SPECIFICATIONS

CUSTOMER	:	**PTC**
SAMPLE CODE	:	**NSC2002WRP-BWT-I**
MASS PRODUCTION CODE	:	**NPC2002WRP-BWT-I**
SAMPLE VERSION	:	**01**
SPECIFICATIONS EDITION	:	**001**
DRAWING NO. (Ver.)	:	**JLMD-NPC2002WRP-BWT-I_001**
PACKAGING NO. (Ver.)	:	**JPKG-NPC2002WRP-BWT-I_001**

Customer Approved

Date:

Approved	Checked	Designer
閆偉	劉進	陳璐

☐ Preliminary specification for design input

■ Specification for sample approval

NO.PT-A-005-8

History of Version

Date (mm / dd / yyyy)	Ver.	Edi.	Description	Page	Design by
08/08/2018	01	001	New Sample	-	陳璐

Total：31 Pages

Contents

Note : For detailed information please refer to IC data sheet : SITRONIX---ST7066U-0T

1. SPECIFICATIONS

1.1 Features

Item	Standard Value
Display Type	20*2 Characters
LCD Type	PBT，Negative，Transmissive
Driver Condition	LCD Module： 1/16 Duty，1/5 Bias
Viewing Direction	6 O'clock
Weight	52.7g
Interface	6800-series 8-bit parallel
Driver IC	ST7066U
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC Detail information please refer web site : http://www.powertip.com.tw/news.php?area_id_view=1085560481/

1.2 Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	116.0 (L) * 37.0 (W) *13.3 (H)	mm
Viewing Area	85.0 (L) * 18.5 (W)	mm
Active Area	73.5 (L) * 11.5 (W)	mm
Character Size	3.2(L) * 5.55(W)	mm
Character Pitch	3.7(L) * 5.95(W)	mm

Note：For detailed information please refer to LCM drawing

1.3 Absolute Maximum Ratings

Item	Symbol	Condition	Min.	Max.	Unit
Power Supply Voltage	V_{DD}	-	-0.3	7.0	V
LCD Driver Supply Voltage	V_{LCD}	-	V_{DD} -10.0	V_{DD} +0.3	V
Input Voltage	V_{IN}	-	-0.3	V_{DD}+0.3	V
Operating Temperature	T_{OP}	-	-20	70	℃
Storage Temperature	T_{ST}	-	-30	80	℃
Storage Humidity	H_D	Ta＜60 ℃	-	90	%RH

1.4 DC Electrical Characteristics

Ta = 25℃

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Logic Supply Voltage	V_{DD}	-	4.5	5.0	5.5	V
"H" Input Voltage	V_{IH}	-	0.7 V_{DD}	-	V_{DD}	V
"L" Input Voltage	V_{IL}	-	-0.3	-	0.6	V
"H" Output Voltage	V_{OH}	I_{OH}=-0.1mA	3.9	-	V_{DD}	V
"L" Output Voltage	V_{OL}	I_{OL}=0.1mA	-	-	0.4	V
Supply Current	I_{DD}	V_{DD}= 5.0 V ,Vo= 0.8 V *1	-	10	15	mA
LCM Driver Voltage	V_O	-20℃（V_{DD}= 5.0 V）	0.6	0.8	1.0	V
		25℃（V_{DD}= 5.0 V）	0.6	0.8	1.0	
		70℃（V_{DD}= 5.0 V）	0.6	0.8	1.0	

NOTE: *1 The Maximum current display

1.5 Optical Characteristics

LCD Panel：1/16 Duty，1/5 Bias，V_{LCD} = 8.3 V，Ta =25℃

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit	Reference
Response Time	Rise	tr	-	-	53	80	ms	Note 2
	Fall	tf		-	33	50		
Viewing angle range	Top	θ+	C≥2.0	-	60	-	Deg.	Note 1
	Bottom	θ-		-	60	-		
	Left	θL		-	60	-		
	Right	θR		-	60	-		
Contrast Ratio		C	-	-	124	-	-	Note 3
Average Brightness (with LCD)		IV	IF= 60 mA	40	65	-	cd/m^2	Note 4
Color of CIE Coordinate (With LCD)		X		0.20	0.25	0.30	-	
		Y		0.24	0.29	0.34		
Uniformity		△B		70	-	-	%	

Note 4 ：

1：△B=B(min) / B(max) * 100%

2：Measurement Condition for Optical Characteristics:

    a：Environment: 25℃±5℃ / 60±20%R.H，no wind，dark room below 10 Lux at typical lamp

       current and typical operating frequency.

    b：Measurement Distance: 500 ± 50 ㎜ ，(θ= 0°)

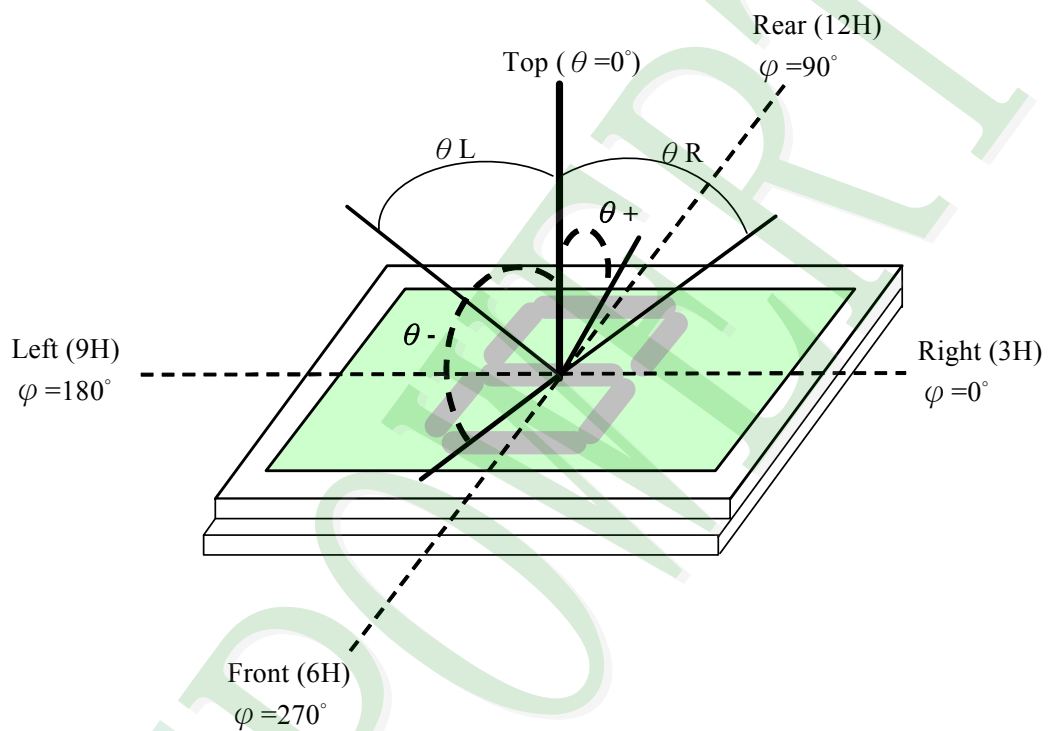   c：Equipment: TOPCON BM-7 fast，(field 1°)，after 10 minutes operation.

    d：The uncertainty of the C.I.E coordinate measurement ±0.01，Average Brightness ± 4%

Colorimeter=BM-7 fast
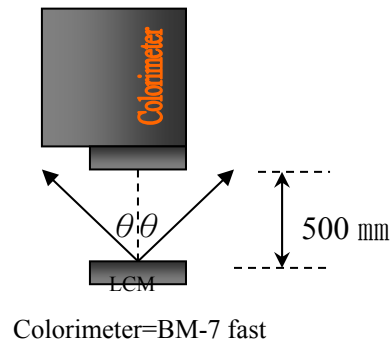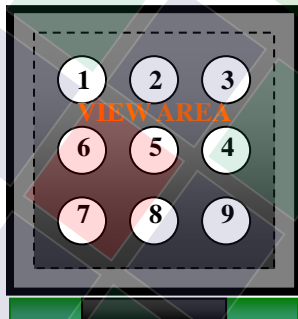
Note 1.

Optical characteristics-2

Viewing angle

Rear (12H)
$\varphi = 90°$

Top ($\theta = 0°$)

θ L

θ R

$\theta +$

Left (9H)
$\varphi = 180°$

$\theta -$

Right (3H)
$\varphi = 0°$

Front (6H)
$\varphi = 270°$

Viewing angle

Note 2.

Optical characteristics-3
    Fig.2 Definition of response time

Positive Type

No selected waveform — Selected waveform — No selected waveform

Transmittance

100%   90%   10%

Tr   Tf

Negative Type

No selected waveform — Selected waveform — No selected

Transmittance

100%   90%   10%

Tr   Tf
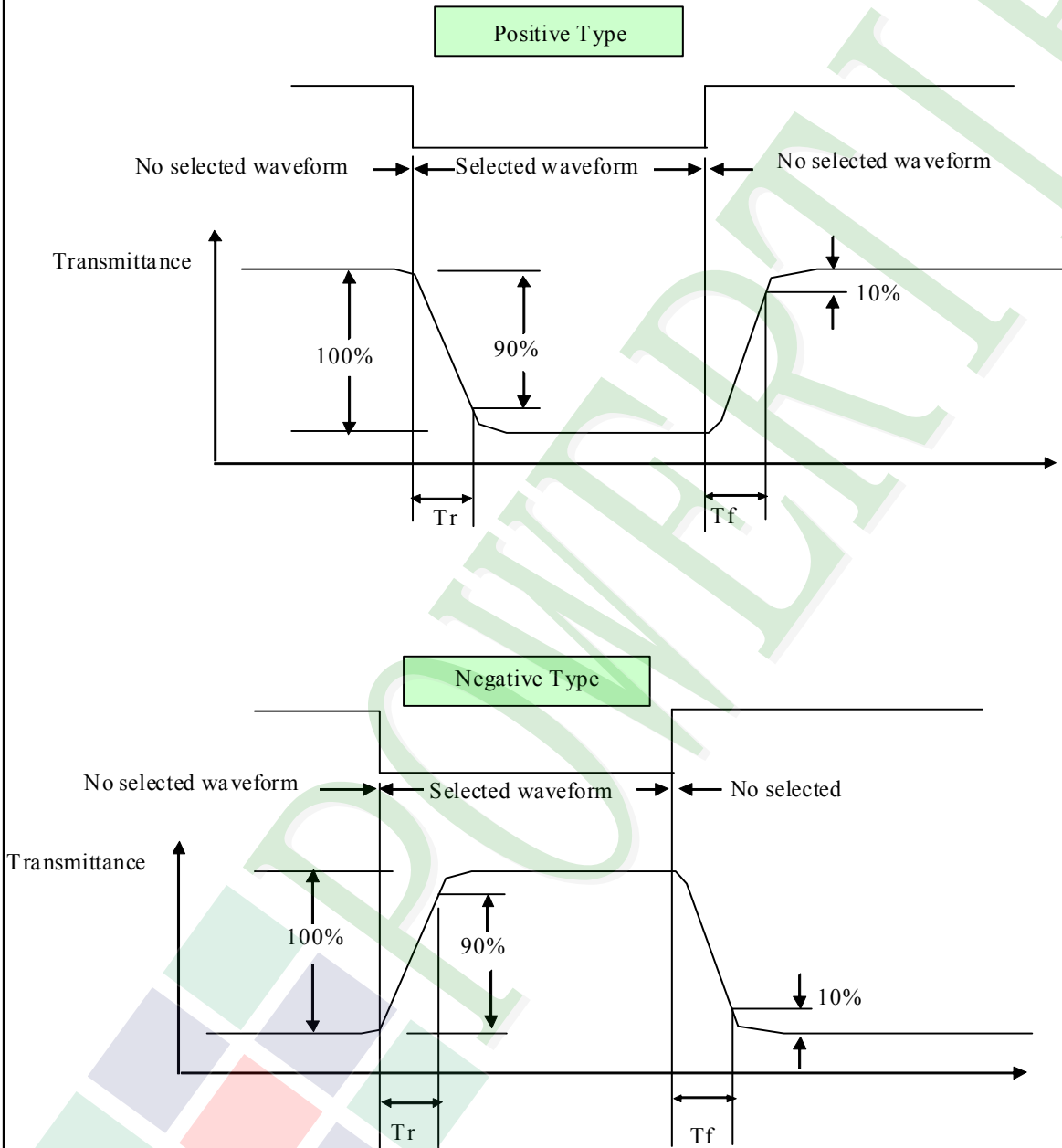
Electrical characteristics-2

　　　　※2 Drive waveform
　　　　Vop: Drive voltage　　　fF: Frame frequency
　　　　1/B: Bias　　　　　　　fD: Drive frequency
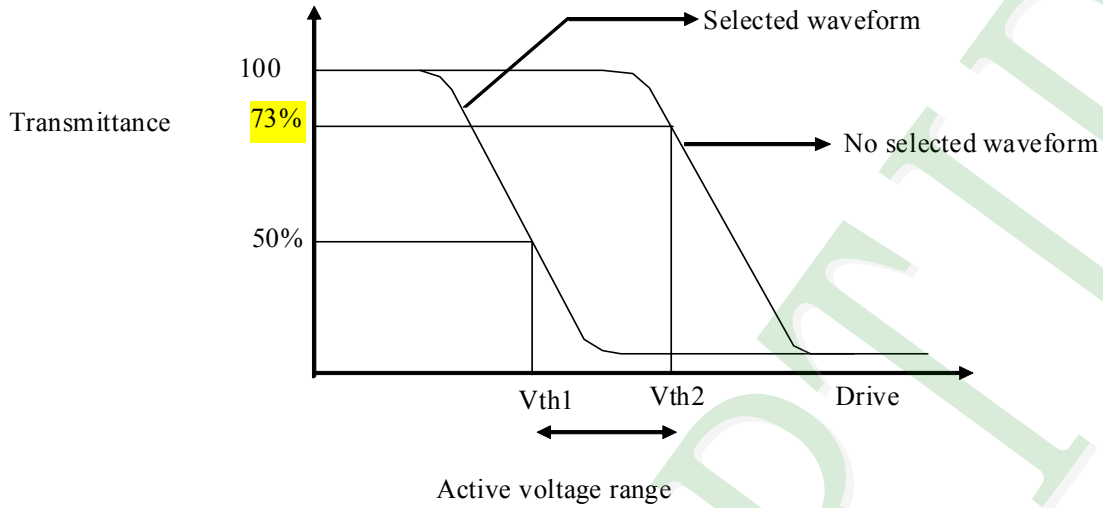　　　　N: Duty

　(1) Selected waveform
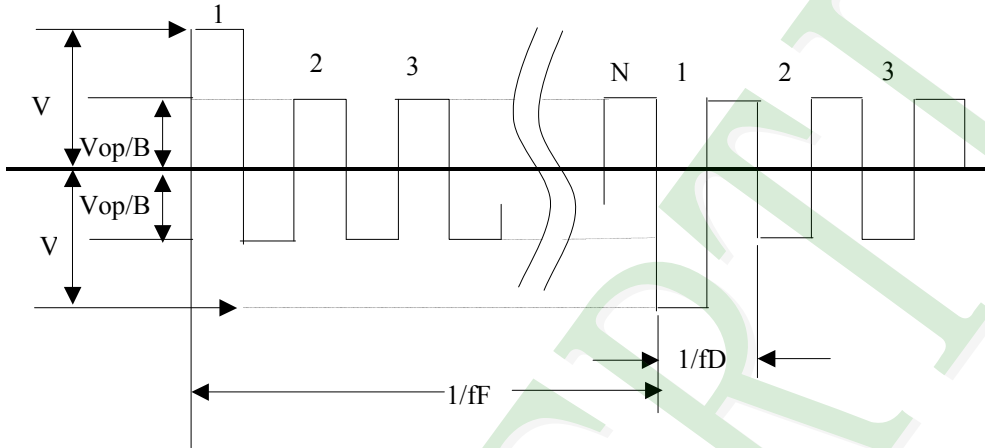
　(2) Non- Selected wave form
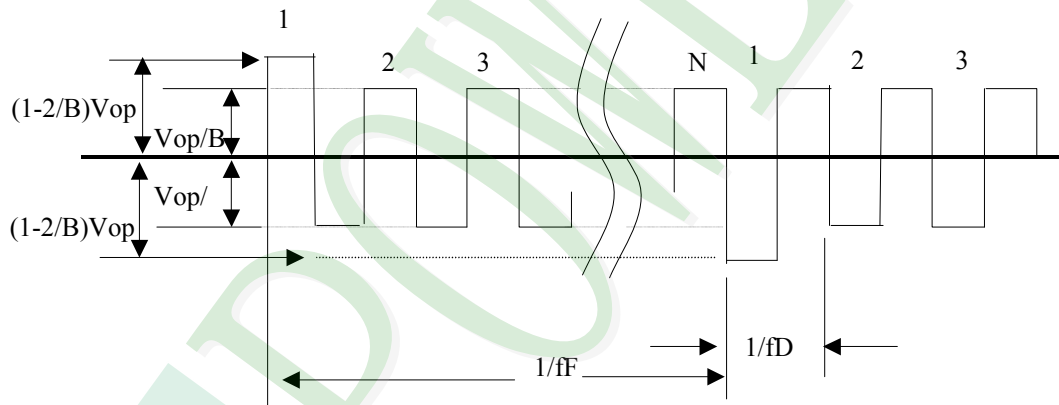
Note:
Frame frequency is defined as follows: Common side supply
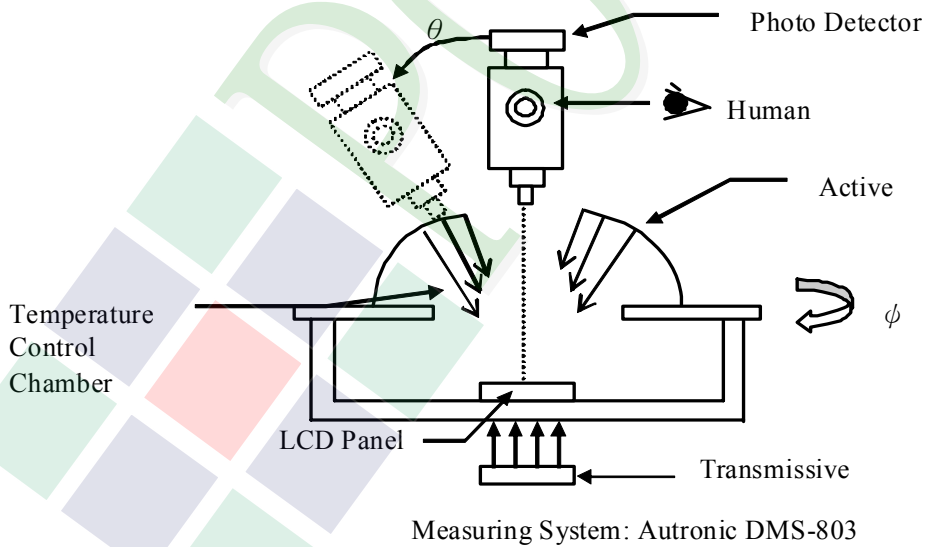voltage peak - to - peak /2 = 1 period

Note 3. : Definition of Vth

Active voltage range

	Vth1	Vth2
View direction	10°	40°
Drive waveform	(Selected waveform)	(No selected waveform)
Transmittance	50%	73%

　※1 Contrast ratio
　　= (Brightness in OFF state) / (Brightness in ON state)

Outline of Electro-Optical Characteristics Measuring System

Measuring System: Autronic DMS-803

1.6 Backlight Characteristics

Maximum Ratings

Item	Symbol	Conditions	Min.	Max.	Unit
Forward Current	IF	Ta =25℃	-	180	mA
Reverse Voltage	VR	Ta =25℃	-	5	V
Power Dissipation	PD	Ta =25℃	-	630	mW

Electrical / Optical Characteristics

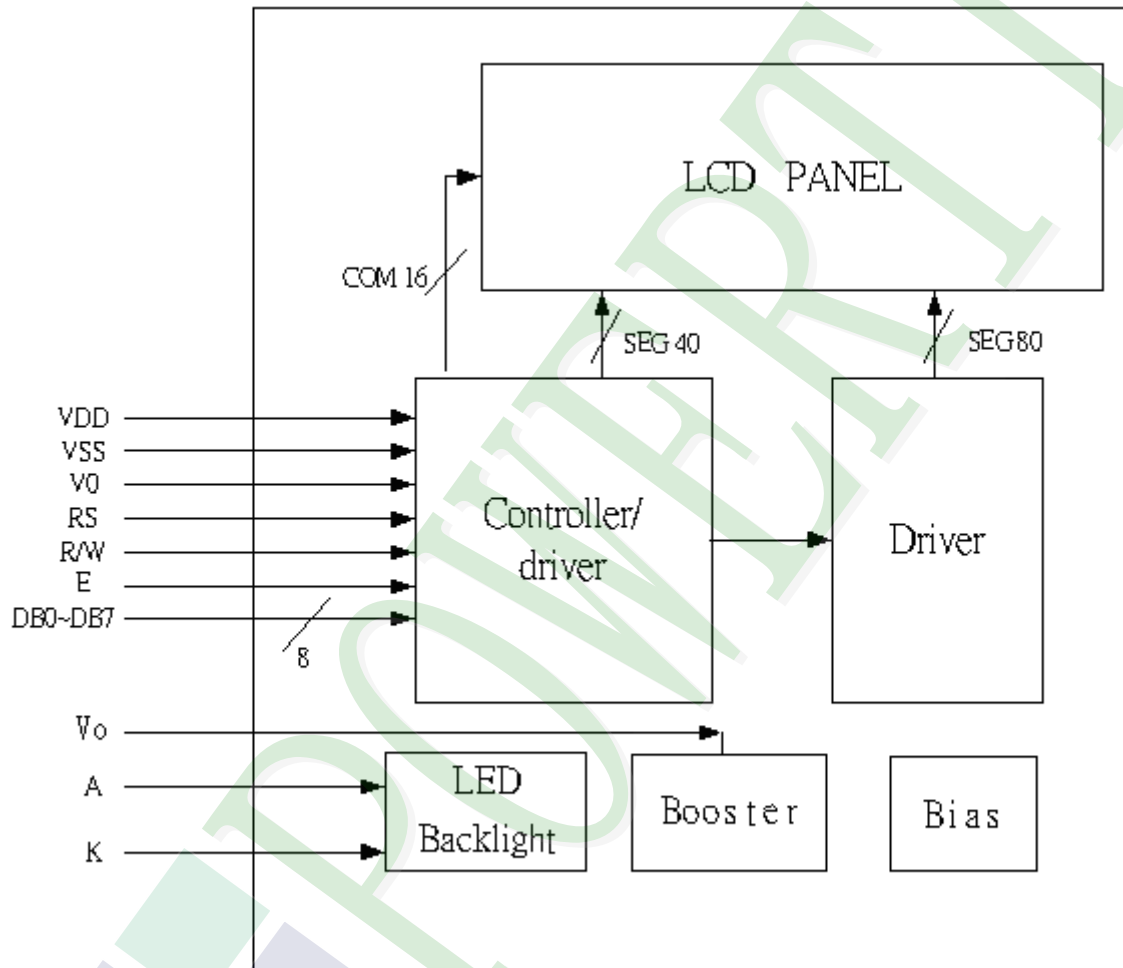| Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF		3.1	3.3	3.5	V
Average Brightness (without LCD)	IV	IF= 60 mA	1400	1700	-	cd/m²
CIE Color Coordinate (Without LCD)	X		0.255	0.285	0.315	-
	Y		0.255	0.285	0.315	
Color		White				
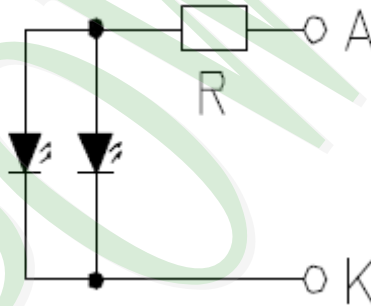
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 LCM Mechanical Diagram

* See Appendix

2.1.2 Block Diagram

2.2 Interface Pin Description

Pin No.	Symbol	Signal Description
1	V_{SS}	Power Supply (Vss=0)
2	V_{DD}	Power Supply (5V)
3	V_O	Operating voltage for LCD
4	RS	Register Selection input High = Data register Low = Instruction register (for write) Busy flag address counter (for read)
5	R/W	Read/Write signal input is used to select the read/write mode High = Read mode, Low = Write mode
6	E	Start enable signal to read or write the data
7	DB0	Four low order bi-directional three-state data bus lines. Use for data transfer between the MPU and the LCD module. These four are not used during 4-bit operation.
8	DB1	
9	DB2	
10	DB3	
11	DB4	Four high order bi-directional three-state data bus lines. Used for data transfer between the MPU and the LCD module. DB7 can be used as a busy flag.
12	DB5	
13	DB6	
14	DB7	
15	A	LED+
16	K	LED-

2.2.1 Application Notes

Contrast Adjust
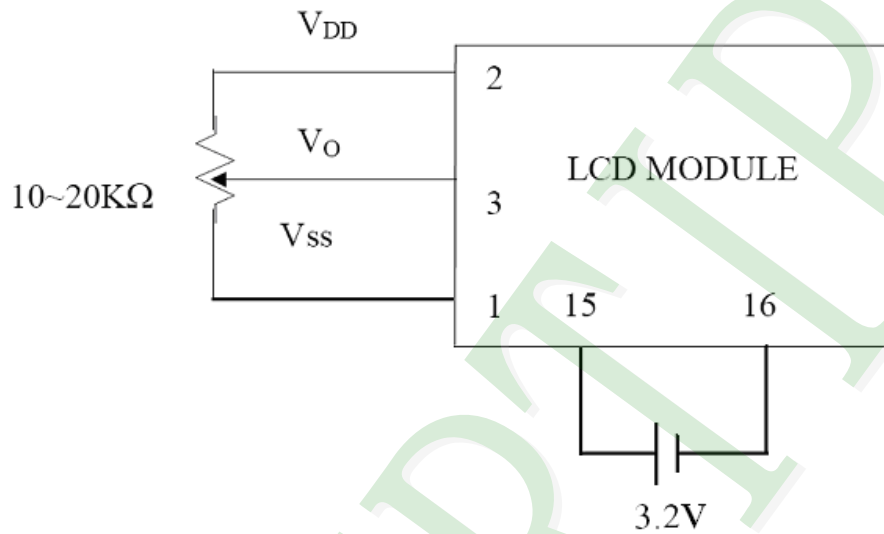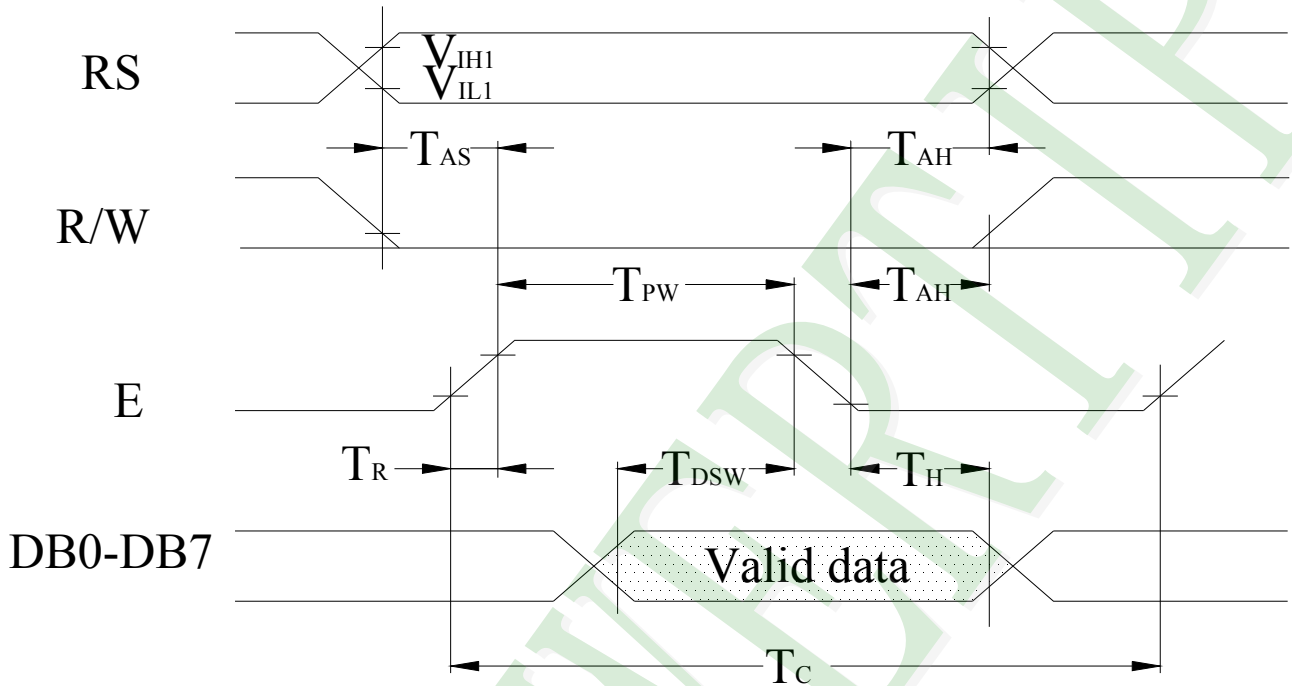

2.2.2 Refer Initial code
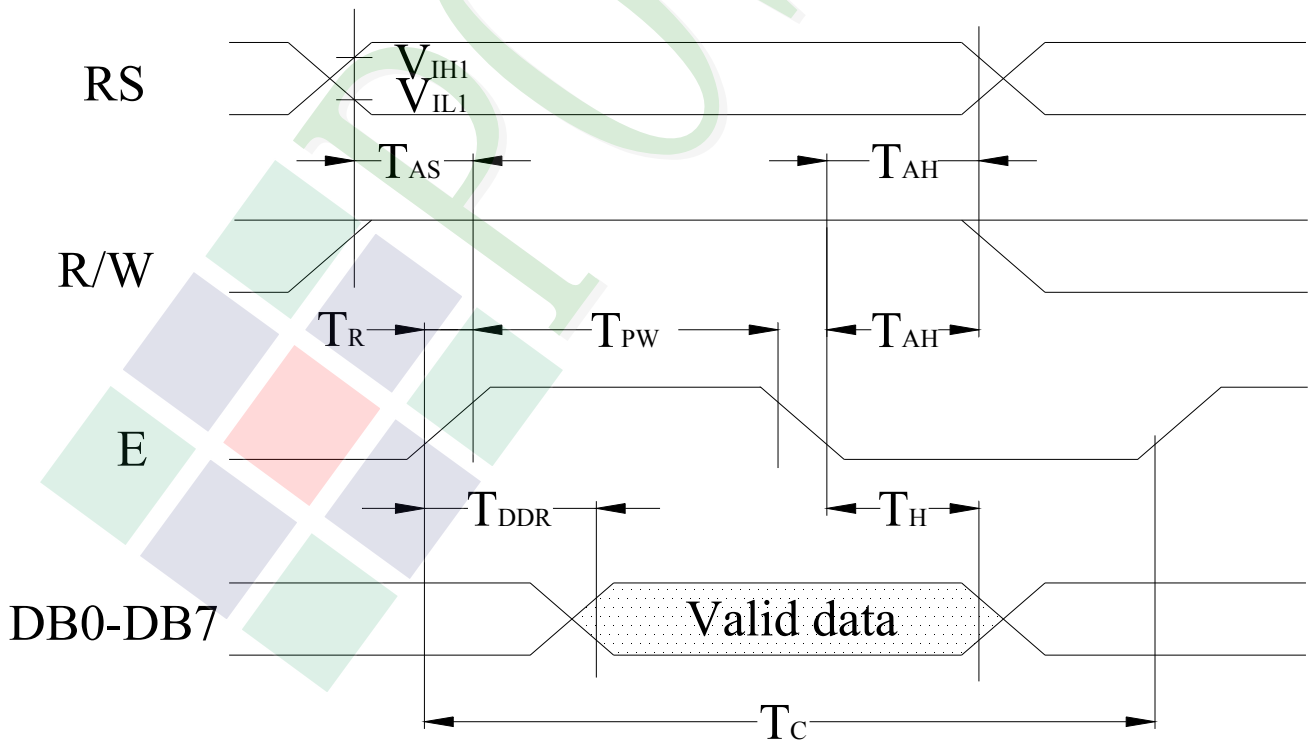
```
void initial()

{

    delay(40);

    write_com(0x01);

    delay(5);

    write_com(0x38);

    delay(5);

    write_com(0x0c);

    delay(5);

    write_com(0x06);

    delay(5);

}
```

2.3 Timing Characteristics

● Writing data from MPU to ST7066U

● Reading data from ST7066U to MPU

● Write Mode (Writing data from MPU to ST7066U)

<div align="right">(VDD = 5V,Ta=25°C)</div>

| Symbol	Characteristics	Test Condition	Min.	Typ.	Max.	Unit
T_C	Enable Cycle Time	Pin E	1200	-	-	ns
T_{PW}	Enable Pulse Width	Pin E	140	-	-	ns
T_R , T_F	Enable Rise / Fall Time	Pin E	-	-	25	ns
T_{AS}	Address Setup Time	Pins: RS , RW,E	0	-	-	ns
T_{AH}	Address Hold Time	Pins :RS,RW,E	10	-	-	ns
T_{DSW}	Data Setup Time	Pins:DB0~DB7	40	-	-	ns
T_H	Data Hold Time	Pins:DB0~DB7	10	-	-	ns

● Read Mode (Reading data from ST7066U to MPU)

<div align="right">(VDD = 5V,Ta=25°C)</div>

| Symbol	Characteristics	Test Condition	Min.	Typ.	Max.	Unit
T_C	Enable Cycle Time	Pin E	1200	-	-	ns
T_{PW}	Enable Pulse Width	Pin E	140	-	-	ns
T_R , T_F	Enable Rise / Fall Time	Pin E	-	-	25	ns
T_{AS}	Address Setup Time	Pins: RS , RW,E	0	-	-	ns
T_{AH}	Address Hold Time	Pins :RS,RW,E	10	-	-	ns
T_{DDR}	Data Setup Time	Pins:DB0~DB7	-	-	100	ns
T_H	Data Hold Time	Pins:DB0~DB7	10	-	-	ns

For 4-bit interface date, only four bus lines (DB4 to DB7) are used for transfer.

Example of busy flag check timing sequence
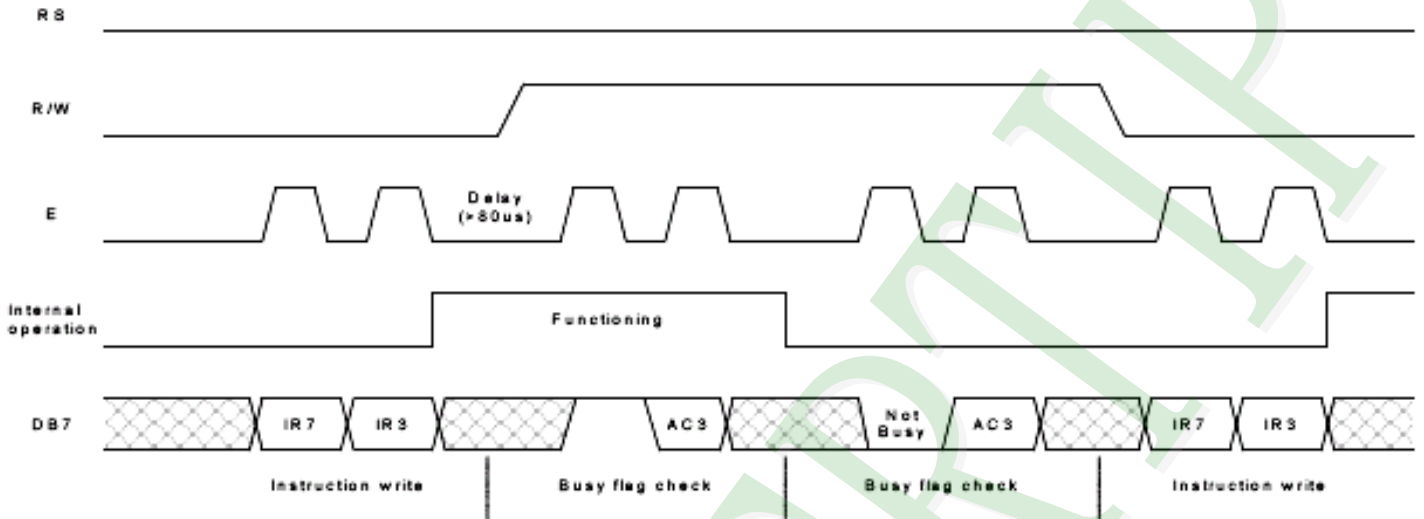
For 8-bit interface date, all eight bus lines (DB0 to DB7) are used .

Example of busy flag check timing sequence
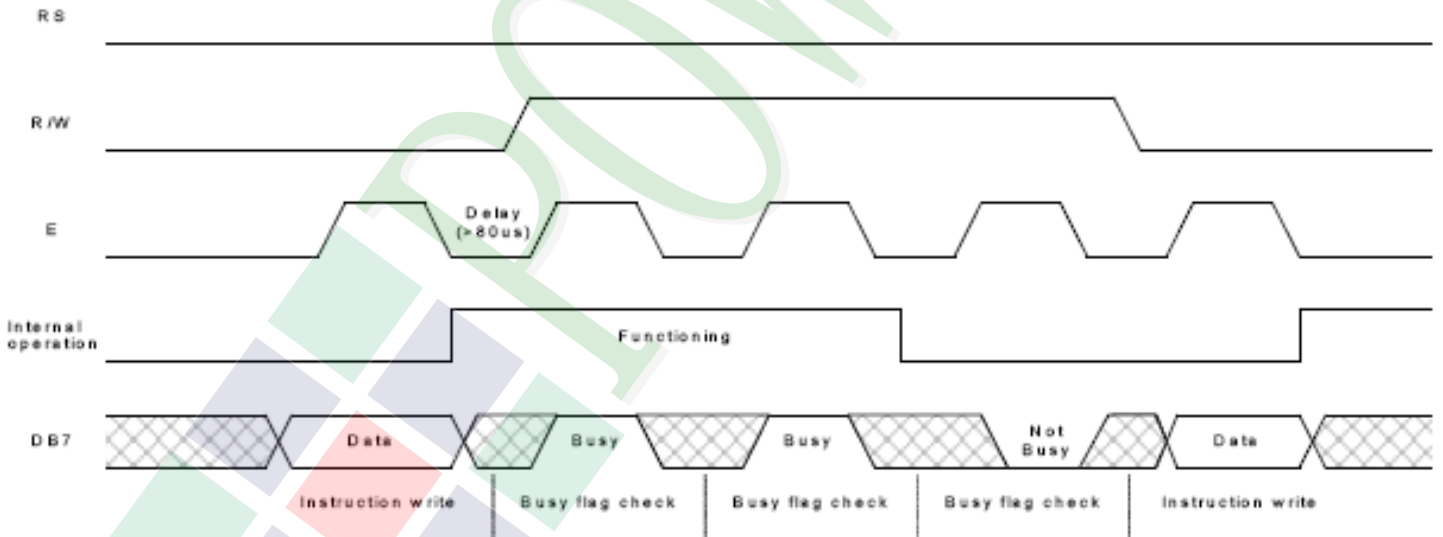
2.4 Display Command

Instructions	Instruction Code										Description	Description Time (270KHz)
	RS	R/W	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0		
Clear Display	0	0	0	0	0	0	0	0	0	1	Write "20H" to DDRAM. and set DDRAM address to "00H" from AC.	1.52ms
Return Home	0	0	0	0	0	0	0	0	1	×	Set DDRAM address to "00H" from AC and return cursor to it's original position if shifted. The contents of DDRAM are not changed.	1.52ms
Entry Mode Set	0	0	0	0	0	0	0	1	I/D	S	Sets cursor move direction and specifies display shift. These operations are performed during data write and read .	37μs
Display ON/OFF	0	0	0	0	0	0	1	D	C	B	D=1 : entire display on C=1 : cursor on B=1 : cursor position on	37μs
Cursor or Display Shift	0	0	0	0	0	1	S/C	R/L	×	×	Set cursor moving and display shift control bit, and the the direction, without changing of DDRAM data.	37μs
Function Set	0	0	0	0	1	DL	N	F	×	×	DL: interface data is 8/4 bits NL: number of line is 2/1 F: font size is 5×11/5×8	37μs
Set CGRAM Address	0	0	0	1	AC5	AC4	AC3	AC2	AC1	AC0	Set CGRAM address in address counter.	37μs
Set DDRAM Address	0	0	1	AC6	AC5	AC4	AC3	AC2	AC1	AC0	Set DDRAM address in address counter.	37μs
Read Busy Flag and Address	0	1	BF	AC6	AC5	AC4	AC3	AC2	AC1	AC0	Whether during internal operation or not can be known by reading BF. The contents of address counter can also be read.	0μs

Write Data to RAM	1	0	D7	D6	D5	D4	D3	D2	D1	D0	Write data into internal RAM (DDRAM/CGRAM).	37μs
Read Data from RAM	1	1	D7	D6	D5	D4	D3	D2	D1	D0	Read data from internal RAM (DDRAM/CGRAM).	37μs

Note:

Be sure the ST7066U is not in the busy state (BF=0) before sending an instruction from the MPU to the ST7066.

If an instruction is sent without checking the busy flag , the time between the first instruction and next instruction will take much longer than the instruction time itself.

Before checking BF, be sure to wait at least 80us.. Do not keep "E" always "High" for checking BF

Refer to Instruction Table for the list of each instruction execution time .

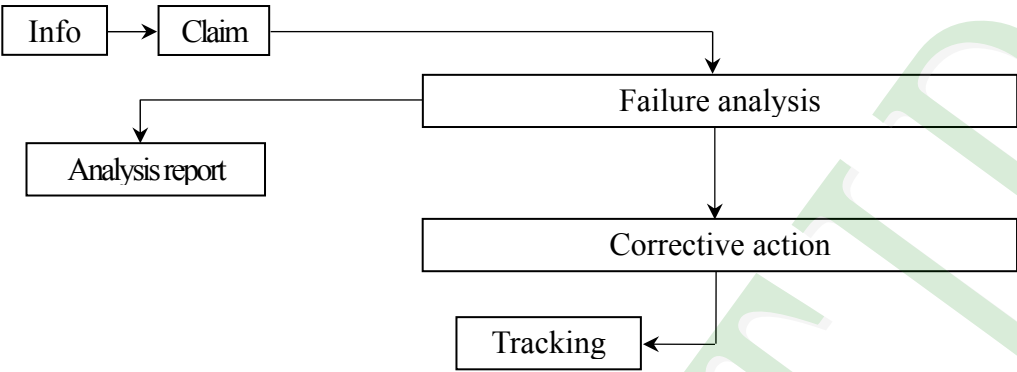## 2.5 Character Pattern

ST7066-0T

2.6 JUMPER (Setting different use)
J1,J3,J5,JM,JF

3. QUALITY ASSURANCE SYSTEM

3.1   Quality Assurance Flow Chart

Item	Customer	Sales	R&D	Q.A	Manufacturing	Product control	Purchase	Inventory control

Marketing & Design

- Info → Survey
- Request → Inquiry → Project evaluation
- Project Validation (NG / OK)
- Quote
- Contract

Sample Approval

- Design check
- Sample test
- Verification (NG / OK)
- Sample approval (NG / OK)

Pilot Run & Mass Product

- Pilot run & Reliability test
- Verification (NG / OK)
- Specification preparation
- Mass production
- Inspection (OK / NG)

Ship Out

- Shipment
- Ship out

Item	Customer	Sales	R&D	Q.A	Manufacturing	Product control	Purchase	Inventory control
Sales Service								
Q.A Activity	1. ISO 9001 Maintenance Activities 2. Process improvement proposal 3. Equipment calibration 4. Education And Training Activities 5. Standardization Management							

Info → Claim → Failure analysis

Failure analysis → Analysis report

Failure analysis → Corrective action → Tracking

3.2 Inspection Specification

◆Scope : The document shall be applied to LCD Module for Monotype and Color STN(Ver. B01).

◆Inspection Standard : MIL-STD-105E Table Normal Inspection Single Sampling Level Ⅱ.

◆Equipment : Gauge、MIL-STD、Powertip Tester、Sample

◆Defect Level :   Major Defect AQL：0.4 ； Minor Defect：AQL：1.5 .

◆OUT Going Defect Level : Sampling .

◆Manner of appearance test :

（1）. The test be under 20W×2 fluorescent light ' and distance of view must be at 30 cm.

（2）. Standard of inspection： (Unit：mm)

（3）. The test direction is base on about around 45°of vertical line.   (Fig. 1)

（4）. Definition of area . (Fig. 2)

Fig.1
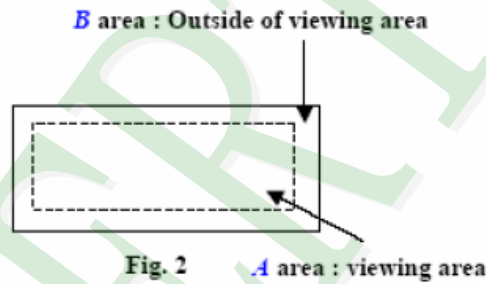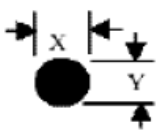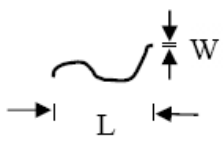
B area : Outside of viewing area

Fig. 2   A area : viewing area
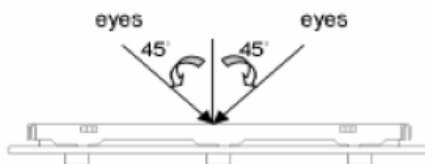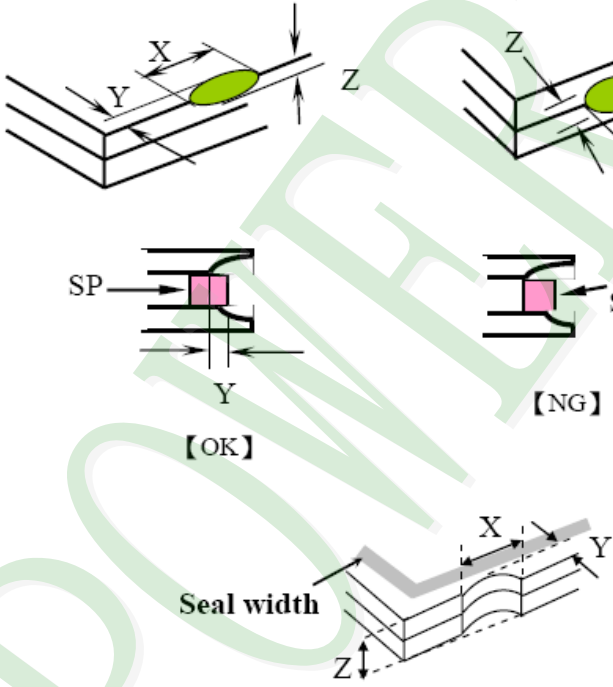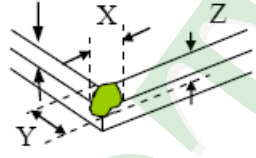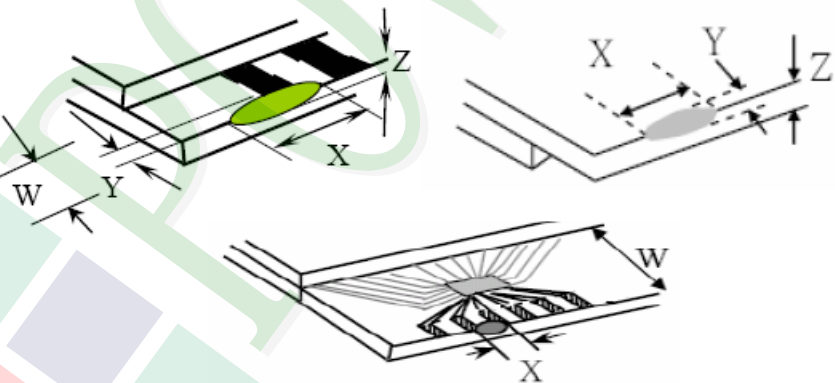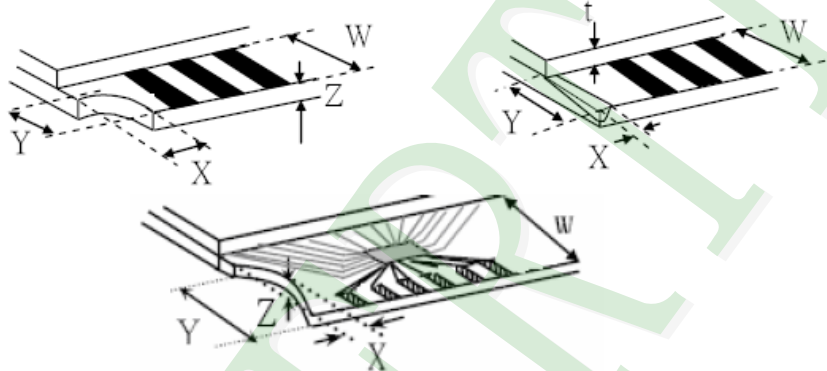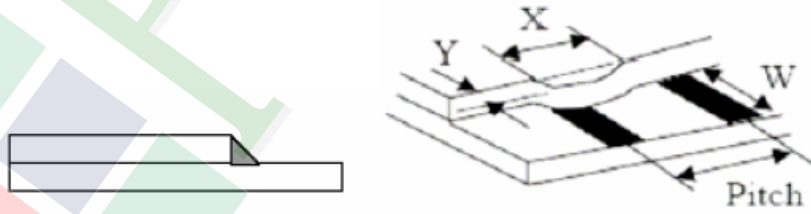
◆ Specification:

NO	Item	Criterion	Level
01	Product condition	1.1 The part number is inconsistent with work order of Production.	Major
		1.2 Mixed production types.	Major
		1.3 Assembled in inverse direction.	Major
02	Quantity	2.1 The quantity is inconsistent with work order of production.	Major
03	Outline dimension	3.1 Product dimension and structure must conform to Structure diagram.	Major
04	Electrical Testing	4.1 Missing line character and icon.	Major
		4.2 No function or no display.	Major
		4.3 Output data is error.	Major
		4.4 LCD viewing angle defect.	Major
		4.5 Current consumption exceeds product specifications.	Major

NO	Item	Criterion	Level
05	**Black or white dot、scratch、contamination** **Round type** Φ=(x+y)/2 **Line type** 	5.1 Round type: 　5.1.1 display only : 　・White and black spots on display ≦ 0.30 mm , no more than 4 white or black spots present. 　・Densely spaced : NO more than two spots or lines within 3 mm. 　5.1.2 Non-display : *(table below)* 　5.1.3 Line type: *(table below)*	Minor

5.1.2 Non-display :

Dimension (diameter : Φ)	Acceptance (Q'ty)	
	A area	B area
Φ ≦ 0.10	Accept no dense	
0.10 ＜ Φ ≦ 0.20	3	Ignore
0.20 ＜ Φ ≦ 0.30	2	
Total quantity	4	

5.1.3 Line type:

Dimension		Acceptance (Q'ty)	
Length (L)	Width (W)	A area	B area
---	W ≦ 0.03	Accept no dense	
L ≦ 3.0	0.03 ＜ W ≦ 0.05	4	Ignore
L ≦ 2.5	0.05 ＜ W ≦ 0.075		
---	W ＞ 0.075	As round type	

NO	Item	Criterion	Level
06	**Polarizer Bubble**	*(table below)*	Minor

Dimension (diameter : Φ)	Acceptance (Q'ty)	
	A area	B area
Φ ≦ 0.20	Accept no dense	
0.20 ＜ Φ ≦ 0.50	3	
0.50 ＜ Φ ≦ 1.00	2	Ignore
Φ ＞ 1.00	0	
Total quantity	4	

NO	Item	Criterion	Level
07	The crack of glass	Symbols： X : The length of crack Y : The width of crack. Z : The thickness of crack W : terminal length t : The thickness of glass a : LCD side length 7.1 General glass chip： 7.1.1 Chip on panel surface and crack between panels: Seal width 【OK】 【NG】 <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>≦ a</td><td>Crack can't enter viewing area</td><td>≦1/2 t</td></tr><tr><td>≦ a</td><td>Crack can't exceed the half of SP width.</td><td>1/2 t ＜ Z ≦2 t</td></tr></table>	Minor

◆Specification For Monotype and Color STN： (Ver. B01)

NO	Item	Criterion	Level
07	The crack of glass	Symbols： X : The length of crack Y : The width of crack. Z : The thickness of crack W : terminal length t : The thickness of glass a : LCD side length 7.1.2 Corner crack： (table below) 7.2 Protrusion over terminal： 7.2.1 Chip on electrode pad： (table below)	Minor

Corner crack table:

X	Y	Z
$\leqq 1/5\ a$	Crack can't enter viewing area	$Z\ \leqq 1/2\ t$
$\leqq 1/5\ a$	Crack can't exceed the half of SP width.	$1/2\ t\ <\ Z\ \leqq 2\ t$

Chip on electrode pad table:

	X	Y	Z
Front	$\leqq a$	$\leqq 1/2\ W$	$\leqq t$
Back	Neglect		

NO	Item	Criterion	Level
07	The crack of glass	Symbols： X : The length of crack Z : The thickness of crack t : The thickness of glass Y : The width of crack. W : terminal length a : LCD side length 7.2.2 Non-conductive portion： | X	Y	Z | |---|---|---| | ≦1/3 a | ≦ W | ≦ t | ⊙ If the chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications. 7.2.3 Glass remain： | X | Y | Z | |---|---|---| | ≦ a | ≦ 1/3 W | ≦ t |	Minor

NO	Item	Criterion	Level
08	Backlight elements	8.1 Backlight can't work normally.	Major
		8.2 Backlight doesn't light or color is wrong.	Major
		8.3 Illumination source flickers when lit.	Major
09	General appearance	9.1 Pin type must match type in specification sheet.	Major
		9.2 No short circuits in components on PCB or FPC.	Major
		9.3 Product packaging must the same as specified on packaging specification sheet.	Minor
		9.4 The folding and peeled off in polarizer are not acceptable.	Minor
		9.5 The PCB or FPC between B/L assembled distance (PCB or FPC) is ≦1.5 mm.	Minor

4. RELIABILITY TEST

4.1 Reliability Test Condition (Ver.B01)

NO.	TEST ITEM	TEST CONDITION
1	High Temperature Storage Test	Keep in +80 ±2℃ 240hrs Surrounding temperature, then storage at normal condition 4hrs.
2	Low Temperature Storage Test	Keep in −30 ±2℃ 240hrs Surrounding temperature, then storage at normal condition 4hrs.
3	High Temperature / High Humidity Storage Test	Keep in +60 ℃ / 90% R.H duration for 240hrs Surrounding temperature, then storage at normal condition 4hrs. (Excluding the polarizer)
4	Temperature Cycling Storage Test	−30℃ → +25℃ → +80℃ → +25℃ (30mins)　(5mins)　(30mins)　(5mins) 20 Cycle Surrounding temperature, then storage at normal condition 4hrs.
5	ESD Test	Air Discharge:　Apply 2 KV with 5 times　Discharge for each polarity +/-　　Contact Discharge:　Apply 250 V with 5 times　discharge for each polarity +/- 1. Temperature ambiance : 15℃～35℃ 2. Humidity relative : 30%～60% 3. Energy Storage Capacitance(Cs+Cd) : 150pF±10% 4. Discharge Resistance(Rd) : 330Ω±10% 5. Discharge, mode of operation : Single Discharge (time between successive discharges at least 1 sec) (Tolerance if the output voltage indication : ±5%)
6	Vibration Test (Packaged)	1. Sine wave 10～55 Hz frequency (1 min/sweep) 2. The amplitude of vibration :1.5 mm 3. Each direction (X、Y、Z) duration for 2 Hrs
7	Drop Test (Packaged)	（see table below） Drop Direction :※1 corner / 3 edges / 6 sides each 1time

For test item 7 (Drop Test):

Packing Weight (Kg)	Drop Height (cm)
0 ~ 45.4	122
45.4 ~ 90.8	76
90.8 ~ 454	61
Over 454	46

5. PRECAUTION RELATING PRODUCT HANDLING

5.1 SAFETY

5.1.1   If the LCD panel breaks , be careful not to get the liquid crystal to touch your skin.

5.1.2   If the liquid crystal touches your skin or clothes , please wash it off immediately by using soap and water.

5.2 HANDLING

5.2.1   Avoid any strong mechanical shock which can break the glass.

5.2.2   Avoid static electricity which can damage the CMOS LSI—When working with the module , be sure to ground your body and any electrical equipment you may be using.

5.2.3   Do not remove the panel or frame from the module.

5.2.4   The polarizing plate of the display is very fragile. So , please handle it very carefully ,do not touch , push or rub the exposed polarizing with anything harder than an HB pencil lead (glass , tweezers , etc.)

5.2.5   Do not wipe the polarizing plate with a dry cloth , as it may easily scratch the surface of plate.

5.2.6   Do not touch the display area with bare hands , this will stain the display area.

5.2.7   Do not use ketonics solvent & aromatic solvent. Use with a soft cloth soaked with a cleaning naphtha solvent.

5.2.8   To control temperature and time of soldering is $320 \pm 10°C$ and 3-5 sec.

5.2.9   To avoid liquid (include organic solvent) stained on LCM .

5.2.10   Caution!(LCM products with Capacitive Touch Panel)
Strong EMI-sources such as switch-mode power supplies (SMPS) can lead to touch malfunction (e.g. ghost-touches).
Therefore, the touch needs to be thoroughly tested inside the target application.

5.3 STORAGE

5.3.1   Store the panel or module in a dark place where the temperature is $25°C \pm 5°C$ and the humidity is below 65% RH.

5.3.2   Do not place the module near organics solvents or corrosive gases.

5.3.3   Do not crush , shake , or jolt the module.

5.4 TERMS OF WARRANTY

5.4.1   Applicable warrant period
The period is within thirteen months since the date of shipping out under normal using and storage conditions.

5.4.2   Unaccepted responsibility
This product has been manufactured to your company's specification as a part for use in your company's general electronic products. It is guaranteed to perform according to delivery specifications. For any other use apart from general electronic equipment , we cannot take responsibility if the product is used in nuclear power control equipment , aerospace equipment , fire and security

systems or any other applications in which there is a direct risk to human life and where extremely high levels of reliability are required.

NOTE:
1. The tolerance unless classified ±0.3mm
2. LCD type :VA(PBT) ; Negative/Transmissive
3. Top:-20°C~70°C , T st:-30°C~80°C
4. Viewing Direction : 6 O'clock
5. This product conforms ROHS.

SCALE:5/1

37.0±0.5
29.0
(P2.54X7)
17.78
10.88
4.0
2.5
2.54
116.0±0.5
108.0
16-ø1.0
PAD16-ø1.8
5.25
3.6
12.4
73.5(A.A)
85.0(FRAME V.A)
92.2

4-ø3.5
11.5(A.A)
(3.5)
18.5(V.A)
6.85
2.4
32.2

13.3±0.5
8.7
1.6

5.95
5.55
0.65
0.05
0.6
0.05
3.7
3.2

大正光電股份有限公司
POWERTIP TECHNOLOGY CORPORATION

		Design	Check	Approve
		Air	Terry	Ryan

Air	REVISER	DATE		
		2018/08/22		

PART NO:
NPC2002WRP-BWT-I

DRAWING NAME :
JLMD-NPC2002WRP-BWT-I

TITLE:
LCD MODULE DRAWING

Page	Scale	Unit	Surface	Material	Thickness	Quantity
1/1	FIT	MM				

REV		REV BY		
001	NEW DRAWING			
002				
003				
004				
005				
006				
007				

Length(Min) (mm)	Precision Level
1 ~ 4	-
4 ~ 16	-
16 ~ 63	-
63 ~ 250	-
250 ~ 1000	-

LCM包裝規格書
LCM Packaging Specifications

1.包裝材料規格表 (Packaging Material) : (per carton)

No.	Item	Model	Dimensions (mm)	1Pcs Weight	Quantity	Total Weight
1	成品 (LCM)	NPC2002WRP-BWT-I	116.0 X 37.0 X 13.3	0.0527	312	16.4424
2	靜電袋(1)Antistatic Bag	BAG150120ARABA	150 X 120	0.0018	312	0.5616
3	A1-1隔板(2)A1-1 Partition	BX29500047BZBA	295 X 47 X 3	0.0078	168	1.3104
4	B1-1隔板(3)B1-1 Partition	BX24500047BZBA	245 X 47 X 3	0.0065	36	0.234
5	氣泡紙(4)Bubble Sheet	BAG280240BWABA	280 X 240	0.006	24	0.144
6	C1內盒(5)Product Box	BX31025555AABA	310 X 255 X 55	0.13	12	1.56
7	外紙箱(6)Carton	BX52732536CCBA	527 X 325 X 360	0.83	1	0.83
8						
9						

2.一 整箱總重量 (Total LCD Weight in carton):　21.08　Kg±10%

3.單箱數量規格表 (Packaging Specifications and Quantity) :
　(1)Quantity Of Spacer : A1-1隔板　X　14 , B1-1隔板　X　3
　(2)Total LCM quantity in carton : quantity per box　26　x no of boxes　12　=　312

(4) 氣泡紙 Bubble Sheet

(1)靜電袋+LCM Antistatic Bag+LCM

(2)(3)隔板 Partition (註 Remark 1)

(4) 氣泡紙 Bubble Sheet

(5) C1內盒 Product Box

(6)外紙箱 Carton
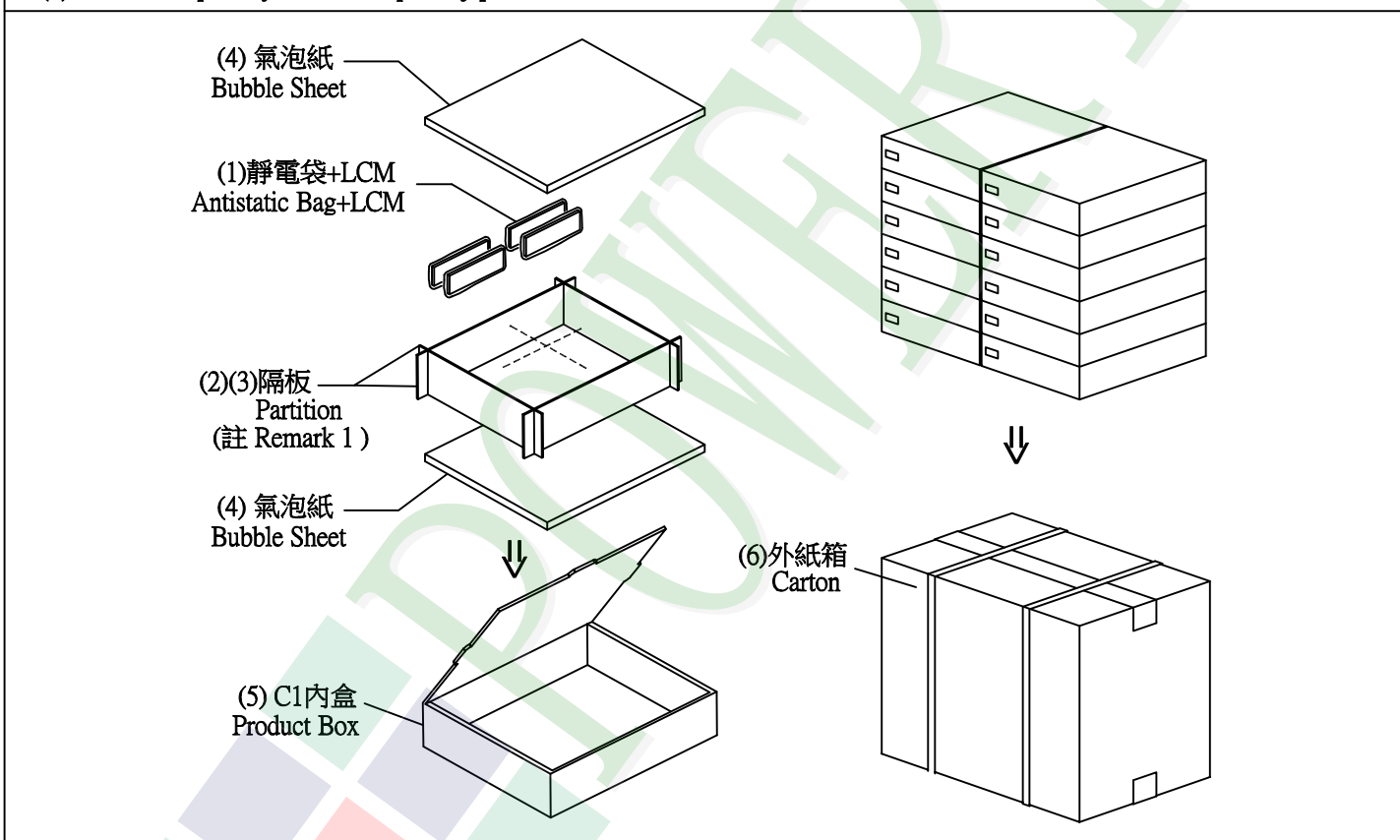
特 記 事 項 (REMARK)

1. LCM排放示意圖(前後間隔不放置):
1. LCM placed as figure showing:
　(First and last slot should be empty)

▨ 模組(LCM) X 1pcs.

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80038AA-2008-A 315-U004B15300 UMSH-8596MD-34T (REV D) 98-0003-3490-8 1044278 1029309 1060549 DE 127-TU-30/7,5 DE

128-TU-20/7,5 EP-LK007TFTPCAP FR7.0A00 RC2002A-TIG-CSX NL6448BC2021C TX17D01VM2EAB TX14D23VM5BAA

TCG121WXLRXVNNANX35 EIC-LCD-1080P T272480C07VR01 1060632 TCG070WVLPAANN-AN50 TCG035QVLPDANN-GN50

1060630 RFE430V-AIW-DNG T-55619GD065J-LW-ABN NHD-1.8-128160EF-SSXN-FT TCG104SVLPEANN-AN30 NL6448BC33-70

NL192108BC18-06F NLB150XG02L-01 NL6448BC20-30D NL10276BC16-06 NL192108AC10-01D NL6448AC18-08F NL6448BC20-30F

NL12880BC20-05BD NL12880BC20-05D