



# PALM TECHNOLOGY CO., LTD.

*The LCD(M) Specialist*

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PART NO. : PMG1209AW-FWT

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

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### 3. General specifications

#### 3.1 General specifications

PLEASE REFER TO:

- a. "CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS (MS-10-10000)".
- b. "CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS (IC-S6B0741)"

#### 3.2 This individual specification is prior to general specifications

### 4. Mechanical data

- (1) NUMBER OF DOTS ----- 128 W \* 96 H DOTS
- (2) MODULE SIZE ----- 38.0 W \* 65.0 H\*2.0 T(MAX.) mm
- (3) EFFECTIVE AREA ----- 33.5 W \* 24.0 H mm
- (4) ACTIVE AREA ----- 29.42 W \* 22.06 H mm
- (5) DOT SIZE ----- 0.21 W \* 0.21 H mm
- (6) DOT PITCH ----- 0.23 W \* 0.23 H mm
- (7) VIEWING DIRECTION ----- 6 O'CLOCK
- (8) LCD TYPE ----- FSTN, POSITIVE, TRANSFLECTIVE
- (9) CONTROLLER/DRIVER IC----- S6B0741

## 5. Absolute maximum ratings

### 5.1 Electrical absolute maximum ratings $\triangle 1$

<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 <sub>DD</sub> -V <sub>SS</sub>	-0.3	7.0	V	-----
INPUT VOLTAGE	V <sub>I</sub>	-0.3	V <sub>DD</sub> +0.3	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	-20	70	-30	80	-----
HUMIDITY	NOTE (2)		NOTE (2)		NO CONDENSATION
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 .

## 6. Electrical characteristics

$T_a = 25$        $V_{DD} = 3.0 \pm 0.25V$

<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	$V_{DD}-V_{SS}$	-----	1.8	-----	3.3	V	
INPUT VOLTAGE (H LEVEL)	$V_{IH}$	-----	$0.8V_{DD}$	-----	$V_{DD}$	V	
INPUT VOLTAGE (L LEVEL)	$V_{IL}$	-----	$V_{SS}$	-----	$0.2V_{DD}$	V	
OUTPUT VOLTAGE (H LEVEL)	$V_{OH}$	$I_{OH} = -0.5 \text{ mA}$	$0.8V_{DD}$	-----	$V_{DD}$	V	
OUTPUT VOLTAGE (L LEVEL)	$V_{OL}$	$I_{OL} = 0.5 \text{ mA}$	$V_{SS}$	-----	$0.2V_{DD}$	V	
POWER SUPPLY CURRENT	$I_{DD}$	$V_{DD} = 3.0 \text{ V}$	-----	-----	1.0	mA	
RECOMMENDED LCD DRIVING VOLTAGE,NOTE (1)	$V_o-V_{SS}$	DUTY =1/96 BIAS =1/10 =10° =0°	$T_a=-20$	-----	-----	-----	V
		$T_a= 25$	-----	(11.0)	-----	V	
		$T_a= 70$	-----	-----	-----	V	

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

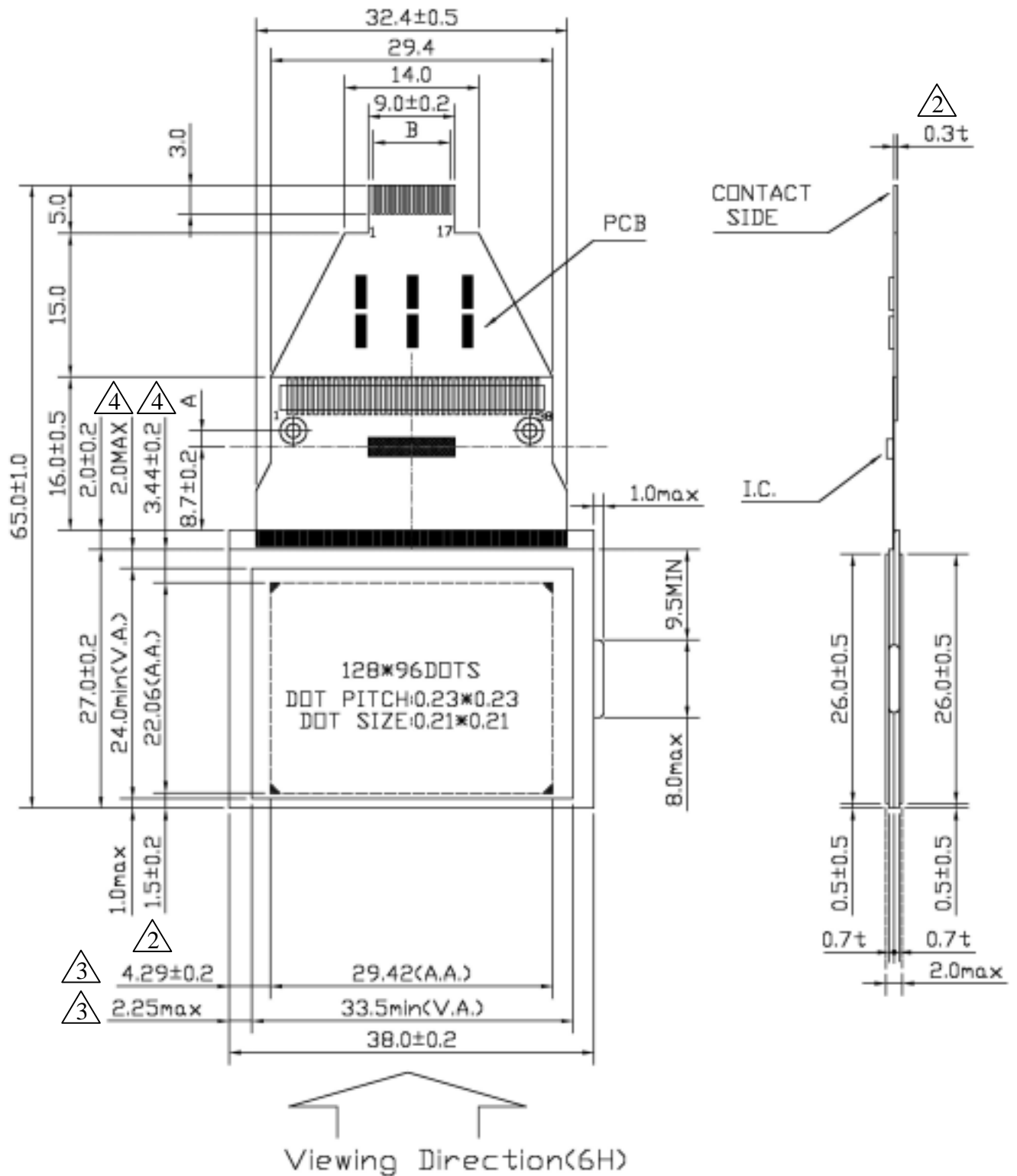
## 7. Optical characteristics

$T_a = 25$        $V_{DD} = 3.0V$

<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	$K = 2.0$ = 0°	30	40	-----	deg.	1
CONTRAST RATIO	K	= 10° = 0°	4	5	-----	-----	1
RESPONSE TIME	$t_r$ (rise)	= 10° = 0°	-----	200	350	ms	1
	$t_f$ (fall)	= 10° = 0°	-----	300	400	ms	1

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

## 8. Outline dimension



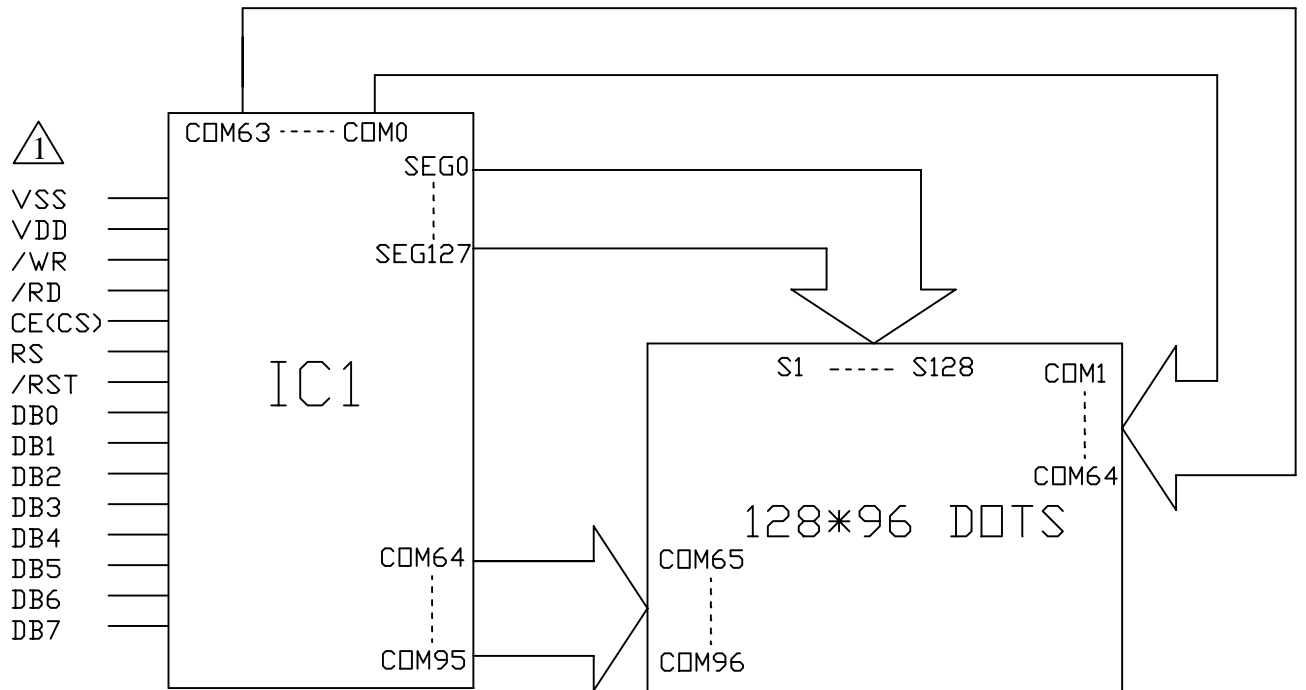
NOTE:  $A=1.7 \pm 0.2$   
 $B=0.5*(17-1)=8.0 \pm 0.2$   
 UNIT:mm  
 SCALE:NTS  
 NO MARKED TOLERANCE= $\pm 0.3$

### 8.1、Interface pin connection

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<i>PIN NO.</i>	<i>SYMBOL</i>	<i>FUNCTION</i>
1	V <sub>SS</sub>	POWER SUPPLY ( GND )
2	V <sub>DD</sub>	POWER SUPPLY ( +3V )
3	N.C	NO CONNECTION
4	N.C	NO CONNECTION
5	$\overline{RD}$	READ ENABLE CLOCK INPUT PIN . L: DATA READ
6	$\overline{WR}$	WRITE ENABLE CLOCK INPUT PIN . L: DATA WRITE
7	CE(CS)	CHIP SELECT INPUT PIN
8	RS	REGISTER SELECT INPUT PIN "H":DB0~DB7 display data. "L": DB0~DB7 are control data
9	$\overline{RST}$	RESET INPUT PIN. ACTIVE LOW.
10	DB0	DATA INPUT/OUTPUT
11	DB1	DATA INPUT/OUTPUT
12	DB2	DATA INPUT/OUTPUT
13	DB3	DATA INPUT/OUTPUT
14	DB4	DATA INPUT/OUTPUT
15	DB5	DATA INPUT/OUTPUT
16	DB6	DATA INPUT/OUTPUT
17	DB7	DATA INPUT/OUTPUT

### 9. Block diagram



### 10. Power supply for LCM

