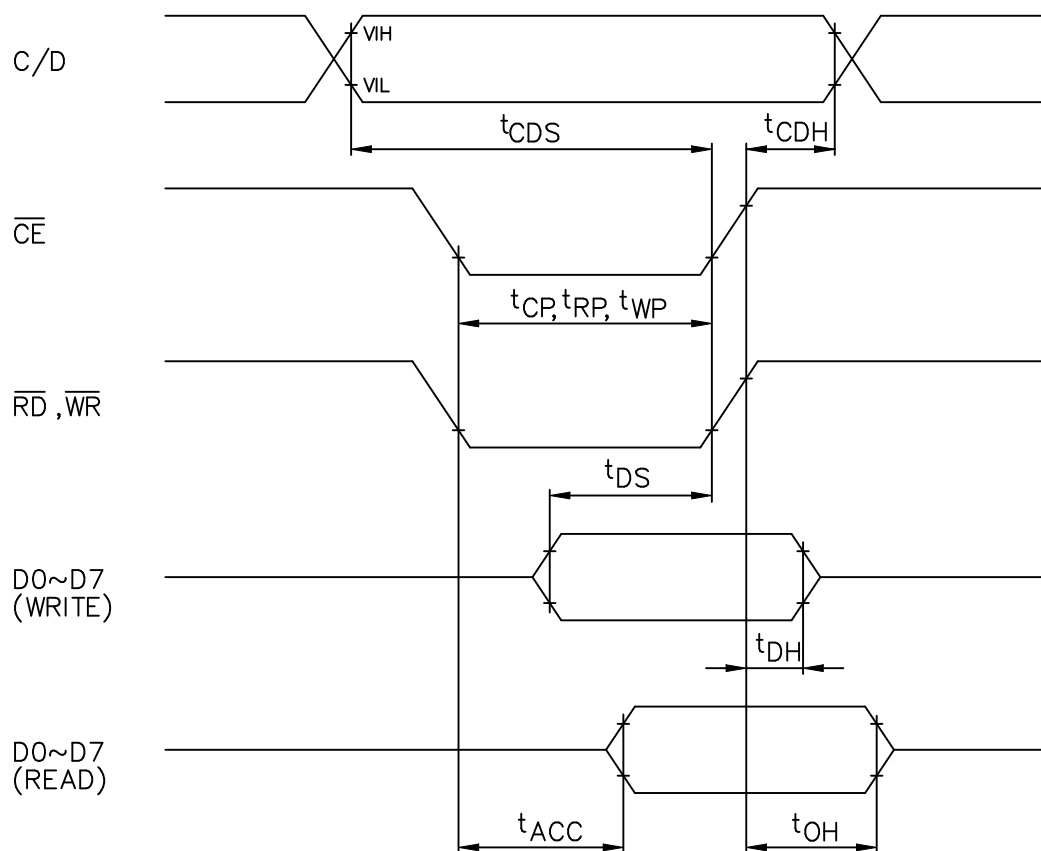
Fig. INTERFACE TIMING CHART

8-2.POWER ON/OFF TIMING
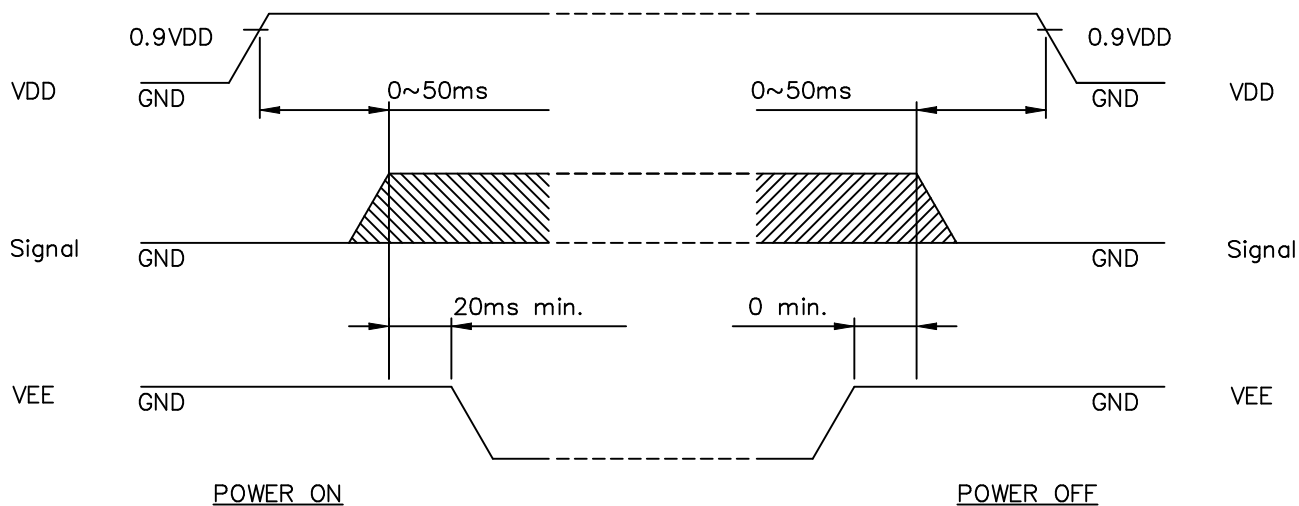
The missing pixels may occur when the LCM is driven beyond above power interface sequence.

8-3.DISPLAY PATTERN

240 X 128 Dots Matrix

240 Dots

Startting dot for the startting address of display RAM.
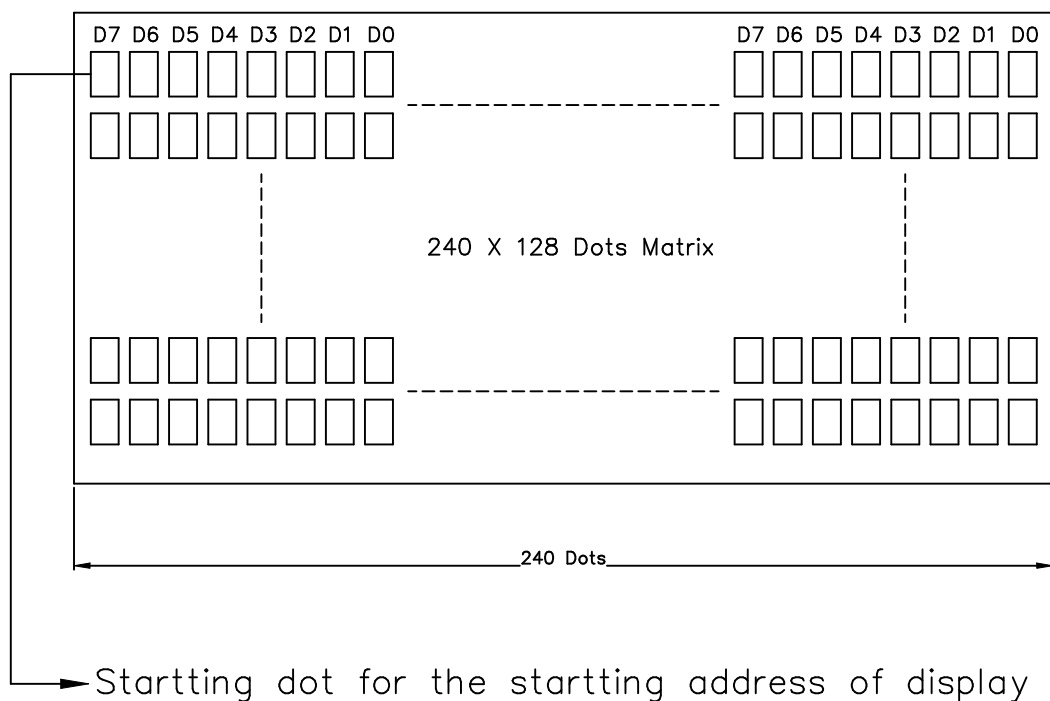
D0~D7 are 8 bits transmitted data, where D0 is LSB and D7 is MSB.

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NAN YA PLASTICS CORP.
ELEC. MATERIALS DIV.
LCD DEPARTMENT

SPECIFICATION

SPEC. NO. : LM214–1F
DATE : JUNE. 09, 2006
SHEET NO. : 13/24

8-4.COMMAND LIST

COMMAND	CODE	D1	D2	FUNCTION
REGISTER SET	00100001	X address	X address	Cursor pointer set
	00100010	Data	OOH	Offset register set
	00100100	Low address	High address	Address pointer set
CONTROL WORD SET	01000000	Low address	High address	Text home address set
	01000001	Columns	OOH	Text area set
	01000010	Low address	High address	Graphic home address set
	01000011	Columns	OOH	Graphic area set
MODE SET	1000X000	—	—	"OR" mode
	1000X001	—	—	"EXOR" mode
	1000X011	—	—	"AND" mode
	1000X100	—	—	"Text attribute" mode
	10000XXX	—	—	Internal CG ROM mode
	10001XXX	—	—	External CG RAM mode
DISPLAY MODE	10010000	—	—	Display off
	1001XX10	—	—	Cursor on, blink off
	1001XX11	—	—	Cursor on, blink on
	100101XX	—	—	Text on, graphic off
	100110XX	—	—	Text off, graphic on
	100111XX	—	—	Text on, graphic on
CURSOR PATTERN SELECT	10100000	—	—	1 line cursor
	10100001	—	—	2 lines cursor
	10100010	—	—	3 lines cursor
	10100011	—	—	4 lines cursor
	10100100	—	—	5 lines cursor
	10100101	—	—	6 lines cursor
	10100110	—	—	7 lines cursor
	10100111	—	—	8 lines cursor
DATA AUTO READ/WRITE	10110000	—	—	Data auto write set
	10110001	—	—	Data auto read set
	10110010	—	—	Auto reset
DATA READ WRITE	11000000	Data	—	Data write and ADP increment
	11000001	—	—	Data read and ADP increment
	11000010	Data	—	Data write and ADP decrement
	11000011	—	—	Data read and ADP decrement
	11000100	Data	—	Data write and ADP nonvariable
	11000101	—	—	Data read and ADP nonvariable
SCREEN PEEK	11100000	—	—	Screen peek
SCREEN COPY	11101000			Screen copy
BIT SET/RESET	11110XXX	—	—	bit reset
	11111XXX	—	—	bit set
	1111X000	—	—	bit0(LSB)
	1111X001	—	—	bit1
	1111X010	—	—	bit2
	1111X011	—	—	bit3
	1111X100	—	—	bit4
	1111X101	—	—	bit5
	1111X110	—	—	bit6
	1111X111	—	—	bit7(MSB)

* STATUS READ

Before sending data (read/write), command it is necessary to check the status.

AX6963 status word format is following :

LSB	D0	STA0	Check capability of command execution	0: Disable 1: Enable
	D1	STA1	Check capability of data read/write	0: Disable 1: Enable
	D2	STA2	Check capability of auto mode data read	0: Disable 1: Enable
	D3	STA3	Check capability of arto mode data write	0: Disable 1: Enable
	D4	STA4	Not use	
	D5	STA5	Check capability of controller operation	0: Disable 1: Enable
	D6	STA6	Error flag. Using screen peek/copy command	0: Disable 1: Enable
MSB	D7	STA7	Check the condition blink	0: Disable 1: Enable

Note 1: It is necessary to check STA0 and STA1 at the same time. The
error is happened by sending data at executing command.
Note 2: The status check will be enough to check STA0/STA1.
Note 3: STA2/STA3 are valid in auto mode STA0/STA1 are invalid.
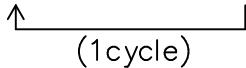
Status checking flow

Note 4: It is impossible to save status check in the case of command of MSB0.
To have the delay time cannot be save status check. The interrupt of
hardware is happened at the end of lines. If command of MSB0 is sent in
this period, the command executing is waited. The state of waiting doesn't
disregarded or rewrites data of waiting command.

9. RELIABILITY TEST

WIDE TEMPERATURE RELIABILITY TEST

NO	ITEM	CONDITION			STANDARD	NOTE
1	High Temp. Storage	80℃	120Hrs		Appearance without defect	
2	Low Temp. Storage	−40℃	120Hrs		Appearance without defect	
3	High Temp. & High Humi. Storage	60℃ 90%RH	120Hrs		Appearance without defect	
4	High Temp. Operating Display	70℃	120Hrs		Appearance without defect	
5	Low Temp. Operating Display	−20℃	120Hrs		Appearance without defect	
6	Thermal Shock	−20℃,30min ⟶ 70℃,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

Polarizer
Glass Plate
Liquid Crystal
LCD
Sealing Material

4. Outgoing Inspection

4−1 Ispection 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		
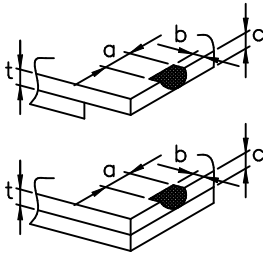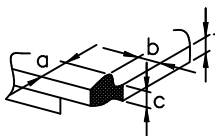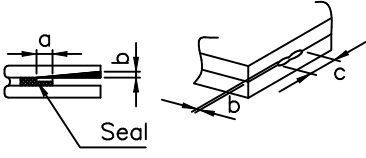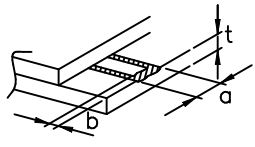
	Dimensions	External from Dimensions	0.4	
Minor Defect	Inside the glass	Black spots	0.65	faults which appear to pose almost no obstacle to the practicality, effective use, and operation.
	Polarizing plate	Scratches, foreign Matter, air bubbles, and peeling		
	Dots	Pinhole, deformation		
	Color tone	Color 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℃
Humidity   65± 20%R.H..
Pressure   860~1060hPa(mmbar)

In case of doubtful judgment, it is performed under the following conditions.
Temperature   20± 2℃
Humidity   65± 5%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
6.	LED backlight turn on/off	Within Specified value

5-2 External Appearance Defect

NO.	Item	Criterion
1.	Black spots, foreign matter, and white spots (Including light leakage due to pinholes of polarizing plates, etc.)	(1)-1-Spots

(1)-1-Spots

Average Diameter(mm):D	Number of pieces permitted
$D \leqq 0.1$	Ignore
$0.1 < D \leqq 0.2$	5
$0.2 < D \leqq 0.3$	2
$0.3 < D$	0

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)

Average Diameter(mm):D	Number of pieces permitted
$D \leqq 0.3$	Ignore
$0.3 < D \leqq 0.75$	5
$0.75 < D$	0

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

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1.	Line	(1)-1-Lines

Width(mm): W	Length(mm): L	Number of pieces permitted
W≦0.03	Ignore	Ignore
0.03<W≦0.08	L≦4	2
0.08<W≦0.1	L≦1	1

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)

Width(mm): W	Length(mm): L	Number of pieces permitted
W≦0.03	Ignore	Ignore
0.03<W≦0.08	L≦3	6
0.08<W	3<L	None

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.

2.	Scratches(Glass, reflection plates, and polarizing plates)	In accordance with black spots. (At non lighting condition)
3.	Color irregular	Not remarkable color irregular.

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4.	Air bubbles polarizing plates, and reflection plates		

Average Diameter (mm):D	Number of pieces permitted
D≦0.3	Ignore
0.3<D	0

Average diameter = (Long diameter + Short diameter)/2

Note that when there are 4 pieces or more, they are not to be concentrated.

5.	Cracks		

(1)General crack

$a≦5$
$b≦2$
$c≦t$
Where, a and b are ignored when less that or equal 0.5.
The numbers of pieces are set at up to 5 pieces.

(2)Corner crack

$a≦2.5$
$b≦2.5$
$c≦t$
$a+b≦4$

(3)Seal portion crack

$a≦$ The seal width$x1/3$
$b≦tx2/3$
$c≦5$
The numbers of pieces are set at up to 5 pieces.

(4)ITO Pin crack

$a≦5$
$b≦1/3$ pin length
$c≦t$

(5)Progressive cracks

All taken to be unacceptable.

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℃±5℃ 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.

| REV/DATE | R0/
06.09.06' | | | | | BY
J.P. Weng |

PIN NO	SYMBOL	FUNCTION
1	FGND	FRAME GROUND
2	GND	GROUND (0V)
3	VDD	POWER SUPPLY FOR LOGIC (+5V)
4	VEE	POWER SUPPLY FOR LC DRIVING
5	WR	DATA WRITE
6	RD	DATA READ
7	CE	CHIP ENABLE
8	C/D	WR = "L",C/D = "H" :COMMAND WRITE / WR = "L",C/D = "L" :DATA WRITE / RD = "L",C/D = "H" :STATUS READ / RD = "L",C/D = "L" :DATA READ
9	NC	NO CONNECTION
10	RESET	CONTROLLER RESET

PIN NO	SYMBOL	FUNCTION
11	D0	DATA INPUT/OUTPUT
12	D1	DATA INPUT/OUTPUT
13	D2	DATA INPUT/OUTPUT
14	D3	DATA INPUT/OUTPUT
15	D4	DATA INPUT/OUTPUT
16	D5	DATA INPUT/OUTPUT
17	D6	DATA INPUT/OUTPUT
18	D7	DATA INPUT/OUTPUT
19	FS	FONT SELECT CONNECT TO VDD : 6x8 PIXELS/CHARACTER / CONNECT TO GND : 6x8 PIXELS/CHARACTER
20	RV	DISPLAY DATA REVERSE RV = H :REVERSE DISPLAY / RV = L :NORMAL DISPLAY

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)

VIEW DIRECTION

PARTS AREA

1.6±0.2
MAX 15.8
131.0±0.5
127.0±0.3

Notes:
1. Resolution : 240 x 128 Dots
2. Backlight : LED (Yellow Green)
3. Frame Material : SECC
4. Touch Panel : Without

86.7±0.5
85.0±0.3
75.0±0.3
74.0(V/A) min
63.97±0.1(A/A)
5.015±0.5
2.485±0.5
2.985±0.5
8.0±0.5
4.0±0.5
5.0±0.5
17.0±0.5
21.02±0.5
170.0±0.5
162.0±0.3
152.0±0.5
128.0(V/A)
119.97±0.11(A/A) min
15.5±0.5
17.5±0.3

WINDOW OF BEZEL
EFFECTIVE DISPLAY AREA
DOTS AREA

A

2-Ø3.5NPTH
20-Ø1.0 PTH
20-Ø1.8 PAD
4-Ø3.5 PTH
4-Ø5.0 PAD

2-P2.54X9=22.86
85.0±0.5
92.0±0.5
93.0
47.0±0.3
2.54
2.1
3.33

10.0±0.5
MAX 15.8
1.6±0.2
PARTS AREA

A DEITAIL
S = 20:1
0.5
0.47
0.47
0.5

		APPROVE	CHECK	DESIGN	DRAWN	
REV. NO.	DESCRIPTION	DATE	DESIGN	CHECK	APPROVE	DWG
NAME					DATE	THIRD ANGLE P.
LMCH9H214C1DS						
	CLOUDE	CLOUDE		95.06.25	95.06.25	
					SCALE 1/1	UNIT mm

DWG NO. M214FD1A

SHEET NO.24/24

THE NOTES OF LCM USING
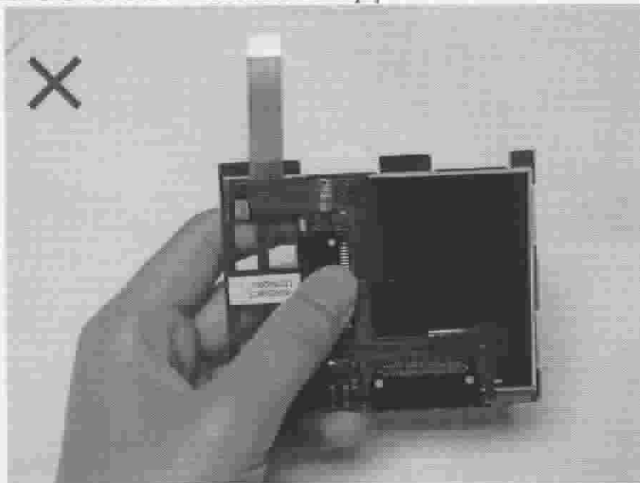
LCM is easy to damage.

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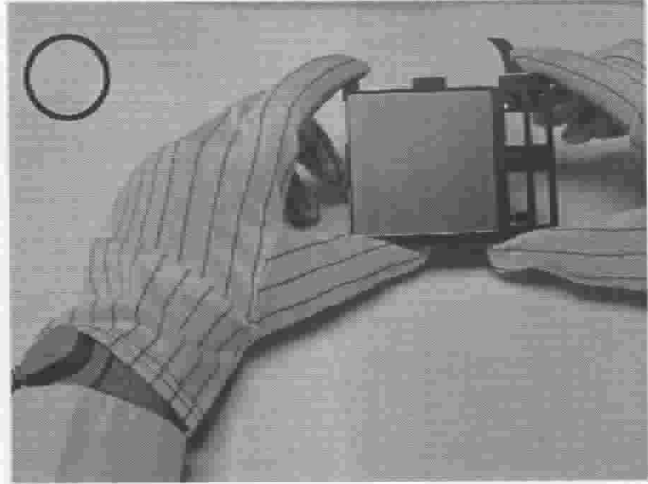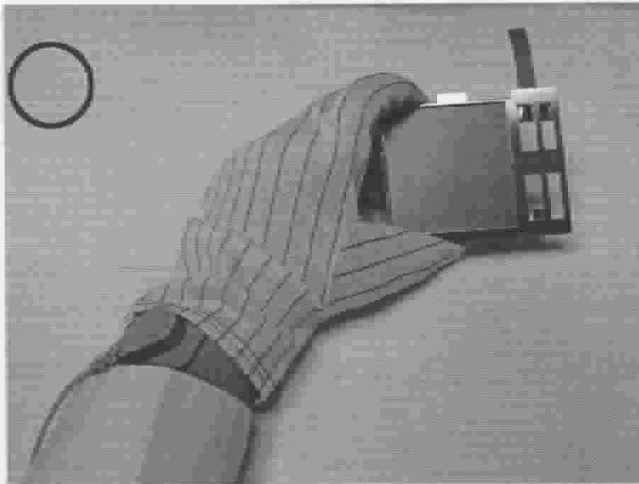
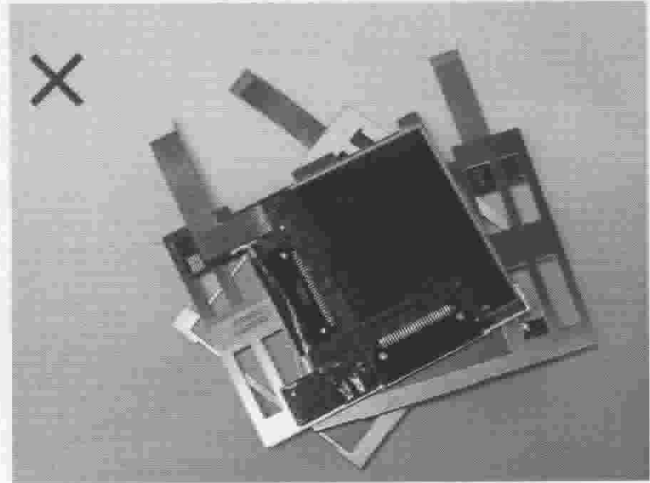## Correct handling

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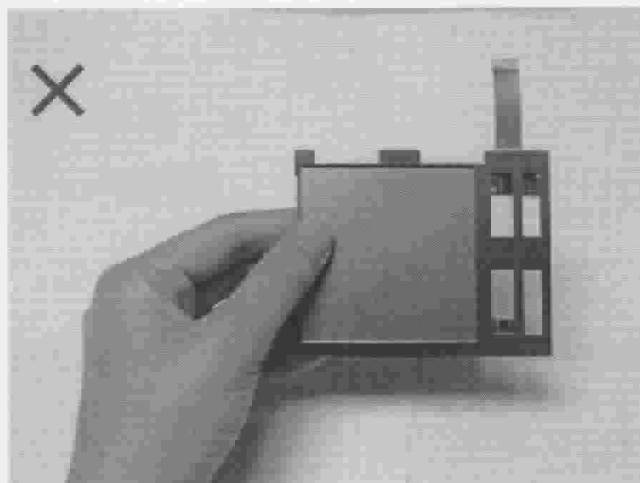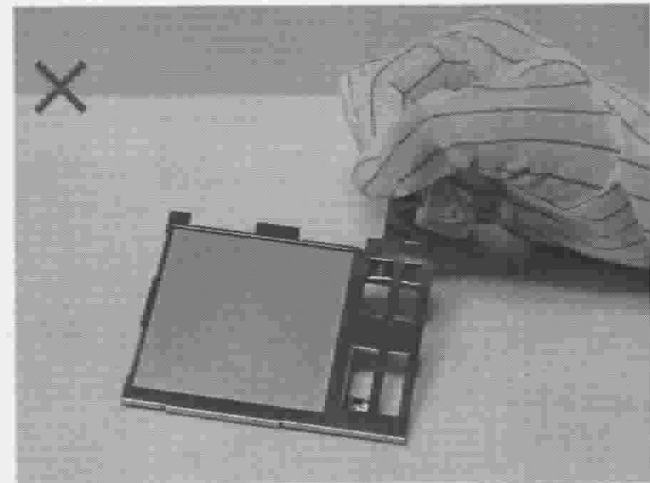
Incorrect handling

Please don't touch IC directly.

Please don't put one on another LCM.

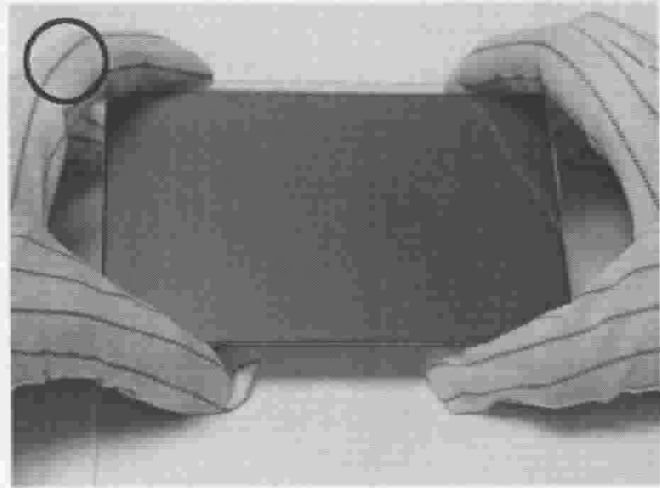
Please don't hold the surface of LCM.

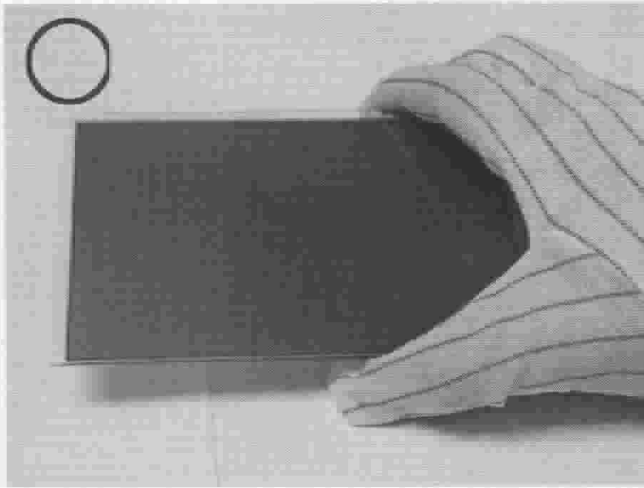Please don't stretch interface of output.
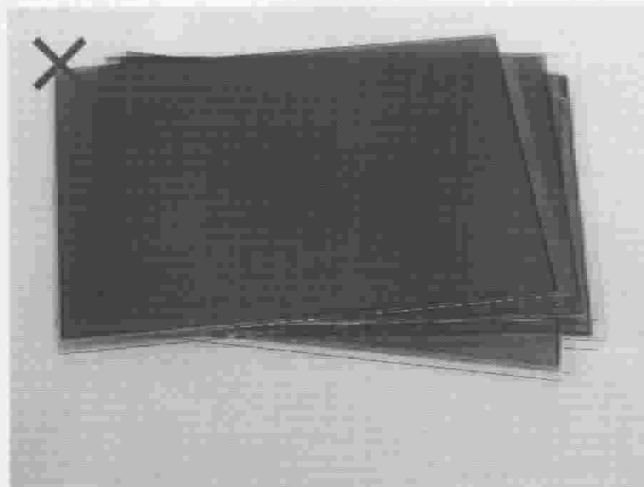
THE NOTES OF LCD USING

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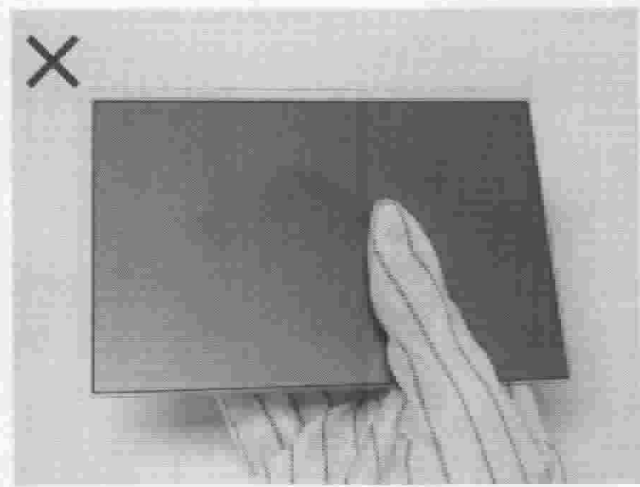
Correct handling

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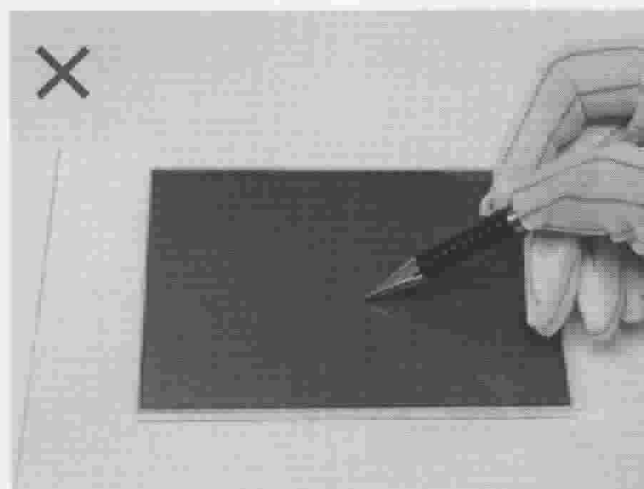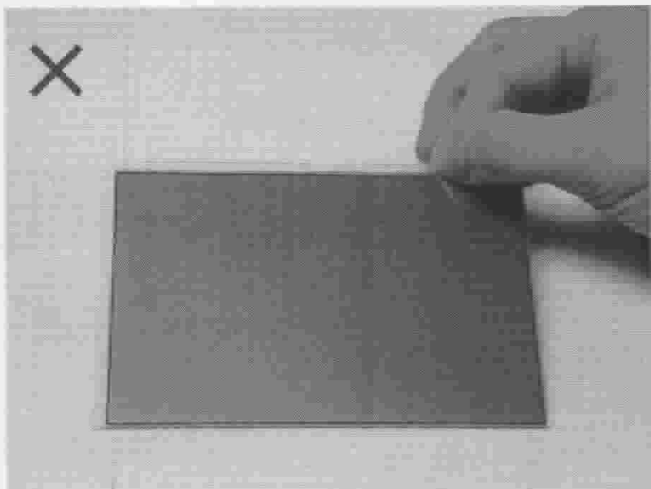
Incorrect handling

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.