

NAN YA PLASTICS CORPORATION

SPECIFICATION OF
LCD MODULE
PRODUCT NO.: LMC55S128KS_

SPEC. NO.: LM128-0B- \triangle

CUSTOMER
APPROVED BY
DATE:

LCD DEPARTMENT
ELECTRONIC MATERIALS DIVISION
NAN YA PLASTICS CORPORATION
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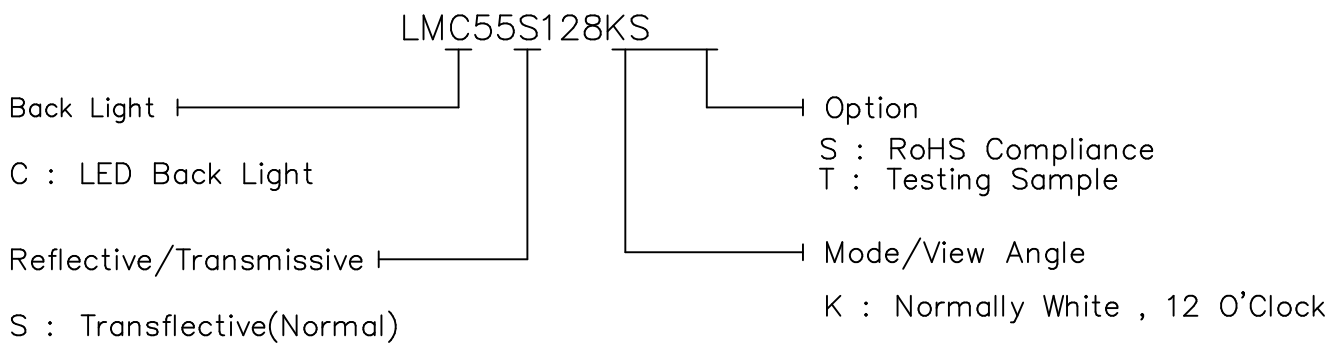
EDITED ON : Mar. 21. 2007

Q.C. MANAGER	DESIGN MANAGER	DESIGN CHECK	DESIGNER
			M.H.YUAN

1. MECHANICAL DATA

NO	ITEM	CONTENTS	UNIT
1	Product No.	LMC55S128KS_	-
2	Module Size	54.0 (W) x 54.5 (H) x 10.0 MAX (D)	mm
3	Dot Size	0.29 (W) x 0.39 (H)	mm
4	Dot Pitch	0.33 (W) x 0.43 (H)	mm
5	Number of Dots	128 (W) x 64 (H)	Dot
6	Duty	1/64	-
7	LCD Display Mode	FSTN, Normally White / Positive Image	-
8	Rear Polarizer	Tranflective (Normal)	-
9	Viewing Direction	12	O'clock
10	Backlight	LED	-
11	Controller	Excluded	-
12	DC/DC Converter	Excluded	-
13	Touch Panel	Excluded	-
14	Weight	31 (Approx.)	g

Note :



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

	SYMBOL	MIN.	MAX.	UNIT	COMMENT
Power Supply for Logic	VDD-VSS	-0.3	5.5	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	NORMAL TEMP.			
	OPERATING		STORAGE	
	MIN.	MAX.	MIN.	MAX.
Ambient Temperature	0	50	-20	70
Humidity (Without Condensation)	Note 2,4		Note 3,4	

Note 2 $T_a \leq 50^\circ\text{C}$: 80%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.

3. ELECTRICAL CHARACTERISTICS

3-1. ELECTRICAL CHARACTERISTICS OF LCM

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
Power Supply for Voltage	VDD-VSS	-	4.75	5.0	5.25	V	
Input Voltage	VIH	H level	0.8VDD	-	VDD	V	
	VIO	L level	0	-	0.2VDD	V	
Recommended LC Driving Voltage (Normal Temp. LCM)	VDD-V0	Duty=1/64	0°C	8.4	8.9	9.4	V
			25°C	8.0	8.6	9.2	
			50°C	7.4	7.9	8.4	
Power Supply Current (Ta=25℃)	IDD	FLM=70 Hz VDD=5.0 V VDD-V0=8.6V PATTERN : □ ■ □ ■ □ ■ ■ □ ■ □ ■ □	-	2.0	5.0	mA	
LCM	Surface Luminance (Ta=25℃)	VDD-V0=8.6V IAK=50 mA	PATTERN (Dots ALL Off)	6	12	-	cd/m ²
			PATTERN (Dots ALL On)	-	5	-	cd/m ²

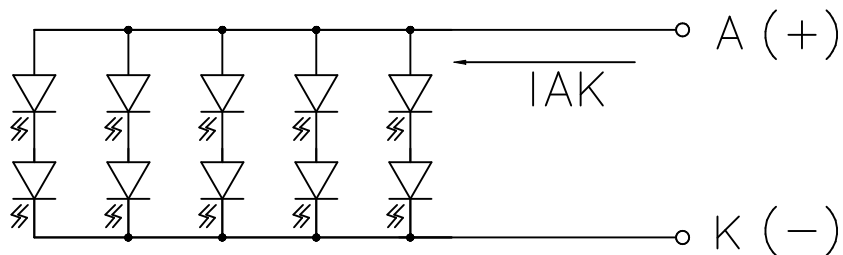
3-2.ELECTRICAL CHARACTERISTICS OF BACKLIGHT

Used LED Rating (Constant Current Driving)

Temp.=25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	REMARK
Peak forward current	I_P	-	-	125	mA	-
Maximum reverse voltage	V_R	-	-	8	V	-
Applied forward current	I_{AK}	-	50	-	mA	-
Applied forward voltage	V_{AK}	3.6	4.0	4.4	V	-
LED power consumption	P_F	0.18	0.2	0.22	W	-
LED life time	L_L	-	40000	-	hrs	at $I_{AK} = 50$ mA (*1)

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



4-1.OPTICAL CHARACTERISTICS

(FOR NORMAL TEMPERATURE MODE LCD)

AT Vop

ITEM MODE		Cr(Contrast Ratio)						θ (Viewing Angle)		ϕ (Viewing Angle)	
		0°C		25°C		50°C		25°C		25°C	
		MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.
S	K	4.5	6.5	4.5	6.5	4.0	6.0	-	F: 25 R: 35		L: 34 R: 30
NOTE		NOTE 3,6						NOTE 3,5			

NOTE :

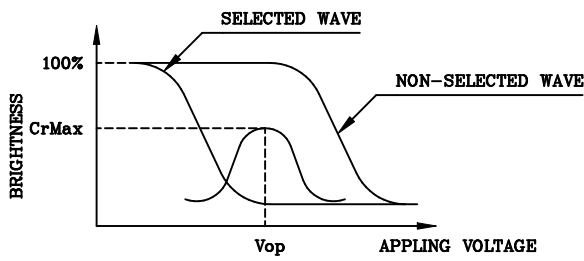
S: TRANSFLECTIVE
K: NORMALLY WHITE

AT $\phi=0^\circ$ $\theta=0^\circ$

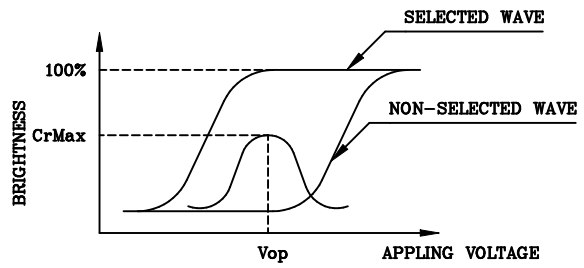
ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
Response Time (rise)	Tr	0°C	640	800	960	ms	NOTE 2,3
		25°C	170	210	250		
		50°C	80	95	115		
Response Time (fall)	Tf	0°C	350	430	520	ms	NOTE 2,3
		25°C	80	100	120		
		50°C	55	70	85		

(NOTE 1)

Definition of Operation Voltage(Vop)



(positive type)



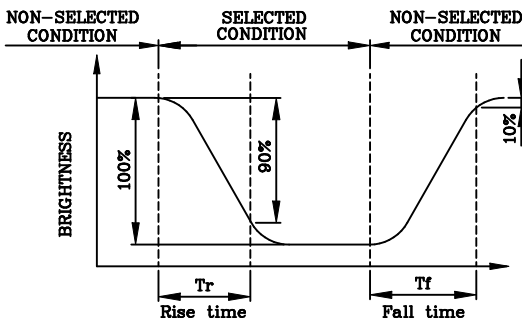
(negative type)

*Conditions

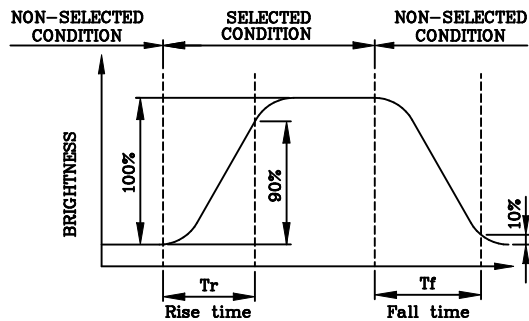
Viewing Angle : 0
Frame Frequency : 70Hz
Applying Waveform : 1/N duty 1/a bias

(NOTE 2)

Definition of Response Time(Tr,Tf)



(positive type)



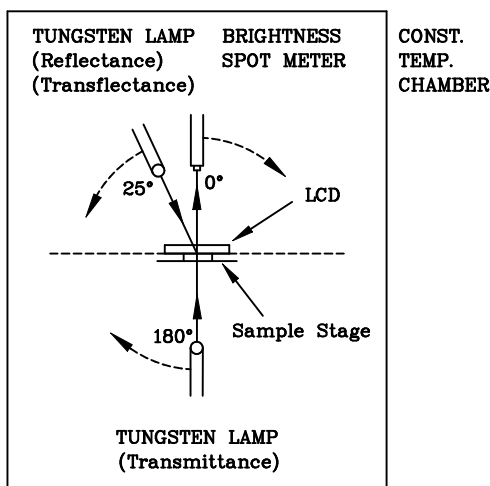
(negative type)

*Conditions

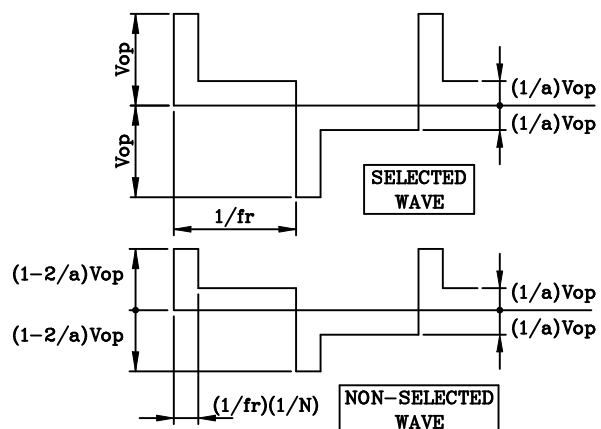
Operating Voltage : Vop
Viewing Angle (θ,φ) : (0,0)
Frame Frequency : 70Hz
Applying Waveform : 1/N duty 1/a bias

(NOTE 3)

Description of Measuring Equipment and Driving Waveforms

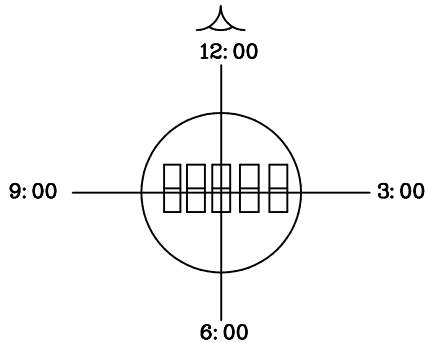


Multiplex Driving (1/N duty 1/a bias)



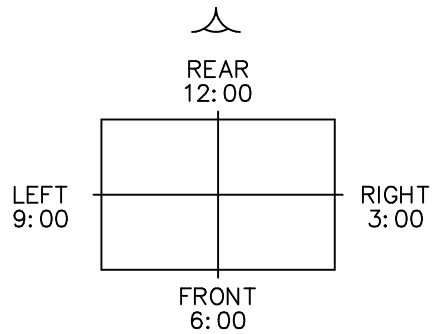
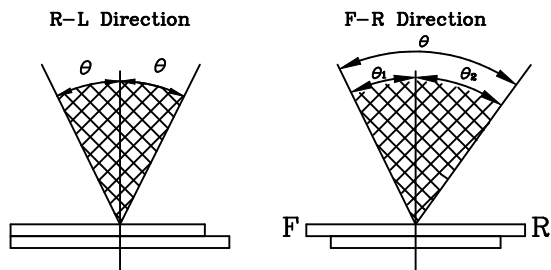
(NOTE 4)

Definition of Viewing Direction



(NOTE 5)

Definition of Viewing Angle



*For This Product

The Viewing Direction Is 6 O'clock
 So $\theta_1 > \theta_2$

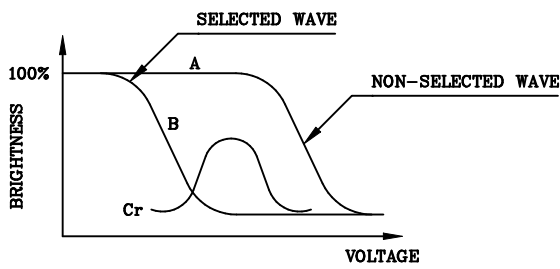
$$\theta = \theta_1 + \theta_2$$

*Conditions

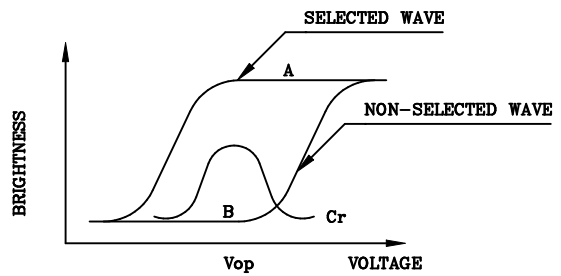
Operating Voltage : V_{op}
 Frame Frequency : 70Hz
 Applying Waveform : 1/N duty 1/a bias
 Contrast Ratio : larger than 2

(NOTE 6)

Definition of Contrast Ratio (Cr)



(positive type)



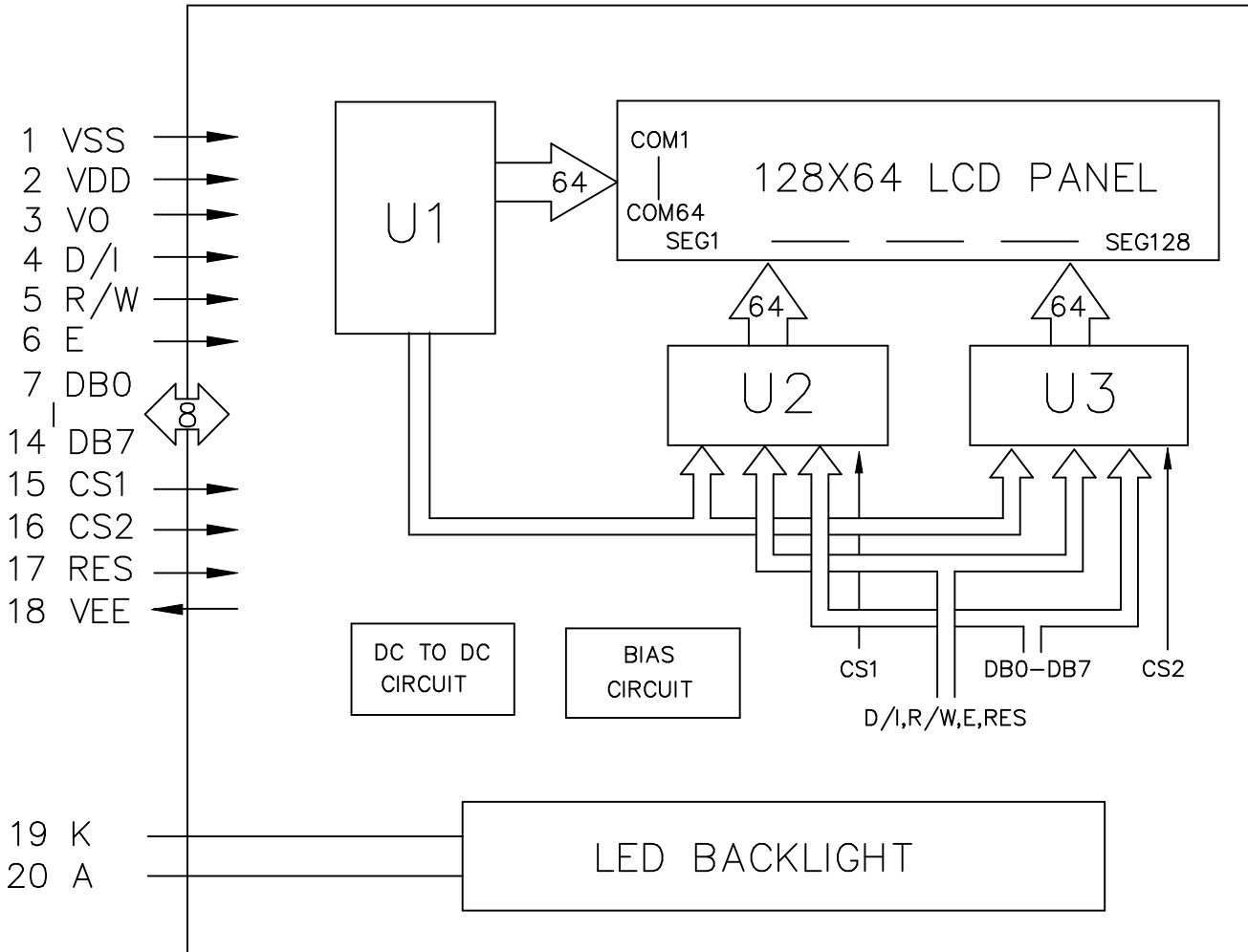
(negative type)

$$\text{Contrast Ratio : } Cr = A/B$$

*Conditions

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

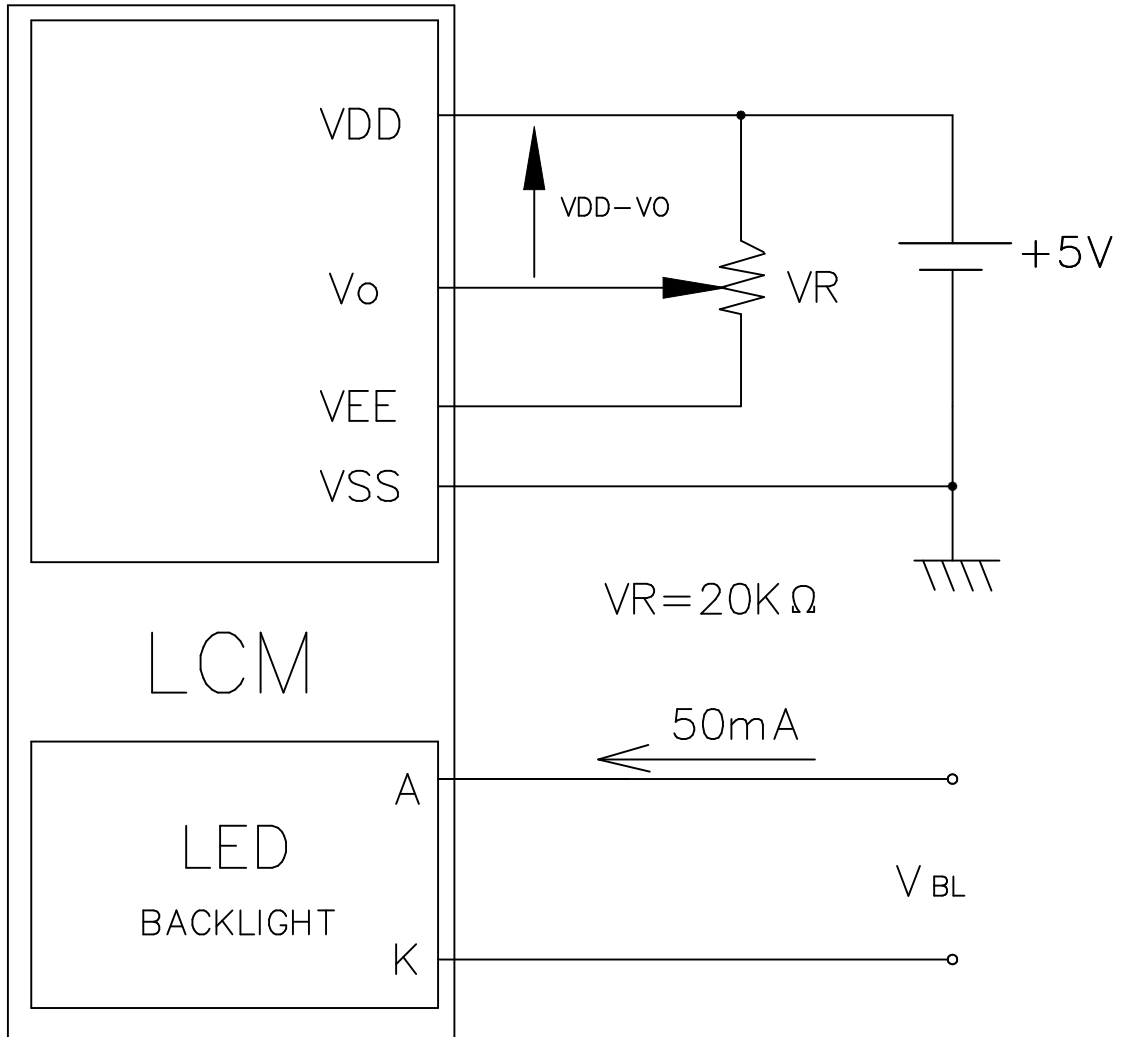
5. BLOCK DIAGRAM



6. INTERNAL PIN CONNECTION

PinNo.	Symbol	Level	Function	
1	V _{SS}	—	0V	Power supply
2	V _{DD}	—	+5V	
3	V _O	—	OPERATING VOLTAGE FOR LCD DRIVING	
4	D/I	H/L	H: DATA INPUT L: INSTRUCTION CODE INPUT	
5	R/W	H/L	H: DATA READ (FROM LCM TO MPU) L: DATA WRITE (FROM MPU TO LCM)	
6	E	H, H->L	ENABLE SIGNAL	
7	DB0	H/L	DATA BUS LINE	
8	DB1	H/L		
9	DB2	H/L		
10	DB3	H/L		
11	DB4	H/L		
12	DB5	H/L		
13	DB6	H/L		
14	DB7	H/L		
15	CS1	H	CHIP SELECT FOR IC1	
16	CS2	H	CHIP SELECT FOR IC2	
17	RES	L	RESET	
18	VEE	—	POWER SUPPLY FOR LCD DRIVING	
19	K	—	POWER SUPPLY FOR LED B.L.	
20	A	—	POWER SUPPLY FOR LED B.L.	

7. POWER SUPPLY



8-1. TIMING CHARACTERISTICS

Item	Symbol	Test condition	Min.	Typ.	Max.	Unit
Enable cycle time	t_{cyc}	Fig.a , Fig.b	1000	-	-	ns
E high level width	P_{WEH}	Fig.a , Fig.b	450	-	-	ns
E low level width	P_{WEL}	Fig.a , Fig.b	450	-	-	ns
E rise/fall time	t_r, t_f	Fig.a , Fig.b	-	-	25	ns
Address set up time	t_{AS}	Fig.a , Fig.b	140	-	-	ns
Address hold time	t_{AH}	Fig.a , Fig.b	10	-	-	ns
Data delay time	t_{DDR}	Fig.b	-	-	320	ns
Data set up time	t_{DSW}	Fig.a	200	-	-	ns
Data hold time (WR)	t_{DHW}	Fig.a	10	-	-	ns
Data hold time (RD)	t_{DHR}	Fig.b	20	-	-	ns

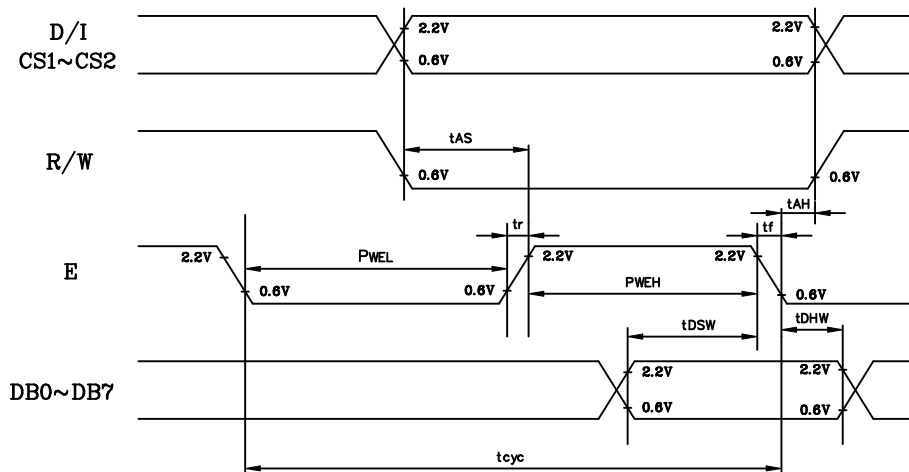


Fig . a Interface timing (data write)

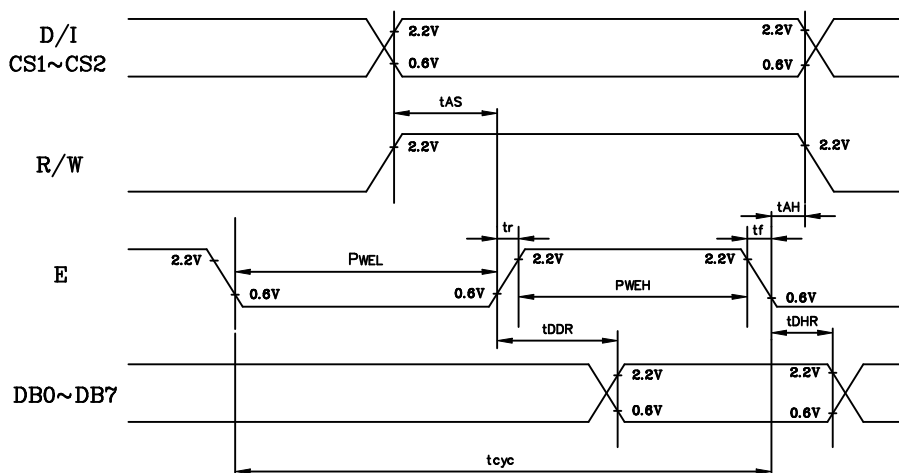
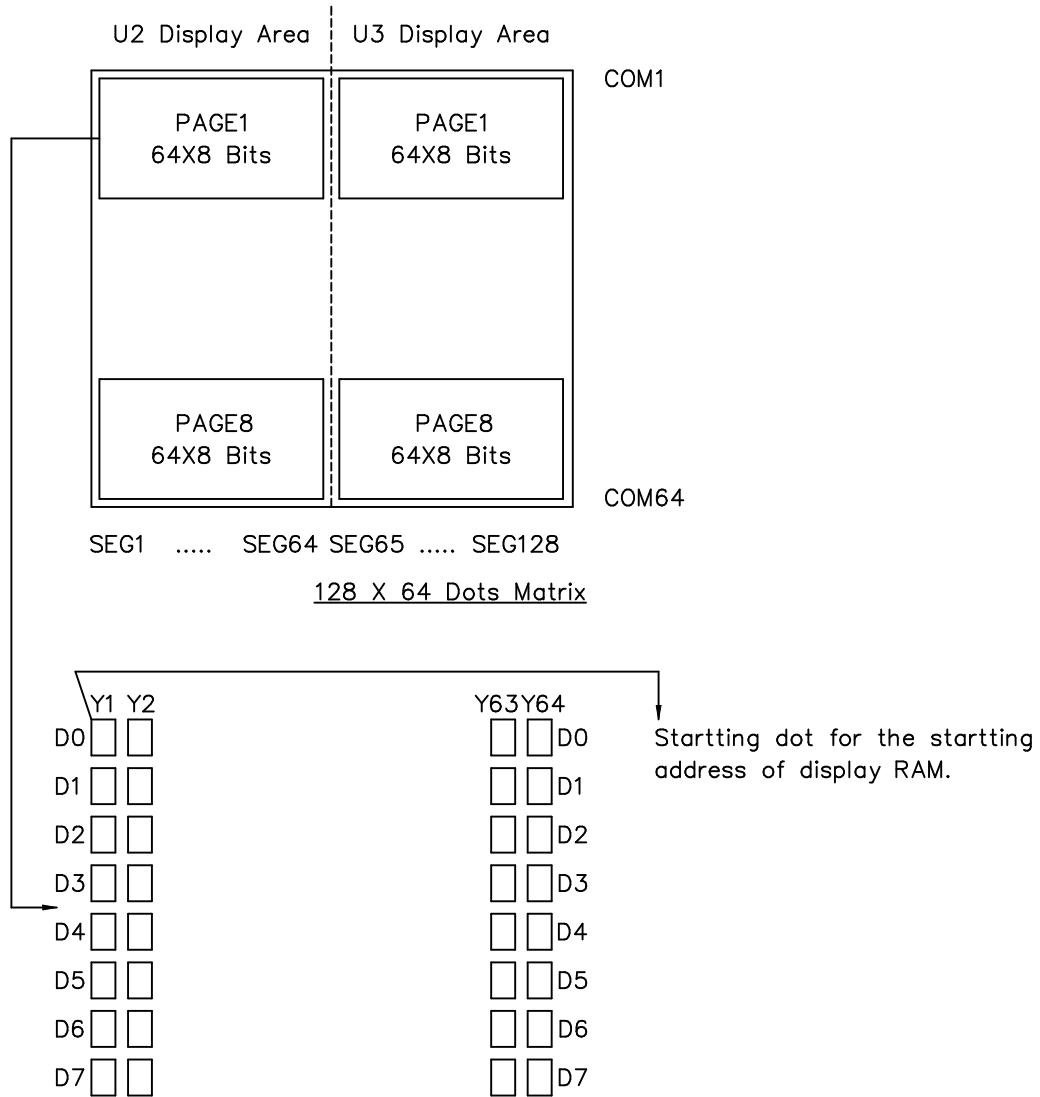
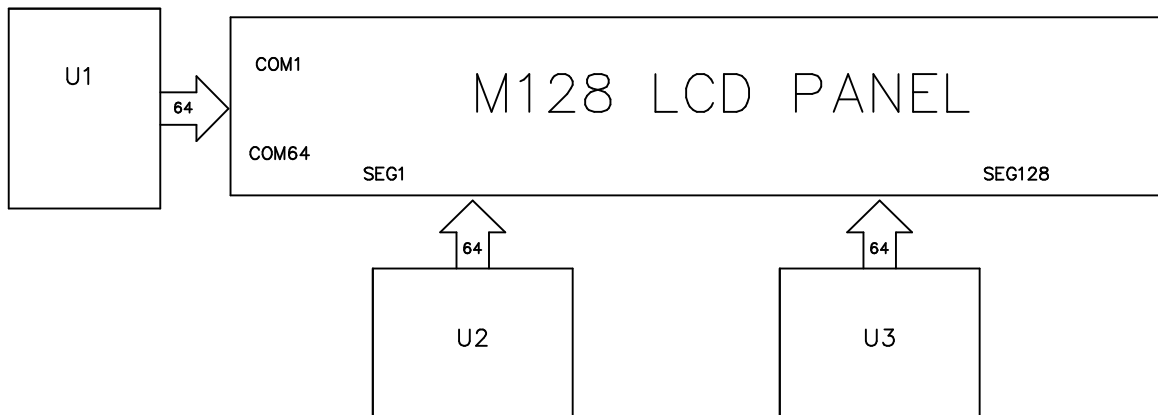


Fig . b Interface timing (data read)

8-2. RELATION BETWEEN DISPLAY PATTERN AND DRIVERS



Each segment driver has 8 pages RAM , and each page has 64 x 8 bits RAM .
D0~D7 are 8 bits transmitted data , where D0 is LSB and D7 is MSB .



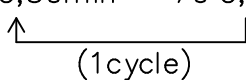
8-3. DISPLAY CONTROL INSTRUCTION

The display control instructions control the internal state of the KS0108B. Instructions is received from MPU to KS0108B for the display control.

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

9. RELIABILITY TEST

NORMAL TEMPERATURE 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

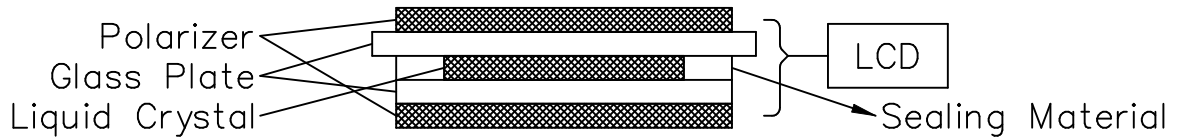
The NAN YA inspection provision provides outgoing inspection provision and its expected quality level based on our outgoing inspection of NAN YA LCD produces.

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 Provision

4-1 Inspection Method

MIL-STD-105E Level II Regular inspection

4-2 Inspection Standard

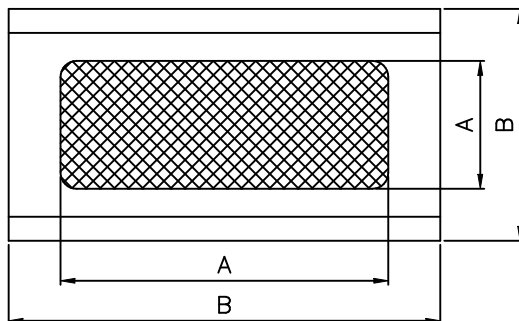
	Item		AQL(%)	Remarks
Major Defect	Dots	Opens Shorts Erroneous operation	0.4	faults which substantially lower the practicality and the initial purpose difficult to achieve.
	Solder appearance	Shorts Loose		
	Cracks	Display surface cracks		

	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.

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± 2°C
Humidity 65± 5%R.H..
Pressure 860~1060hPa(mmbar)

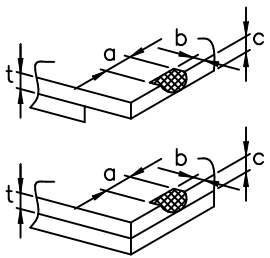
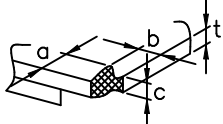
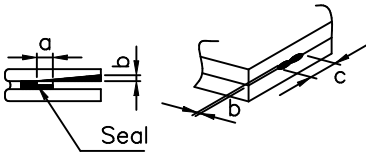
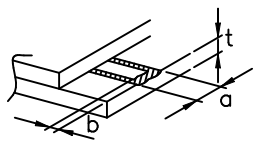
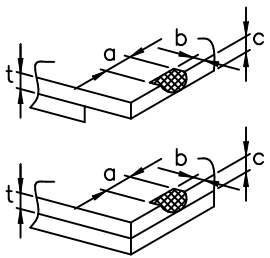
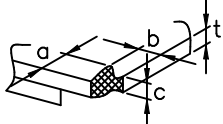
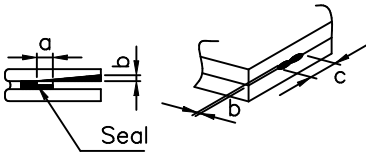
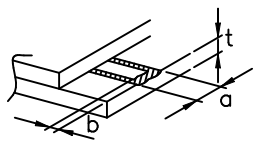
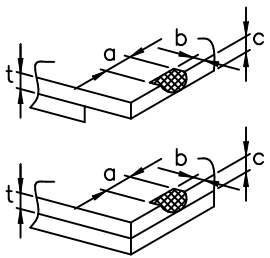
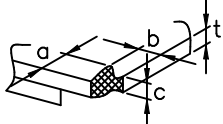
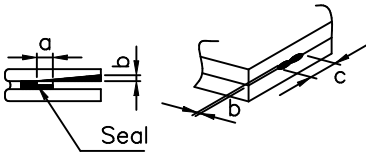
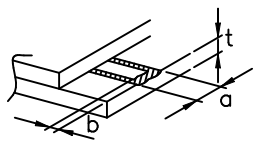
5.Specification for quality check
5-1 Electrical characteristics

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

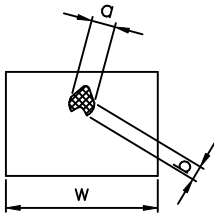
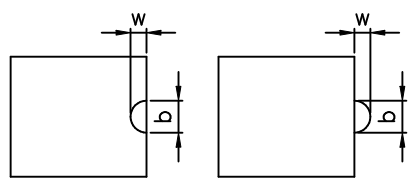
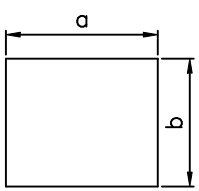
NO.	Item	Criterion																		
1.	Black spots, foreign matter, and white spots (Including light leakage due to pinholes of polarizing plates, etc.)	<p>(1)-1-Spots</p> <table border="1" data-bbox="743 479 1390 768"> <thead> <tr> <th>Average Diameter(mm):D</th> <th>Number of pieces permitted</th> </tr> </thead> <tbody> <tr> <td>$D \leq 0.1$</td> <td>Ignore</td> </tr> <tr> <td>$0.1 < D \leq 0.2$</td> <td>5</td> </tr> <tr> <td>$0.2 < D \leq 0.3$</td> <td>2</td> </tr> <tr> <td>$0.3 < D$</td> <td>0</td> </tr> </tbody> </table> <p>Number of total pieces is set to within 5 pieces.</p> <p>Note that when there are 2 pieces or more, they are not to be concentrated. Set as: Average diameter = (Long diameter + Short diameter)/2</p> <p>(1)-2-Blurred Spots(At lighting condition)</p> <table border="1" data-bbox="743 1189 1390 1433"> <thead> <tr> <th>Average Diameter(mm):D</th> <th>Number of pieces permitted</th> </tr> </thead> <tbody> <tr> <td>$D \leq 0.3$</td> <td>Ignore</td> </tr> <tr> <td>$0.3 < D \leq 0.75$</td> <td>5</td> </tr> <tr> <td>$0.75 < D$</td> <td>0</td> </tr> </tbody> </table> <p>Number of total pieces is set to within 5 pieces.</p> <p>Note that when there are 2 pieces or more, they are not to be concentrated. Set as: Average diameter = (Long diameter + Short diameter)/2</p>	Average Diameter(mm):D	Number of pieces permitted	$D \leq 0.1$	Ignore	$0.1 < D \leq 0.2$	5	$0.2 < D \leq 0.3$	2	$0.3 < D$	0	Average Diameter(mm):D	Number of pieces permitted	$D \leq 0.3$	Ignore	$0.3 < D \leq 0.75$	5	$0.75 < D$	0
Average Diameter(mm):D	Number of pieces permitted																			
$D \leq 0.1$	Ignore																			
$0.1 < D \leq 0.2$	5																			
$0.2 < D \leq 0.3$	2																			
$0.3 < D$	0																			
Average Diameter(mm):D	Number of pieces permitted																			
$D \leq 0.3$	Ignore																			
$0.3 < D \leq 0.75$	5																			
$0.75 < D$	0																			

1.	Line	<p>(1)-1 Lines</p> <table border="1" data-bbox="742 436 1484 716"> <thead> <tr> <th>Width(mm): W</th> <th>Length(mm): L</th> <th>Number of pieces permitted</th> </tr> </thead> <tbody> <tr> <td>$W \leq 0.03$</td> <td>Ignore</td> <td>Ignore</td> </tr> <tr> <td>$0.03 < W \leq 0.08$</td> <td>$L \leq 4$</td> <td>2</td> </tr> <tr> <td>$0.08 < W \leq 0.1$</td> <td>$L \leq 1$</td> <td>1</td> </tr> </tbody> </table> <p>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.</p> <p>(1)-2-Blurred Lines(At lighting condition)</p> <table border="1" data-bbox="742 1019 1484 1310"> <thead> <tr> <th>Width(mm): W</th> <th>Length(mm): L</th> <th>Number of pieces permitted</th> </tr> </thead> <tbody> <tr> <td>$W \leq 0.03$</td> <td>Ignore</td> <td>Ignore</td> </tr> <tr> <td>$0.03 < W \leq 0.08$</td> <td>$L \leq 3$</td> <td>6</td> </tr> <tr> <td>$0.08 < W$</td> <td>$3 < L$</td> <td>None</td> </tr> </tbody> </table> <p>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.</p>	Width(mm): W	Length(mm): L	Number of pieces permitted	$W \leq 0.03$	Ignore	Ignore	$0.03 < W \leq 0.08$	$L \leq 4$	2	$0.08 < W \leq 0.1$	$L \leq 1$	1	Width(mm): W	Length(mm): L	Number of pieces permitted	$W \leq 0.03$	Ignore	Ignore	$0.03 < W \leq 0.08$	$L \leq 3$	6	$0.08 < W$	$3 < L$	None
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$0.08 < W$	$3 < L$	None																								
2.	Scratches(Glass, reflection plates, and polarizing plates)	In accordance with black spots. (At non lighting condition)																								
3.	Color irregular	Not remarkable color irregular.																								

<p>4. Air bubbles polarizing plates, and reflection plates</p>	<table border="1" data-bbox="742 380 1260 672"> <tr> <th data-bbox="742 380 1002 526">Average Diameter (mm): D</th> <th data-bbox="1002 380 1260 526">Number of pieces permitted</th> <th data-bbox="1260 380 1500 672" rowspan="2">Average diameter = (Long diameter + Short diameter)/2</th> </tr> <tr> <td data-bbox="742 526 1002 571">$D \leq 0.3$</td> <td data-bbox="1002 526 1260 571">Ignore</td> </tr> <tr> <td data-bbox="742 571 1002 616">$0.3 < D$</td> <td data-bbox="1002 571 1260 616">0</td> <td></td> </tr> </table> <p data-bbox="742 683 1500 772">Note that when there are 4 pieces or more, they are not to be concentrated.</p>	Average Diameter (mm): D	Number of pieces permitted	Average diameter = (Long diameter + Short diameter)/2	$D \leq 0.3$	Ignore	$0.3 < D$	0			
Average Diameter (mm): D	Number of pieces permitted	Average diameter = (Long diameter + Short diameter)/2									
$D \leq 0.3$	Ignore										
$0.3 < D$	0										
<p>5. Cracks</p>	<table border="1" data-bbox="694 772 1500 1971"> <tr> <td data-bbox="694 772 1093 1176"> <p>(1) General crack</p>  </td> <td data-bbox="1093 772 1500 1176"> <p>$a \leq 5$ $b \leq 2$ $c \leq t$</p> <p>Where, a and b are ignored when less than or equal 0.5. The numbers of pieces are set at up to 5 pieces.</p> </td> </tr> <tr> <td data-bbox="694 1176 1093 1366"> <p>(2) Corner crack</p>  </td> <td data-bbox="1093 1176 1500 1366"> <p>$a \leq 2.5$ $b \leq 2.5$ $c \leq t$ $a + b \leq 4$</p> </td> </tr> <tr> <td data-bbox="694 1366 1093 1635"> <p>(3) Seal portion crack</p>  </td> <td data-bbox="1093 1366 1500 1635"> <p>$a \leq \text{The seal width} \times 1/3$ $b \leq t \times 2/3$ $c \leq 5$</p> <p>The numbers of pieces are set at up to 5 pieces.</p> </td> </tr> <tr> <td data-bbox="694 1635 1093 1870"> <p>(4) ITO Pin crack</p>  </td> <td data-bbox="1093 1635 1500 1870"> <p>$a \leq 5$ $b \leq 1/3 \text{ pin length}$ $c \leq t$</p> </td> </tr> <tr> <td data-bbox="694 1870 1093 1971"> <p>(5) Progressive cracks</p> </td> <td data-bbox="1093 1870 1500 1971"> <p>All taken to be unacceptable.</p> </td> </tr> </table>	<p>(1) General crack</p> 	<p>$a \leq 5$ $b \leq 2$ $c \leq t$</p> <p>Where, a and b are ignored when less than or equal 0.5. The numbers of pieces are set at up to 5 pieces.</p>	<p>(2) Corner crack</p> 	<p>$a \leq 2.5$ $b \leq 2.5$ $c \leq t$ $a + b \leq 4$</p>	<p>(3) Seal portion crack</p> 	<p>$a \leq \text{The seal width} \times 1/3$ $b \leq t \times 2/3$ $c \leq 5$</p> <p>The numbers of pieces are set at up to 5 pieces.</p>	<p>(4) ITO Pin crack</p> 	<p>$a \leq 5$ $b \leq 1/3 \text{ pin length}$ $c \leq t$</p>	<p>(5) Progressive cracks</p>	<p>All taken to be unacceptable.</p>
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<p>(5) Progressive cracks</p>	<p>All taken to be unacceptable.</p>										

6	Outer dimensions	Should be within 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 mounting position, etc.

5-3 Dot Appearance Defect

NO.	Item	Criteria
1.	Pinhole	 <p>Dot display a and b are each $\leq 0.2\text{mm}$ The overall total is taken be with in 10 units. Note that they are not to be concentrated.</p>
2.	Missing	 <p>Dot display a and b are each $\leq 0.2\text{mm}$ The overall total is taken to be with in 10 units.</p>
3.	Thick and thin display	 <p>Taken to be within $\pm 1.5\%$ of display character width(a) and height(b).</p>

NOTICE:

• 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 with a soft cloth soaked with a cleaning naphtha solvent.

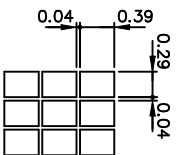
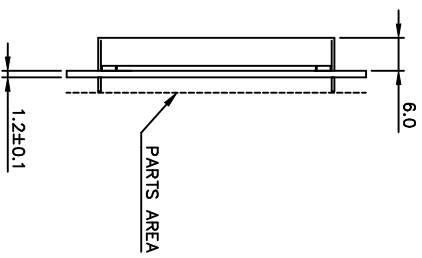
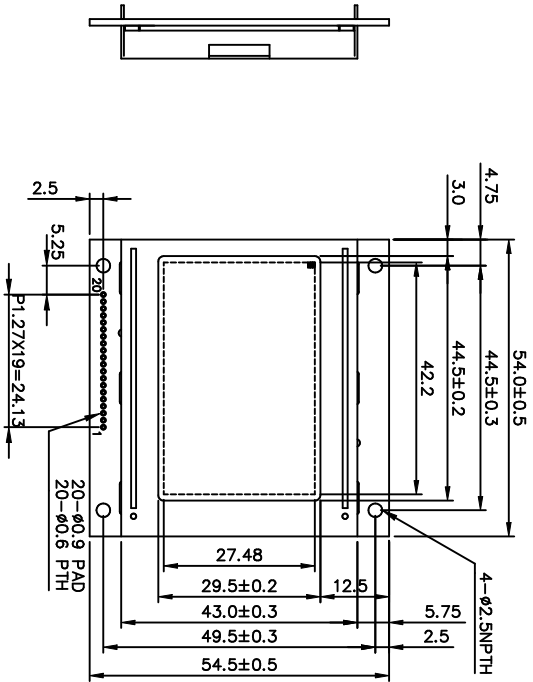
• STORAGE

- 1.Store the panel or module in a dark place where the temperature is $25^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 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.

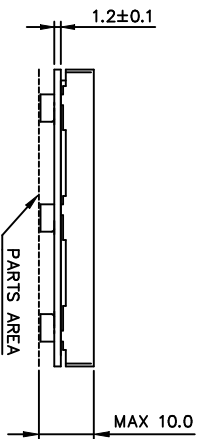
• TERMS OF WARRANT

- 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.

VIEW DIRECTION
↖



DOT AREA(128 X 64)



- Notes:
- 1.Resolution : 128 x 64 Dots
 - 2.Backlight : LED (Yellow Green)
 - 3.Frame Material : SECC (0.5 mm \updownarrow)
 - 4.Touch Panel : Without
 - 5.Driver IC: COM: COB/NIT7107 or Compatible
SEG: COB/NIT7108 or Compatible

GENERAL TOLERANCE LIST

DIMENSION	TOLERANCE
L \leq 6	± 0.25 (mm)
6 < L \leq 18	± 0.3 (mm)
18 < L \leq 50	± 0.4 (mm)
50 < L \leq 125	± 0.5 (mm)
125 < L	± 0.6 (mm)
ANGLE	$\pm 1^\circ$ (DEG)


 南亚塑膠工業股份有限公司
 NAN YA PLASTICS CORPORATION
 製品圖

LMC55S128KS_

NAME	DATE	THIRD ANGLE P.
APPROVE		
CHECK		
DESIGN		
DRAWN		

CLUDE	SCALE	UNIT
CLUDE	96.03.15	1/1
DRAWN	96.03.15	mm

DWG NO.	DATE	SCALE	UNIT
M1128BD01A		1/1	mm

INTERNAL PIN CONNECTION

PinNo.	Symbol	PinNo.	Symbol
1	VSS	11	DB4
2	VDD	12	DB5
3	V/O	13	DB6
4	D/1	14	DB7
5	R/W	15	CS1
6	E	16	CS2
7	DB0	17	RES
8	DB1	18	VEE
9	DB2	19	K
10	DB3	20	A

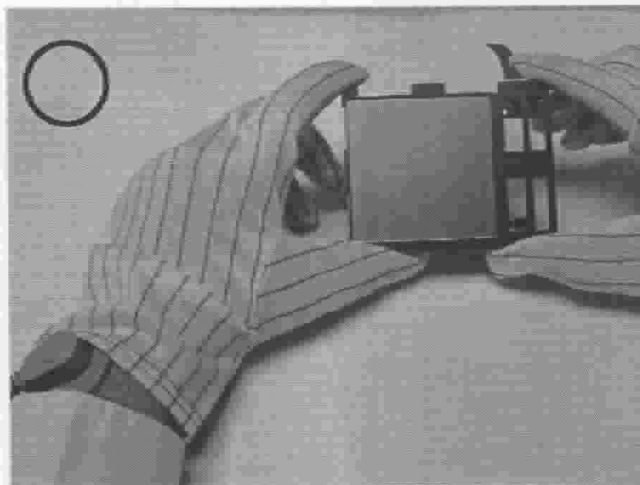
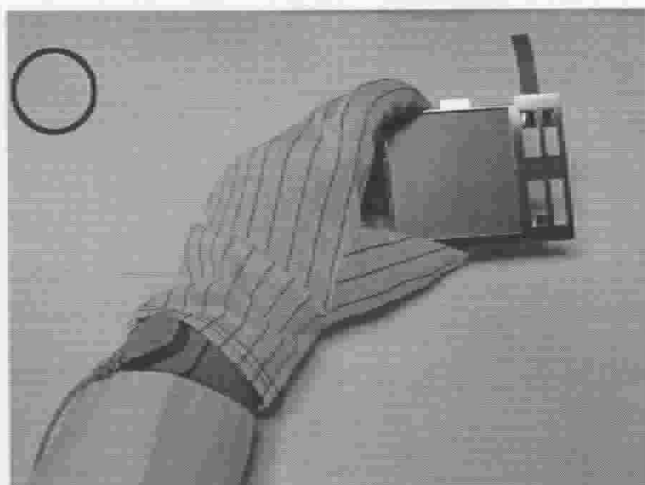
REV. NO.	DESCRIPTION	DATE	DESIGN	CHECK	APPROVE	DWG NO.
1						M1128BD01A

THE NOTES OF LCM USING

LCM is easy to damage.

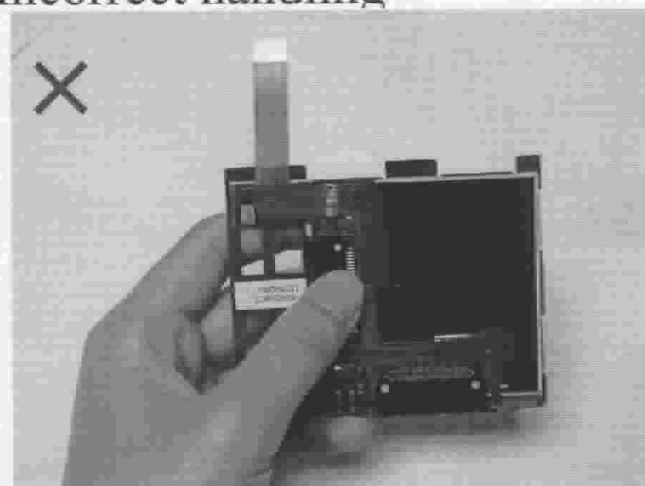
Please follow the notes as bellows, and be careful of handling!

Correct handling

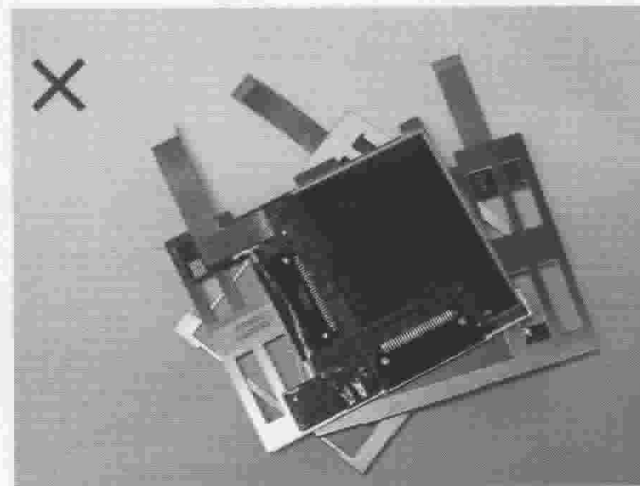


As above picture, please handle with glove by LCM edges and full EOS/ESD protection.

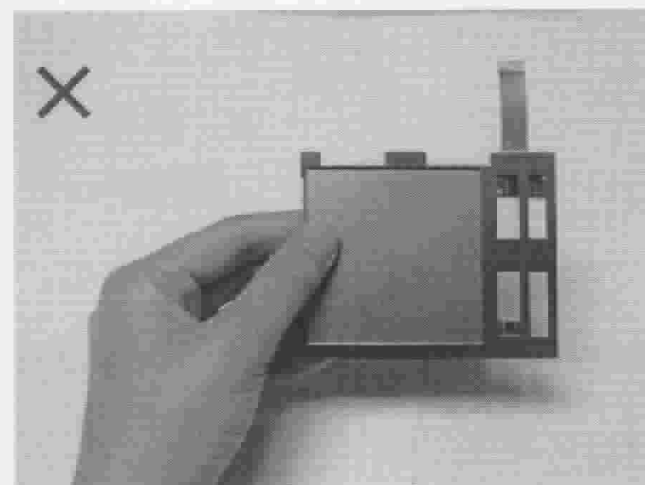
Incorrect handling



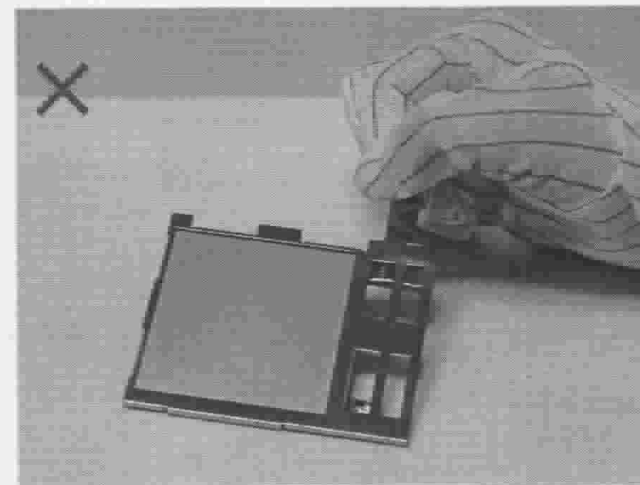
Please don't touch IC directly.



Please don't put one on another LCM.



Please don't hold the surface of LCM.



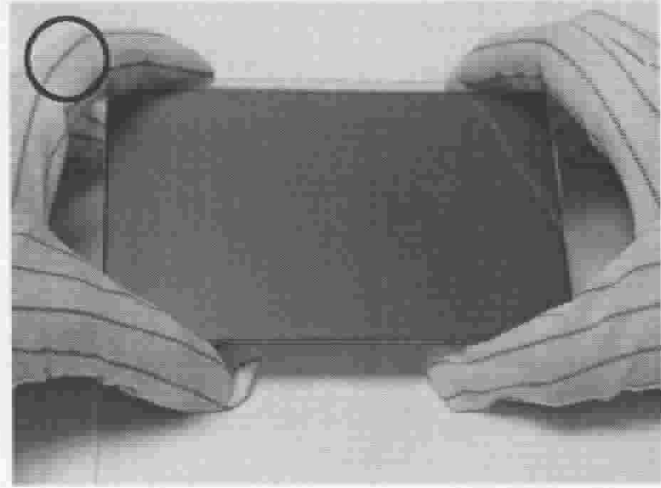
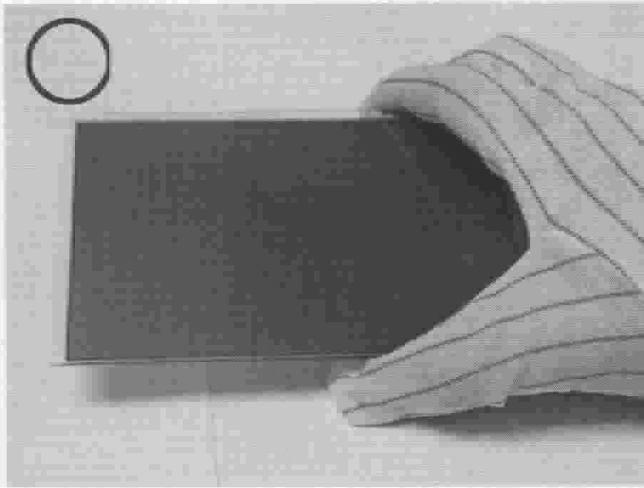
Please don't stretch interface of output.

THE NOTES OF LCD USING

LCD is easy damage.

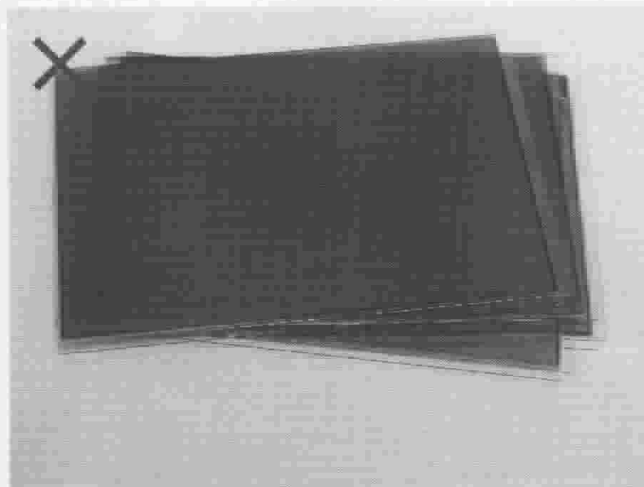
Please follow notes as bellows, and be careful of handling!

Correct handling

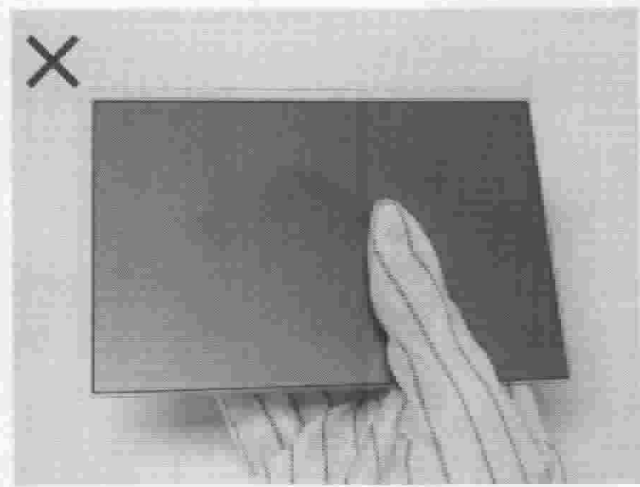


As above picture, please handle with glove by LCD edges and full EOS/ESD protection.

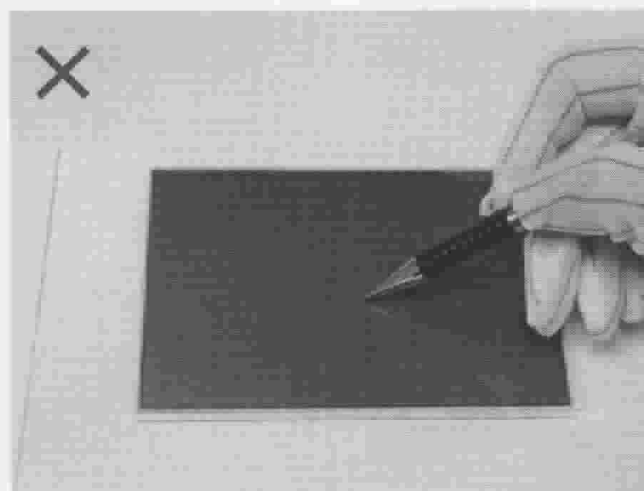
Incorrect handling



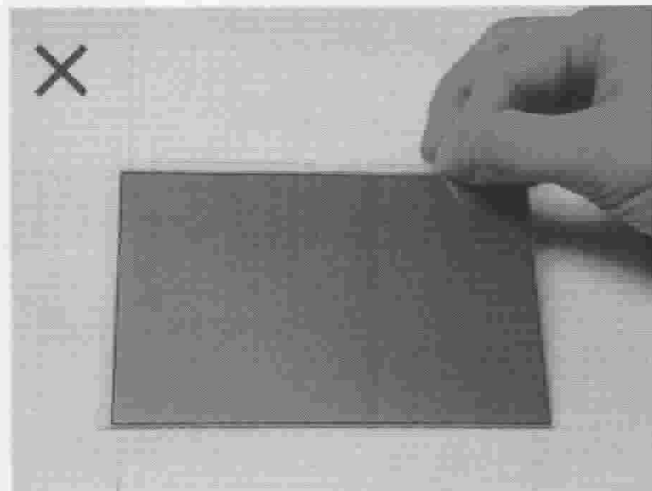
Please don't put one on another LCD.



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.

