

EXAMINED BY :  <i>Bob Hu</i>	EMERGING DISPLAY  TECHNOLOGIES CORPORATION	FILE NO . CAS-51560
APPROVED BY:  <i>David Chang</i>		ISSUE : MAR.14, 2007
		TOTAL PAGE : 8
		VERSION : 1

CUSTOMER	ACCEPTANCE	SPECIFICATIONS
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MODEL NO. :

E W 5 0 8 5 3 F L W

(RoHS)

FOR MESSRS :

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CUSTOMER'S APPROVAL

DATE :

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BY :

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EMERGING DISPLAY  
TECHNOLOGIES CORPORATION

MODEL NO. EW50853FLW(RoHS)	VERSION 1	PAGE 0-1
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RECORDS OF REVISION	DOC . FIRST ISSUE	MAR.14, 2007
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1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

EU - 002 B

1.2 APPLICATION NOTES FOR CONTROLLER / DRIVER :

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

AMT 335 A

1.3 THIS INDIVIDUAL SPECIFICATION IS PRIOR TO GENERAL SPECIFICATIONS .

2. MECHANICAL SPECIFICATIONS

- (1) NUMBER OF DOTS ----- 320W \* 240H DOTS
- (2) MODULE SIZE ----- 160.0W \* 109.0H \* 11.0D mm
- (3) EFFECTIVE AREA ----- 120.0W \* 90.0H mm
- (4) ACTIVE AREA ----- 115.17W \* 86.37H mm
- (5) DOT SIZE ----- 0.33W \* 0.33H mm
- (6) DOT PITCH ----- 0.36W \* 0.36H mm
- (7) LCD TYPE ----- FSTN , POSITIVE , TRANSFLECTIVE
- (8) DRIVING METHOD ----- 1 / 240 DUTY MULTIPLEX DRIVE
- (9) BACKLIGHT ----- LED , COLOR : WHITE

### 3. ABSOLUTE MAXIMUM RATINGS

#### 3.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS .

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	REMARK
POWER SUPPLY FOR LOGIC	VDD – VSS	0	7.0	V	
INPUT VOLTAGE	VI	VSS	VDD	V	
STATIC ELECTRICITY	—	—	100	V	NOTE ( 1 )
LED POWER VOLTAGE	VLED	—	6	V	

NOTE ( 1 ) : TEST METHOD AND CONDITIONS :  
AFTER CHARGING UP 200 pF CAPACITOR BY STATED VOLTAGE ,  
THE CAPACITOR IS CONNECTED WITH INTERFACE PINS OF THE  
MODULE .

#### 3.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS .

I T E M	OPERATING		STORAGE		REMARK
	MIN.	MAX.	MIN.	MAX.	
AMBIENT TEMPERATURE	- 2 0 °C	7 0 °C	- 3 0 °C	8 0 °C	NOTE ( 2 ) , ( 3 )
HUMIDITY	—	85% RH	—	85% RH	WITHOUT CONDENSATION
VIBRATION	—	2.45 m/s <sup>2</sup> ( 0.25 G )	—	11.76 m/s <sup>2</sup> ( 1.2 G )	10~100 Hz XYZ DIRECTIONS 1 Hr . EACH
SHOCK	—	29.4 m/s <sup>2</sup> ( 3 G )	—	490.0 m/s <sup>2</sup> ( 5 0 G )	10 m SECONDS XYZ DIRECTIONS 1 TIME EACH
CORROSIVE GAS	NOT ACCEPTABLE		NOT ACCEPTABLE		

NOTE ( 1 ) : BACKGROUND COLOR CHANGES SLIGHTLY DEPENDING ON AMBIENT  
TEMPERATURE THIS PHENOMENON IS REVERSIBLE .

NOTE ( 2 ) : Ta ≤ 60°C : 90%RH MAX.(96hrs MAX.)

Ta > 60°C : ABSOLUTE HUMIDITY MUST BE LOWER THAN THE  
HUMIDITY OF 90%RH AT 60°C.(96hrs MAX.)

NOTE ( 3 ) : Ta AT -20°C : WILL BE < 48hrs

70°C : WILL BE < 168hrs

4. ELECTRICAL CHARACTERISTICS

Ta = 25 °C      VDD-VSS = 5.0 V

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY VOLTAGE FOR LOGIC	VDD – VSS	—	4.5	5.0	5.5	V
INPUT VOLTAGE NOTE (1)	VIH	H LEVEL	0.5*VDD	—	—	V
	VIL	L LEVEL	—	—	0.2*VDD	V
OUTPUT VOLTAGE NOTE (1)	VOH	H LEVEL	2.4	—	—	V
	VOL	L LEVEL	—	—	VSS+0.4	V
POWER SUPPLY CURRENT FOR LOGIC NOTE (2)	IDD	VDD – VSS = 5.0 V	—	90.0	100	mA
CLOCK OSCILLATION FREQUENCY	f OSC	—	—	8	—	MHz
LED FORWARD VOLTAGE	VLED – VLSS	—	—	5.0	—	V
LED FORWARD CURRENT	IF	VLED-VLSS	—	140	—	mA

NOTE (1): APPLIED TO TERMINALS D0 TO D7, A0,  $\overline{CS}$ , R /  $\overline{W}$ ( $\overline{WR}$ ), E( $\overline{RD}$ ).

NOTE (2): THE DISPLAY PATTERN IS ALL “OFF” / “ON” .

5. OPTICAL CHARACTERISTICS

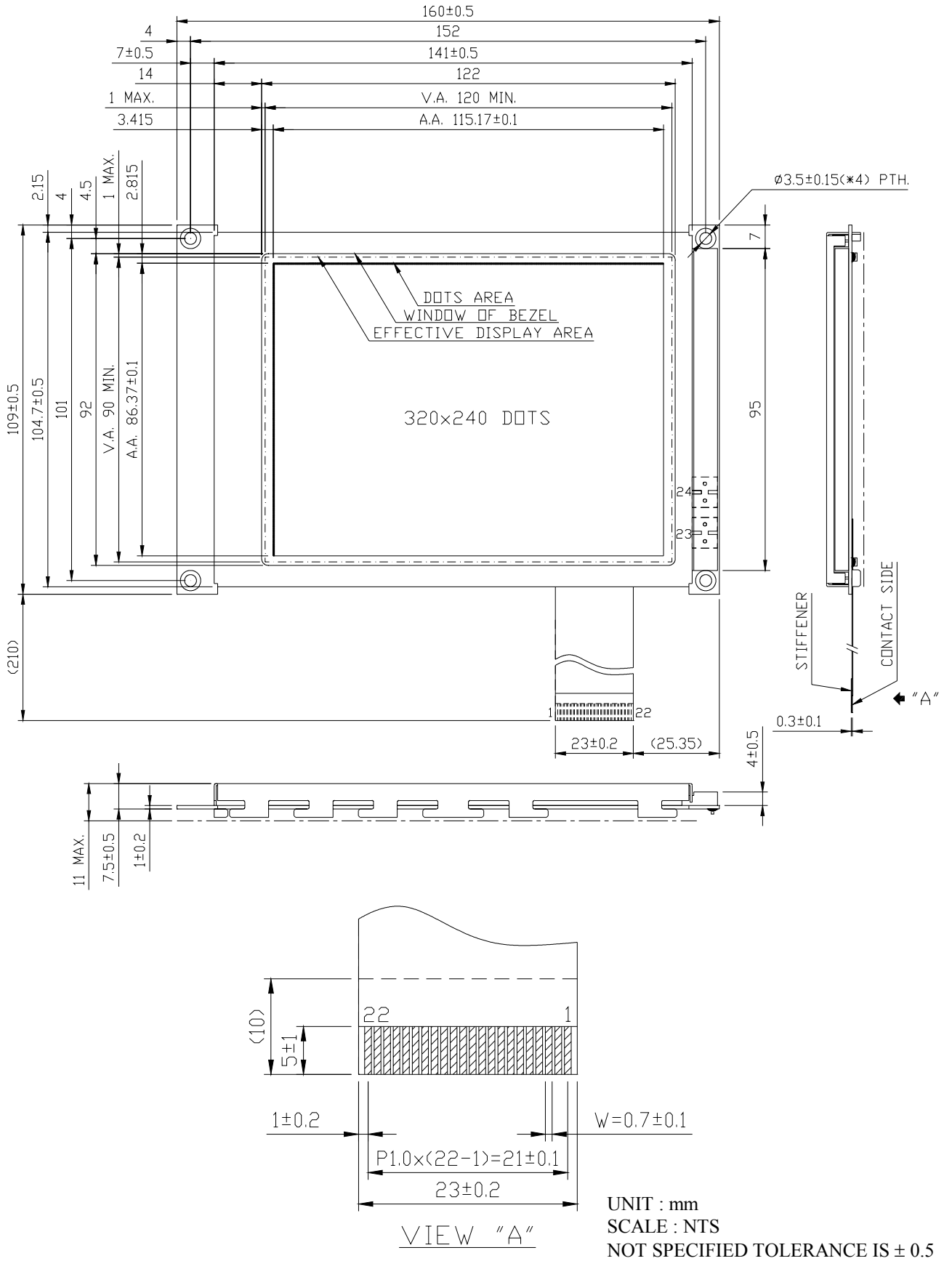
Ta = 25 °C VDD = 5.0 V

I T E M		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING AREA	FSTN	$\varnothing 2 - \varnothing 1$	$K \geq 2.0$	—	50	—	deg.	1
CONTRAST RATIO	FSTN	K	$\varnothing = 10^\circ$ $\theta = 0^\circ$	15	—	—	—	1
RESPONSE TIME	tr ( rise )	$\varnothing = 10^\circ$ $\theta = 0^\circ$	Ta = -10 °C	—	2149	—	ms	1
			Ta = 25 °C	—	310	—		
			Ta = 60 °C	—	124	—		
	tf ( fall )		Ta = -10 °C	—	1709	—		
			Ta = 25 °C	—	158	—		
			Ta = 60 °C	—	96	—		
BRIGHTNESS OF BACKLIGHT	B	VLED – VLSS = 5.0 V	( 5 )	—	—	cd / m <sup>2</sup>	1, 3	
CHROMATICITY COORDINATES	X	IF = 140 mA	0.26	0.315	0.33	—	—	
	Y		0.29	0.305	0.32			

NOTE (1) : PLEASE REFER TO :  
CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS. (EU – 002B)

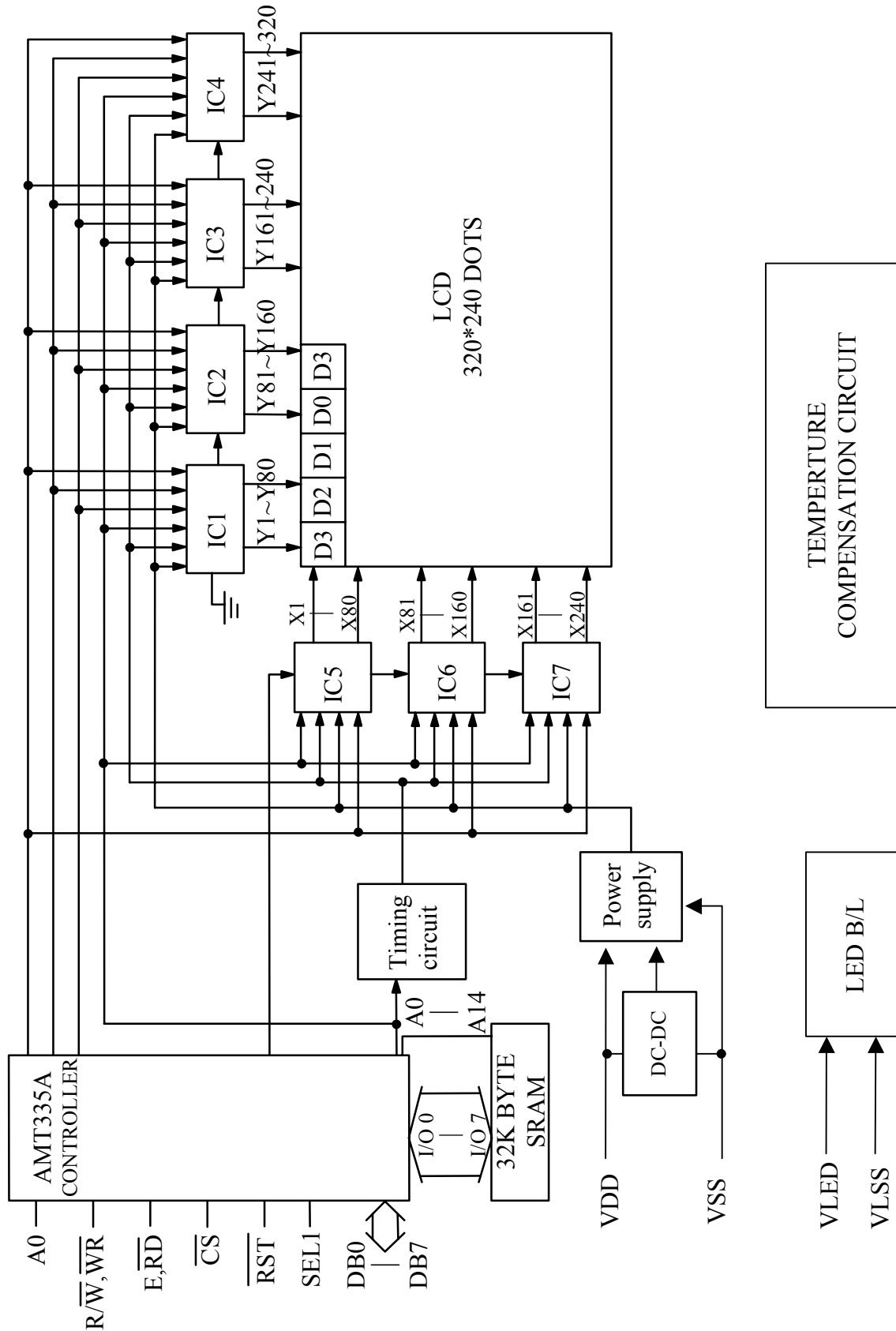
NOTE (2) : POLARIZER MODE : TRANSFLECTIVE

6. OUTLINE DIMENSION

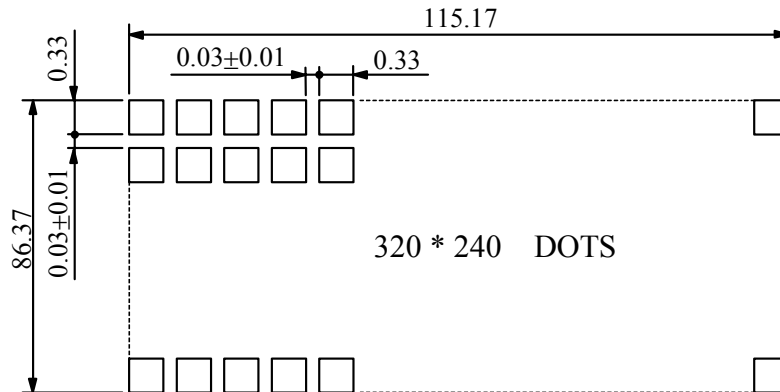




7. BLOCK DIAGRAM



8. DETAIL DRAWING OF DOT MATRIX



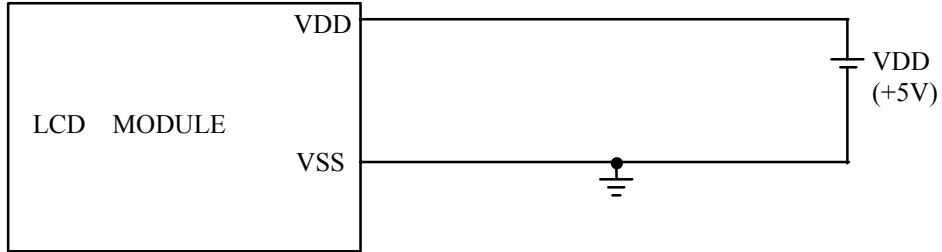
UNIT : mm  
SCALE : NTS  
NOT SPECIFIED TOLERANCE IS ± 0.1

9. INTERFACE SIGNALS

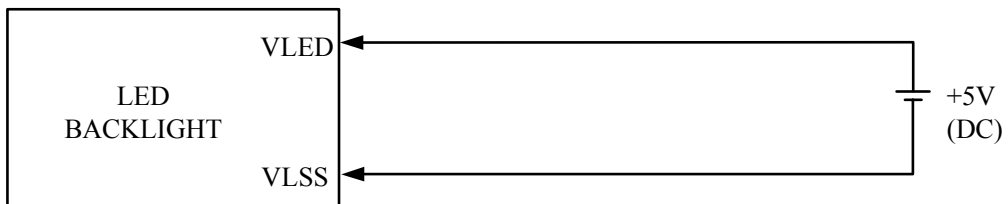
PIN NO.	SYMBOL	LEVEL	FUNCTION																				
1	VSS	—	GROUND																				
2	VDD	—	POWER SUPPLY FOR LOGIC CIRCUIT																				
3	NC	—	NOT USE.																				
4	A0	—	8080 FAMILY INTERFACE																				
			<table border="1"> <thead> <tr> <th>AO</th> <th><math>\overline{RD}</math></th> <th><math>\overline{WR}</math></th> <th>FUNCTION</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> <td>STATUS FLAG READ</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>DISPLAY DATA AND CURSOR ADDRESS READ</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>DISPLAY DATA AND PARAMETER WRITE</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>COMMAND WRITE</td> </tr> </tbody> </table>	AO	$\overline{RD}$	$\overline{WR}$	FUNCTION	0	0	1	STATUS FLAG READ	1	0	1	DISPLAY DATA AND CURSOR ADDRESS READ	0	1	0	DISPLAY DATA AND PARAMETER WRITE	1	1	0	COMMAND WRITE
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1	0	1	COMMAND WRITE																				
5	$\overline{WR}, R / \overline{W}$	H/L	8080 FAMILY INTERFACE ACTS AS THE ACTIVE-LOW WRITE STROBE . 6800 FAMILY INTERFACE ACTS AS THE READ/ WRITE CONTROL SIGNAL .																				
6	$\overline{RD}, E$	H/L	8080 FAMILY INTERFACE ACTS AS THE ACTIVE-LOW READ STROBE . 6800 FAMILY INTERFACE ACTS AS THE ACTIVE-HIGH ENABLE CLOCK .																				
7 ∩ 14	D0 ∩ D7	H/L	DISPLAY DATA																				
15	$\overline{CS}$	H/L	CHIP SELECT																				
16	$\overline{RST}$	H/L	RESET																				
17	NC	—	NOT USE.																				
18	SEL1	H/L	8080 OR 6800 FAMILY INTERFACE SELECT , H:6800 , L:8080																				
19   20	NC	—	NOT USE																				
21,23	VLED	—	POWER SUPPLY FOR LED BACKLIGHT ( A )																				
22,24	VLSS	—	POWER SUPPLY FOR LED BACKLIGHT ( K )																				

10. POWER SUPPLY

10.1 POWER SUPPLY FOR LCM



10.2 POWER SUPPLY FOR LED BACK - LIGHT



10.3 TIMING OF POWER SUPPLY AND INTERFACE SIGNAL

