



# ALL SHORE INDUSTRIES, INC.

## SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

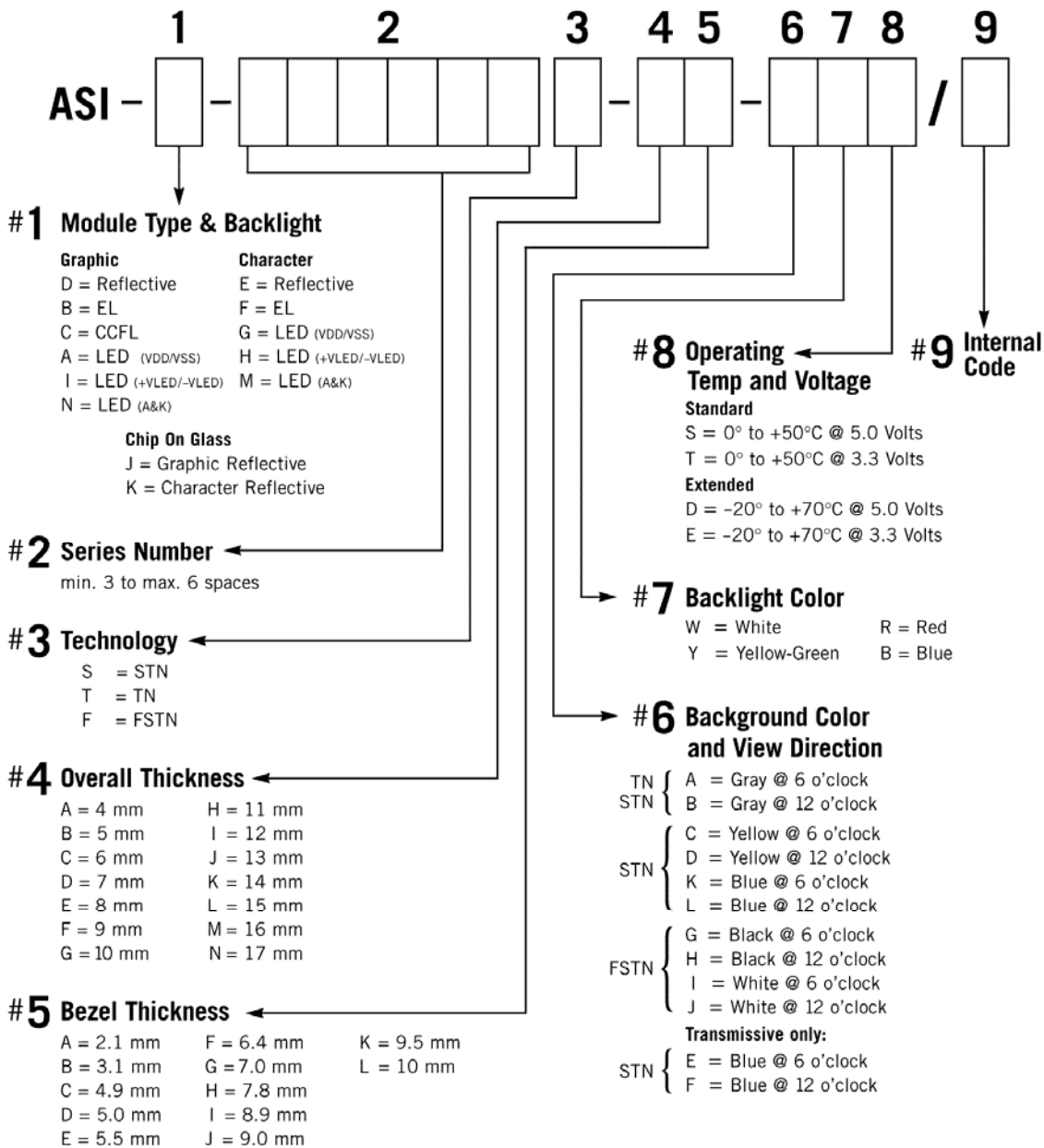
**MODULE # : ASI-B-1223AS-GE-\_WS/W**

- (1) NUMBER OF DOTS-----122 W \* 32 H DOTS
- (2) MODULE SIZE -----68.0 W \* 31.75 H \* "C" T (max) mm
- (3) EFFECTIVE AREA -----57.2 W \* 17.7 H mm
- (4) ACTIVE AREA -----52.42 W \* 13.72 H mm
- (5) DOT SIZE -----0.39 W \* 0.39 Hmm
- (6) DOT PITCH-----0.43 W \* 0.43 H mm



MODEL NO : ASI-B-1223AS-GE- WS W

**LCD MODULE PART NUMBERING SYSTEM**



NOTE: Some options may not be available in specific modules. Please contact your Sales Representative to check availability.



**MODEL NO : ASI-B-1223AS-GE-\_WS W**

1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

**AS - 10-1000**

1.2 APPLICATION NOTES FOR CONTROLLER / DRIVER : SED1520

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

AS-SED1520D0A

1.3 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS .

2. MECHANICAL SPECIFICATIONS

- (1) NUMBER OF DOTS -----122 W \* 32 H DOTS
- (2) MODULE SIZE -----68.0 W \* 31.75 H \* "C" T (max) mm
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## MODEL NO : ASI-B-1223AS-GE-\_WS W

### 3. ABSOLUTE MAXIMUM RATINGS

#### 3.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS (AT Ta = 25°C)

<i>I T E M</i>	<i>SYMBOL</i>	<i>MIN.</i>	<i>MAX.</i>	<i>UNIT</i>	<i>COMMENT</i>
POWER SUPPLY FOR LOGIC	V <sub>DD</sub> -V <sub>SS</sub>	0	6.0	V	-----
INPUT VOLTAGE	V <sub>I</sub>	V <sub>SS</sub>	V <sub>DD</sub>	V	-----
STATIC ELECTRICITY	-----	-----	100	V	NOTE (1)
POWER SUPPLY FOR EL	V <sub>EL</sub>	-----	AC200	V <sub>rms</sub>	f <sub>EL</sub> =1.0KHz 60 SEC.MAX
	f <sub>EL</sub>	-----	2.0	KHz	AC115V <sub>rms</sub> 60 SEC.MAX

NOTE (1): ELECTRO-STATIC DISCHARGE RESISTANCE IS TESTED BY CHARGING A 200PF CAPACITOR AND DISCHARGING IT BY CONTACT WITH A INTERFACE CONNECTOR PIN.

#### 3.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS.

<i>I T E M</i>	<i>CONDITION</i>	<i>OPERATING</i>		<i>STORAGE</i>		<i>COMMENT</i>
		<i>MIN.</i>	<i>MAX.</i>	<i>MIN.</i>	<i>MAX.</i>	
AMBIENT TEMPERATURE	NORMAL	0°C	50°C	-20°C	70°C	-----
	WIDE	-20°C	70°C			
HUMIDITY	-----	NOTE (2)		NOTE (2)		NO CONDENSATION
VIBRATION NOTE (3)	-----	-----	0.5G	-----	2G	10~300Hz XYZ DIRECTIONS 1 Hr EACH
SHOCK NOTE (3)	-----	-----	3G	-----	50G	10 msec XYZ DIRECTIONS 1 TIME EACH
CORROSIVE GAS	-----	NOT ACCEPTABLE		NOT ACCEPTABLE		-----

NOTE (2): Ta ≤ 50°C: 90% RH MAX.

Ta > 50°C: ABSOLUTE HUMIDITY MUST BE LOWER THAN THE HUMIDITY OF 90% RH AT 50°C. (80%RH AT 60°C)

NOTE (3): 1G = 9.8 m/s<sup>2</sup>



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### 4. ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY VOLTAGE FOR CIRCUIT	V <sub>DD-VSS</sub>	-----	4.75	5.0	5.25	V
INPUT VOLTAGE NOTE (1)	V <sub>IH</sub>	H LEVEL	2.0	-----	V <sub>DD</sub>	V
	V <sub>IL</sub>	L LEVEL	0	-----	0.8	
POWER SUPPLY CURRENT, NOTE (2)	I <sub>DD</sub>	V <sub>DD-VSS</sub> =5.0V	-----	1.0	1.5	mA
LCD DISPLAY DUTY RATIO	DUTY	-----	-----	1/32	-----	-----
CLOCK OSCILLATION FREQUENCY	f <sub>osc</sub>	FOR LCD MODULE	15	18	21	KHz
RECOMMENDED LCD DRIVING VOLTAGE, NOTE (3)	V <sub>DD-V<sub>O</sub></sub>	Φ=10° θ=0° Ta = 50°C	-----	4.1	-----	V
		Ta = 25°C	-----	4.5	-----	V
		Ta = 0°C	-----	4.9	-----	V
POWER SUPPLY CURRENT FOR EL	I <sub>EL</sub>	V <sub>EL</sub> =115V F <sub>el</sub> =400Hz	-----	1.5	-----	mA

NOTE (1): APPLIED TO TERMINALS E, A0, DB0 ~ DB7

NOTE (2): THE DISPLAY PATTERN IS ALL "ON", OR ALL "OFF"

NOTE (3): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT=0.5V EACH MODULE.

### 5. OPTICAL CHARACTERISTICS

#### STN TYPE LCD

Ta = 25°C V<sub>DD-V<sub>O</sub></sub> = 4.6V

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING ANGLE	Φ2-Φ1	K = 2.0 NOTE(1)	30	40	----	deg.	NOTE(2)
CONTRAST RATIO	K	Φ = 10° NOTE(1)	3.0	4.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	Φ = 10° NOTE(1)	----	200	350	ms	NOTE(2)
	tf (fall)	Φ = 10° NOTE(1)	----	300	400	ms	NOTE(2)

#### FSTN · STN BLUE TYPE LCD

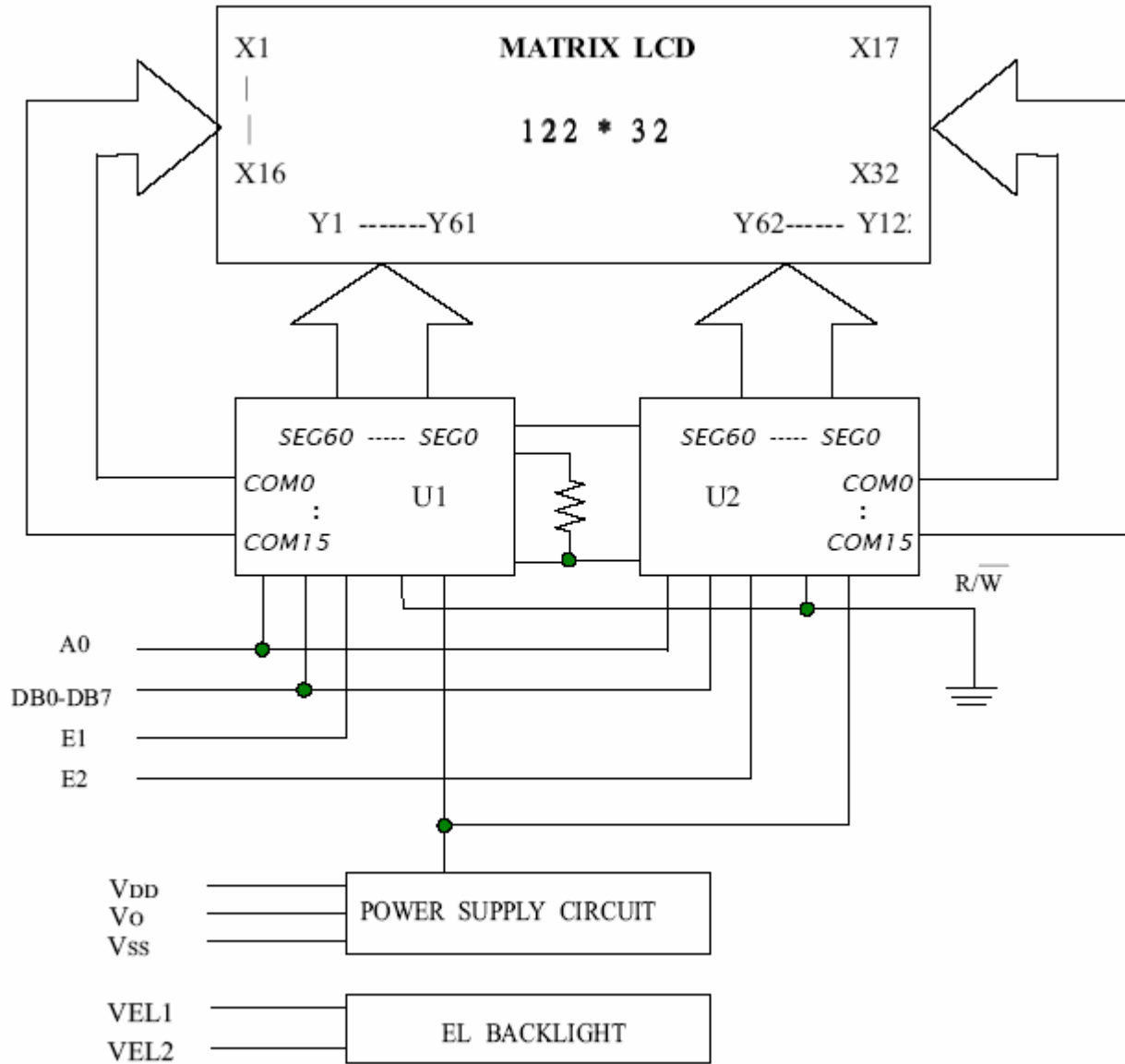
Ta = 25°C V<sub>DD-V<sub>O</sub></sub> = 4.6V

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING ANGLE	Φ2-Φ1	K = 2.0 NOTE(1)	30	40	----	deg.	NOTE(2)
CONTRAST RATIO	K	Φ = 10° NOTE(1)	4.0	5.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	Φ = 10° NOTE(1)	----	200	350	ms	NOTE(2)
	tf (fall)	Φ = 10° NOTE(1)	----	300	400	ms	NOTE(2)



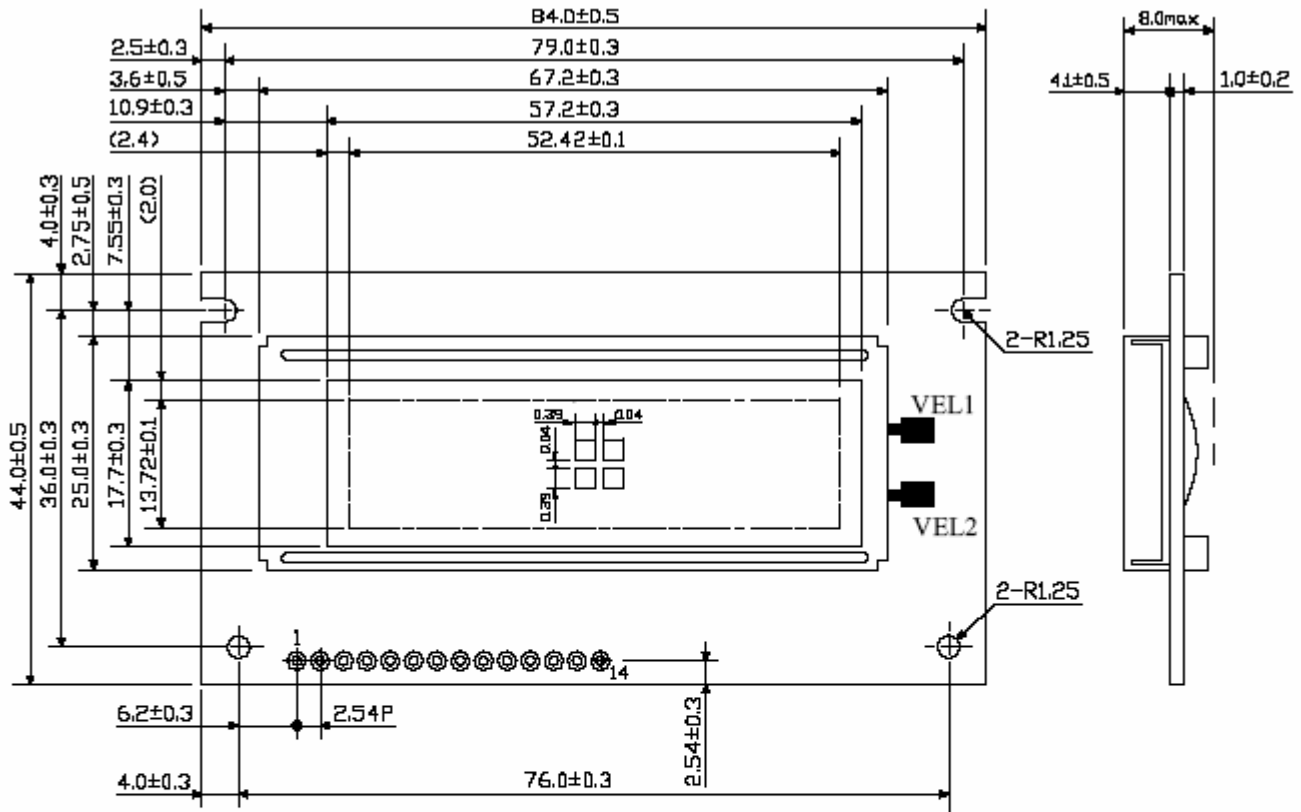
MODEL NO : ASI-B-1223AS-GE-WS W

6. BLOCK DIAGRAM



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7. OUTLINE DIMENSION



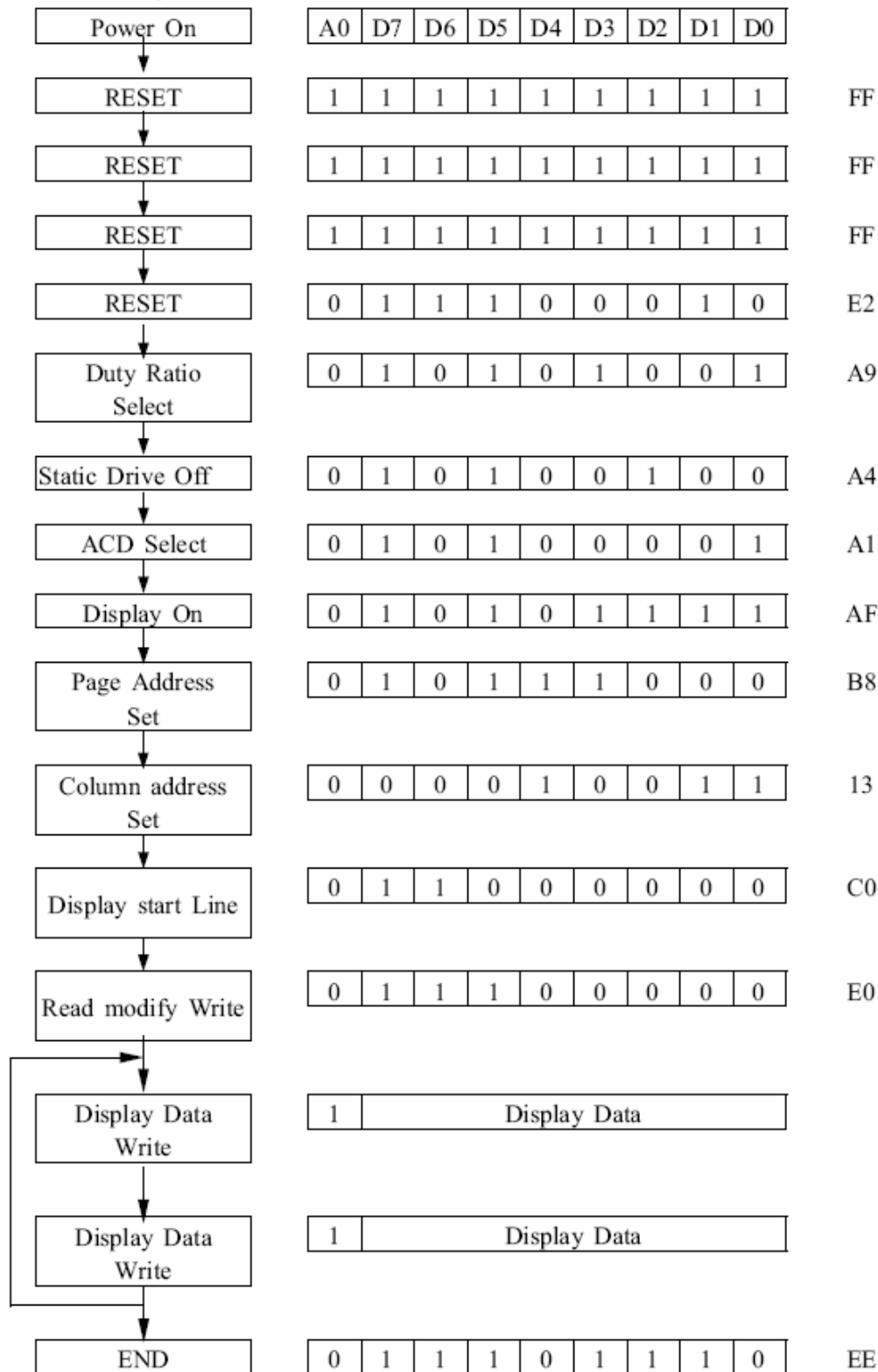
*Interface pin connection*

<b>PIN NO.</b>	1	2	3	4	5	6	7
<b>SYMBOL</b>	V <sub>SS</sub>	V <sub>DD</sub>	V <sub>O</sub>	A0	E1	E2	DB0
<b>PIN NO.</b>	8	9	10	11	12	13	14
<b>SYMBOL</b>	DB1	DB2	DB3	DB4	DB5	DB6	DB7



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*Initialization By instructions*





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Display data RAM

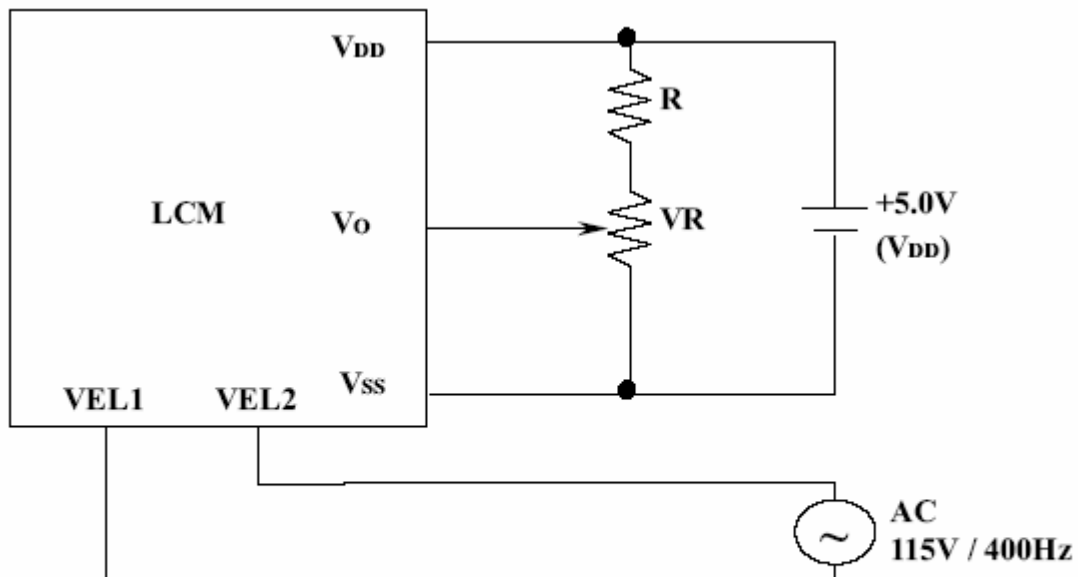
Page Address D1,D2=	DATA	Display Pattern										Line Address
0, 0	D0	[Pattern]										00H
	D1	[Pattern]										01
	D2	[Pattern]										02
	D3	[Pattern]										0 Page
	D4	[Pattern]										04
	D5	[Pattern]										05
	D6	[Pattern]										06
	D7	[Pattern]										07
0, 1	D0	[Pattern]										08
	D1	[Pattern]										09
	D2	[Pattern]										0A
	D3	[Pattern]										1 Page
	D4	[Pattern]										0C
	D5	[Pattern]										0D
	D6	[Pattern]										0E
	D7	[Pattern]										0F
1, 0	D0	[Pattern]										10
	D1	[Pattern]										11
	D2	[Pattern]										12
	D3	[Pattern]										2 Page
	D4	[Pattern]										14
	D5	[Pattern]										15
	D6	[Pattern]										16
	D7	[Pattern]										17
1, 1	D0	[Pattern]										18
	D1	[Pattern]										19
	D2	[Pattern]										1A
	D3	[Pattern]										3 Page
	D4	[Pattern]										1C
	D5	[Pattern]										1D
	D6	[Pattern]										1E
	D7	[Pattern]										1F
Column Address	A	DO=0	3C	3B	3A	39	38	37	36	35	←-----	00
	D	DO=1	13	14	15	16	17	18	19	1A	-----→	4F
C											← normal	
Segment Term.			60	59	58	57	56	55	54	53	-----	0

Fig.1. Correspondence with Display Data RAM and address

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### POWER SUPPLY

#### POWER SUPPLY FOR LCM



RECOMMENDED RESISTOR R:  $V_{DD} - V_O \geq 1.5V$

$V_{DD} - V_O$ : LCD DRIVING VOLTAGE

VR:  $10K\Omega \sim 20K\Omega$