



PALM TECHNOLOGY CO., LTD.

The LCD(M) Specialist

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PART NO.: PMC2002A-SYL

FOR MESSRS.: _____

CONTENTS

<i>NO.</i>	<i>ITEM</i>	<i>PAGE</i>
1.	COVER	1
2.	RECORD OF REVERSION	2
3.	GENERAL SPECIFICATION	3
4.	MECHANICAL DATA	3
5.	ABSOLUTE MAXIMUM RATINGS	4
6.	ELECTRICAL CHARACTERISTICS	5
7.	OPTICAL CHARACTERISTICS	5
8.	OUTLINE DIMENSION	6
9.	BLOCK DIAGRAM	7
10.	POWER SUPPLY FOR LCM	7

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-10-12780)”.

3.2 This individual specification is prior to general specifications

4. Mechanical data

- (1) NUMBER OF CHARACTER-----20 CH * 2 LINE
- (2) MODULE SIZE-----116.0 W * 37.0 H * 15.0 T (max) mm
- (3) EFFECTIVE AREA -----84.0 W * 19.0 H mm
- (4) CHARACTER PATTERN -----5 * 7 DOTS + CURSOR
- (5) CHARACTER SIZE -----3.20 W * 4.85 H mm
- (6) CHARACTER PITCH -----3.70 mm
- (7) DOT SIZE-----0.60 W * 0.65 H mm
- (8) DOT PITCH -----0.65 W * 0.70 H mm
- (9) VIEWING DIRECTION-----6 O’CLOCK
- (10) LCD TYPE -----STN.YELLOW-GREEN.TRANSFLECTIVE.
- (11) 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

$T_a = 25^{\circ}C$ $V_{DD} = 5.0 \pm 0.25 V$

<i>I T E M</i>	<i>SYMBOL</i>	<i>CONDITION</i>	<i>MIN.</i>	<i>TYP.</i>	<i>MAX.</i>	<i>UNIT</i>
INPUT VOLTAGE	V _{IH}		2.2	—	V _{DD}	V
	V _{IL}		—	—	0.6	V
OUTPUT VOLTAGE (H LEVEL)	V _{OH}	-I _{OH} = 0.2 mA	2.4	—	—	V
	V _{OL}	I _{OL} = 1.2 mA	—	—	0.4	V
POWER SUPPLY CURRENT	I _{DD}	V _{DD} = 5.0V	—	1.5	2.0	mA
RECOMMENDED LCD DRIVING VOLTAGE	V _{DD} -V _O DUTY= 1/16 Φ=10°	T _a = 0°C	—	4.6	—	V
		T _a = 25°C	—	4.2	—	V
		T _a = 50°C	—	3.8	—	V
POWER SUPPLY CURRENT FOR LED	I _{LED}	V _{DD} =5.0V	—	120	250	mA

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

7. Optical characteristics

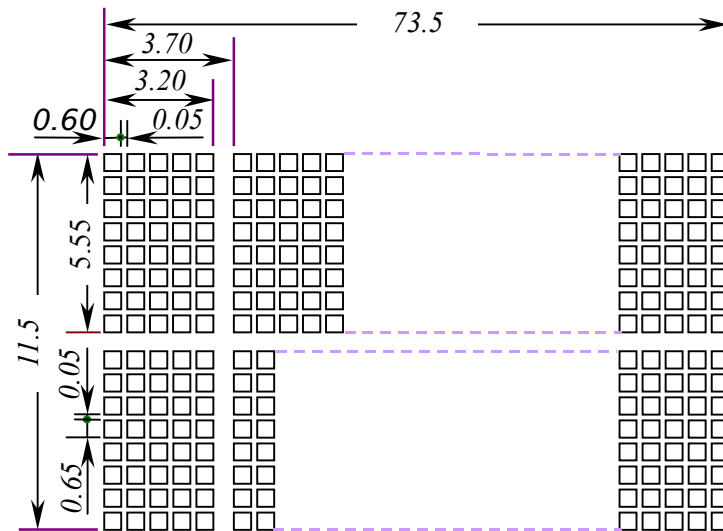
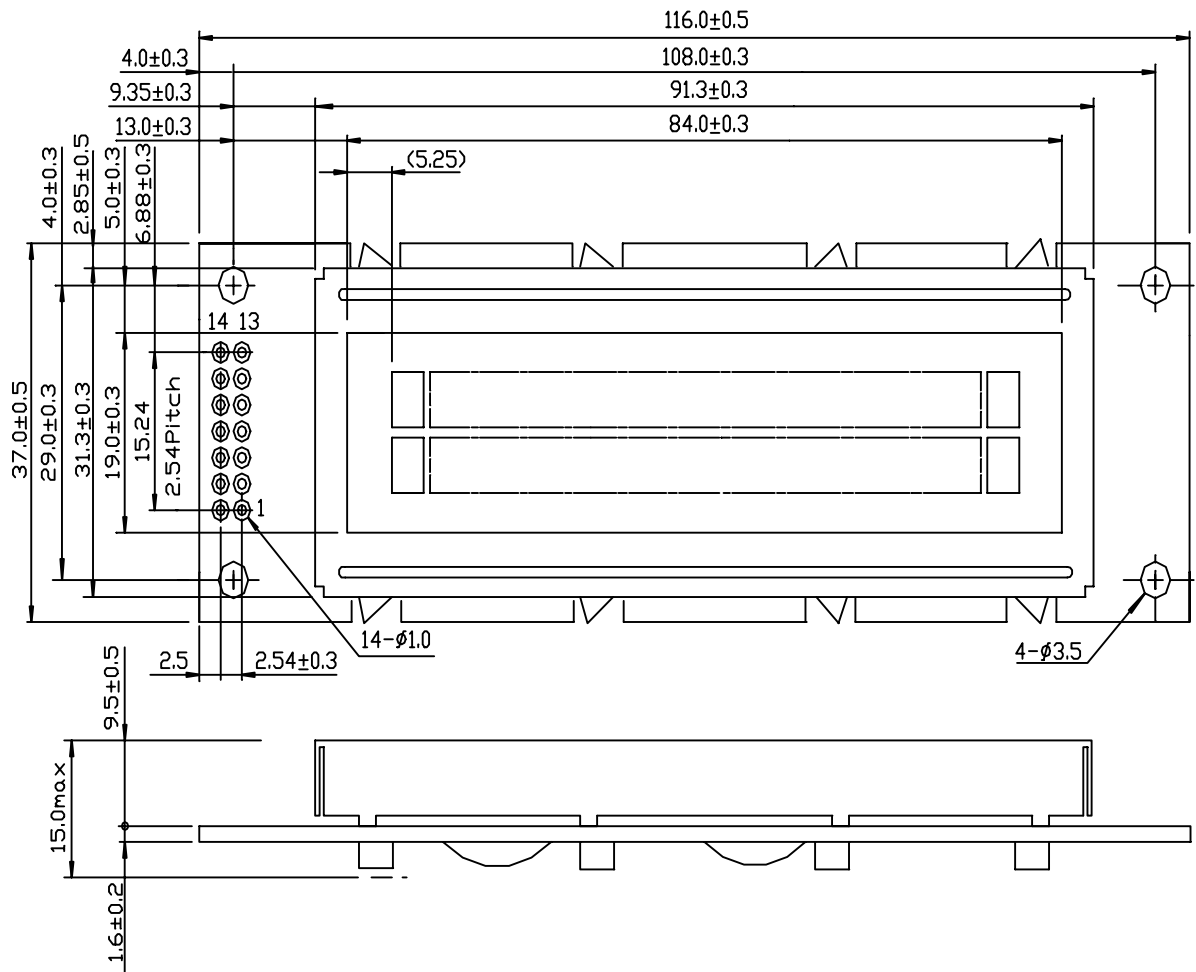
$T_a = 25^{\circ}C$ $V_{DD} = 5.0V$

<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	Φ2-Φ1	K = 2.0	30	40	—	deg.	2
CONTRAST RATIO	K	Φ = 10° Θ = 0°	3.0	4.0	—	—	2
RESPONSE TIME	t _r (rise)	Φ = 10° Θ = 0°	—	200	350	ms	2
	t _f (fall)	Φ = 10° Θ = 0°	—	300	400	ms	2
BRIGHTNESS FOR LED BACKLIGHT	B	Φ = 0° Θ = 0°	5.0	—	—	cd/m ²	2,3

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

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

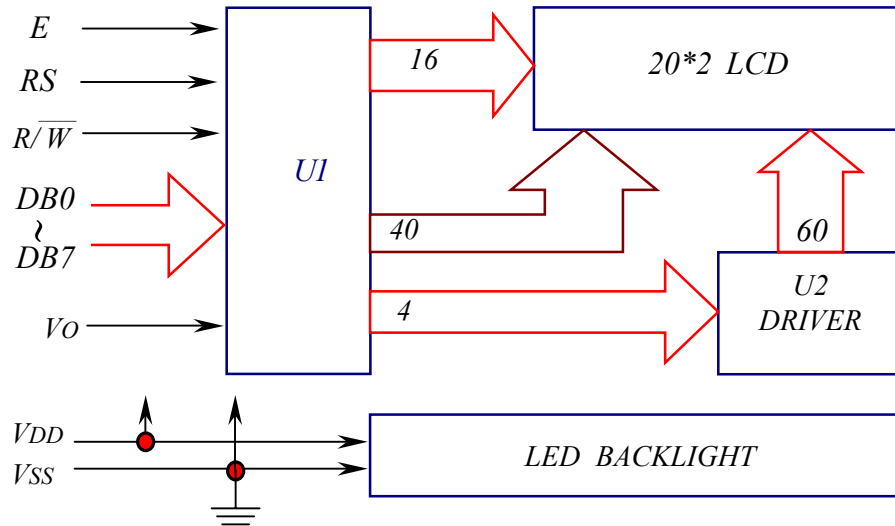
8. Outline dimension



Interface pin connection

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

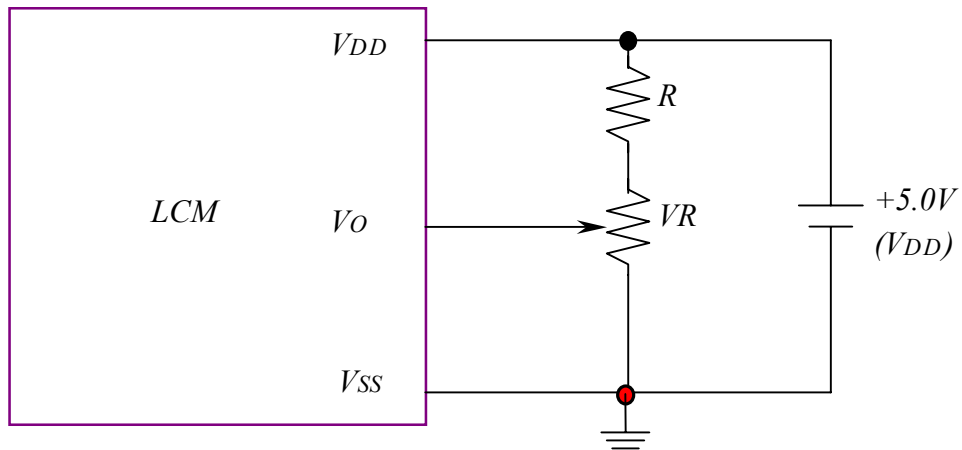
9. Block diagram



Display data address charts

Character	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LINE 1	80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F	90	91	92	93
LINE 2	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF	D0	D1	D2	D3

10. Power supply for LCM



RECOMMENDED RESISTOR R: $V_{DD} - V_{O1.5V}$
 $V_{DD} - V_{O}$: LCD DRIVING VOLTAGE
 V_R : $10K\Omega \sim 20K\Omega$