



ALL SHORE INDUSTRIES, INC.

SPECIFICATION FOR LIQUID CRYSTAL DISPLAY MODULE

MODULE # : ASI-_-1223D_-BB-_YS/W

- (1) NUMBER OF DOTS-----122 W * 32 H DOTS
- (2) MODULE SIZE -----59.0 W * 29.3 H * 5.5 T (max) mm
- (3) EFFECTIVE AREA -----52.0 W * 15.0 H mm
- (4) ACTIVE AREA -----45.72 W * 11.97 H mm
- (5) DOT SIZE -----0.345 W * 0.345 H mm
- (6) DOT PITCH-----0.375 W * 0.375 H mm



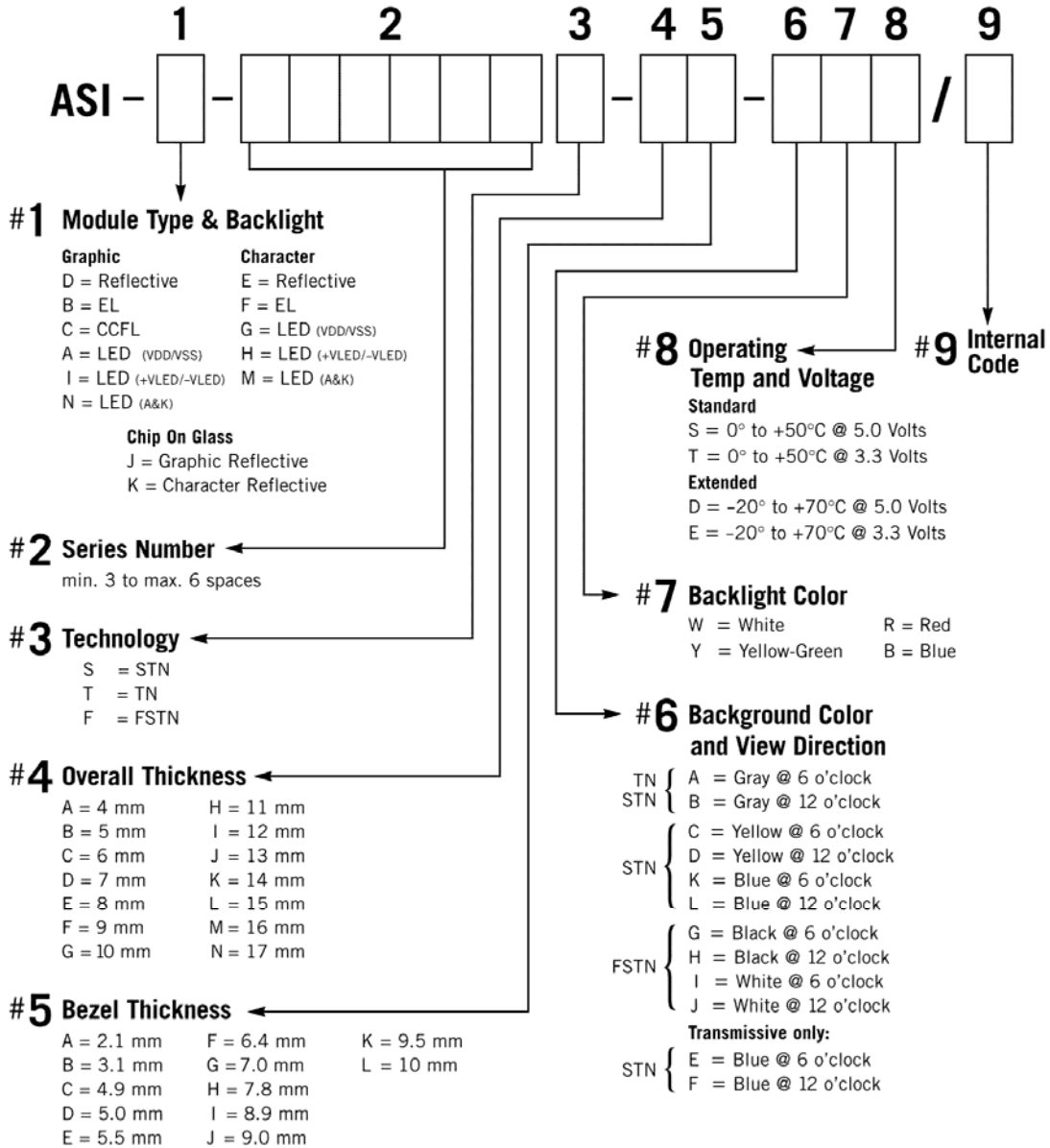
MODEL NO : ASI_-1223DS-BB-_YS/W

RECORDS OF REVISION			DOC . FIRST ISSUE October, 2003
DATE	REVISED DRAWING NO.	SUMMARY	



MODEL NO : ASI_-1223DS-BB-_YS/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_-1223DS-BB-_YS/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 -----59.0 W * 29.3 H * 5.5 T (max) mm
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- (5) DOT SIZE -----0.345 W * 0.345 H mm
- (6) DOT PITCH-----0.375 W * 0.375 H mm



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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 _{DD} -V _{SS}	0	6.0	V	-----
INPUT VOLTAGE	V _I	V _{SS}	V _{DD}	V	-----
STATIC ELECTRICITY	-----	-----	100	V	NOTE (1)

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: 85% RH MAX.

Ta > 50°C: ABSOLUTE HUMIDITY MUST BE LOWER THAN THE HUMIDITY OF 85% RH AT 50°C. (50%RH AT 60°C)

NOTE (3): 1G = 9.8 m/s²



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4. ELECTRICAL CHARACTERISTICS

<i>I T E M</i>	<i>SYMBOL</i>	<i>CONDITION</i>	<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT</i>	
POWER SUPPLY VOLTAGE FOR CIRCUIT	V _{DD} -V _{SS}	-----	4.75	5.0	5.25	V	
INPUT VOLTAGE NOTE (2)	V _{IH}	H LEVEL	2.0	-----	V _{DD}	V	
	V _{IL}	L LEVEL	0	-----	0.8		
OUTPUT VOLTAGE NOTE (1)	V _{OH}	I _{OH} = -3.0 mA	2.4	-----	-----	V	
	V _{OL}	I _{OL} = 3.0 mA	-----	-----	0.4	V	
POWER SUPPLY CURRENT, NOTE (3)	I _{DD}	V _{DD} -V _{SS} = 5.0V	-----	1.5	2.0	mA	
RECOMMENDED LCD DRIVING VOLTAGE, NOTE (4)	V _{DD} -V _O	STN/ FSTN DUTY =1/32 Φ=10° NOTE(5)	Ta=-20°C	-----	5.0	-----	V
			Ta= 0°C	-----	4.8	-----	V
			Ta= 25°C	-----	4.6	-----	V
			Ta= 50°C	-----	4.4	-----	V
			Ta= 70°C	-----	3.8	-----	V
POWER SUPPLY CURRENT FOR LED	I _{LED}	V _{DD} =5.0V	-----	NOTE(6)	NOTE(6)	mA	

NOTE (1): APPLIED TO TERMINALS DB0~DB7

NOTE (2): APPLIED TO TERMINALS E, A0, DB0~DB7

NOTE (3): THE DISPLAY PATTERN IS ALL "ON", OR ALL "OFF"

NOTE (4): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT ±0.5V EACH MODULE.NOTE

(5): $\theta = 0^\circ$: VIEWING DIRECTION AT 6 O'CLOCK

$\theta = 180^\circ$: VIEWING DIRECTION AT 12 O'CLOCK

(6): LED CURRENT FOR DIFFERENT LED BACKLIGHT TYPE

<i>LED B.L TYPE</i>	<i>V_{DD}</i>	<i>I_{LED}</i>				<i>LED COLOR</i>
		<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT.</i>	
EDGE	5.0V	-----	35	40	mA	YELLOW-GREEN、AMBER、ORANGE、RED


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5. OPTICAL CHARACTERISTICS
 $T_a = 25^{\circ}\text{C}$
STN TYPE LCD
 $T_a = 25^{\circ}\text{C}$ $V_{DD}-V_O = 4.6\text{V}$

<i>I T E M</i>	<i>SYMBOL</i>	<i>CONDITION</i>	<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT</i>	<i>NOTE</i>
VIEWING ANGLE	$\Phi 2-\Phi 1$	K = 2.0 NOTE(1)	30	40	----	deg.	NOTE(2)
CONTRAST RATIO	K	$\Phi = 10^{\circ}$ NOTE(1)	3.0	4.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	$\Phi = 10^{\circ}$ NOTE(1)	----	200	350	ms	NOTE(2)
	tf (fall)	$\Phi = 10^{\circ}$ NOTE(1)	----	300	400	ms	NOTE(2)

FSTN、STN BLUE TYPE LCD
 $T_a = 25^{\circ}\text{C}$ $V_{DD}-V_O = 4.6\text{V}$

<i>I T E M</i>	<i>SYMBOL</i>	<i>CONDITION</i>	<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT</i>	<i>NOTE</i>
VIEWING ANGLE	$\Phi 2-\Phi 1$	K = 2.0 NOTE(1)	30	40	----	deg.	NOTE(2)
CONTRAST RATIO	K	$\Phi = 10^{\circ}$ NOTE(1)	4.0	5.0	----	----	NOTE(2)
RESPONSE TIME	tr (rise)	$\Phi = 10^{\circ}$ NOTE(1)	----	200	350	ms	NOTE(2)
	tf (fall)	$\Phi = 10^{\circ}$ NOTE(1)	----	300	400	ms	NOTE(2)

Brightness for LED backlight

<i>SYMBOL</i>	<i>CONDITION</i>	<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT</i>	<i>LED TYPE</i>	<i>NOTE</i>
B	$\Phi = 0^{\circ}$ $\theta = 0^{\circ}$	3.0	----	----	cd/m ²	YELLOW-GREEN、RED AMBER、ORANGE	NOTE(2) NOTE(3)

NOTE (1): $\theta = 0^{\circ}$: VIEWING DIRECTION AT 6 O'CLOCK

$\theta = 180^{\circ}$: VIEWING DIRECTION AT 12 O'CLOCK

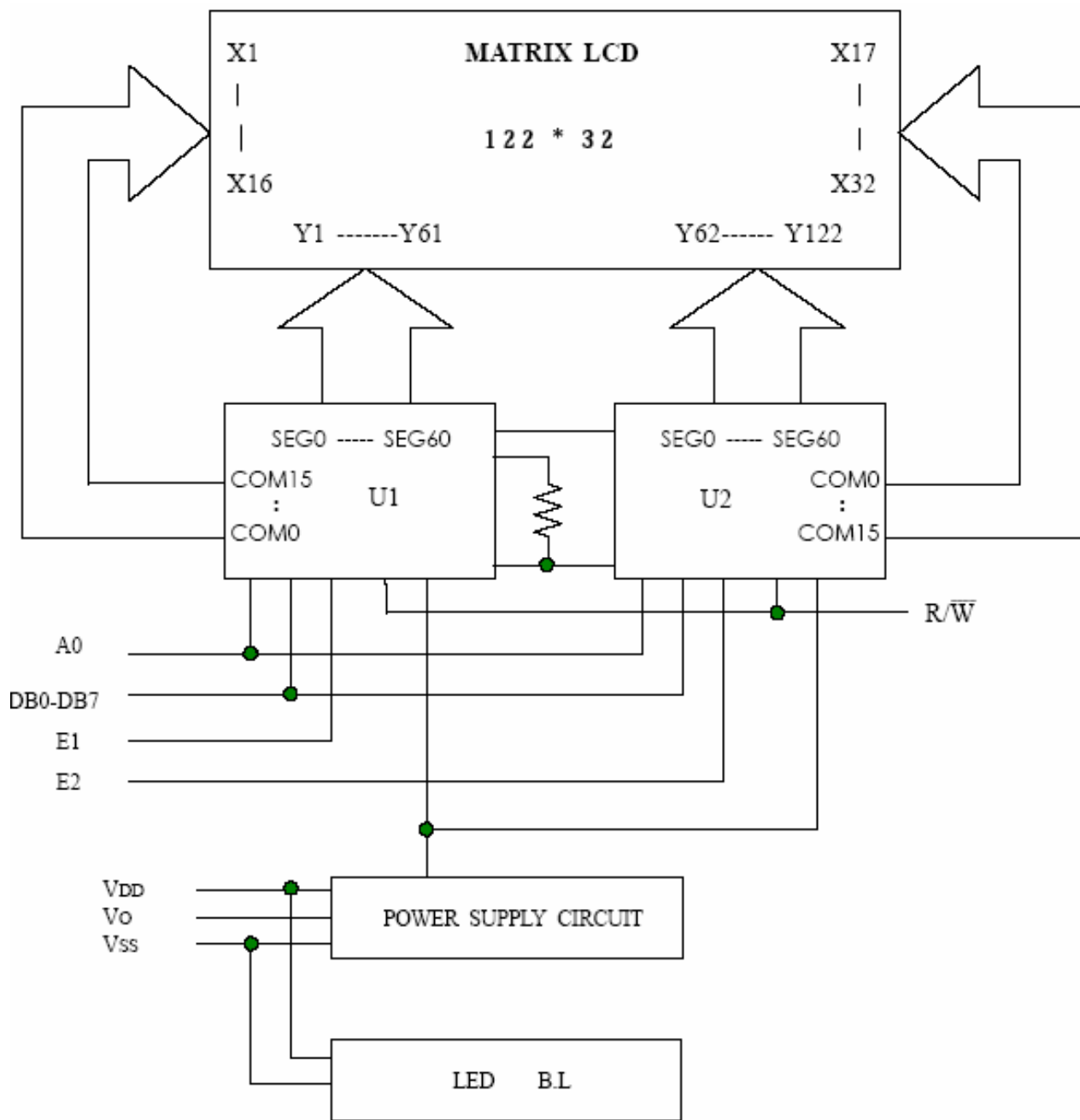
NOTE (2): SEE CUSTOMER ACCEPTANCE STANDARD SPECIFICATION FOR DEFINITION OF OPTICAL CHARACTERISTICS.

NOTE (3): UNDER NORMAL TEMPERATURE AND HUMIDITY IN A DARK ROOM.



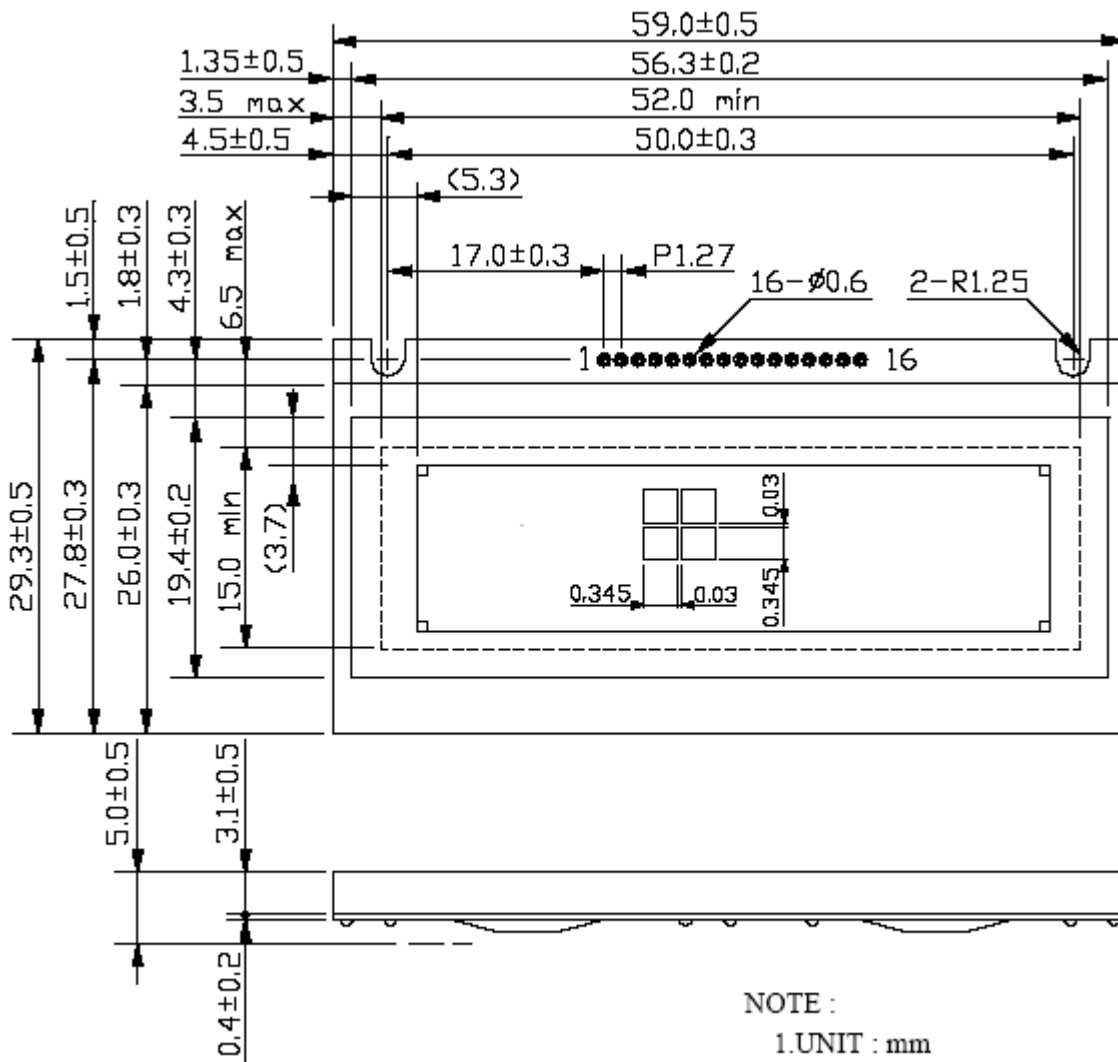
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6. BLOCK DIAGRAM



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8. OUTLINE DIMENSION



Interface pin connection

<i>PIN NO.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
SYMBOL	K	V _{SS}	V _{DD}	V ₀	A ₀	E ₁	E ₂	DB ₀
<i>PIN NO.</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>	<i>16</i>
SYMBOL	DB ₁	DB ₂	DB ₃	DB ₄	DB ₅	DB ₆	DB ₇	R/W



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Display data RAM

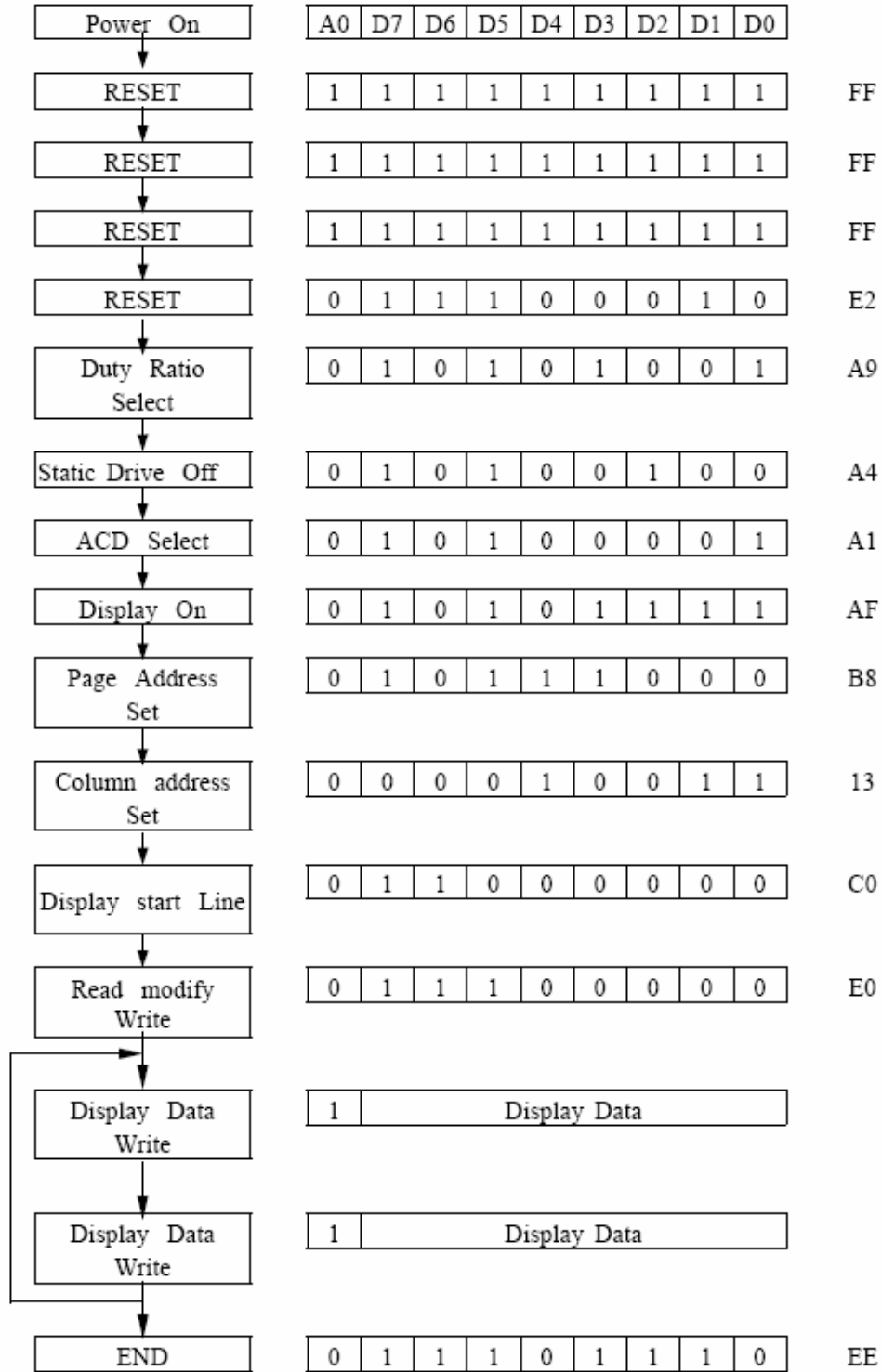
Page Address D1,D2=	DATA	Display Pattern										Line Address
0, 0	D0	[Pattern]										00H
	D1	[Pattern]										01
	D2	[Pattern]										02
	D3	[Pattern]										0 Page
	D4	[Pattern]										04
	D5	[Pattern]										05
	D6	[Pattern]										06
	D7	[Pattern]										07
0, 1	D0	[Pattern]										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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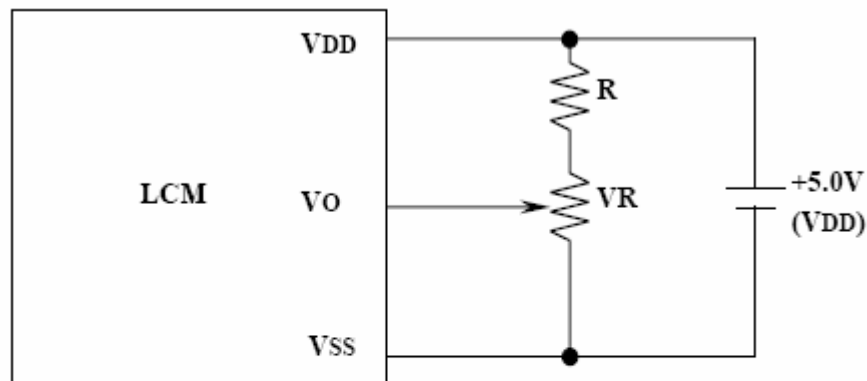
Initialization by instructions



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11. POWER SUPPLY

11.1 POWER SUPPLY FOR LCM



RECOMMENDED RESISTOR R: $V_o - V_{OUT} \geq 1.5V$
 $V_{DD} - V_o$: LCD DRIVING VOLTAGE
 VR: $10K\Omega \sim 20K\Omega$

The information presented in this datasheet has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Information contained herein is for selection purposes only, and is subject to change without notice. Please contact ASI for current datasheets prior to designing.