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NAN YA PLASTICS CORPORATION

SPECIFICATION OF
LCD MODULE
PRODUCT NO.: LMC75S141C3DL_

SPEC. NO.: LM141-3B- 

CUSTOMER
APPROVED BY
DATE:

LCD DEPARTMENT
ELECTRONIC MATERIALS DIVISION
NAN YA PLASTICS CORPORATION
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EDITED ON. : JAN. 20, 2003

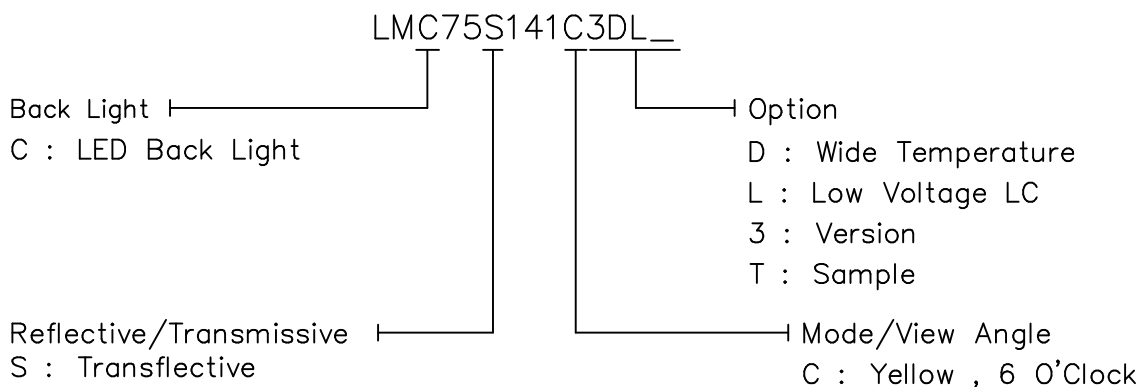
DESIGN MANAGER	DESIGN CHECK	DESIGNER
		C.F.SU

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1. MECHANICAL DATA

(1) Product No.	LMC75S141C3DL_
(2) Module Size	75.0(W)mm X 52.7(H)mm X MAX9.5(D)mm (LED B/L)
(3) Dot Size	0.40 (W)mm x 0.40 (H)mm
(4) Dot Pitch	0.43 (W)mm x 0.43 (H)mm
(5) Number of Dots	128 (W) x 64 (H)Dots
(6) Duty	1/64
(7) LCD Display Mode	STN: Yellow Mode
	Rear Polarizer: Transflective
(8) Viewing Direction	6 O'clock
(9) Backlight	LED B/L
(10) Weight	LED B/L : 35.6g(approx.)
(11) DC/DC Converter	Built-in

Note :



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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	7.0	V	
Power Supply for LCM	VDD-VSS	0	21.0	V	
Input Voltage	VDD	-0.3	VDD	V	
Static Electricity	-	-	-	-	Note 1

(2) ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	OPERATING		STORAGE	
	MIN.	MAX.	MIN.	MAX.
Ambient Temperature	-20	70	-30	80
Humidity (Without Condensation)	Note 2,3		Note 2,4	

Note 1 LCM should be grounded during handling LCM.

Note 2 Background color changes slightly depending on ambient temperature.
This phenomenon is reversible.

Note 3 Ta ≤ 70°C : 75%RH max
Ta > 70°C : Absolute humidity must be lower
than the humidity of 75%RH at 70°C

Note 4 Ta at -30°C will be < 48hrs, at 80°C will be < 120hrs

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3. ELECTRICAL CHARACTERISTICS

(VDD= 5.0±10%V)

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
Input Voltage	VIH	H level	0.7VDD	-	VDD	V	
	VIO	L level	0	-	0.3VDD	V	
Recommended LC Driving Voltage (Low Voltage LC and Wide Temp. LCM)	VDD-VO	Duty= 1/64	-20°C	9.8	10.1	10.4	V
			0°C	8.7	9.0	9.3	
		Bias= 1/9	25°C	8.4	8.7	9.0	
			50°C	7.9	8.2	8.5	
			70°C	7.5	7.8	8.1	
Power Supply Current	IDD	FLM=79 Hz VDD=5.0 V VDD-VO=8.7 V PATTERN : □ ■ □ ■ □ ■ ■ □ ■ □ ■ □	-	2.0	5.0	mA	
LED B/L Supply Current	ILED	VLED=5.0 V R7=R8=10Ω (R7=10Ω)	-	150 (89)	200	mA	

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4. OPTICAL CHARACTERISTICS

(For Wide Temperature Mode LCM)

AT V_{OP}

ITEM MODE		Cr(Contrast Ratio)										θ(Viewing Angle)		φ(Viewing Angle)	
		-20°C		0°C		25°C		50°C		70°C		25°C		25°C	
		MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.
S	C	2.0	4.5	3.5	5.5	5.0	6.0	3.5	5.5	2.0	5.0	-	67	-	26-45
NOTE		NOTE 6										NOTE 5			

NOTE :

S : TRANSFLECTIVE
C : YELLOW

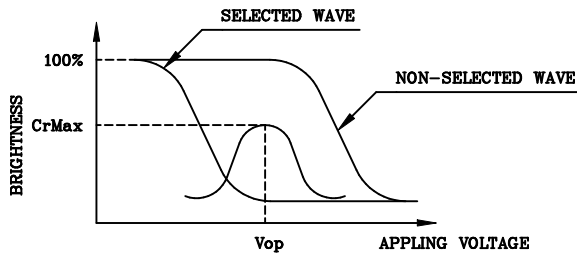
AT φ=0° θ=0°

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
Response Time (rise)	Tr	-20°C	5500	11000	16500	ms	NOTE 2
		0°C	800	1600	2400		
		25°C	200	400	600		
		50°C	80	160	240		
		70°C	55	110	165		
Response Time (fall)	Tf	-20°C	3500	7000	10500	ms	NOTE 2
		0°C	400	800	1200		
		25°C	75	150	225		
		50°C	40	80	120		
		70°C	35	70	105		

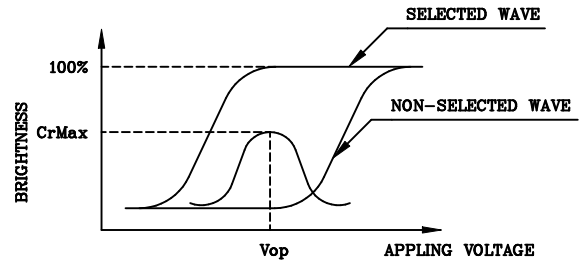
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(NOTE 1)

Definition of Operation Voltage(Vop)



(positive type)



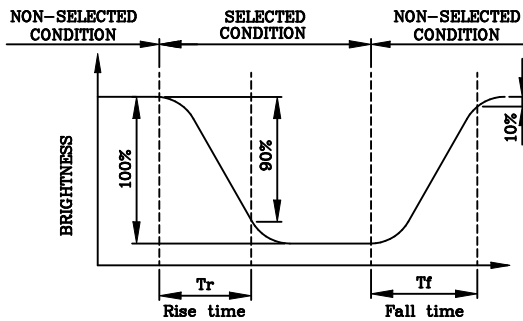
(negative type)

*Conditions

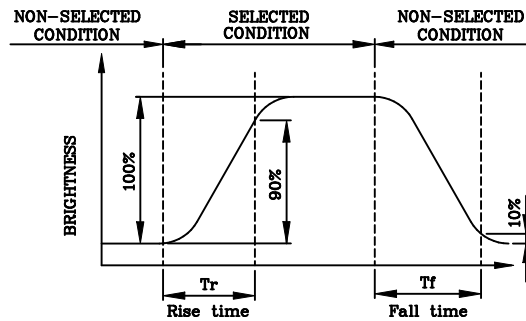
Viewing Angle : 0
 Frame Frequency : 70Hz
 Applying Waveform : 1/N duty 1/a bias

(NOTE 2)

Definition of Response Time(Tr,Tf)



(positive type)



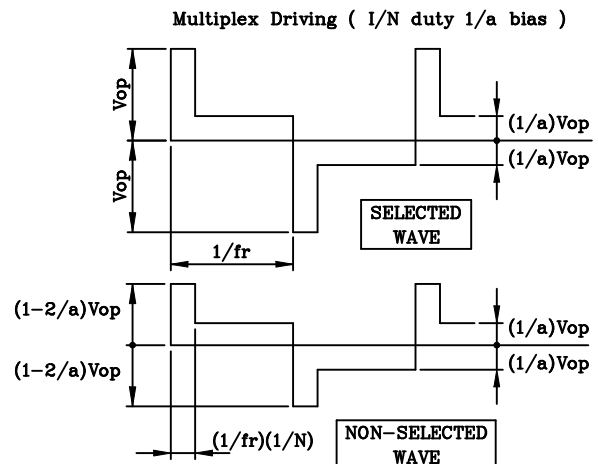
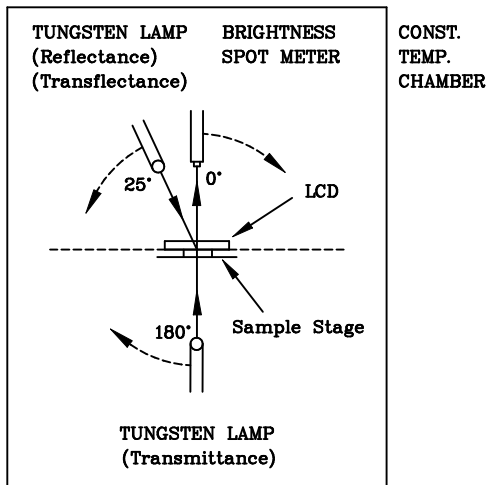
(negative type)

*Conditions

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

(NOTE 3)

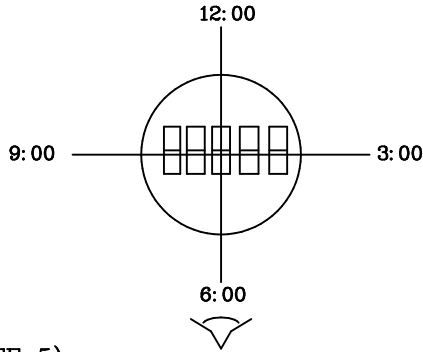
Description of Measuring Equipment and Driving Waveforms



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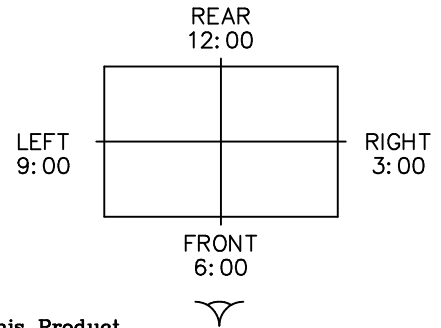
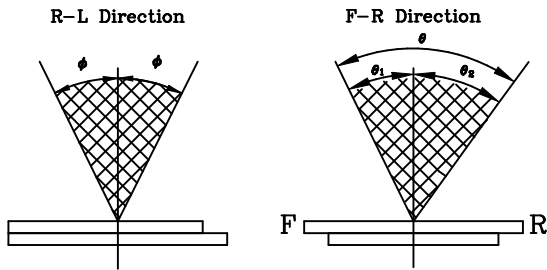
(NOTE 4)

Definition of Viewing Direction



(NOTE 5)

Definition of Viewing Angle



*For This Product
 The Viewing Direction Is 6 O'clock
 So $\theta_1 > \theta_2$

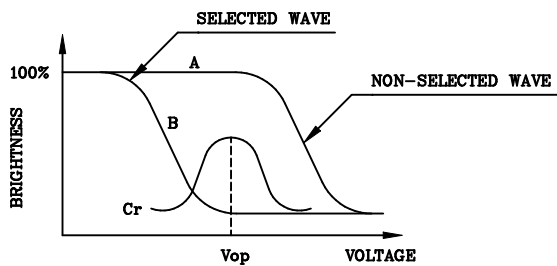
$$\theta = \theta_1 + \theta_2$$

*Conditions

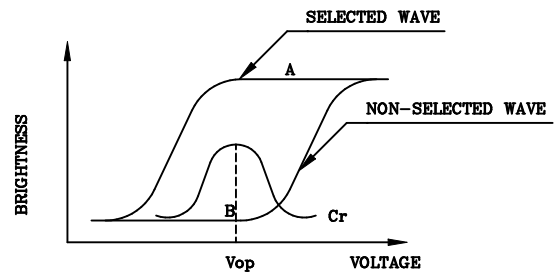
Operating Voltage : V_{op}
 Frame Frequency : 70Hz
 Applying Waveform : 1/N duty 1/a bias
 Contrast Ratio : larger than 2

(NOTE 6)

Definition of Contrast Ratio (Cr)



(positive type)



(negative type)

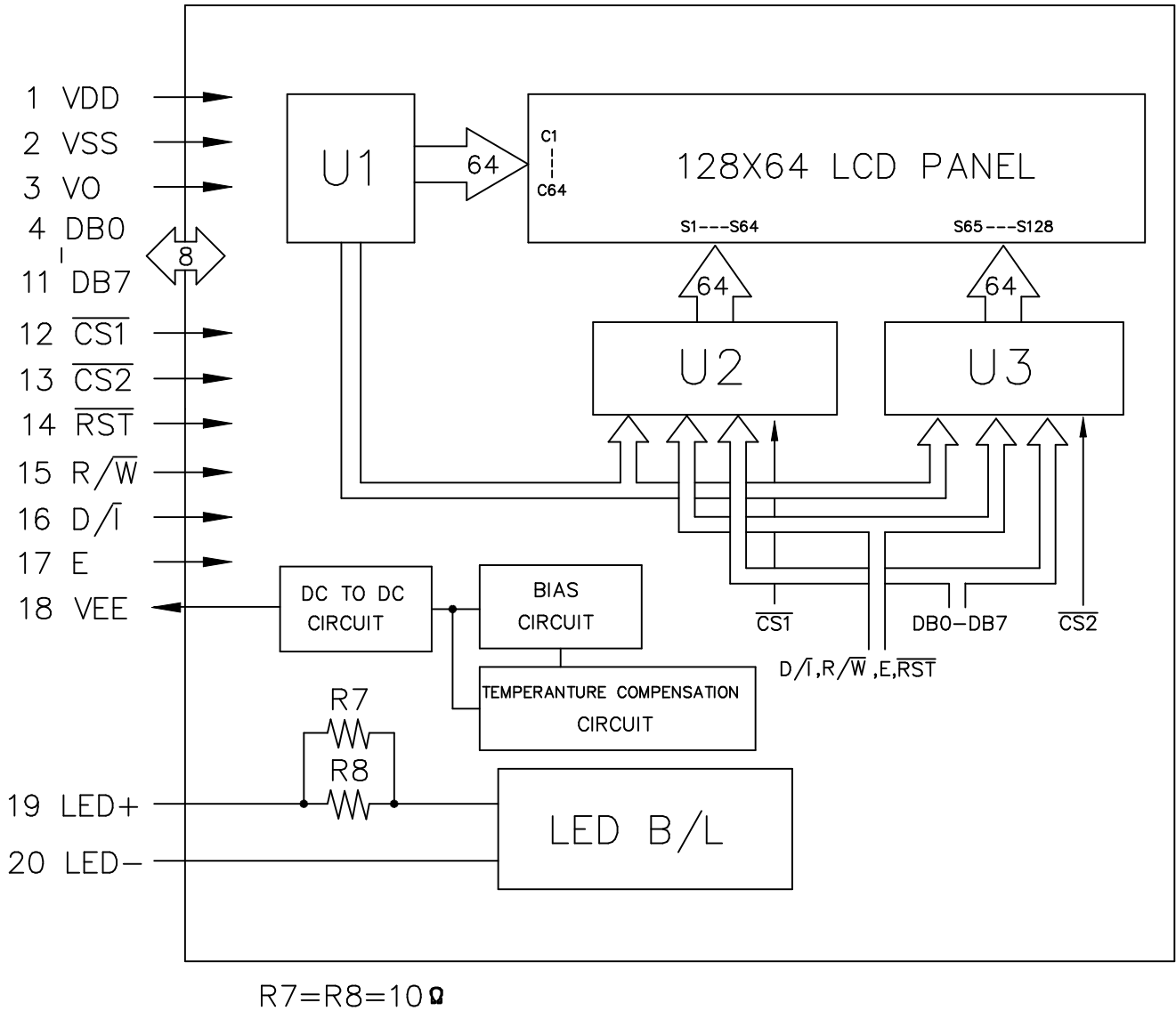
$$\text{Contrast Ratio : } Cr = A/B$$

*Conditions

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

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5. BLOCK DIAGRAM



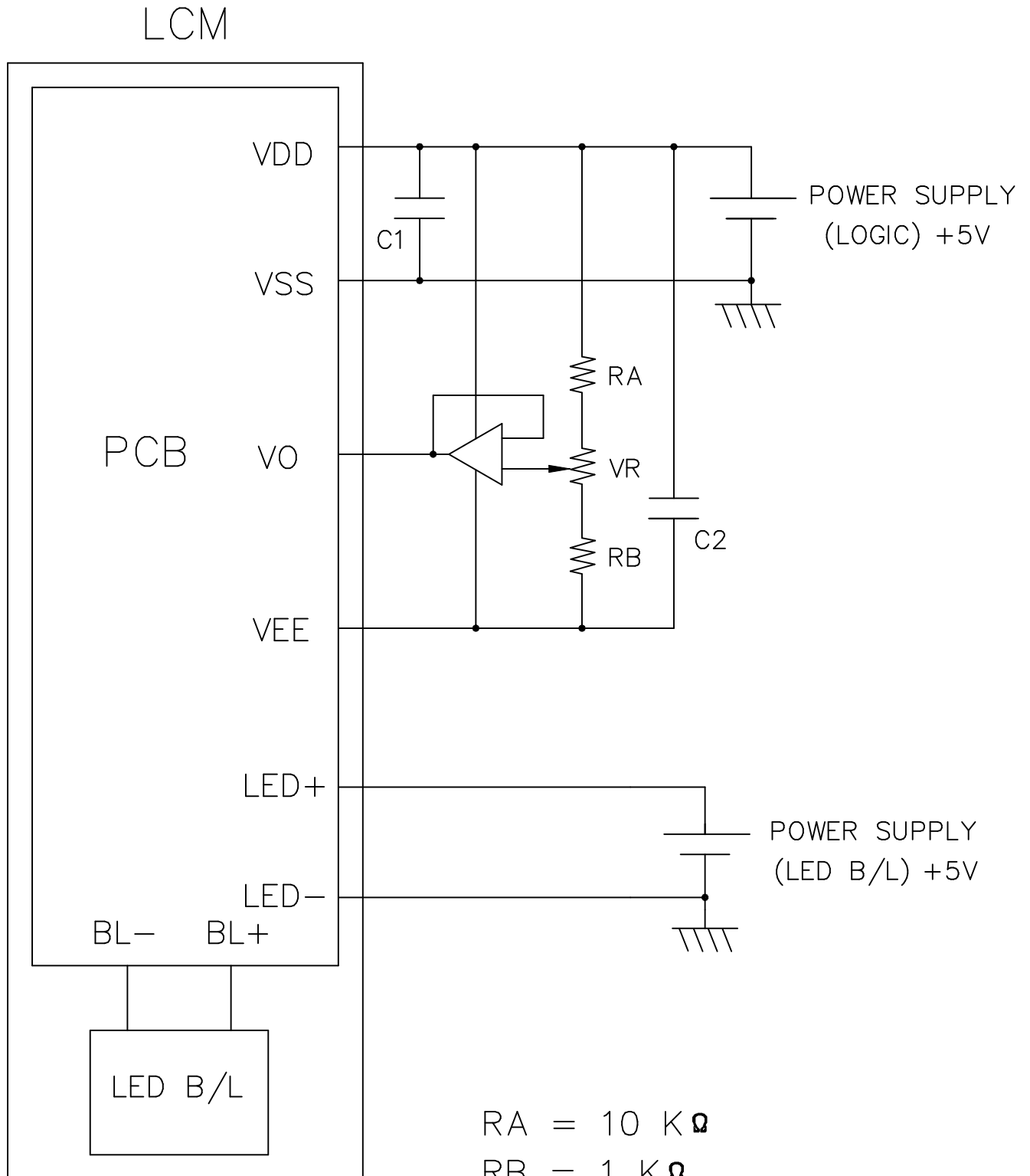
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6. INTERNAL PIN CONNECTION

Pin No.	Symbol	Level	Function
1	VDD	—	POWER SUPPLY FOR LOGIC CIRCUIT
2	VSS	—	GND
3	VO	—	OPERATING VOLTAGE FOR LCD DRIVING
4	DB0	H/L	DATA BUS LINE (LSB)
5	DB1	H/L	
6	DB2	H/L	
7	DB3	H/L	
8	DB4	H/L	
9	DB5	H/L	
10	DB6	H/L	
11	DB7	H/L	
12	$\overline{CS1}$	L	CHIP SELECTION U2
13	$\overline{CS2}$	L	CHIP SELECTION U3
14	\overline{RST}	L	RESET ACTIVE "L"
15	R/ \overline{W}	H/L	H: DATA READ (FROM LCM TO MPU) L: DATA WRITE (FROM MPU TO LCM)
16	D/ \overline{I}	H/L	H: DATA INPUT L: INSTRUCTION CODE INPUT
17	E	H, H->L	ENABLE SIGNAL
18	VEE	—	NEGATIVE VOLTAGE OUTPUT
19	LED(+)	—	ANODE FOR LED BACKLIGHT
20	LED(-)	—	CATHODE FOR LED BACKLIGHT

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7. POWER SUPPLY



$RA = 10\text{ K}\Omega$

$RB = 1\text{ K}\Omega$

$VR = 10\text{ K}\Omega(\text{VARIABLE})$

$C1, C2 = 10\ \mu\text{F}$

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8. TIMING CHARACTERISTICS

8-1 INTERFACE TIMING

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

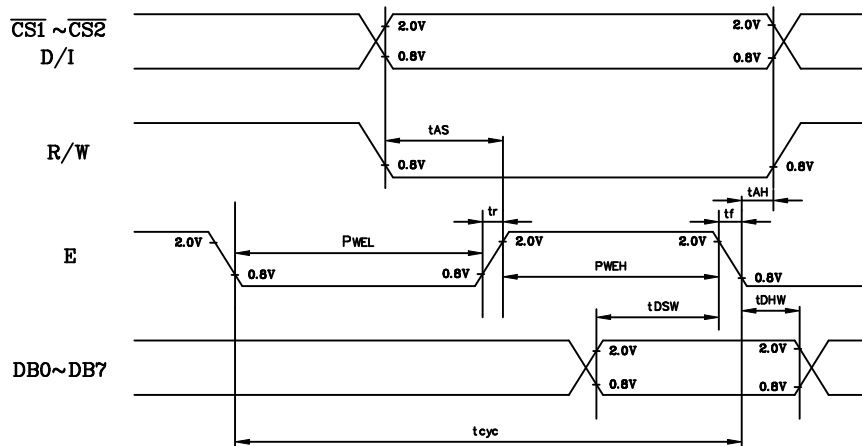


Fig . a Interface timing (data write)

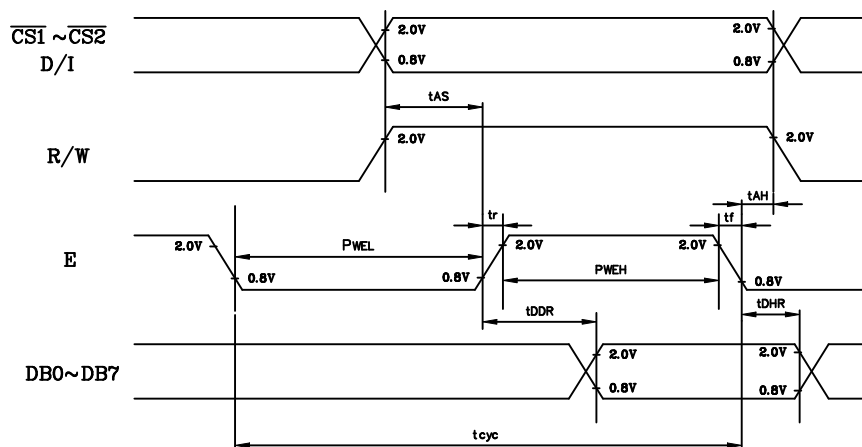
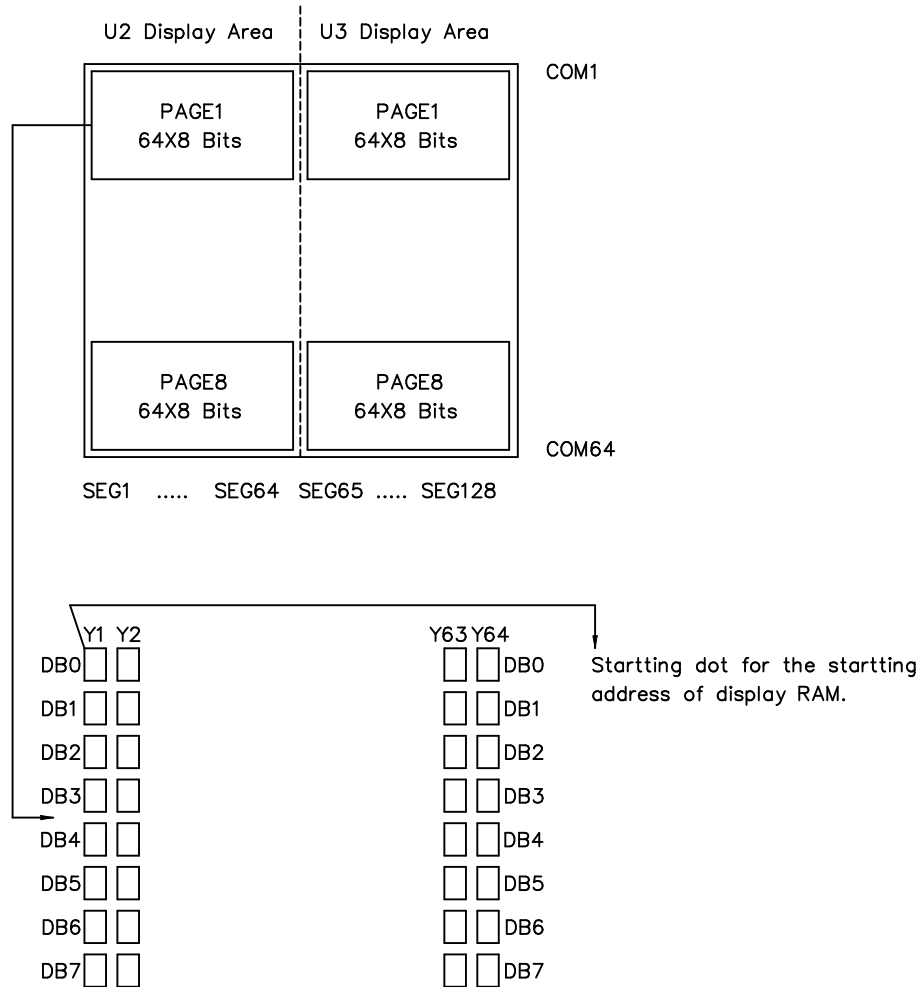


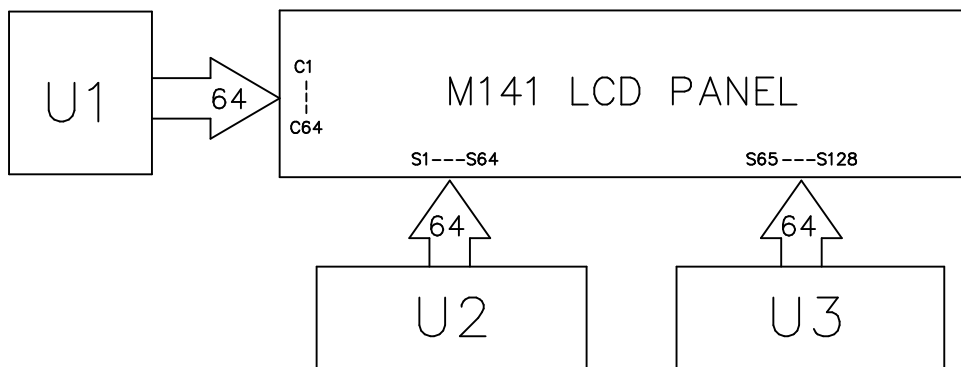
Fig . b Interface timing (data read)

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8-2 DISPLAY PATTERN



Each segment driver has 8 pages RAM , and each page has 64 x 8 bits RAM .
DB0~DB7 are 8 bits transmitted data , where DB0 is LSB and DB7 is MSB .



8-3 DISPLAY CONTROL INSTRUCTION

The display control instructions control the internal state of the KS0108B. Instructions is received from MPU to HCD61202U 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.

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9. RELIABILITY TEST

NO	ITEM	CONDITION			STANDARD	NOTE
1	High Temp. Storage	70°C	120HR		Appearance without defect	
2	Low Temp. Storage	-20°C	120HR		Appearance without defect	
3	High Temp. & High Humi. Storage	40°C 90%RH	120HR		Appearance without defect	
4	Thermal Shock	-20°C, 30min → 25°C, 5min → 70°C, 30min → 25°C, 5min (1cycle)			Appearance without defect	5 cycles

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Inspection Provision

1. Purpose

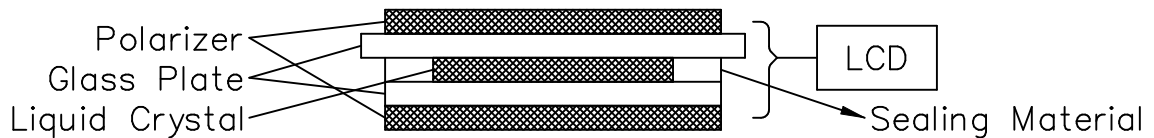
The NAN YA inspection provision provides outgoing inspection provision and its expected quality level based on our outgoing inspection of NAN YA LCD produces.

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

Outgoing inspection is according to the product inspection manual.
(Per 1-1, 1-2 & 1-3)

4-1 Inspection Method

MIL-STD-105D Level **II** Regular inspection

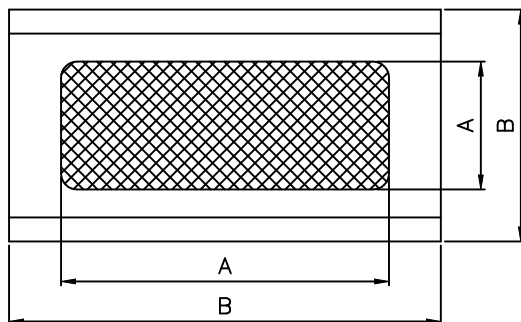
4-2 Inspection Standard

	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.

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

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)

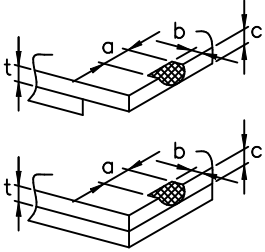
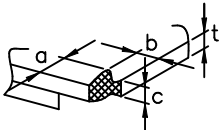
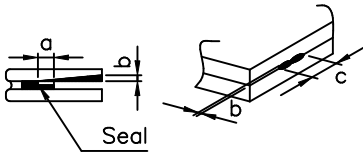
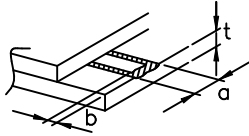
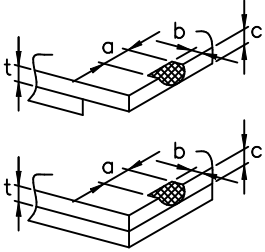
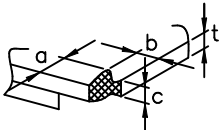
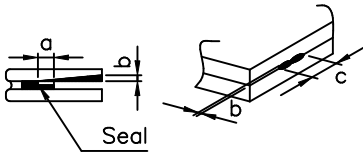
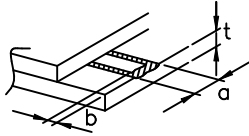
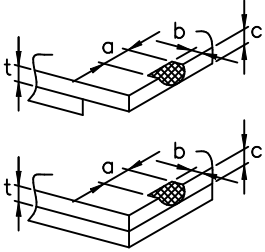
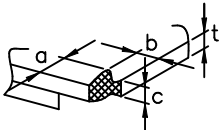
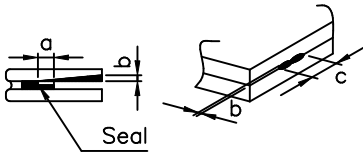
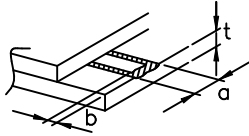
5.Specification for quality check
 5-1 Electrical characteristics

NO.	Item	Criterion
1.	Non operational	Fail
2.	Miss operating	Fail
3.	Missing dot	Fail
4.	Contrast irregular	Not allowable
5.	Response time	Within Specified value

5-2 External Appearance Defect

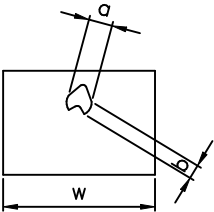
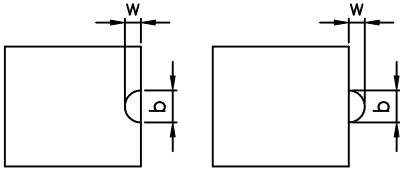
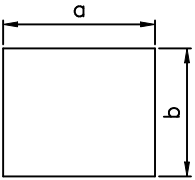
NO.	Item	Criterion																		
1.	Black spots, foreign matter, and white spots (Including light leakage due to pinholes of polarizing plates, etc.)	<p>(1)-1-Spots(At non lighting condition)</p> <table border="1" data-bbox="715 472 1358 763"> <thead> <tr> <th>Average Diameter(mm):D</th> <th>Number 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-Spots(At lighting condition)</p> <table border="1" data-bbox="715 1182 1358 1424"> <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.	Black spots, foreign matter, and white spots (Including light leakage due to pinholes of polarizing plates, etc.)	<p>(1)-1 Spots(At non lighting condition)</p> <table border="1" data-bbox="715 427 1455 712"> <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 Spots(At lighting condition)</p> <table border="1" data-bbox="715 1016 1455 1301"> <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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$W \leq 0.03$	Ignore	Ignore																								
$0.03 < W \leq 0.08$	$L \leq 3$	6																								
$0.08 < W$	$3 < L$	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="715 376 1230 667"> <tr> <th data-bbox="715 376 971 521">Average Diameter (mm): D</th> <th data-bbox="971 376 1230 521">Number of pieces permitted</th> <th data-bbox="1230 376 1476 667" rowspan="2">Average diameter = (Long diameter + Short diameter)/2</th> </tr> <tr> <td data-bbox="715 521 971 667">D ≤ 0.3 0.3 < D</td> <td data-bbox="971 521 1230 667">Ignore 0</td> </tr> </table> <p data-bbox="715 683 1476 779">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 ≤ 0.3 0.3 < D	Ignore 0					
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D ≤ 0.3 0.3 < D	Ignore 0											
<p>5. Cracks</p>	<table border="1" data-bbox="663 779 1476 1962"> <tr> <td data-bbox="663 779 1066 1167"> <p>(1) General crack</p>  </td> <td data-bbox="1066 779 1476 1167"> <p>a ≤ 5 b ≤ 2 c ≤ 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="663 1167 1066 1361"> <p>(2) Corner crack</p>  </td> <td data-bbox="1066 1167 1476 1361"> <p>a ≤ 2.5 b ≤ 2.5 c ≤ t a + b ≤ 4</p> </td> </tr> <tr> <td data-bbox="663 1361 1066 1630"> <p>(3) Seal portion crack</p>  </td> <td data-bbox="1066 1361 1476 1630"> <p>a ≤ The seal width × 1/3 b ≤ t × 2/3 c ≤ 5</p> <p>The numbers of pieces are set at up to 5 pieces.</p> </td> </tr> <tr> <td data-bbox="663 1630 1066 1872"> <p>(4) ITO Pin crack</p>  </td> <td data-bbox="1066 1630 1476 1872"> <p>a ≤ 5 b ≤ 1/3 pin length c ≤ t</p> </td> </tr> <tr> <td data-bbox="663 1872 1066 1962"> <p>(5) Progressive cracks</p> </td> <td data-bbox="1066 1872 1476 1962"> <p>All taken to be unacceptable.</p> </td> </tr> </table>		<p>(1) General crack</p> 	<p>a ≤ 5 b ≤ 2 c ≤ 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 ≤ 2.5 b ≤ 2.5 c ≤ t a + b ≤ 4</p>	<p>(3) Seal portion crack</p> 	<p>a ≤ The seal width × 1/3 b ≤ t × 2/3 c ≤ 5</p> <p>The numbers of pieces are set at up to 5 pieces.</p>	<p>(4) ITO Pin crack</p> 	<p>a ≤ 5 b ≤ 1/3 pin length c ≤ 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 with in the tolerance.
7.	Newton ring	Orbicular of interference fringes. To be non. In case of doubtful judgenemt, agreement shall be reachment.
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.	Plinhole	 <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>

(2) 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

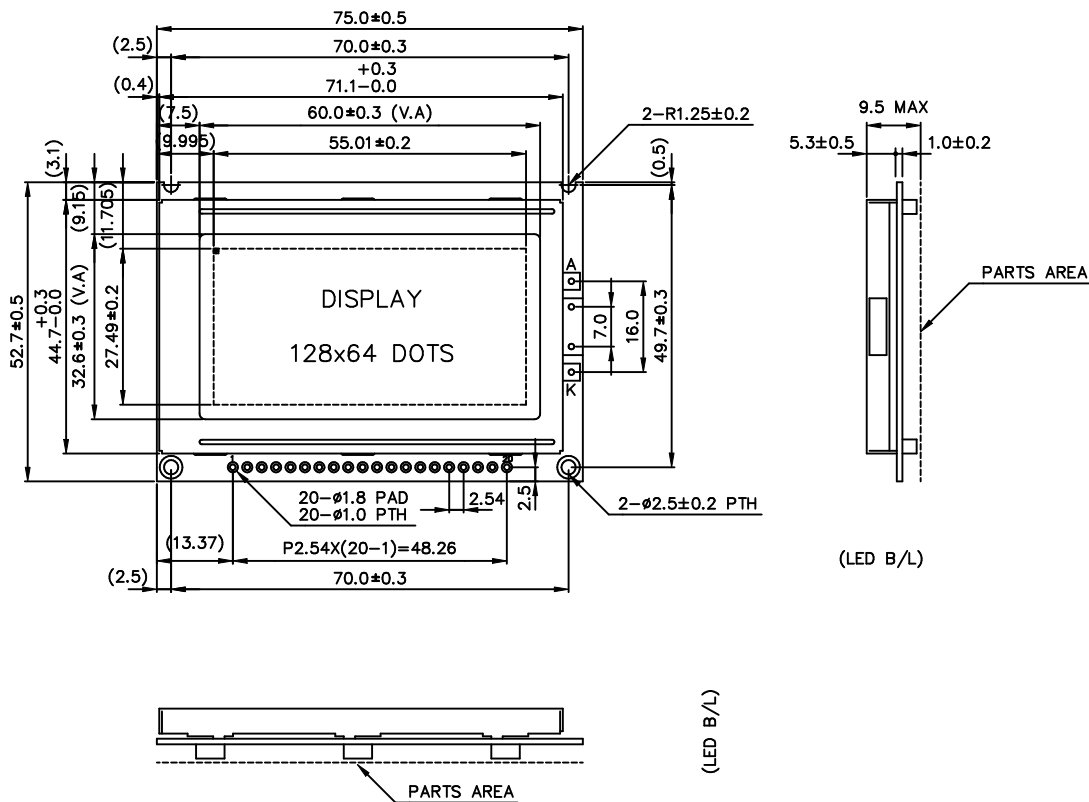
- 1.Avoid static electricity which can damage the CMOS LSI.
- 2.Do not remove the panel or frame from the module.
- 3.The polarizing plate of the display is very fragile. So, please handle it very carefully.
- 4.Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of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

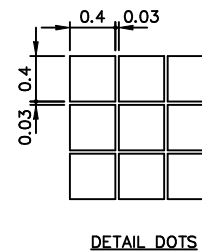
- 1.Acceptance inspection period
The period is within one month after the arrival of contracted commodity at the buyer's factory site.
- 2.Applicable warrant period
The period is within twelve months since the date of shipping out under normal using and storage conditions.



Pin No.	Symbol	Level	Function
1	VDD	—	POWER SUPPLY FOR LOGIC CIRCUIT
2	VSS	—	GND
3	V _o	—	OPERATING VOLTAGE FOR LCD DRIVING
4	DB0	H/L	DATA BIT 0
5	DB1	H/L	DATA BIT 1
6	DB2	H/L	DATA BIT 2
7	DB3	H/L	DATA BIT 3
8	DB4	H/L	DATA BIT 4
9	DB5	H/L	DATA BIT 5
10	DB6	H/L	DATA BIT 6
11	DB7	H/L	DATA BIT 7
12	CS1	L	CHIP SELECT FOR U2
13	CS2	L	CHIP SELECT FOR U3
14	RST	L	RESET
15	R/W	H/L	H : DATA READ (LCD → MPU) ; L : DATA WRITE (LCD → MPU)
16	D/I	H/L	H : DATA INPUT ; L : INSTRUCTION CODE INPUT
17	E	H,H-L	ENABLE SIGNAL
18	VEE	—	POWER SUPPLY FOR LCD DRIVING
19	LED(+)	—	LED BACKLIGHT
20	LED(-)	—	LED BACKLIGHT

NOTES :

1. RESOLUTION : 128 x 64 DOTS
2. TEMPERATURE COMPENSATION : BUILT-IN
3. TOLERANCE NO SPECIFIED : ±0.5 mm
4. COB PACKAGE STYLE



產品編號	LMC75S141C3_		南亞塑膠工業股份有限公司		
	NAME	DATE	NAN YA PLASTICS CORPORATION		
APPROVE			TITLE	製品圖	
CHECK			DWG-NO	MCCS141C3L	Rev.A
DESIGN			UNIT : mm SCALE : 1/1		
DRAW	MAY PING	88.07.22			