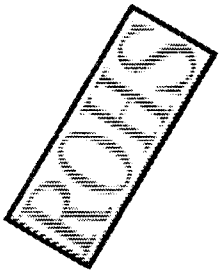


PRODUCT SPECIFICATION

128X32DOTS LCD MODULE
MODEL: G1203D6FSN7G-D0 Ver:1.1

< ◇ > Preliminary Specification

< ◆ > Finally Specification

CUSTOMER'S APPROVAL	
CUSTOMER :	
SIGNATURE:	DATE:

APPROVED BY	PM REVIEWED	PD REVIEWED	PREPARED BY
2014.11.6	/	2014.11.6	周雁

Revision Status

Version	Revise Date	Page	Content	Modified By
Ver. 1.0	2014-10-27		First Issued	
Ver. 1.1	2014-11-06	21	Add the Packing Instruction;	

Table of Contents

1.Features

The features of LCD are as follows

* Display mode : FSTN/Transflective/Positive
*Drive IC :UC1601S
* Interface Input Data : 8Bit, SPI, I²C
* Driving Method : 1/33 Duty, 1/7 Bias
* Viewing Direction : 12 O'clock
* Backlight :Without
*Sample NO. : G1203D6FSN7G-D0 _01/20141024

2. MECHANICAL SPECIFICATIONS

Item	Specification	Unit
Module Size	82.0(W) X 34.0(H) X 2.85MAX(D)	mm
Number of Dots	128 X 32 Dots	-
Viewing Area	76.0MIN(H) X 23.0MIN(V)	mm
Activity Area	72.92(H)X19.16(V)	mm
Dot Size	0.53(H)x 0.56(V)	mm
Dot Pitch	0.57(H)X0.6(V)	mm

3. ELECTRICAL SPECIFICATIONS

3-1 ABSOLUTR MAZIMUM RATINGS (Ta = 25 °C)

Item	Symbol	Standard Value			Unit
		Min.	Typ.	Max.	
Supply Voltage For Logic	V_{DD} – V_{ss}	-0.3	-	+4.0	V
Supply Voltage For LCD Drive	V_{LCD}	-0.3	-	+13.2	V
Input Voltage	Vin	-0.5	-	$V_{DD+0.3}$	V
Operating Temp.	Top	-20	-	+70	°C
Storage Temp.	Tst	-30	-	+80	°C

3-2 ELECTRICAL CHARACTERISTICS

Item		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Logic supply Voltage		VDD – Vss	Ta = 25 °C VDD=3.3V ± 10%	-	3.3	-	V
LCD Drive		V_{LCD} =VOUT – Vss		6.8	7.0	7.2	V
Input Voltage	"H" Level	V_{IH}		$0.8V_{DD}$	-	-	V
	"H" Level"For I2C	V_{IH}		$0.85V_{DD}$	-	-	
	"L" Level	V_{IL}		-	-	$0.2V_{DD}$	V
	"L" Level"For I2C	V_{IL}		-	-	$0.15V_{DD}$	
Frame Frequency		f_{FLM}		-	75	-	Hz
Current Consumption		I_{DD}		-	T.B.D.	-	mA

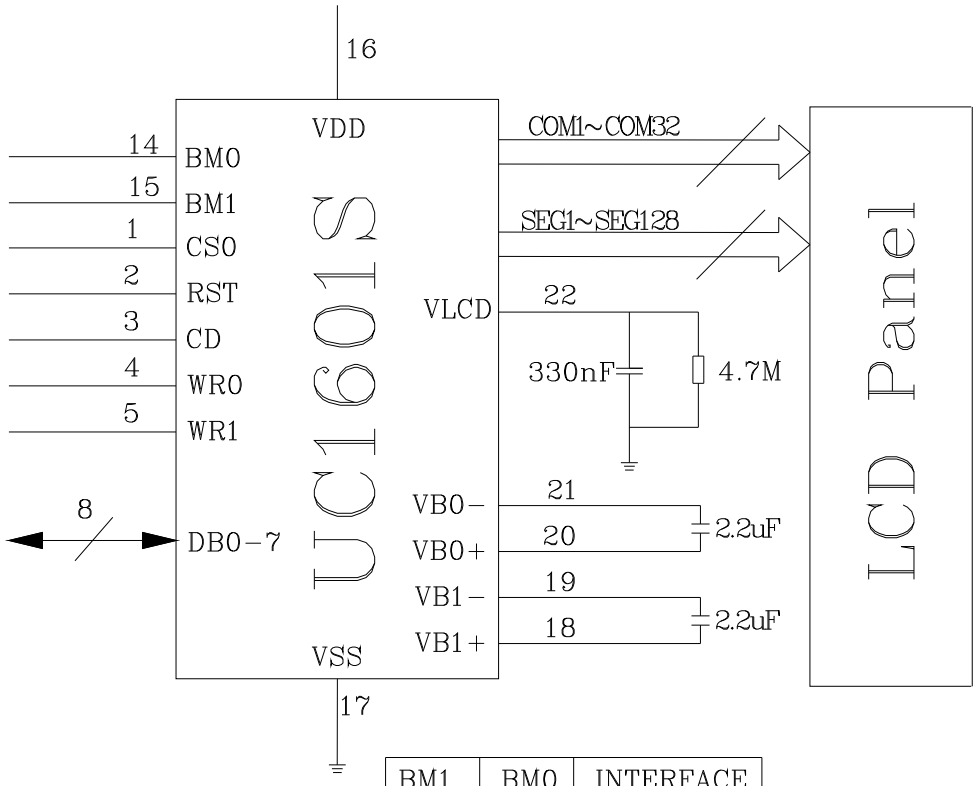
*. NOTE: The response time will be extremely slow when the operating temperature is around -20℃, and the back ground will become darker at high temperature operating.

4. TERMINAL FUNCTIONS AND BLOCK DIAGRAM

4-1. INTERFACE PIN FUNCTION DESCRIPTION

1	CS0	Chip select. L: actives
2	RST	Reset input pin.
3	CD	CD=“H” DATA，CD=“L” Instruction
4	WR0	8080 series: Write signal.6800series:H:read signal L: write signal
5	WR1	8080 series: Read signal.6800series :Enable signal
6-13	DB0~DB7	Data bus line
14	BM0	BM1:H BM0:L 8080series BM1:H BM0:H 6800series BM1:L BM0:H IIC
15	BM1	
16	VDD	Supply voltage for logical circuit(3.3V)
17	VSS	Ground (0V)
18	VB1+	LCD Bias Voltages. Connect capacitors between VB1+ and VB1-
19	VB1-	
20	VB0-	LCD Bias Voltages. Connect capacitors between VB0+ and VB0-
21	VB0+	
22	VLCD	LCD power Supply.

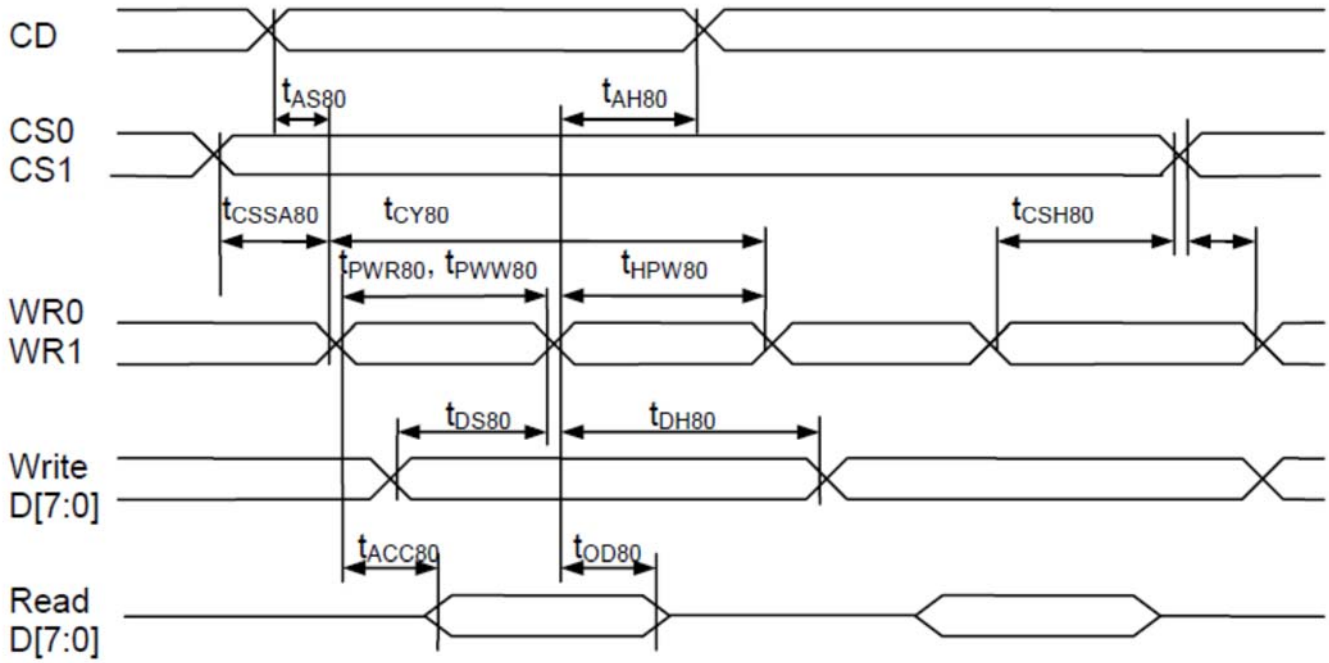
4-2 BLOCK DIAGRAM



BM1	BM0	INTERFACE
H	L	8080series
H	H	6800series
L	L	SPI-4
L	H	I2C or SPI-3

5. TIMING CHARACTERISTICS

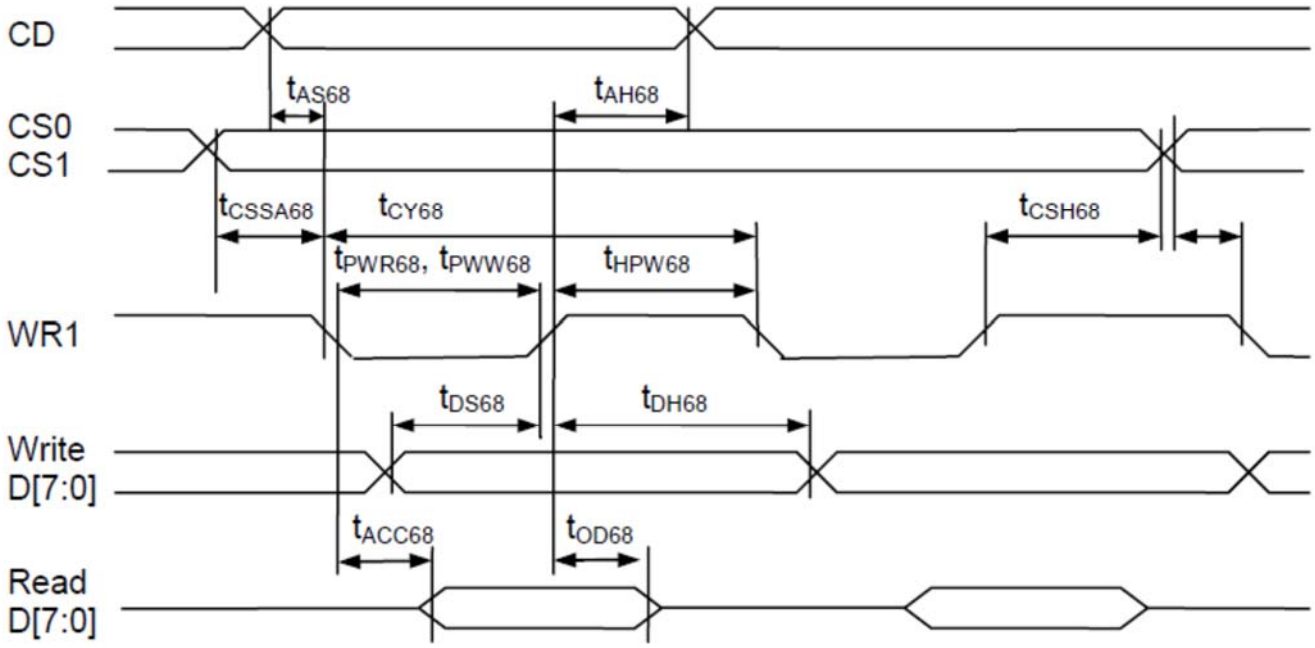
5-1 8080 MCU read/write mode timing characteristics



(VDD = 3.0V , Ta =25℃)

Symbol	Signal	Description		Condition	Min.	Max.	Units
t_{AS80} t_{AH80}	CD	Address	setup time hold time		0 5	–	nS
t_{CSSA80} t_{CSH80}	CS1/CS0	Chip select	setup time hold time		5 5	–	nS
t_{CY80}		Cycle time	read write		120 80	–	nS
t_{PWR80} t_{PWW80}	WR1 WR0	Pulse width	read write		60 40	–	nS
t_{HPW80}	WR0, WR1	High pulse width	read write		60 40	–	nS
t_{DS80} t_{DH80}	D0~D7	Data	setup time hold time		30 0	–	nS
t_{ACC80} t_{OD80}		Read access time Output disable time		C_L = 100pF	– 15	60 30	nS

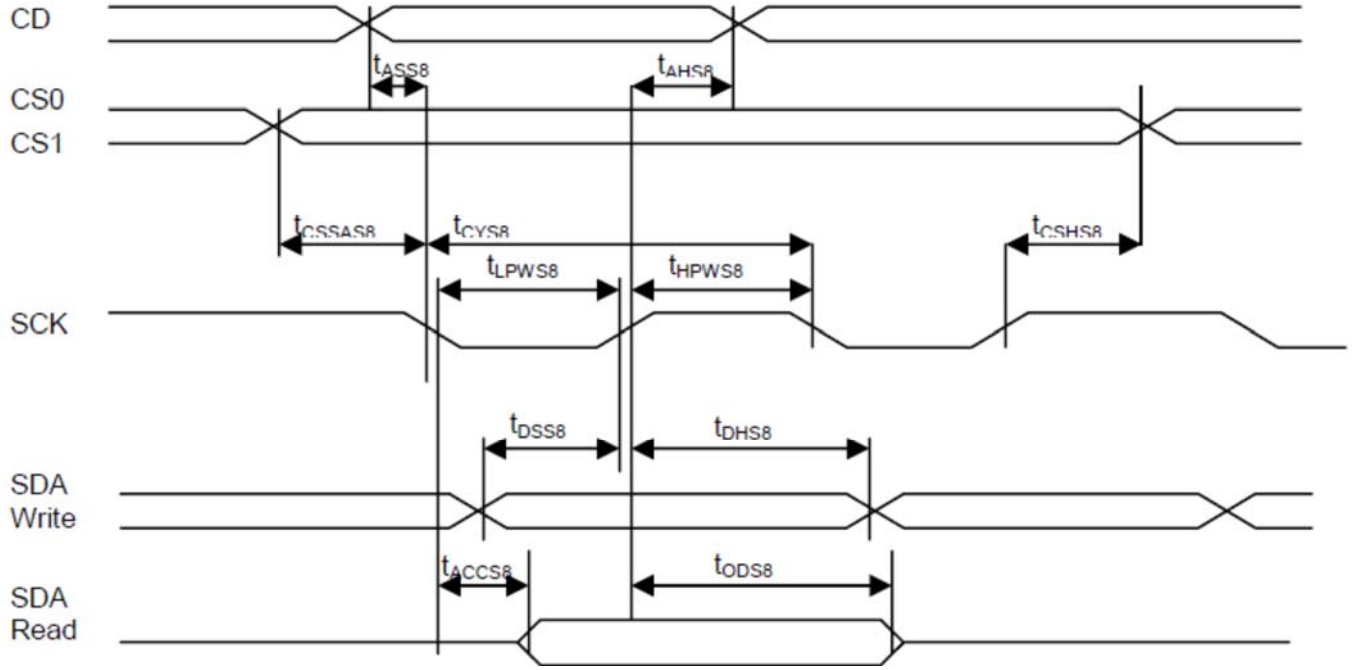
5-2 6800 MCU read/write mode timing characteristics



(VDD = 3.0V , Ta =25℃)

Symbol	Signal	Description		Condition	Min.	Max.	Units
t_{AS68} t_{AH68}	CD	Address	setup time hold time		0 0	–	nS
t_{CSSA68} t_{CSH68}	CS1/CS0	Chip select	setup time hold time		5 5	–	nS
t_{CY68}		System cycle time	read write		120 80	–	nS
t_{PWR68} t_{PWW68}	WR1	Pulse width	read write		60 40	–	nS
t_{HPW68}		High pulse width	read write		60 40	–	nS
t_{DS68} t_{DH68}	D0~D7	Data	setup time hold time		30 0	–	nS
t_{ACC68} t_{OD68}		Read access time Output disable time		C_L = 100pF	– 15	60 30	nS

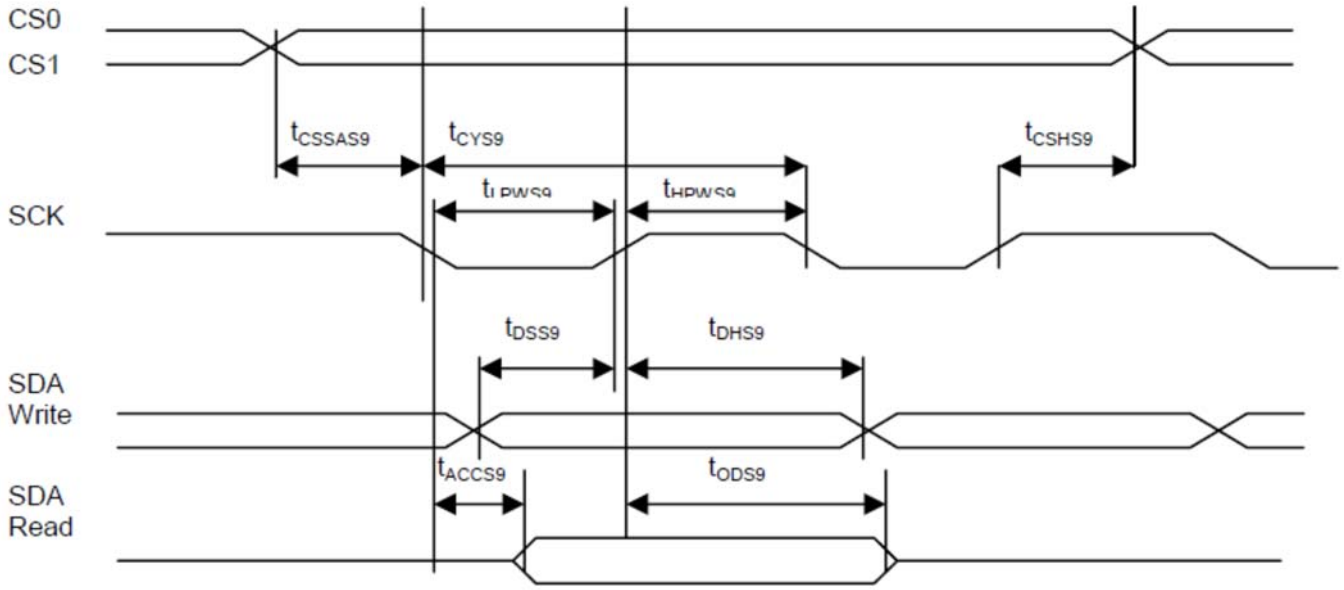
5-3 Serial Bus Timing Characteristics (for S8)



(VDD = 3.0V , Ta =25℃)

Symbol	Signal	Description		Condition	Min.	Max.	Units
t_{ASS8} t_{AHS8}	CD	Address	setup time hold time		0 0	–	nS
t_{CSSAS8} t_{CSHS8}	CS1/CS0	Chip select	setup time hold time		5 5	–	nS
t_{CYS8}	SCK	Cycle time	read write		100 30	–	nS
t_{LPWS8}		Low pulse width	read write		50 15	–	nS
t_{HPWS8}		High pulse width	read write		50 15	–	nS
t_{DSS8} t_{DHS8}	SDA	Data	setup time hold time		12 0	–	nS
t_{ACCS8} t_{ODS8}		Read access time Output disable time		C_L = 100pF	– 30	50 –	nS

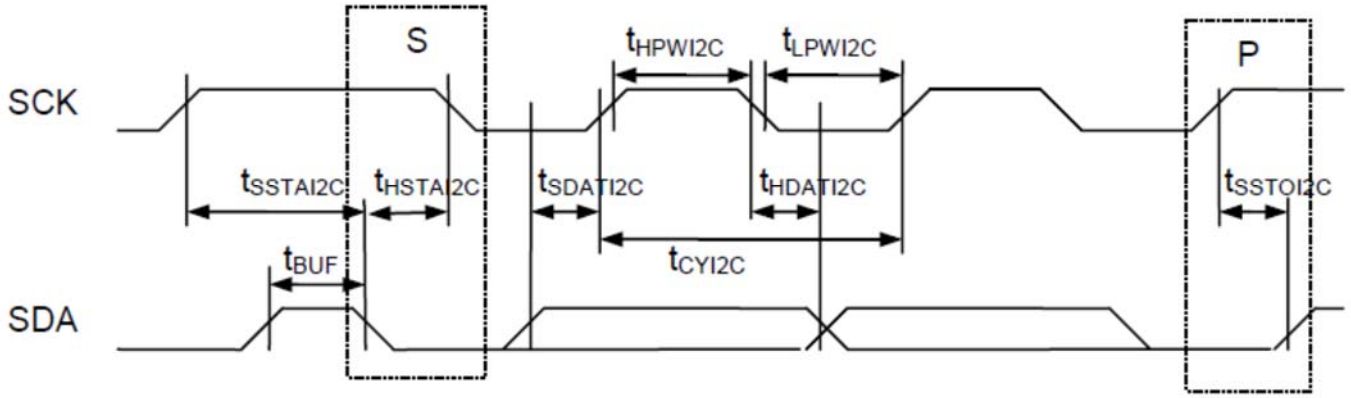
5-4 Serial Bus Timing Characteristics (for S9)



(VDD = 3.0V , Ta =25℃)

Symbol	Signal	Description		Condition	Min.	Max.	Units
t_{CSSAS9} t_{CSHS9}	CS1/CS0	Chip select	setup time hold time		5 5	–	nS
t_{CYS9}	SCK	Cycle time	read write		100 30	–	nS
t_{LPWS9}		Low pulse width	read write		50 15	–	nS
t_{HPWS9}		High pulse width	read write		50 15	–	nS
t_{DSS9} t_{DHS9}	SDA	Data	setup time hold time		12 0	–	nS
t_{ACCS9} t_{ODS9}		Read access time Output disable time		C_L = 100pF	– 30	50 –	nS

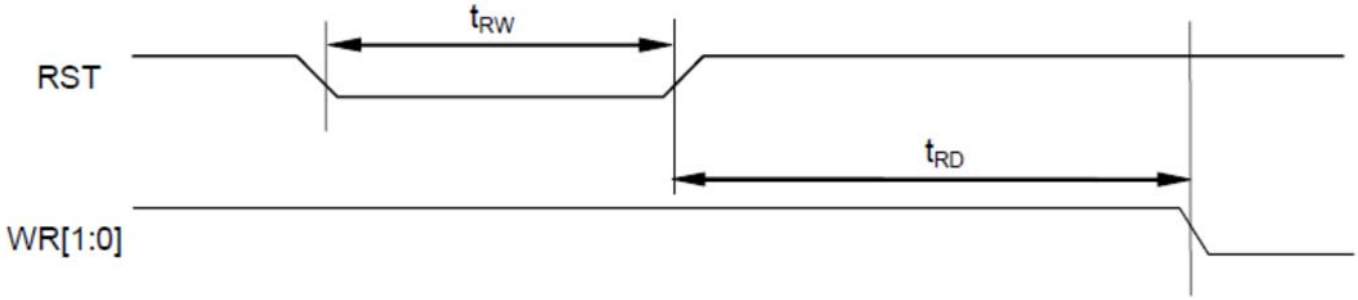
5-5 Serial bus timing characteristics (for I2C)



(VDD = 3.0V , Ta =25℃)

Symbol	Signal	Description		Condition	Min.	Max.	Units
t_{CYI2C}	SCK	SCK cycle time	read	tr+tf ≤ 100nS	580	–	nS
			write		275		
t_{LPWI2C}		Low pulse width	read		290	–	nS
			write		165		
t_{HPWI2C}		High pulse width	read		290	–	nS
			write		110		
tr, tf	SCK SDA	Rise time and fall time			–	–	nS
$t_{SSDAI2C}$		Data	setup time		28	–	nS
t_{HDAI2C}			hold time		11		
$t_{SSTAI2C}$		START	setup time		28	–	nS
$t_{HSTAI2C}$			hold time		55		
$t_{SSTOI2C}$		STOP setup time			28	–	nS
t_{BUF}		Bus Free time between STOP and START condition			165	–	nS

5-6 RESET TIMING



(VDD = 3.0V , Ta =25℃)

Symbol	Signal	Description	Condition	Min.	Max.	Units
t_{RW}	RST	Reset low pulse width		3	–	μS
t_{RD}	RST, WR	Reset to WR pulse delay		6	–	mS

6. COMMAND LIST

6-1 Instruction Table

The following is a list of host commands supported by UC1601s

C/D: 0: Control, 1: Data
W/R: 0: Write Cycle, 1: Read Cycle

\# Useful Data bits – Don't Care

	Command	C/D	W/R	D7	D6	D5	D4	D3	D2	D1	D0	Action	Default
1.	Write Data Byte	1	0	#	#	#	#	#	#	#	#	Write 1 byte	N/A
2.	Read Data Byte	1	1	#	#	#	#	#	#	#	#	Read 1 byte	N/A
3.	Get Status	0	1	ID	MX	MY	WA	DE	0	0	0	Get Status	--
				Product Code				Ver	0	0	0		
4.	Set Column Address LSB	0	0	0	0	0	0	#	#	#	#	Set CA [3:0]	0
	Set Column Address MSB	0	0	0	0	0	1	#	#	#	#	Set CA [7:4]	0
5.	Set Temp. Compensation	0	0	0	0	1	0	0	1	#	#	Set TC[1:0]	00b
6.	Set Power Control	0	0	0	0	1	0	1	#	#	#	Set PC[2:0]	110b
7.	Set Adv. Program Control (double byte command)	0	0	0	0	1	1	0	0	0	R	Set APC[R][7:0], R = 0, or 1	N/A
		0	0	#	#	#	#	#	#	#	#		
8.	Set Scroll Line	0	0	0	1	#	#	#	#	#	#	Set SL[5:0]	0
9.	Set Page Address	0	0	1	0	1	1	#	#	#	#	Set PA[3:0]	0
10.	Set V_{BIAS} Potentiometer (double-byte command)	0	0	1 #	0 #	0 #	0 #	0 #	0 #	0 #	1 #	Set PM[7:0]	C0H
11.	Set Partial Display Control	0	0	1	0	0	0	0	1	0	#	Set LC[4]	0b
12.	Set RAM Address Control	0	0	1	0	0	0	1	#	#	#	Set AC[2:0]	001b
13.	Set Frame Rate	0	0	1	0	1	0	0	0	0	#	Set LC[3]	0b
14.	Set All-Pixel-ON	0	0	1	0	1	0	0	1	0	#	Set DC[1]	0b
15.	Set Inverse Display	0	0	1	0	1	0	0	1	1	#	Set DC[0]	0b
16.	Set Display Enable	0	0	1	0	1	0	1	1	1	#	Set DC[2]	0b
17.	Set LCD Mapping Control	0	0	1	1	0	0	0	#	#	0	Set LC[2:1]	00b
18.	System Reset	0	0	1	1	1	0	0	0	1	0	System Reset	N/A
19.	NOP	0	0	1	1	1	0	0	0	1	1	No operation	N/A
20.	Set Test Control (double-byte command)	0	0	1	1	1	0	0	1	TT		For testing only. Do not use.	N/A
				#	#	#	#	#	#	#	#		
21.	Set LCD Bias Ratio	0	0	1	1	1	0	1	0	#	#	Set BR[1:0]	11b: 9
22.	Set COM End	0	0	1 -	1 #	1 #	1 #	0 #	0 #	0 #	1 #	Set CEN[6:0]	63
23.	Set Partial Display Start	0	0	1 -	1 #	1 #	1 #	0 #	0 #	1 #	0 #	Set DST[6:0]	0
24.	Set Partial Display End	0	0	1 -	1 #	1 #	1 #	0 #	0 #	1 #	1 #	Set DEN[6:0]	63
Serial Read Command (Enabled only in S8/S9 mode)													
25.	Get Status	0	0	1	1	1	1	1	1	1	0	Get status till chip disabled	N/A
		0	1	MX	MY	WA	DE	Prod_ code		0	Ver		

* Other than commands listed above, all other bit patterns result in NOP (No Operation).

6-2 POWER-UP SEQUENCE AND POWER-DOWN SEQUENCE

POWER-UP SEQUENCE

UC1601s power-up sequence is simplified by built-in "Power Ready" flags and by the automatic invocation of *System-Reset* command after *Power-ON-Reset*.

System programmer is required to wait for only 5 ~ 10 mS before starting to issue commands to UC1601s. No additional commands or waits are required between enabling of the charge pump, turning on the display drivers, writing to RAM or any other commands.

There's no delay needed while turning on V_{DD} and $V_{DD2/3}$, and either one can be turned on first.

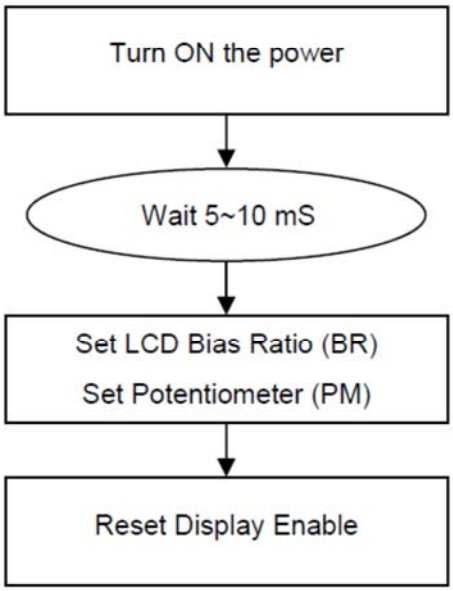


FIGURE 10: Reference Power-Up Sequence

POWER-DOWN SEQUENCE

To prevent the charge stored in capacitors C_{BX+} and C_L from damaging the LCD when V_{DD} is switched off, use Reset mode to enable the built-in charge draining circuit to discharge these external capacitors.

The draining resistance is 1K for both V_{LCD} and V_B. It is recommended to wait *3 x RC* for V_{LCD} and *1.5 x RC* for V_B For example, if C_{LCD} is 100nF, then the draining time required for V_{LCD} is 3mS.

When internal V_{LCD} is not used, UC1601s will *NOT* drain V_{LCD} during RESET. System designers need to make sure external V_{LCD} source is properly drained off before turning off V_{DD}.

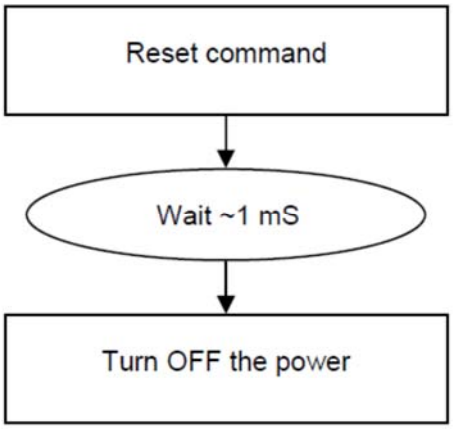


FIGURE 11: Reference Power-Down Sequence

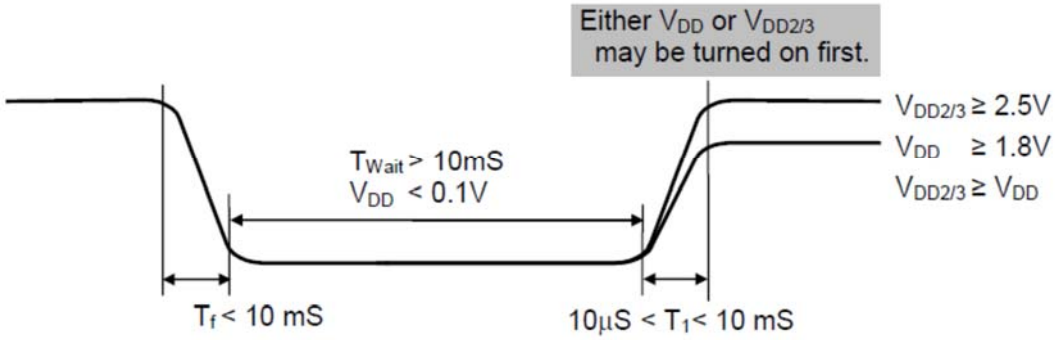
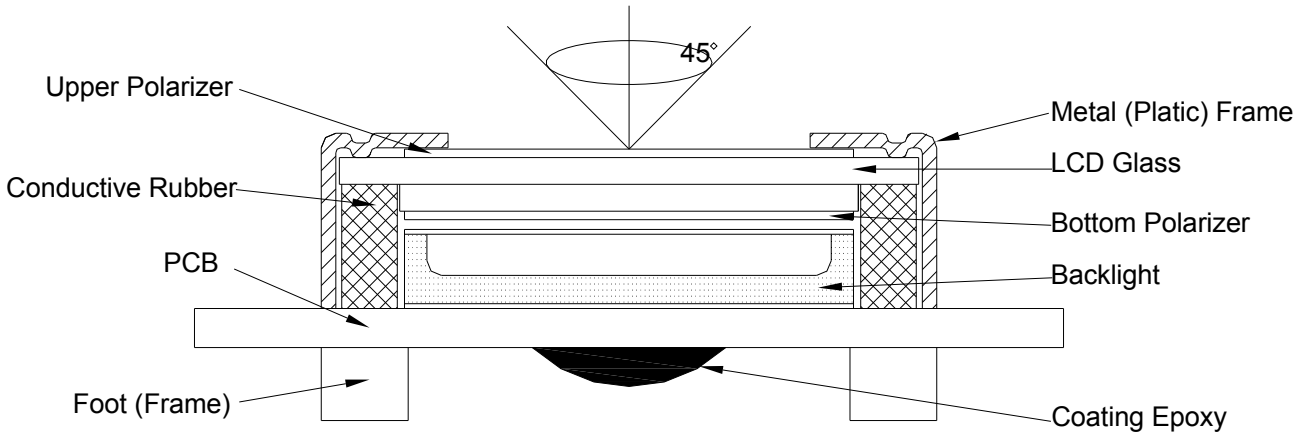


Figure 12: Power Off-On Sequence

7. QUALITY SPECIFICATIONS

7-1. LCM Appearance and Electric inspection Condition

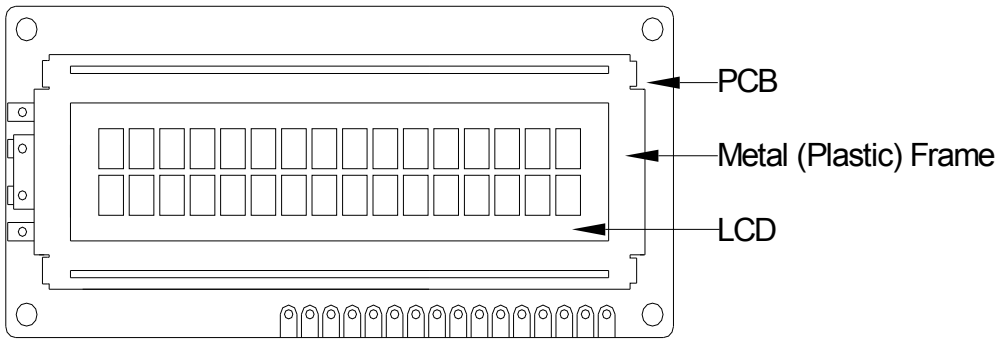
1. Inspection will be done by placing LCM 30cm away from inspector's eyeballs under normal illumination.



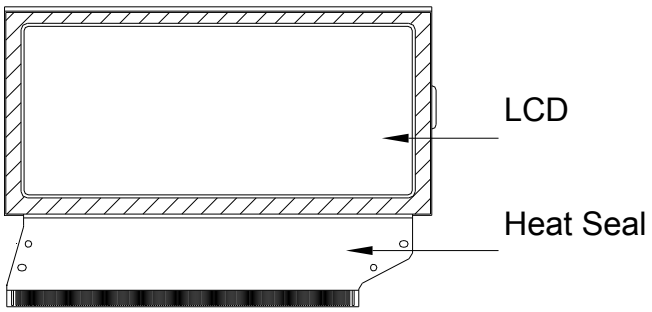
2. View Angle: with in 45°around perpendicular line.

7-2. Definition

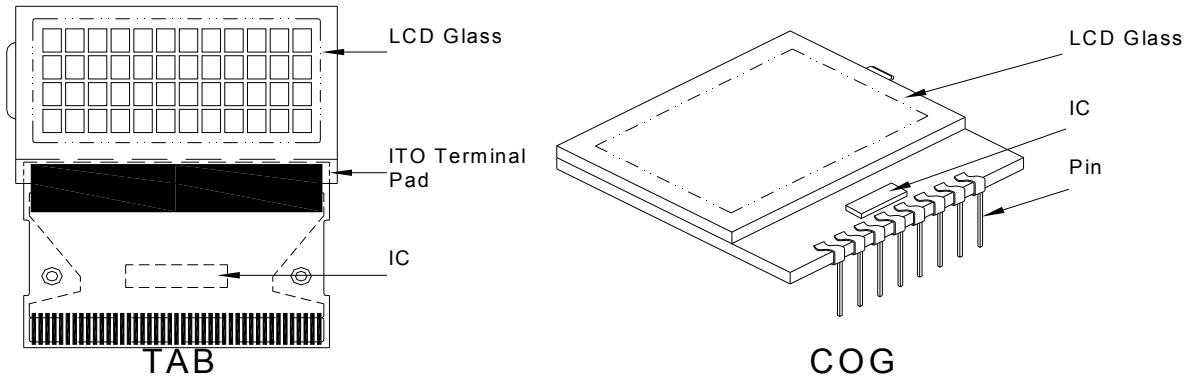
1. COB



2. Heat Seal



3. TAB and COG



7-3. Sampling Plan and Acceptance

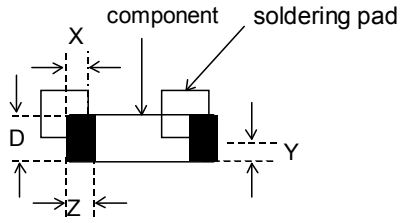
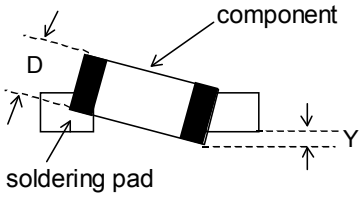
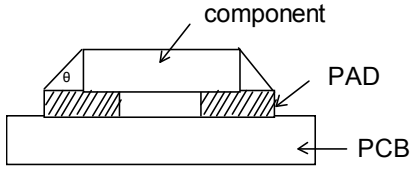
1. Sampling Plan
   MIL - STD - 105E (Ⅱ) ordinary single inspection is used.
2. Acceptance
   Major defect: AQL = 0.65%
   Minor defect: AQL = 1.5%

7-4. Criteria

1. COB

Defect	Inspection Item	Inspection Standards	
Major	PCB copper flakes peeling off	Any copper flake in viewing Area should be greater than 1.0mm^2	Reject
Major	Height of coating epoxy	Exceed the dimension of drawing	Reject
Major	Void or hole of coating epoxy	Expose bonding wire or IC	Reject
Major	PCB cutting defect	Exceed the dimension of drawing	Reject

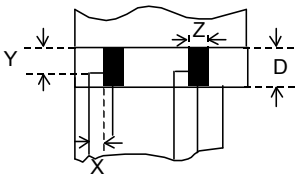
2. SMT

Defect	Inspection Item	Inspection Standards	
Minor	Component marking not readable		Reject
Minor	Component height	Exceed the dimension Of drawing	Reject
Major	Component solder defect (missing , extra, wrong component or wrong orientation		Reject
Minor	Component position shift 	X < 3/4Z Y > 1/3D	Reject Reject
Minor	Component tilt 	Y > 1/3D	Reject
Minor	Insufficient solder 	θ≤ 20°	Reject

3. Metal (Plastic) Frame

Defect	Inspection Item	Inspection Standards		
Major	Crack / breakage	Anywhere		Reject
Minor	Frame Scratch	W	L	Acceptable of Scratch
		w<0.1mm	Any	Ignore
		0.1≤w<0.2mm	L≤5.0mm	2
		0.2≤w<0.3mm	L≤3.0mm	1
		w≥0.3mm	Any	0
		Note : 1. Above criteria applicable to scratch lines with distance greater than 5mm. 2. Scratch on the back side of frame (not visible) can be ignored .		
Minor	Frame Dent , Prick $\Phi = \frac{L + W}{2}$			Acceptable of Dents / Pricks
		Φ≤1.0mm		2
		1.0<Φ≤1.5mm		1
		1.5mm<Φ		0
		Note : 1. Above criteria applicable to any two dents / pricks with distance greater than 5mm 2. Dent / prick on the back side of frame (not visible) can be ignored		
Minor	Frame Deformation	Exceed the dimension of drawing		
Minor	Metal Frame Oxidation	Any rust		

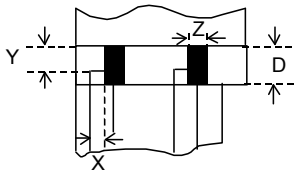
4. Flexible Film Connector (FFC)

Defect	Inspection Item	Inspection Standards	
Minor	Tilted soldering	Within the angle +5°	Acceptable
Minor	Uneven solder joint /bump		Reject
Minor	Hole $\Phi = \frac{L + W}{2}$	Expose the conductive line	Reject
		Φ > 1.0mm	Reject
Minor	Position shift 	Y > 1/3D	Reject
		X > 1/2Z	Reject

5. Screw

Defect	Inspection Item	Inspection Standards	
Major	Screw missing/loosen		Reject
Minor	Screw oxidation	Any rust	Reject
Minor	Screw deformation	Difficult to accept screw driver	Reject

6. Heatseal 、TCP 、FPC

Defect	Inspection Item	Inspection Standards	
Major	Scratch expose conductive layer		Reject
Minor	HS Hole $\Phi = \frac{L+W}{2}$	Φ> 0.5mm	Reject
Major	Adhesion strength	Less than the specification	Reject
Minor	Position shift 	Y > 1/3D	Reject
		X > 1/2Z	Reject
Major	Conductive line break		Reject

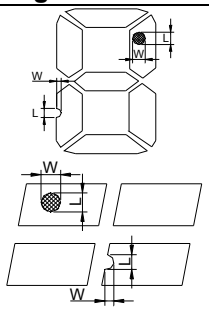
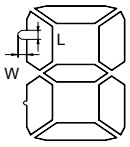
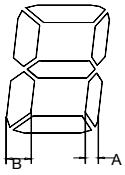
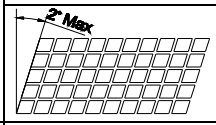
7. LED Backing Protective Film and Others

Defect	Inspection Item	Inspection Standards	
Minor	LED dirty, prick	Acceptable number of units	
		Φ≤0.10mm	Ignore
		0.10<Φ≤0.15mm	2
		0.15<Φ≤0.2mm	1
		Φ>0.2mm	0
		The distance between any two spots should be ≥5mm Any spot/dot/void outside of viewing area is acceptable	
Minor	Protective film tilt	Not fully cover LCD	Reject
Major	COG coating	Not fully cover ITO circuit	Reject

8. Electric Inspection

Defect	Inspection Item	Inspection Standards	
Major	Short		Reject
Major	Open		Reject

9. Inspection Specification of LCD

Defect	Inspect Item		Inspection Standards				
Minor	Linear Defect	∗ Glass Scratch ∗ Polarizer Scratch ∗ Fiber and Linear material	W	W≤0.03		0.03<W≤0.05	W>0.05
			L	L<5		L<3	Any
			ACC. NO.	1		1	Reject
			Note	L is the length and W is the width of the defect			
Minor	**Black Spot and Polarizer Pricked**	∗ Foreign material between glass and polarizer or glass and glass ∗ Polarizer hole or protuberance by external force	Φ	Φ≤0.1	0.1<Φ≤0.15	0.15<Φ≤0.2	Φ>0.2
			ACC. NO.	3EA / 100mm²	2	1	0
			Note	Φ is the average diameter of the defect. Distance between two defects > 10mm.			
Minor	**White Spot and Bubble in polarizer**	∗ Unobvious transparant foreign material between glass and glass or glass and polarizer ∗ Air protuberance between polarizer and glass	Φ	Φ≤0.3	0.3<Φ≤0.5	0.5<Φ	
			ACC. NO.	3EA / 100mm²	1	0	
			Note	Φ is the average diameter of the defect. Distance between two defects > 10mm.			
Minor	**Segment Defect**		Φ	Φ≤0.10	0.10<Φ≤0.20	0.20<Φ≤0.25	Φ>0.25
			ACC. NO.	3EA / 100mm²	2	1	0
			Note	W is more than 1/2 segment width			Reject
				$\Phi = \frac{L + W}{2}$ Distance between two defect is 10mm			
Minor	**Protuberant Segment**	 Φ = (L + W) / 2	Φ	Φ≤0.10	0.10<Φ≤0.20	0.20<Φ≤0.25	Φ>0.25
			W	Glue	W≤1/2 Seg W≤0.2	W≤1/2 Seg W≤0.2	Ignore
			ACC. NO.	3EA / 100mm²	2	1	0
Minor	**Assembly Mis-alignment**		1. Segment				
			B	B≤0.4mm	0.4<B≤1.0mm	B>1.0mm	
			B-A	B-A<1/2B	B-A<0.2	B-A<0.25	
			Judge	Acceptable	Acceptable	Acceptable	
			2. Dot Matrix				
			Deformation>2°				Reject
Minor	**Stain on LCD Panel Surface**		Accept when stains can be wiped lightly with a soft cloth or a similar one. Otherwise, judged according to the above items: "Black spot" and "White Spot"				

8. RELIABILITY

No	Item	Condition	Quantity	Criteria
1	High Temperature Operating	70℃, 96Hrs	2	GB/T2423.2 -2008
2	Low Temperature Operating	-20℃, 96Hrs	2	GB/T2423.1 -2008
3	High Humidity	50℃, 90%RH, 96Hrs	2	GB/T2423.3 -2006
4	High Temperature Storage	80℃, 96Hrs	2	GB/T2423.2 -2008
5	Low Temperature Storage	-30℃, 96Hrs	2	GB/T2423.1 -2008
6	Thermal Cycling Test	-20℃, 60min~70℃, 60min, 20 cycles.	2	GB/T2423.22 -2012
7	Packing vibration	Frequency range:10Hz~50Hz Acceleration of gravity:5G X,Y,Z 30 min for each direction.	2	GB/T5170.14 -2009
8	Electrical Static Discharge	Air:±8KV 150pF/330Ω 5 times Contact:±4KV 150pF/330Ω 5 times	2	GB/T17626.2 -2006
9	Drop Test (Packaged)	Height:80 cm,1 corner, 3 edges, 6 surfaces.	2	GB/T2423.8 -1995

Note: 1) Above conditions are suitable for standard products.
2) For restrict products, the test conditions listed as above must be revised.

9. HANDLING PRECAUTION

(1) Mounting Method

The panel of the LCD Module consists of two thin glass plates with polarizers which easily get damaged since the Module is fixed by utilizing fitting holes in the printed circuit board. Extreme care should be taken when handling the LCD Modules.

(2) Caution of LCD handling & cleaning

When cleaning the display surface, use soft cloth with solvent (recommended below) and wipe lightly.

- Isopropyl alcohol
- Ethyl alcohol
- Trichloro trifloro thane

Do not wipe the display surface with dry or hard materials that will damage the polarizer surface.

Do not use the following solvent:

- Water
- Ketone
- Aromatics

(3) Caution against static charge

The LCD Module use C-MOS LSI drivers, so we recommend that you connect any unused input terminal to VDD or VSS, do not input any signals before power is turned on. And ground your body, Work/assembly table. And assembly equipment to protect against static electricity.

(4) Packaging

- Modules use LCD elements, and must be treated as such. Avoid intense shock and falls from a height.
- To prevent modules from degradation. Do not operate or store them exposed directly to sunshine or high temperature/humidity.

(5) Caution for operation

- It is indispensable to drive LCD's within the specified voltage limit since the higher voltage than the limit shorten LCD life. An electrochemical reaction due to direct current causes LCD deterioration, Avoid the use of direct current drive.
- Response time will be extremely delayed at lower temperature than the operating temperature range and on the other hand at higher temperature LCD's show dark color in them.However those phenomena do not mean malfunction or out of order with LCD's. Which will come back in the specified operating temperature range.
- If the display area is pushed hard during operation, some font will be abnormally displayed but it resumes normal condition after turning off once.
- A slight dew depositing on terminals is a cause for electro-chemical reaction resulting in terminal open circuit.

Usage under the relative condition of 40°C, 50%RH or less is reequired.

(6) Storage

In the case of storing for a long period of time (for instance.) For years) for the purpose or replacement use, The following ways are recommended.

- Storage in a polyethylene bag with sealed so as not to enter fresh air outside in it, And with no desiccant.
- Placing in a dark place where neither exposure to direct sunlight nor light is. Keeping temperature in the specified storage temperature range.
- Storing with no touch on polarizer surface by the anything else. (It is recommended to store them as they have been contained in the inner container at the time of delivery)

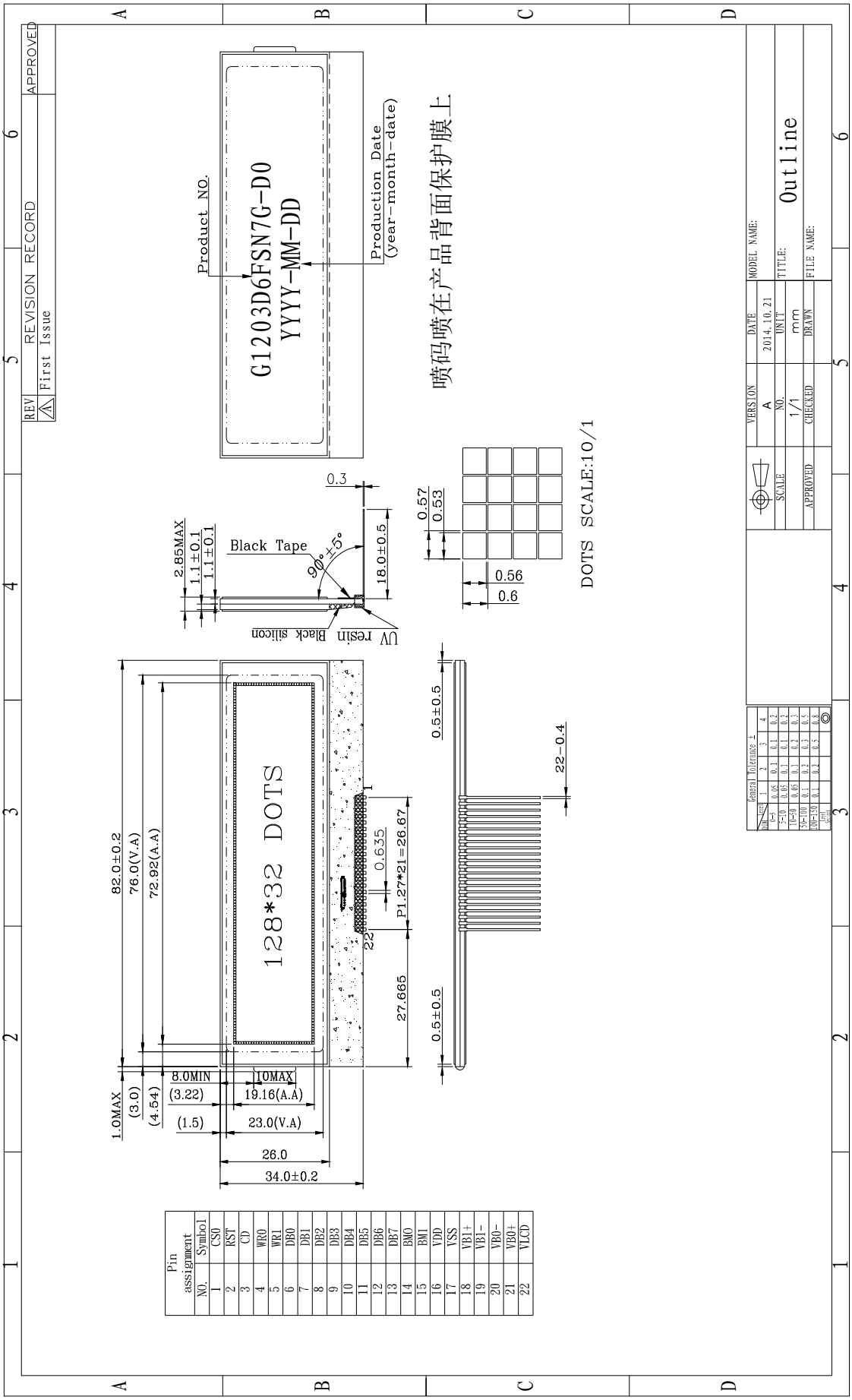
(7) Safety

- It is recommendable to crash damaged or unnecessary LCD into pieces and wash off liquid crystal by using solvents such as acetone and ethanol.Which should be burned up later.
- When any liquid crystal leaked out of a damaged glass cell comes in contact with your hands, please wash it off well with soap and water.

(8) Other

-After the product shipped, any product quality issues must be feedback within three months, otherwise, we will not be responsible for the subsequent or consequential events.

10. OUTLINE DIMENSION



Pin assignment	
NO.	Symbol
1	CS0
2	RST
3	CD
4	WR0
5	WR1
6	DB0
7	DB1
8	DB2
9	DB3
10	DB4
11	DB5
12	DB6
13	DB7
14	BM0
15	BM1
16	VDD
17	VSS
18	VB1+
19	VB1-
20	VB0-
21	VB0+
22	VLCD

11. PACKING INSTRUCTION