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PART NO. : MC0802A-SGR

FOR MESSRS. : _____

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ACCEPTED BY : _____ PROPOSED BY : _____

RECORD OF REVISION

DATE	PAGE	SUMMARY
2000/12/12	5	ITEM 6 RECOMMENDED LCD DRIVING VOLTAGE Ta = 0 :4.9V→3.6V, Ta = 25 :4.5V→3.4V,
		Ta = 50 :4.1V→3.2V
2002/12/03	6/7	Remove the connector of outline dimension.
2004/11/3	6/7	Add the interface pin15 in outline dimension & pin connection Table

3. General specifications

3.1 General specifications

PLEASE REFER TO:

“CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS (MS-10-12780)”.

3.2 This individual specification is prior to general specifications

4. Mechanical data

- (1) NUMBER OF CHARACTERS -----8 CH * 2 LINE
- (2) MODULE SIZE-----25.0 W * 17.5 H * 4.3T mm
- (3) EFFECTIVE AREA-----21.0 W * 9.0 H mm
- (4) CHARACTER PATTERN -----5 * 7 DOTS
- (5) CHARACTER SIZE ----- 1.845 W * 2.595 H mm
- (6) CHARACTER PITCH -----2.25 mm
- (7) DOT SIZE-----0.345 W *0.345 H mm
- (8) DOT PITCH -----0.375 W * 0.375 H mm
- (9) VIEWING DIRECTION -----6 O' CLOCK
- (10) LCD TYPE -----STN.GRAY.REFLECTIVE

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	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 (2) : Ta 50 : 85% RH MAX.

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

NOTE (3): 1G = 9.8 m/s²

6. Electrical characteristics

$T_a = 25$ $V_{DD} = 5.0 \pm 0.25 \text{ V}$

<i>I T E M</i>	<i>SYMBOL</i>	<i>CONDITION</i>	<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT</i>	
INPUT VOLTAGE	V_{IH}	-----	2.0	-----	V_{DD}	V	
	V_{IL}	-----	V_{SS}	-----	0.8	V	
OUTPUT VOLTAGE (H LEVEL)	V_{OH}	$I_{OH} = -0.2 \text{ mA}$	2.4	-----	-----	V	
	V_{OL}	$I_{OL} = 1.6 \text{ mA}$	-----	-----	0.4	V	
POWER SUPPLY CURRENT	I_{DD}	$V_{DD} = 5.0\text{V}$	-----	0.6	1.0	mA	
RECOMMAND LCD DRIVING VOLTAGE, NOTE(1)	$V_{DD}-V_O$	DUTY =1/16 =10° =0°	$T_a = 0$	-----	3.6	-----	V
			$T_a = 25$	-----	3.4	-----	V
			$T_a = 50$	-----	3.2	-----	V

NOTE (1): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTEDUATE ABOUT $\pm 0.5\text{V}$ BY EACH MODULE.

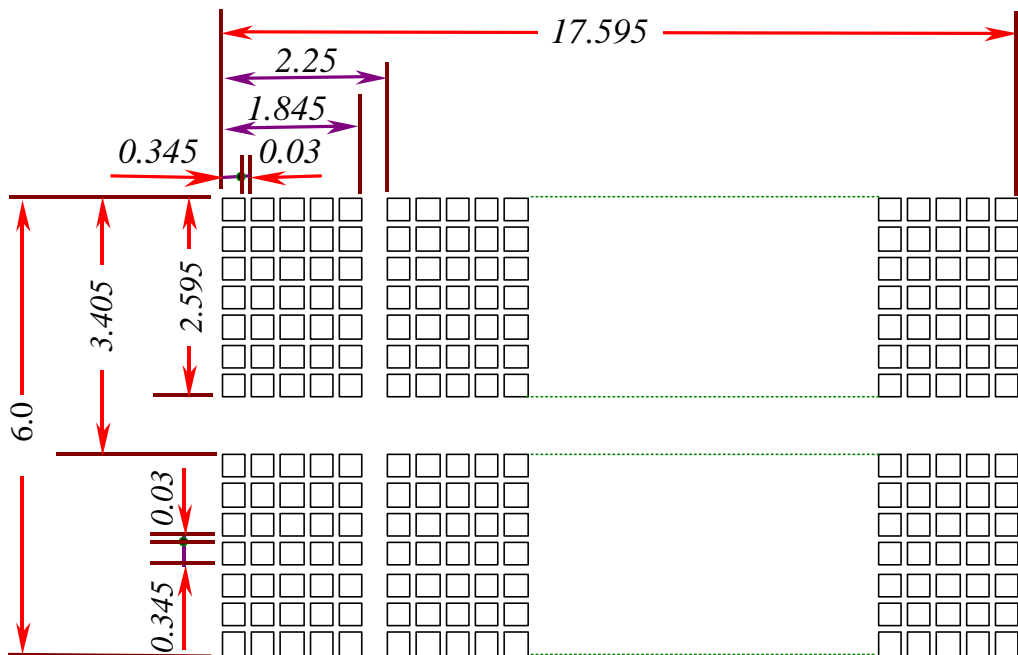
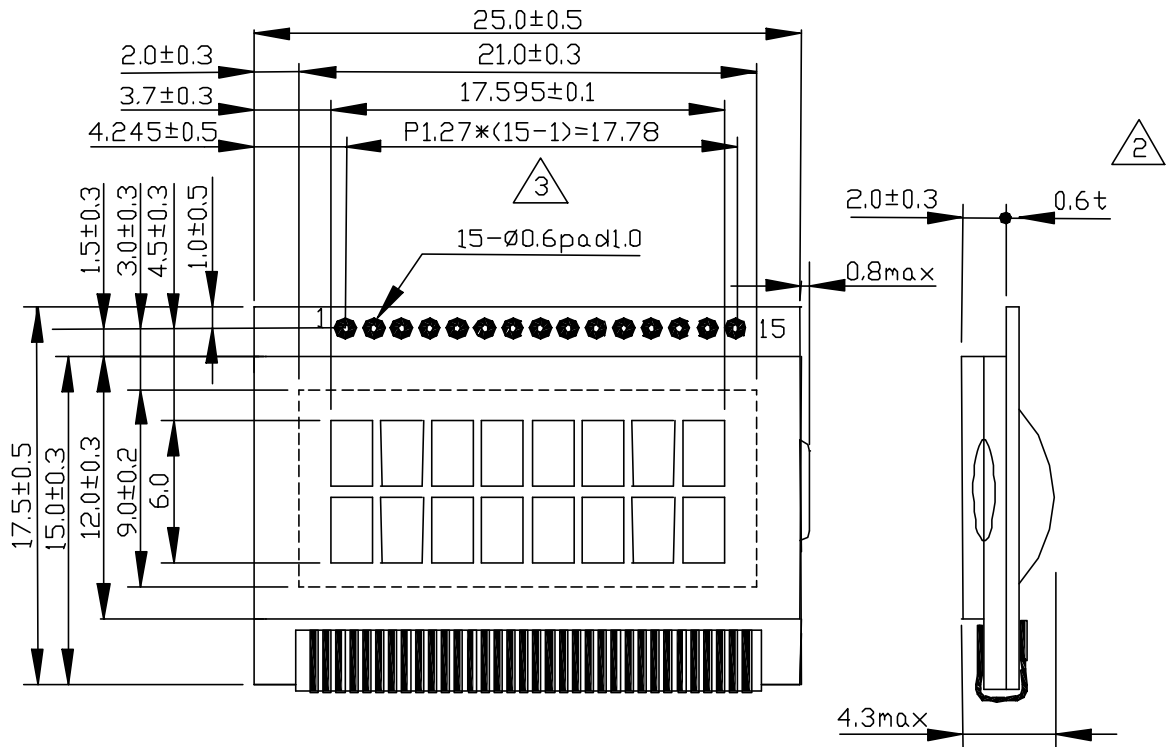
7. Optical characteristics

$T_a = 25$ $V_{DD}-V_O = 3.4\text{V}$

<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	2- 1	$K = 2.0$ = 0°	30	40	-----	deg.	1
CONTRAST RATIO	K	= 10° = 0°	3.0	4.0	-----	-----	1
RESPONSE TIME	tr (rise)	= 10° = 0°	-----	200	350	ms	1
	tf (fall)	= 10° = 0°	-----	300	400	ms	1

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

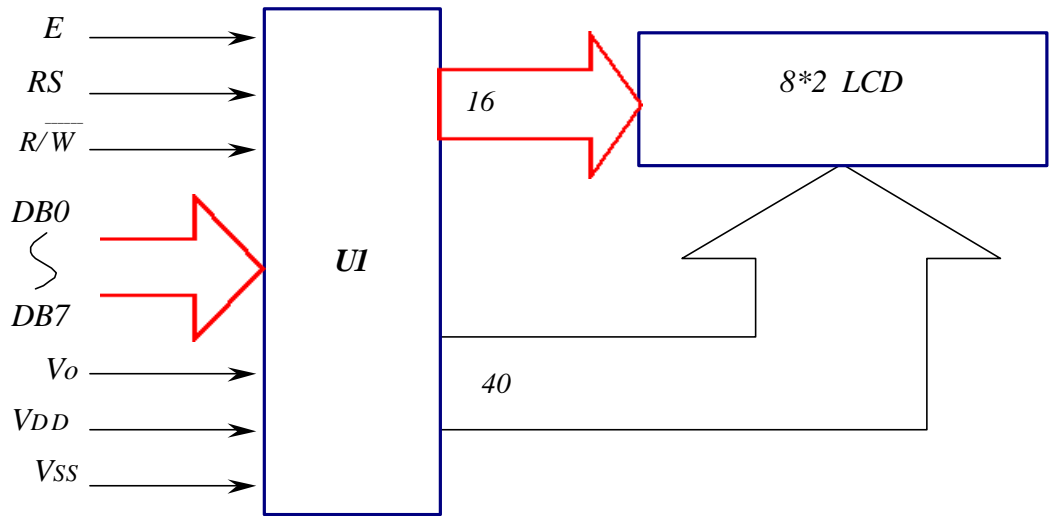
8. Outline dimension



Interface pin connection △3

PIN NO.	1	2	3	4	5	6	7	8
SYMBOL	V _{SS}	V _{DD}	V _O	RS	R/W	E	DB0	DB1
PIN NO.	9	10	11	12	13	14	15	
SYMBOL	DB2	DB3	DB4	DB5	DB6	DB7	NC	

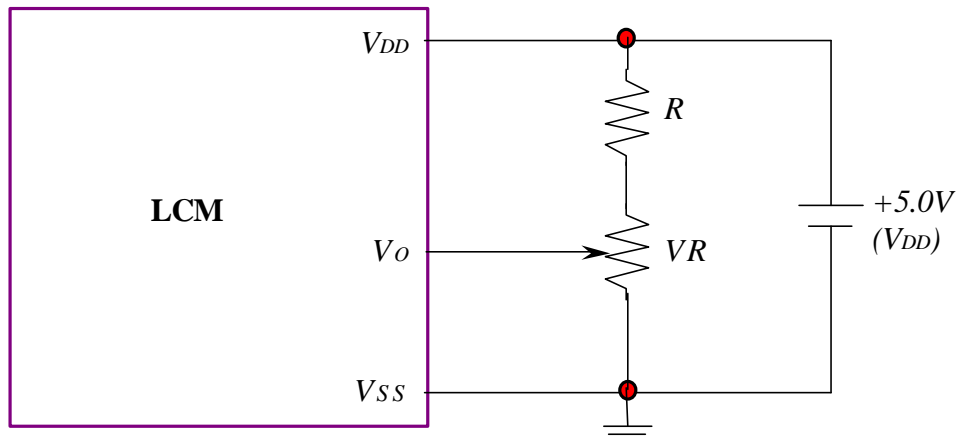
9. Block diagram



Display data address charts

	1	2	3	4	5	6	7	8
LINE 1	00	01	02	03	04	05	06	07
LINE 2	40	41	42	43	44	45	46	47

10. Power supply for LCM



RECOMMENDED RESISTOR R: $V_{DD}-V_o$ 1.5V
 $V_{DD}-V_o$: LCD DRIVING VOLTAGE
 VR: 10K ~20K