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The LCD(M) Specialist

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PART NO. : PMG1203D-SYR

FOR MESSRS. : _____

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ACCEPTED BY : _____

PROPOSED BY : _____



RECORD OF REVISION

DATE	PAGE	SUMMARY

3. General specifications

3.1 General specifications

PLEASE REFER TO:

“CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS (MS-10-1520S)”.

3.2 This individual specification is prior to general specifications

4. Mechanical data

- (1) NUMBER OF DOTS -----122 W * 32 H DOTS
- (2) MODULE SIZE -----68.0 W * 31.75 H * 8.0 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
- (7) VIEWING DIRECTION -----6 O’CLOCK
- (8) LCD TYPE -----STN,YELLOW-GREEN, REFLECTIVE
- (9) LED COLOR-----YELLOW-GREEN

5. Absolute maximum ratings

5.1 Electrical absolute maximum ratings

<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.

5.2 Environmental absolute maximum ratings

<i>I T E M</i>	<i>OPERATING</i>		<i>STORAGE</i>		<i>COMMENT</i>
	<i>MIN.</i>	<i>MAX.</i>	<i>MIN.</i>	<i>MAX.</i>	
AMBIENT TEMPERATURE	0°C	50°C	-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/s²

6. Electrical characteristics

Ta = 25°C VDD = 5.0±0.25 V

I T E M	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY VOLTAGE FOR CIRCUIT	VDD-VSS	-----	4.75	5.0	5.25	V
INPUT VOLTAGE NOTE (1)	VIH	H LEVEL	VSS+2.0	-----	VDD	V
	VIL	L LEVEL	0	-----	VSS+0.8	
POWER SUPPLY CURRENT, NOTE (2)	IDD	VDD-VSS = 5.0V	-----	1.5	2.0	mA
LCD DISPLAY DUTY RATIO	DUTY	-----	-----	1/32	-----	-----
CLOCK OSCILLATION FREQUENCY	fOSC	FOR LCD MODULE	15	18	21	KHz
RECOMMENDED LCD DRIVING VOLTAGE, NOTE (3)	VDD-VO Φ=10° θ = 0°	Ta = 50°C	-----	4.1	-----	V
		Ta = 25°C	-----	4.5	-----	V
		Ta = 0°C	-----	4.9	-----	V

NOTE (1): APPLIED TO TERMINALS 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.

7. Optical characteristics

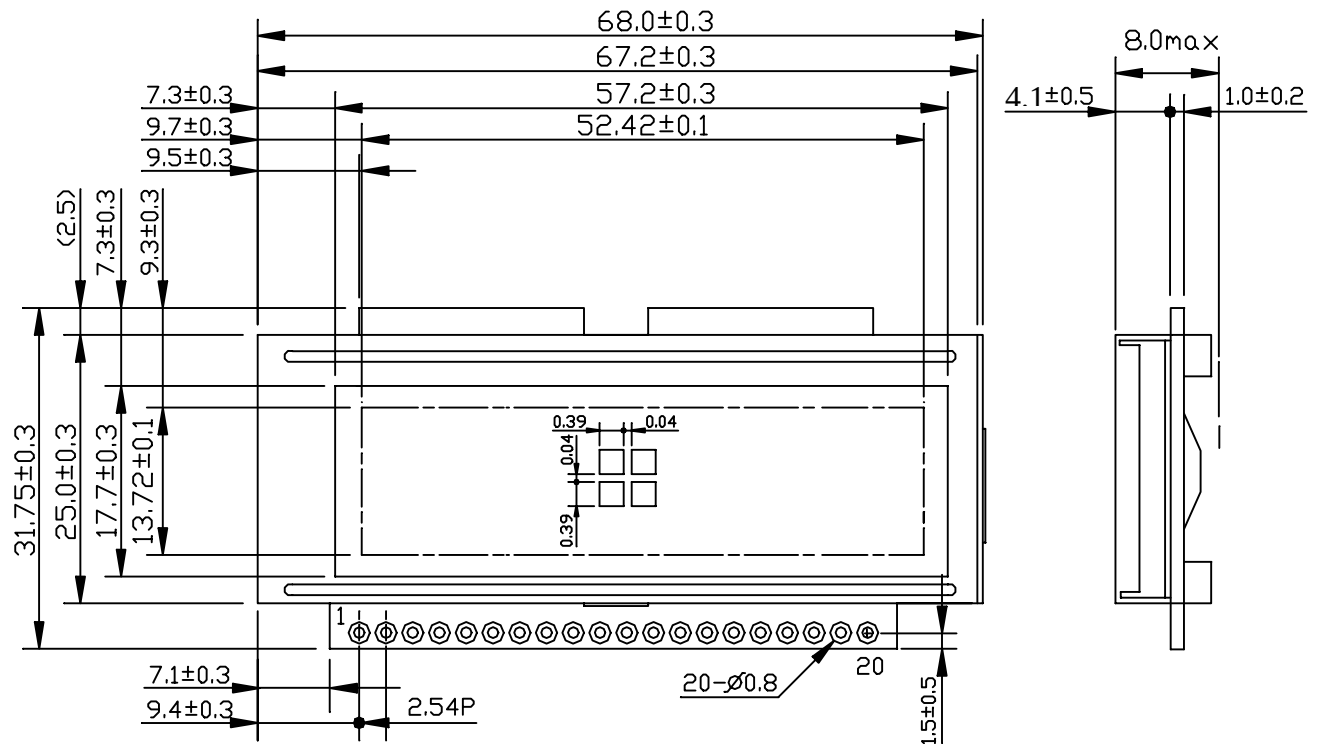
Ta = 25°C VDD = 5.0V

I T E M	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING ANGLE	Φ2-Φ1	K = 2.0	30	40	-----	deg.	1
CONTRAST RATIO	K	Φ = 10° θ = 0°	3	4	-----	-----	1
RESPONSE TIME	tr (rise)	Φ = 10° θ = 0°	-----	200	350	ms	1
	tf (fall)	Φ = 10° θ = 0°	-----	300	400	ms	1

(*UNDER NORMAL TEMPERATURE AND HUMIDITY IN A DARK ROOM)

NOTE (1): SEE CUSTOMER ACCEPTANCE STANDARD SPECIFICATION FOR DEFINITION OF OPTICAL CHARACTERISTICS.

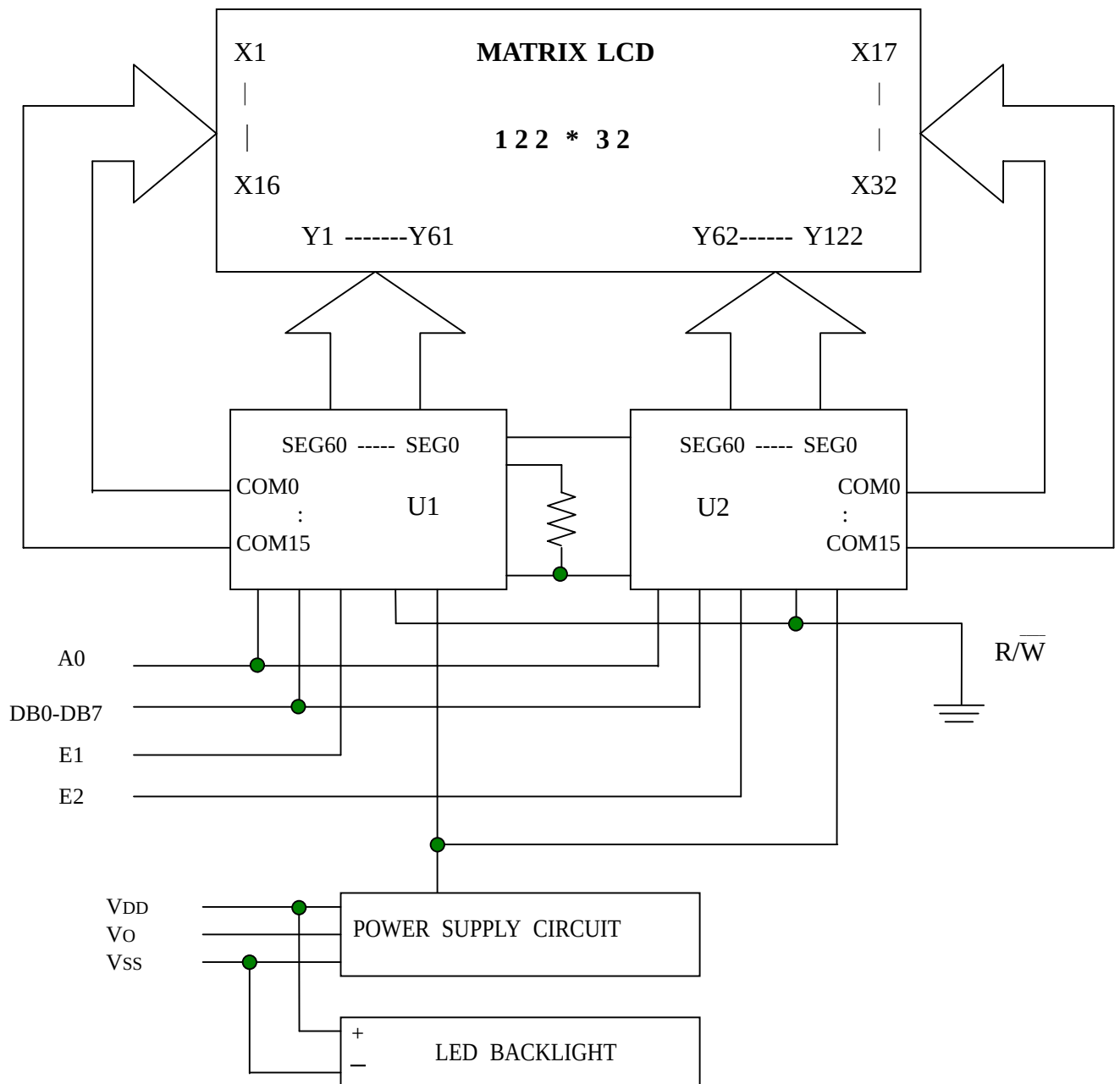
8. Dimension outline



Interface pin connection

PIN NO.	1	2	3	4	5	6	7	8	9	10
SYMBOL	V _{SS}	V _{DD}	V _O	NC	A0	E1	E2	DB0	DB1	NC
PIN NO.	11	12	13	14	15	16	17	18	19	20
SYMBOL	NC	DB2	DB3	DB4	DB5	DB6	DB7	NC	NC	NC

9. Block diagram

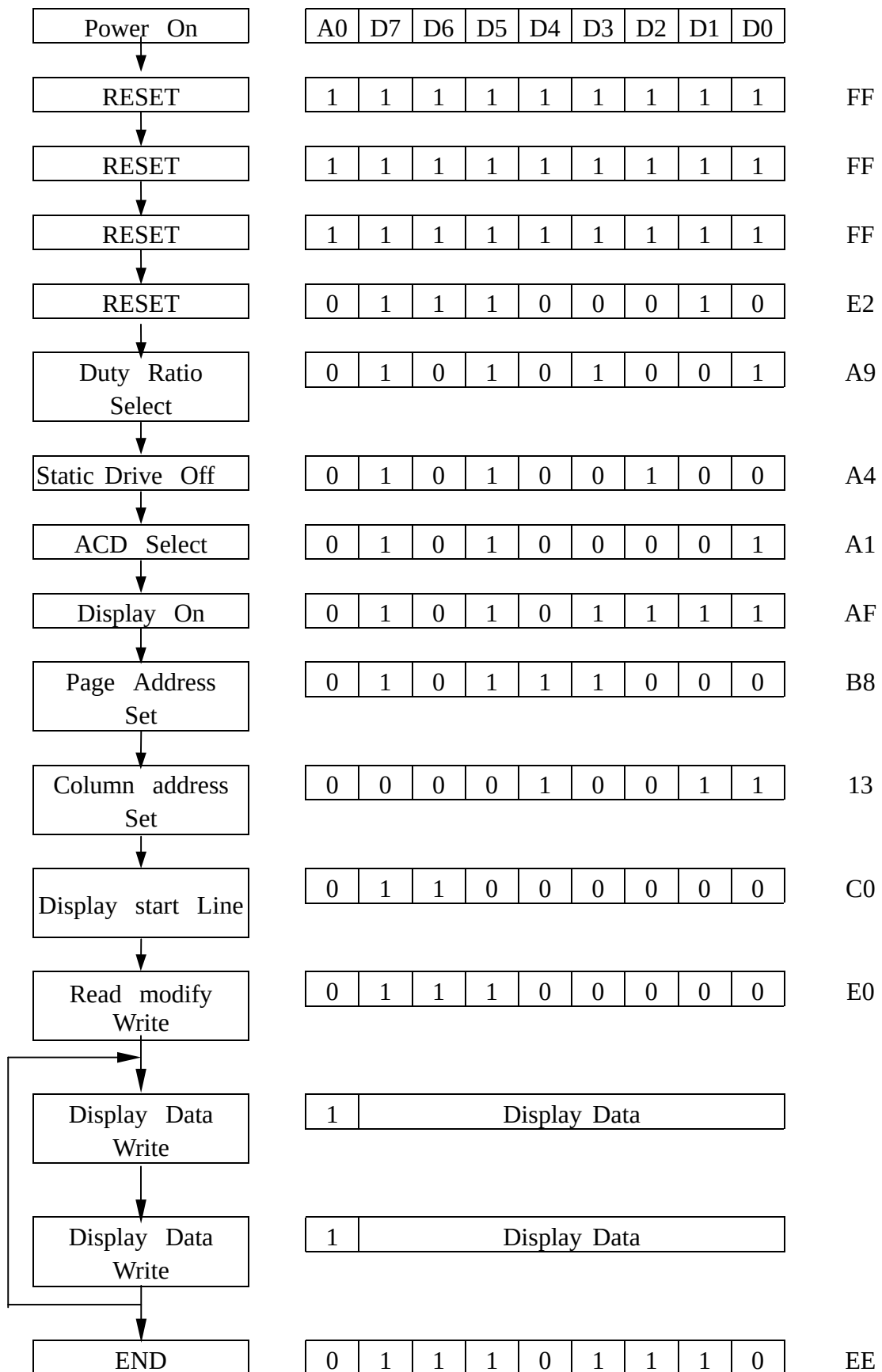


10. Display data RAM

Page Address D1,D2=	DATA	Display Pattern										Line Address
0, 0	D0											00H
	D1											01
	D2											02
	D3											03
	D4											04
	D5											05
	D6											06
	D7											07
0, 1	D0											08
	D1											09
	D2											0A
	D3											0B
	D4											0C
	D5											0D
	D6											0E
	D7											0F
1, 0	D0											10
	D1											11
	D2											12
	D3											13
	D4											14
	D5											15
	D6											16
	D7											17
1, 1	D0											18
	D1											19
	D2											1A
	D3											1B
	D4											1C
	D5											1D
	D6											1E
	D7											1F
Column Address	A	DO=0	3C	3B	3A	39	38	37	36	35	←-----	00
	C	DO=1	13	14	15	16	17	18	19	1A	-----→	4F
Segment Term.			60	59	58	57	56	55	54	53	-----	0

Fig.1. Correspondence with Display Data RAM and address

11. Initialization by instructions



12. Power supply for LCM

