Part No. :320240B

Customer :_____

Drawing No. :_____

Approved :_____

Date :_____

Approved:_____ Checked:_____ Prepared:_____

ADDRESS:

CONTENTS

3. GENERAL SPECIFICATIONS

This individual specification is general specifications.

4. PRECAUTIONS FOR LCM

4.1 Precautions in handling LCD Modules (hereinafter LCMs)

Feifan's LCMs have been assembled and accurately calibrated before delivery.

Please observe the following criteria when handling. A.

Do not subject the module to excessive shock.

B. Do not modify the tab on the metal holder.

C. Do not tamper with the printed circuit board.

D. Limit the soldering of the printed circuit board to I/O terminals only.

E. Do not touch the zebra strip nor modify its location.

4.2 Static electricity warning feifan's LCM uses CMOS LSI technology. Therefore, strict measures to avoid static electricity discharge are followed through all processes from manufacturing to shipping. When handling a LCM, take sufficient care to prevent static electricity discharge as you would any CMOS IC.

A. Do not take the LCM from its anti-static bag until it's to be assembled.

LCM's are individually packaged in bags specially treated to resist static electricity. When storing, keep the LCM packed in the original bags, or store them in a container processed to be resistant to static electricity, or in an electric conductive container.

B. Always use a ground strap when handling a LCM.

Always use a ground strap while working with the module, from the time it is taken out of the anti-static bag until it is assembled. If it is necessary to transfer the LCM, once it has been taken

out of the bag, always place it in an electric conductive container. Avoid wearing clothes made of chemical fibers, the use of cotton or conductive treated fiber clothing is recommended.

C. Use a no-leak iron for soldering the LCM.

The soldering iron to be used for soldering the I/O terminals to the LCM are to be insulated or grounded at the iron tip.

D. Always ground electrical apparatuses required for assembly.

Electrical apparatuses required to assemble the LCM into a product, i.e. electrical screw drivers, are to be first grounded to avoid transmitting spike noises from the motor.

E. Assure that the work bench is properly grounded.

F. Peel off the LCM protective film slowly.

The module is attached with a film to protect the display surface from contamination, damage, adhesion of flux, etc. Peeling off this film abruptly could cause static electricity to be generated, so peel the tape slowly.

G. Pay attention to the humidity in the work area.

50~60% RH is recommended.

4.3 Precautions for the soldering of a LCM

The following procedures should be followed when soldering the LCM: A.

Solder only to the I/O terminal.

B. Use a no leakage soldering iron and pay particular attention to the following:

(1) Conditions for soldering I/O terminals Temperature

at iron tip: 280℃ + 10℃

Soldering time: 3~4 sec/terminal

Type of solder: Eutectic solder (rosin flux filled)

Note: (Avoid using flux, because it could penetrate the module and the module may get contaminated during cleaning.) Peel off protective film after soldering the I/O terminals. By following this procedure, the surface contamination caused by the dispersion of flux while soldering can be avoided.

(2) Removing the wiring

(When a lead wire, or a connector to the I/O terminal of the module is to be removed, remove it only after the solder at the connection has sufficiently melted since the I/O terminal is a through hole.) If it is forcefully removed, it could cause the terminal to break or peel. The recommended procedure is to use a suction-type solder remover. Caution: do not reheat the I/O terminal more than 3 times.

4.4 Long-term storage

If the correct method of storage is not followed, deterioration of the display material (polarizer) and oxidation of the I/O terminal plating may make the process of soldering difficult. Please comply with the following procedure.

A. Store in the shipping container.

B. If the shipping container is not available, place in anti-static bags and seal the opening.

C. Store the modules where they are not subjected to direct sunlight or a fluorescent lamp.

D. Store in a temperature range of 0℃ - 35℃ with low relative humidity.

4.5 Precautions in use of LCD modules A.

Do not give any external shock.

B. Do not wipe the surface with hard materials.

C. Do not apply excessive force on the surface.

D. Do not expose to direct sunlight or fluorescent light for a long time.

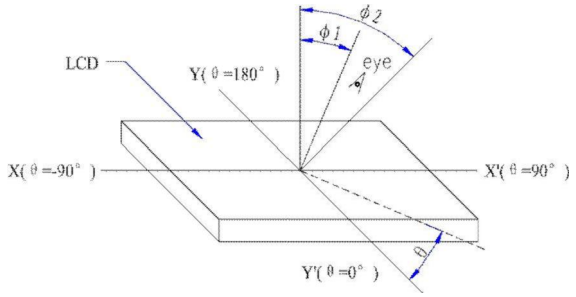
E. Avoid storage in high temperature and high humidity.

F. When storage for a long time at 40℃ or higher is required, R/H should be less than 60%.

G. Liquid in LCD is hazardous substance. Do not lick, swallow when the liquid is attached to your hands, skin, clothes etc. Wash it out thoroughly.

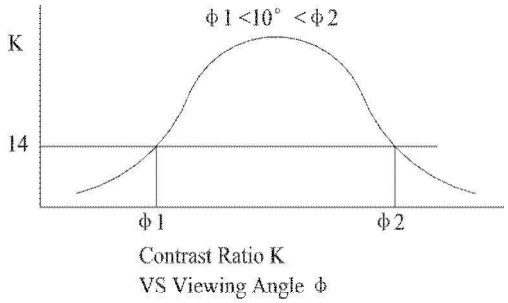
5. OPTICAL DEFINITIONS

5.1 Definition of angle θandφ



POSITIVE TYPE

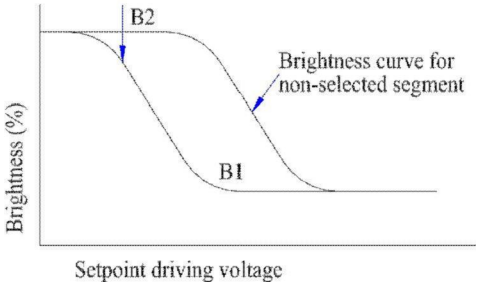
5.2 Definition of viewing angle φ1 andφ2



POSITIVE TYPE

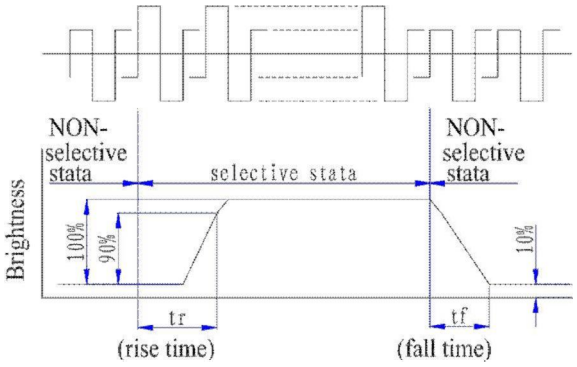
5.3 Definition of contrast "K"

$$K=\frac{\text{brightness of non-selected segment (B2)}}{\text{brightness of selected segment (B1)}}$$



NEGATIVE TYPE

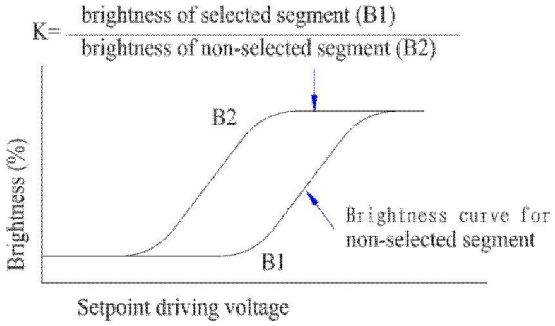
5.4 Definition of optical response



NEGATIVE TYPE

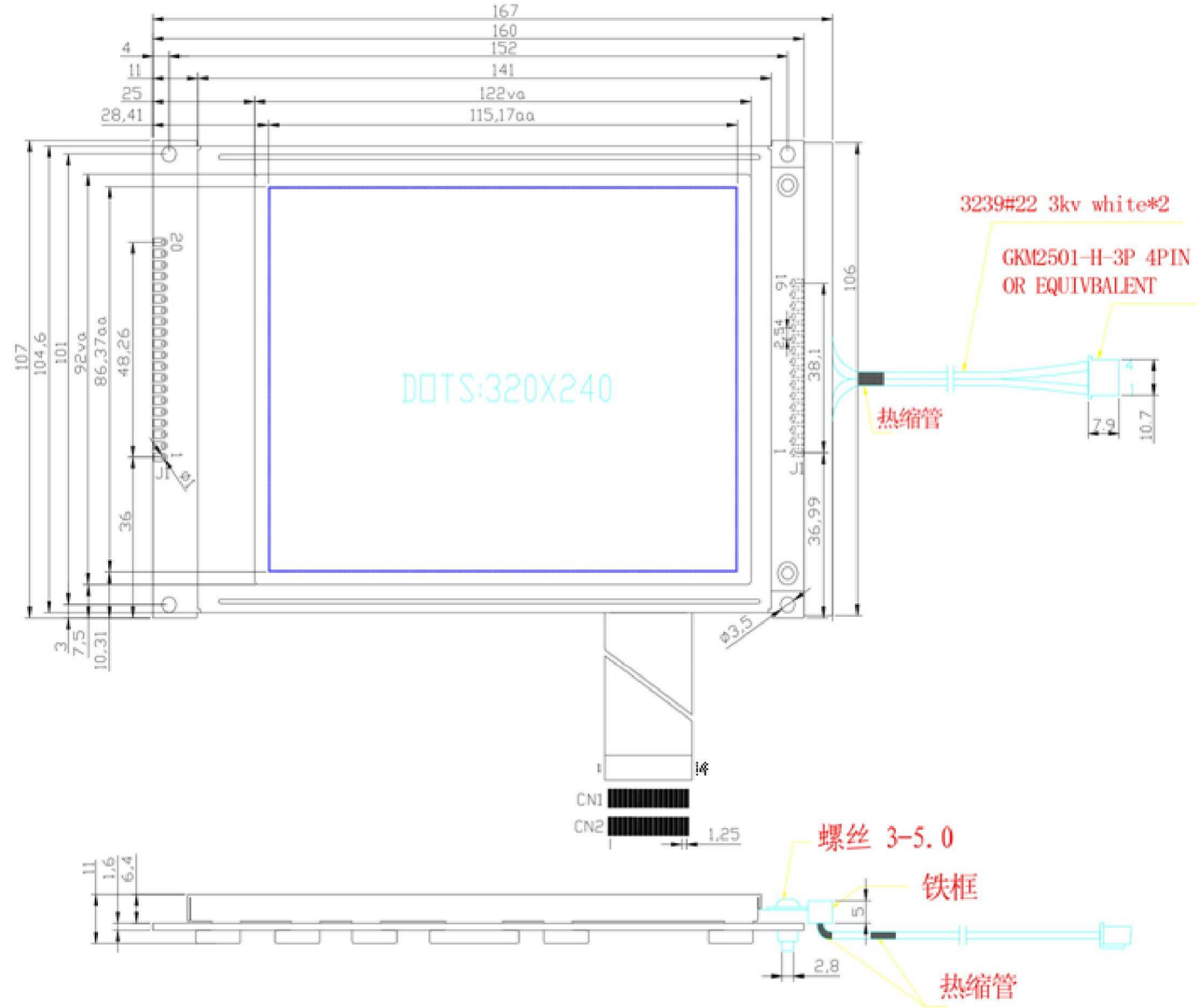
5.5 Definition of contrast "K"

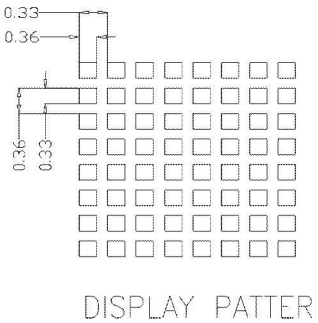
$$K=\frac{\text{brightness of selected segment (B1)}}{\text{brightness of non-selected segment (B2)}}$$



4.6 Definition of optical response

6.DIMENSIONAL OUTLINE





7.MECHANICAL DATA

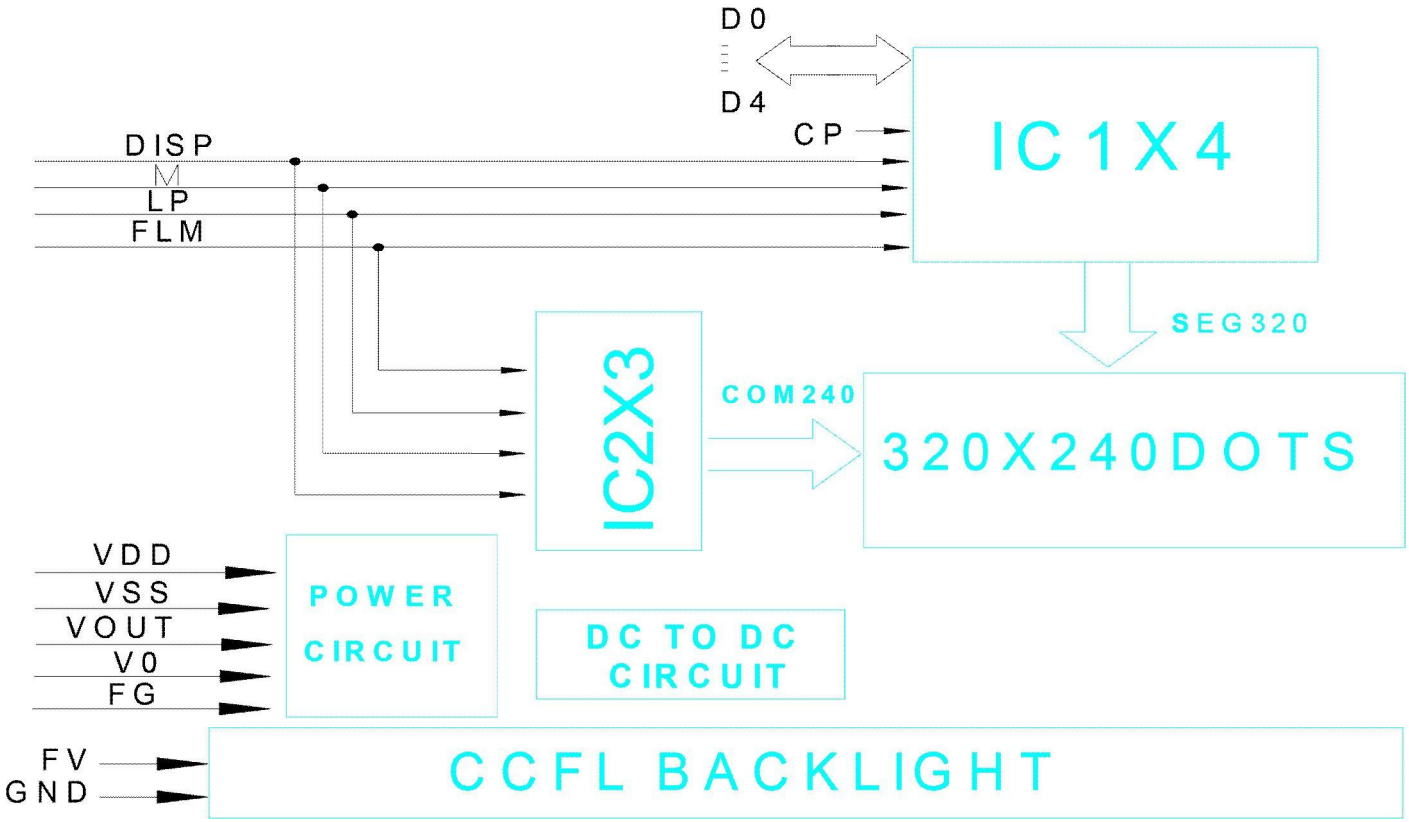
ITEM	STANDARD VALUE	UNIT
LCM SIZE (L*W*H)	167 * 107*Max11.5	mm
VIEWING AREA (L*W)	112 * 92	mm
ACTIVE AREA (L*W)	115.17 * 86.37	mm
DOT SIZE (L*W)	0.33* 0.33	mm
DOT PITCH (L*W)	0.03*0.03	mm
OPERATING TEMP	-20~70	℃
STORAGE TEMP	-30~80	℃
DUTY	1/240	
VIEWING DIRECTION	6 O'CLOCK	
BACKLIGHT	WHITE	
LCD TYPE	STN, GRAY OR BLACK	
DRIVER	SND8080G OR EQUIVALENT	

8. PIN ASSIGNMENT

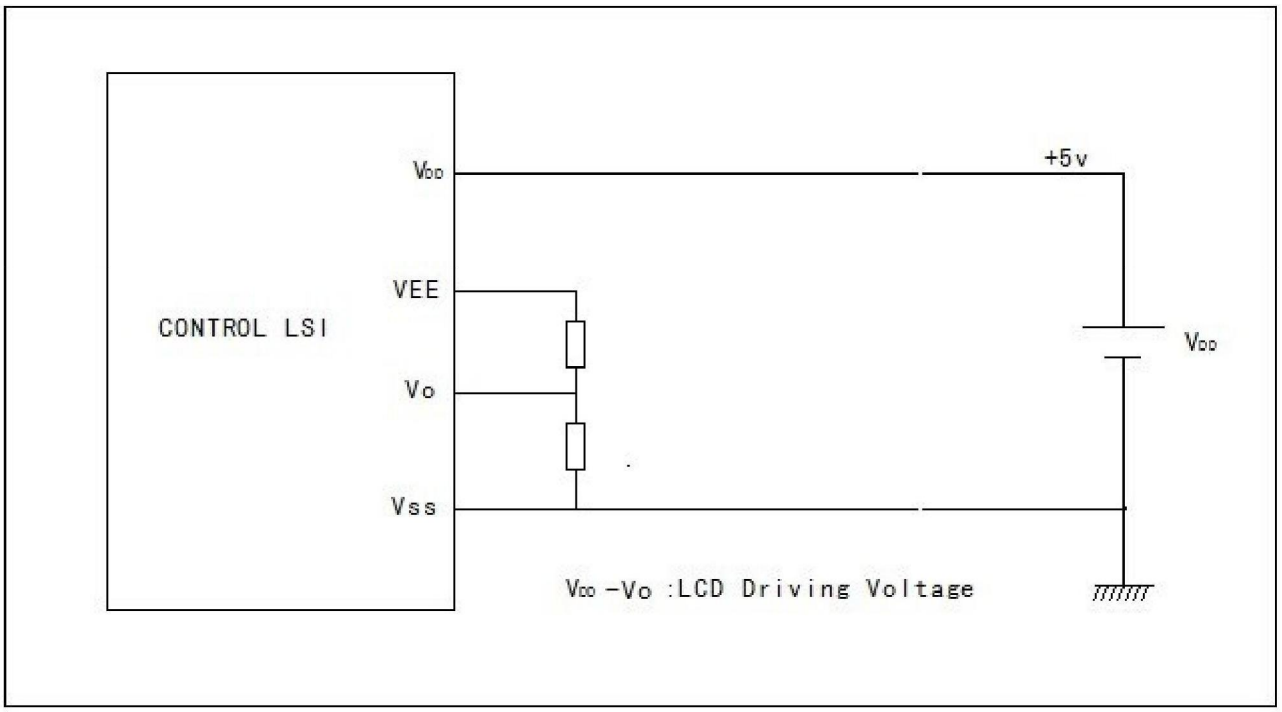
PINS DESCRIPTION CN1 J2

PIN	SYMBOL	I/0	FUNCTION
1-4	D0-D4	I/0	DATA BUS （数据总线）
5	DISP	I	H:DISPLAY ON L:DISPLAY OFF （液晶省电开关讯号）
6	YD	I	DATA PULSE （数据脉冲讯号）
7	M(NC)	I	AC DRIVE （交流驱动讯号）
8	LP	I	LATCH PULSE（锁存脉冲讯号）
9	CL2	I	LATCH CLOCK（时钟脉冲讯号）
10	VDD	P	POWER SUPPLY PIN （逻辑电源正）
11	VSS	P	GROUND (逻辑地)
12	VOUT	--	--
13	V0	P	LCD OPERATION VOLTAGE （LCD 工作电压）
14	FGND	P	EARTH (大地)

9.0 MODULE BLOCK DIAGRAM



10. POWER SUPPLY



11.0 ELECTRICAL ABSOLUTE RATING 11.1ABSOLUTE MAXIMUM RATING

Items	Symbol	Min.	Max.	Unit	Note
Supply Voltage	V_{DD}- V_{SS}	-0.3	7.0	V	
Input Voltage	V_{IN}	-0.3	V_{DD}+0.3	V	
Supply Voltage For LCD	V_{LCD}	-0.3	28.0	V	
Operating Temperature	T_{OP}	-20	+70	°C	
Storage Temperature	T_{STG}	-30	+80	°C	
Humidity	-	-	90%	%RH	1)

Note 1) Wet bulb temperature should be 29°C Max., and. no condensation of water.

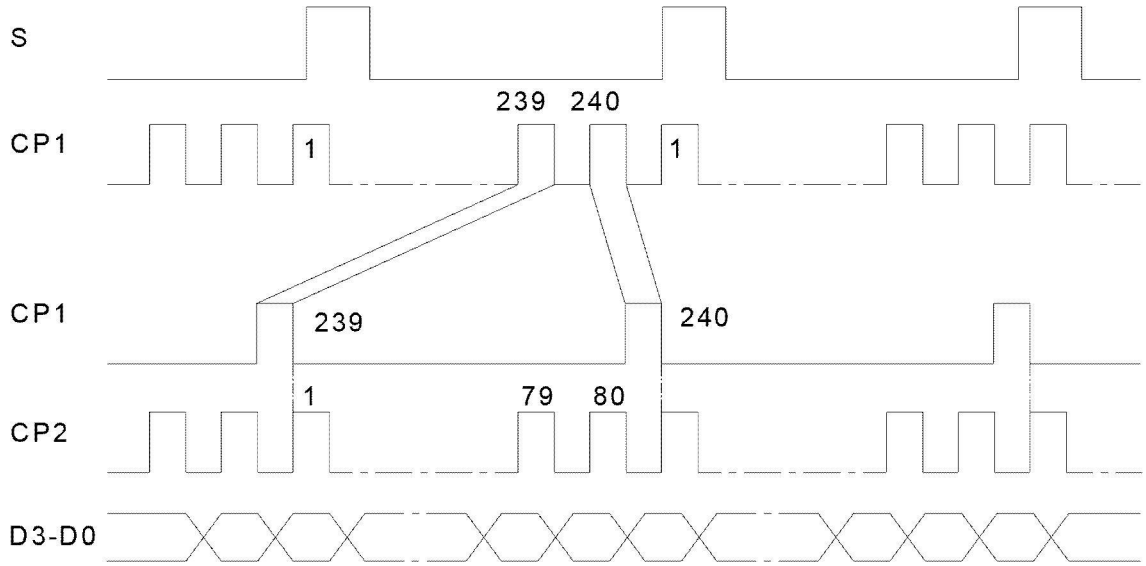
11.1. 1ELECTRICAL CHARACTERISTICS

Items	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply Voltage	V_{DD}-V_{SS}	-	3.3	5.0	5.5	V
Supply Current	I_{DD}	V_{DD}=5.0	--.	--.	30	mA
Supply Voltage For LCD	V_{LCD}	T_A= 25 °C	--.	23	--	V
'High' Level Input Voltage	V_{IH}	--.	0.8V_{DD}	-	V_{DD}	V
'Low' Level Iut Voltage	V_{IL}	--.	V_{SS}	--.	0.2V_{DD}	V
'High' Level Output Voltage	V_{OH}	I_{OH}=-0.4mA	-0.4V_{DD}	-	-	V
'Low' Level Output Voltage	V_{OL}	I_{OL}=-0.4mA	V_{SS}	-	0.4	V

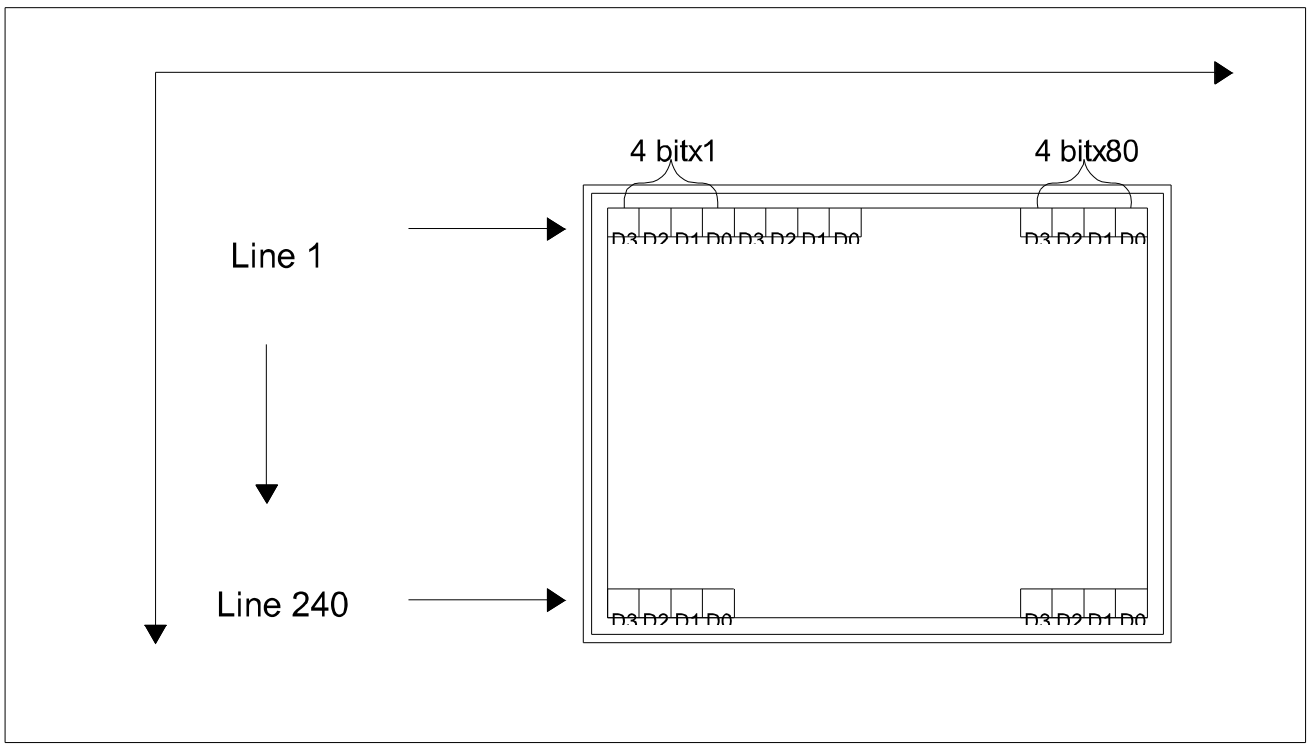
NOTE : 1.)Duty ratio=1/240 ,Bias=1/17

2.) Measured in Dots ON-state

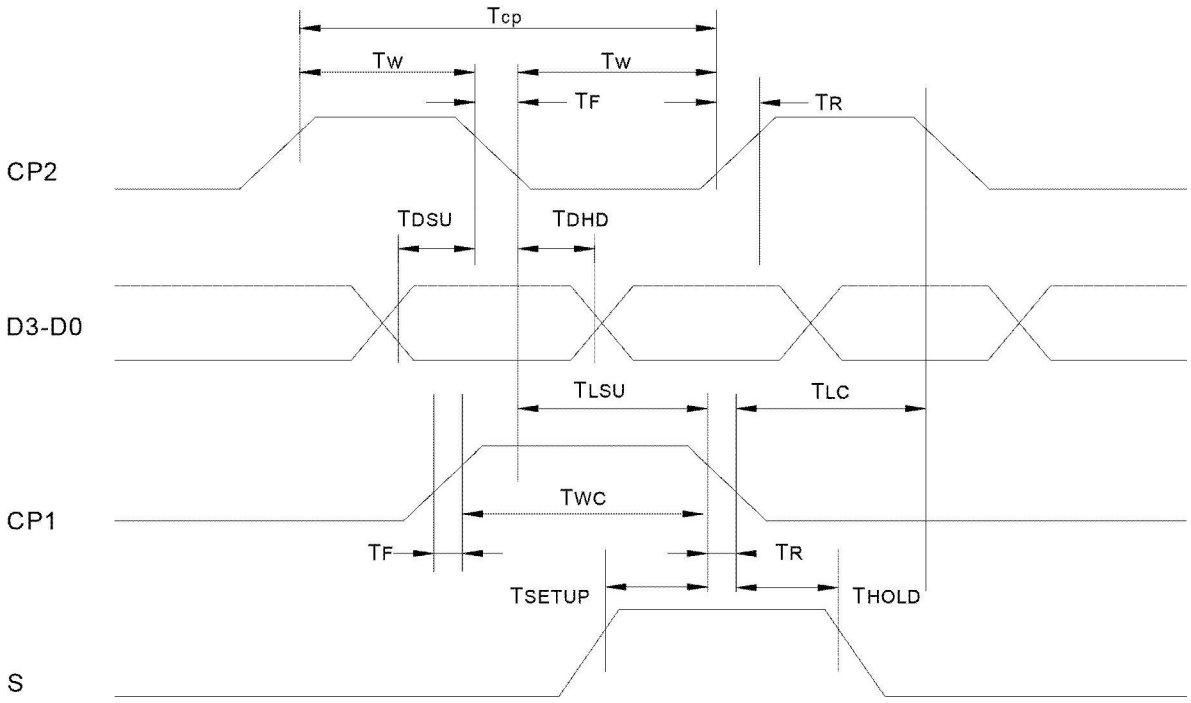
12.0 Signal sequence diagram



13.0 Liquid crystal display area mapping table



14.0 The main AC signal characteristics



Test conditions: (VSS =0V, VDD=4.5V~5.5V, T_A=0 to 50°C)

名称	符号	VDD=5.0V±10%		单位
		最小值	最大值	
Shift Clock Period	T_{CP}	153	-	ns
Clock Pulse Width	T_W	56	-	ns
Clock Rise,Fall Time	T_R /T_F	-	20	ns
Data Setup Time	T_{DSU}	50	-	ns
Data Hold Time	T_{DHD}	40	-	ns
“CP2”—“CP1” Fall Time	T_{LSU}	65	-	ns
“CP1”—“CP2” Fall time	T_{LC}	65	-	ns
S Setup Time	T_{SETUP}	100	-	ns
S Hold Time	T_{HOLD}	100	-	ns
CP1 Pulse Width	T_{WC}	70	-	ns

15.0 BACKLIGHT

11.2.1 Opto-electronic Characteristics

Item	Symbol	Condition	Min.	Typ.	Max	Unit
Forward Voltage	VF	Ta= 25℃ IF= 5mA	~150	~200	~250	V
Emission wave Length	λP		-	-	-	nm
Luminous	Iv		-	470	-	cd/m²