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PART NO. : MG1203D-SYL

FOR MESSRS. : _____

CONTENTS

NO.	ITEM	PAGE
1.	COVER	1
2.	RECORD OF REVISION	2
3.	GENERAL SPECIFICATION	3
4.	MECHANICAL DATA	3
5.	ABSOLUTE MAXIMUM RATINGS	4
6.	ELECTRICAL CHARACTERISTICS	5
7.	OPTICAL CHARACTERISTICS	5
8.	DIMENSION OUTLINE	6
9.	BLOCK DIAGRAM	7
10.	DISPLAY DATA RAM	8
11.	INITIALIZATION BY INSTRUCTIONS	9
12.	POWER SUPPLY	10

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	Vi	VSS	VDD	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 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 (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 Φ=10° θ=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

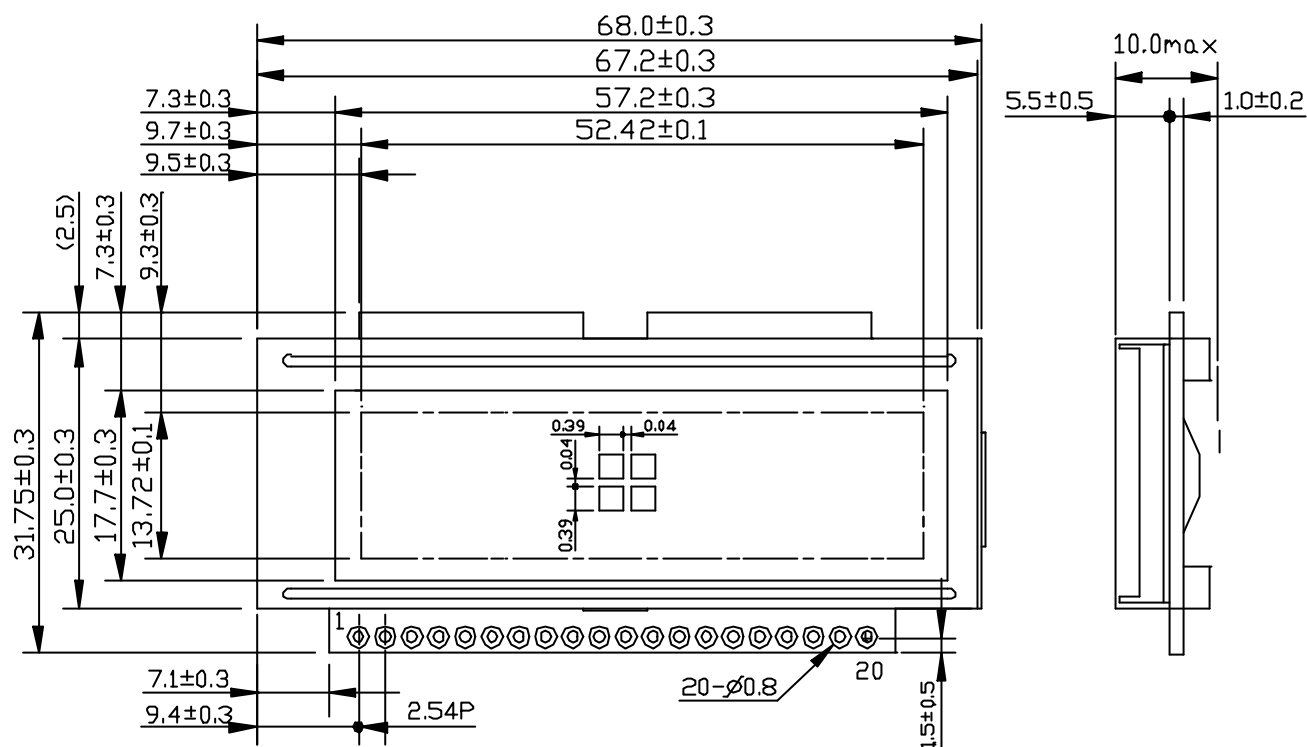
Ta = 25 VDD = 5.0V

I 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
BRIGHTNESS FOR LED BACKLIGHT	B	(*) Φ = 0° θ = 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.

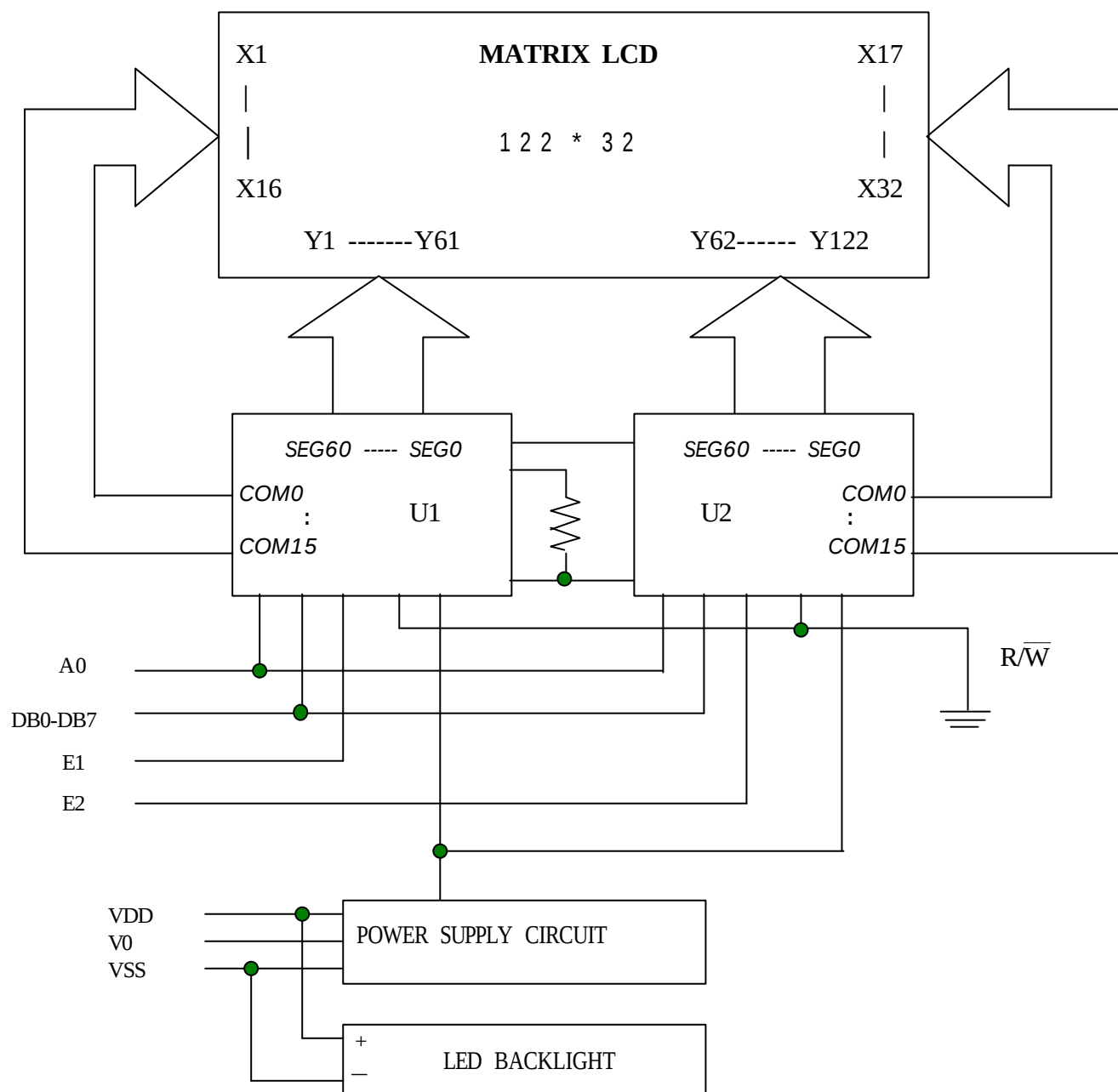
8. Dimension outline



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



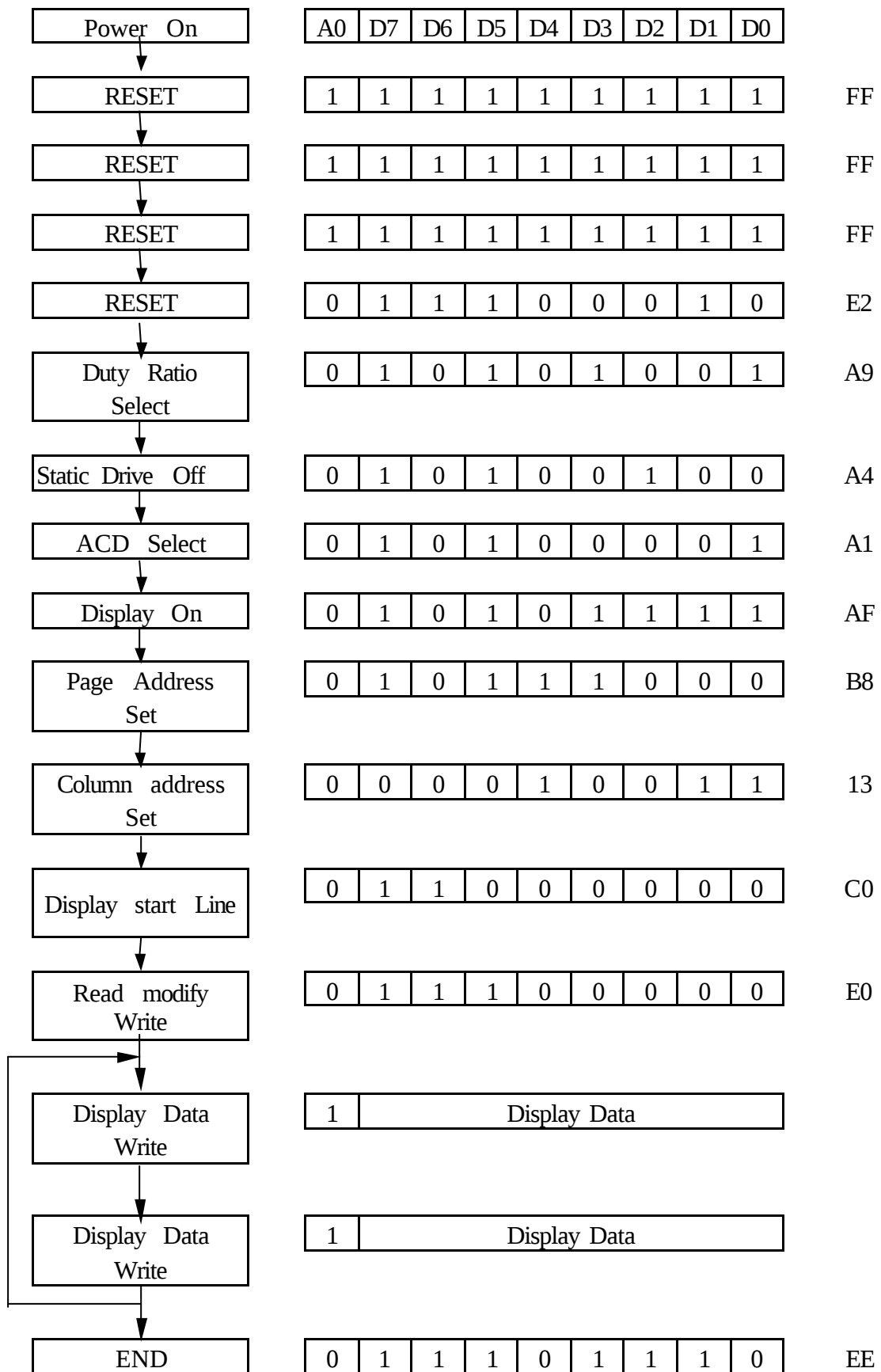
10. Display data RAM

Page Address D1,D2=	DATA	Display Pattern										Line Address
0, 0	D0											00H
	D1											01
	D2											02
	D3										0 Page	03
	D4											04
	D5											05
	D6											06
	D7											07
0, 1	D0											08
	D1											09
	D2											0A
	D3										1 Page	0B
	D4											0C
	D5											0D
	D6											0E
	D7											0F
1, 0	D0										2 Page	10
	D1											11
	D2											12
	D3											13
	D4											14
	D5											15
	D6											16
	D7											17
1, 1	D0										3 Page	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

← normal

Fig.1. Correspondence with Display Data RAM and address

11. Initialization by instructions



10. Power supply for LCM

