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PART NO. : MG1203D-SYL

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 * 10.0 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, TRANSFLECTIVE
- (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	VDD-VSS	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	50	-20	70	
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 (3): Ta = 50 : 90% RH MAX.

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

NOTE (4): 1G = 9.8 m/S²

6. Electrical characteristics

Ta = 25 VDD = 5.0 ± 0.25 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>
POWER SUPPLY VOLTAGE FOR CIRCUIT	VDD-VSS	—————	4.75	5.0	5.25	V
INPUT VOLTAGE NOTE (2)	VIH	H LEVEL	2.0	—————	VDD	V
	VIL	L LEVEL	0	—————	0.8	
OUTPUT VOLTAGE NOTE (1)	VOH	IOH = -0.3 mA	2.4	—————	—————	V
	VOL	IOL = 3.0 mA	—————	—————	0.4	V
POWER SUPPLY CURRENT, NOTE (3)	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 (4)	VDD-VO =10 ° = 0 °	Ta = 50	—————	4.2	—————	V
		Ta = 25	—————	4.6	—————	V
		Ta = 0	—————	4.8	—————	V
POWER SUPPLY CURRENT FOR LED	ILED	VDD = 5.0V	—————	40	50	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): OPTICAL CHARACTERISTIC

7. Optical characteristics

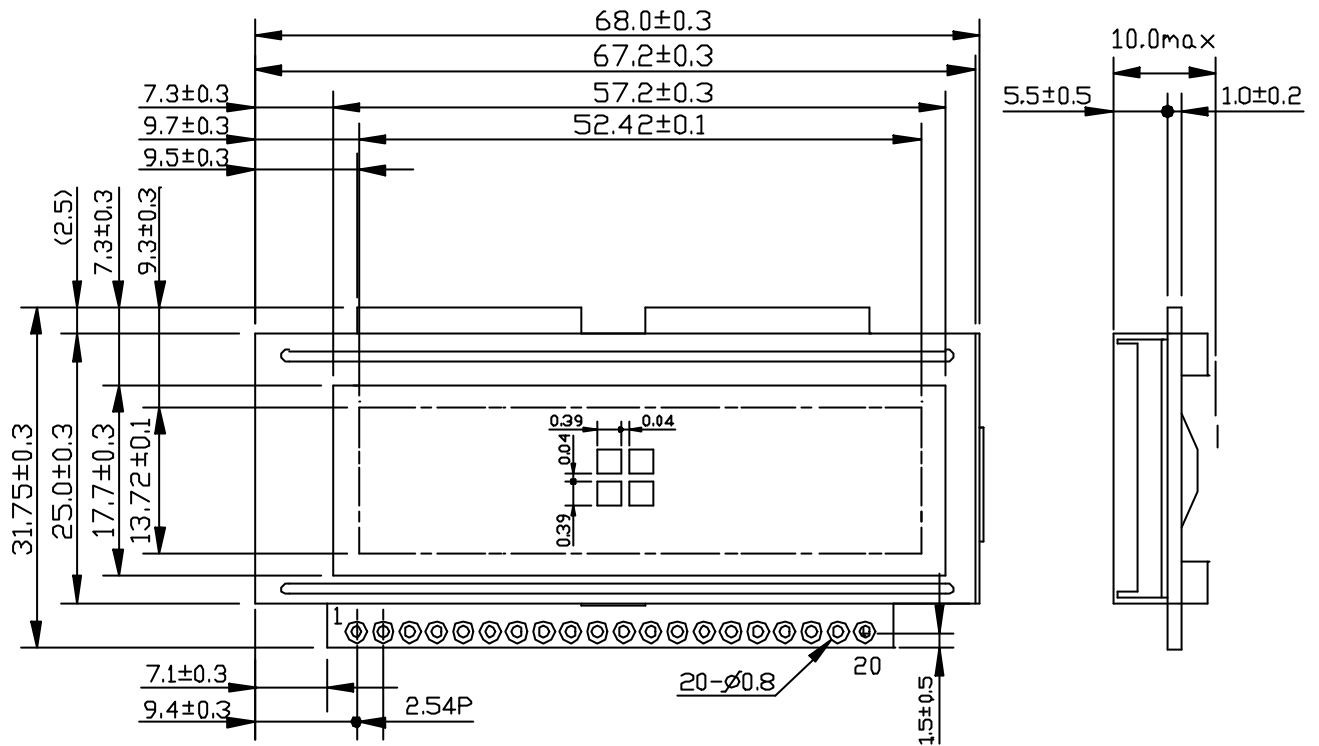
Ta = 25 VDD = 5.0V

<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	2- 1	K = 2.0	30	40	—————	deg.	1
CONTRAST RATIO	K	= 10 ° = 0 °	3	4	—————	—————	1
RESPONSE TIME	tr (rise)	= 10 ° = 0 °	—————	200	350	ms	1
	tf (fall)	= 10 ° = 0 °	—————	300	400	ms	1
BRIGHTNESS FOR LED BACKLIGHT	B	(*) = 0 ° = 0 °	3.0	—————	—————	cd/m ²	—————

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

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

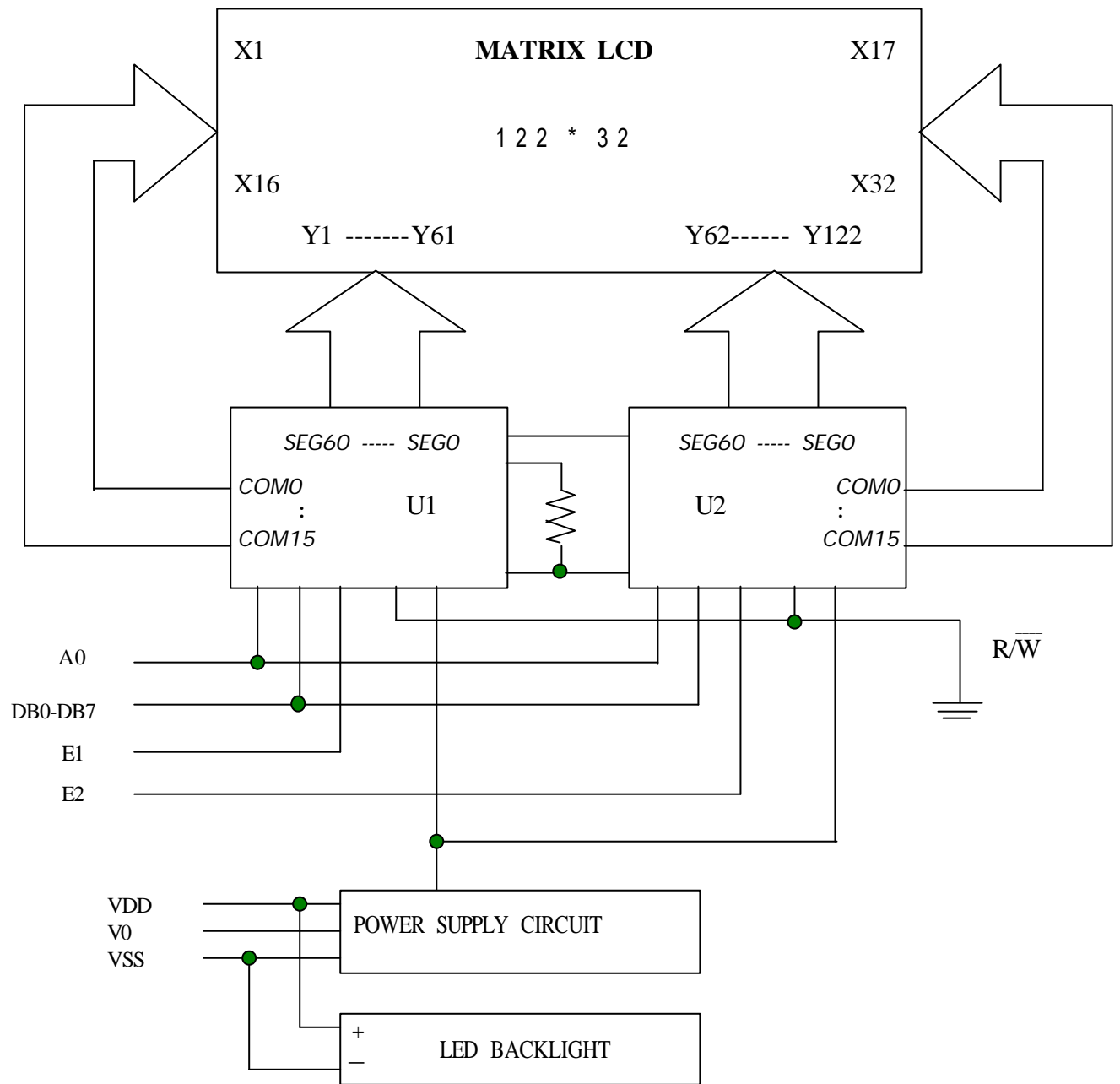
8. Dimension outline



Interface pin connection

PIN NO.	1	2	3	4	5	6	7	8	9	10
SYMBOL	VSS	VDD	V0	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

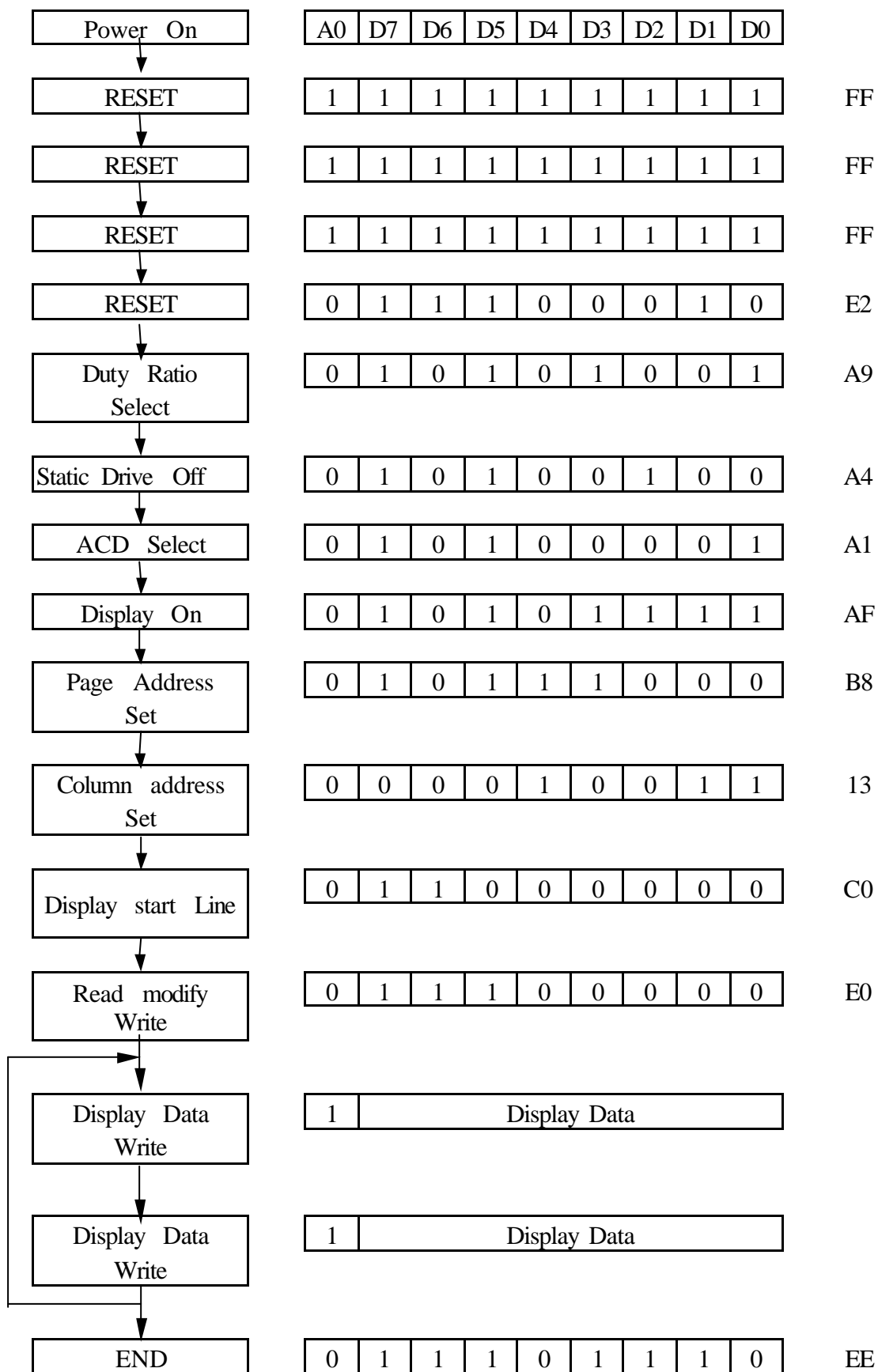


10. Display data RAM

Page Address D1,D2=	DATA	Display Pattern								Line Address			
0, 0	D0										00H		
	D1										01		
	D2										02		
	D3										0 Page		
	D4										04		
	D5										05		
	D6										06		
	D7										07		
0, 1	D0										08		
	D1										09		
	D2										0A		
	D3										1 Page		
	D4										0C		
	D5										0D		
	D6										0E		
	D7										0F		
1, 0	D0										10		
	D1										11		
	D2										12		
	D3										2 Page		
	D4										14		
	D5										15		
	D6										16		
	D7										17		
1, 1	D0										18		
	D1										19		
	D2										1A		
	D3										3 Page		
	D4										1C		
	D5										1D		
	D6										1E		
	D7										1F		
Column Address	A	DO=0	3C	3B	3A	39	38	37	36	35	←-----	00	← normal
	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



10. Power supply for LCM

