

# ***PALM TECHNOLOGY CO., LTD.***

***The LCD(M) Specialist***

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PART NO. : PMC1602F-SYL

FOR MESSRS. : \_\_\_\_\_

## **CONTENTS**

<b><i>NO.</i></b>	<b><i>ITEM</i></b>	<b><i>PAGE</i></b>
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 CHARACTERS ----- 16 CH \* 2 LINE
- (2) MODULE SIZE ----- 85.0 W \* 36.0 H \* 15.0 mm
- (3) EFFECTIVE AREA ----- 64.5 W \* 16.0 H mm
- (4) CHARACTER PATTERN----- 5 \* 7 DOTS + CURSOR
- (5) CHARACTER SIZE----- 2.96 W \* 4.86 H mm
- (6) CHARACTER PITCH ----- 3.55 mm
- (7) DOT SIZE----- 0.56 W \* 0.66 H mm
- (8) DOT PITCH ----- 0.60 W \* 0.70 H mm
- (9) VIEWING DIRECTION ----- 6 O’CLOCK
- (10) LCD TYPE ----- STN.YELLOW-GREEN.TRANSFLECTIVE
- (11) LED BACKLIGHT 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°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) :  $T_a \leq 50^\circ\text{C}$ : 90% RH MAX.

$T_a > 50^\circ\text{C}$ : ABSOLUTE HUMIDITY MUST BE LOWER THAN THE HUMIDITY OF 90% RH AT  $50^\circ\text{C}$ . (80% RH AT  $60^\circ\text{C}$ )

NOTE (3): 1G = 9.8 m/s<sup>2</sup>

**6. Electrical characteristics**Ta = 25°C V<sub>DD</sub> = 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>
INPUT VOLTAGE	V <sub>IH</sub>	-----	2.0	-----	-----	V
	V <sub>IL</sub>	-----	-----	-----	0.8	V
OUTPUT VOLTAGE (H LEVEL)	V <sub>OH</sub>	-I <sub>OH</sub> = 0.2 mA	2.4	-----	-----	V
	V <sub>OL</sub>	I <sub>OL</sub> = 1.6 mA	-----	-----	0.4	V
POWER SUPPLY CURRENT	I <sub>DD</sub>	V <sub>DD</sub> = 5.0V	-----	1.0	1.5	mA
RECOMMENDED LCD DRIVING VOLTAGE	V <sub>DD</sub> -V <sub>O</sub> DUTY= 1/16 Φ=10°	Ta = 0°C	-----	4.9	-----	V
		Ta = 25°C	-----	4.5	-----	V
		Ta = 50°C	-----	4.1	-----	V
POWER SUPPLY CURRENT FOR LED	I <sub>LED</sub>	V <sub>DD</sub> = 5.0	-----	120	150	mA

NOTE (1): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTEDUATE ABOUT ±0.5V BY EACH MODULE.

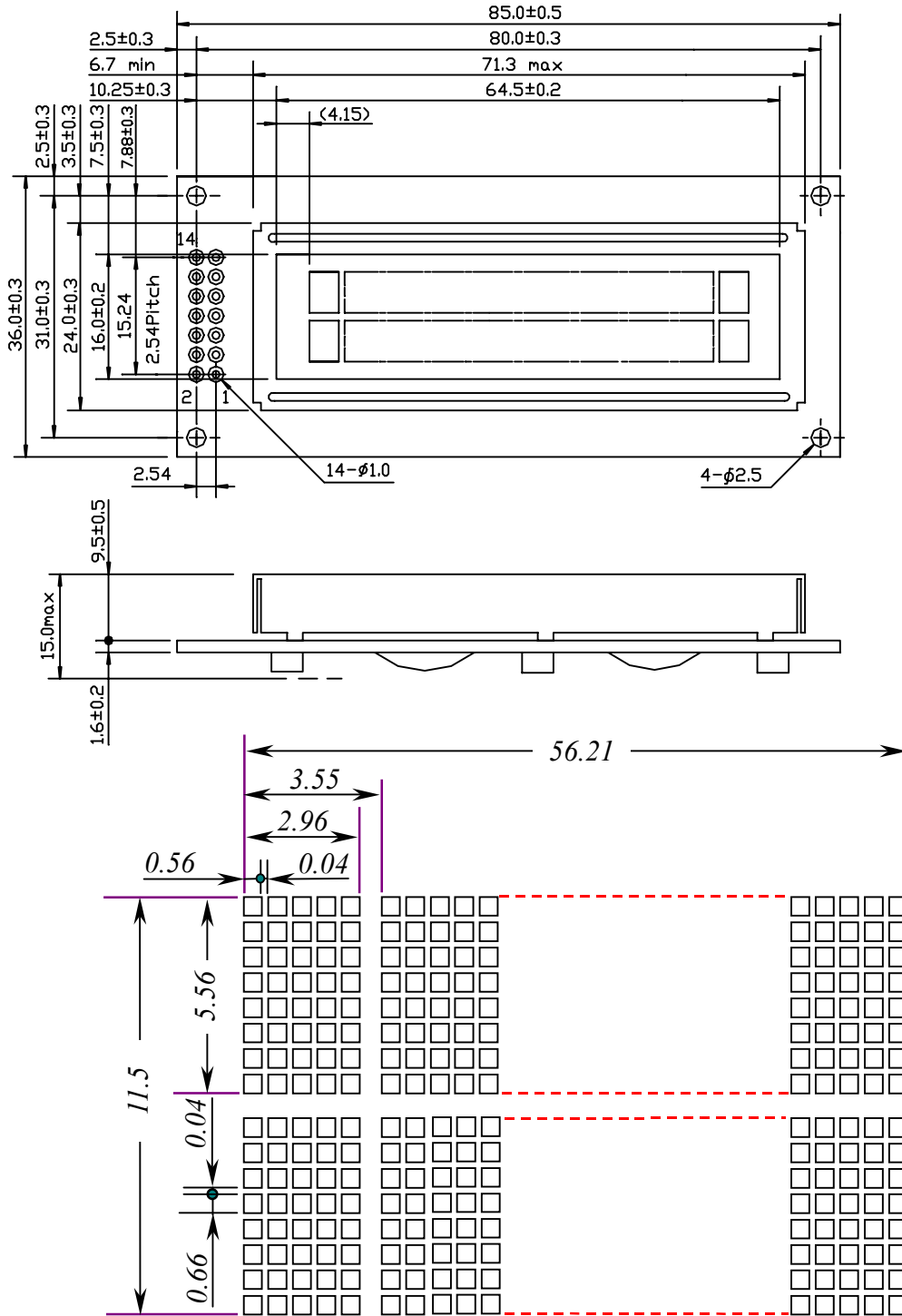
**7. Optical characteristics**Ta = 25°C V<sub>DD</sub> = 5.0V

<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	tr (rise)	Φ = 10° θ = 0°	-----	200	350	ms	2
	tf (fall)	Φ = 10° θ = 0°	-----	300	400	ms	2
BRIGHTNESS FOR LED BACKLIGHT	B	Φ = 0° θ = 0°	5.0	-----	-----	cd/m <sup>2</sup>	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.

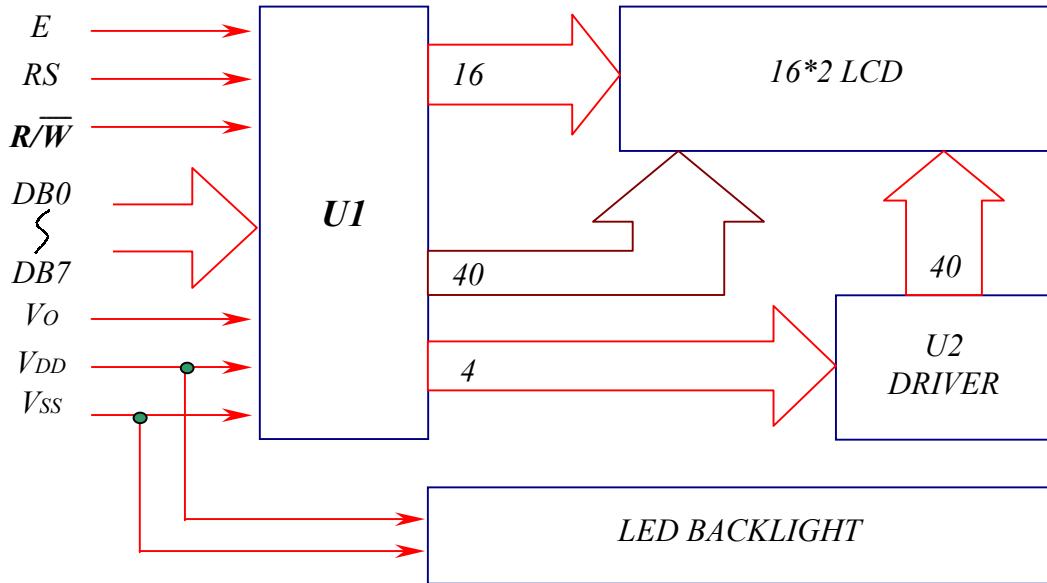
### 8. Outline dimension



#### Interface pin connection

<b>PIN NO.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
SYMBOL	V <sub>SS</sub>	V <sub>DD</sub>	V <sub>O</sub>	RS	R/ $\bar{W}$	E	DB0
<b>PIN NO.</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
SYMBOL	DB1	DB2	DB3	DB4	DB5	DB6	DB7

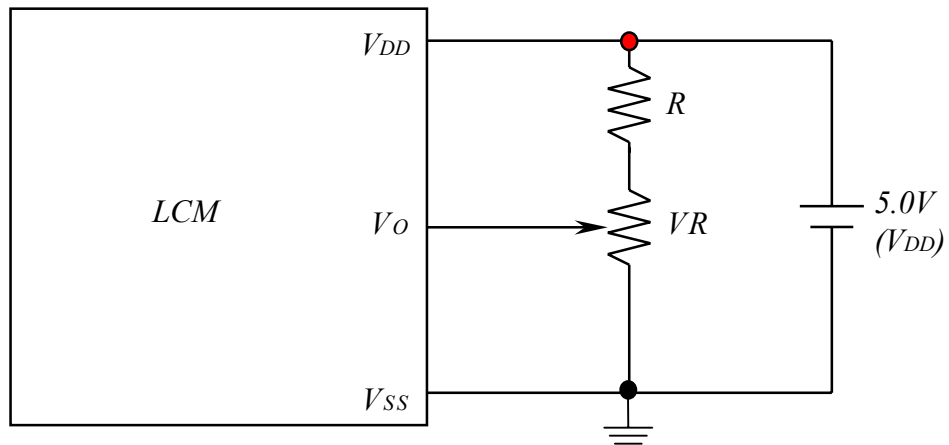
### 9. Block diagram



### Display data address charts

LINE 1	80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F
LINE 2	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF

### 10. Power supply for LCM



RECOMMENDED RESISTOR R:  $V_{DD} - V_O \geq 1.5V$   
 $V_{DD} - V_O$ : LCD DRIVING VOLTAGE  
 VR:  $10K\Omega \sim 20K\Omega$