

EXAMINED BY : <i>Bob Hu</i>	EMERGING DISPLAY TECHNOLOGIES CORPORATION	FILE NO . CAS-51565
APPROVED BY: <i>David Chang</i>		ISSUE : MAR.06, 2007
		TOTAL PAGE : 8
		VERSION : 1

CUSTOMER	ACCEPTANCE	SPECIFICATIONS
----------	------------	----------------

MODEL NO. :

EW 5 0 8 5 3 B M W

(RoHS)

FOR MESSRS :

CUSTOMER'S APPROVAL

DATE :

BY :

EMERGING DISPLAY
TECHNOLOGIES CORPORATION

MODEL NO .	VERSION	PAGE
E W 5 0 8 5 3 B M W (RoHS)	1	0-1

RECORDS OF REVISION	DOC . FIRST ISSUE	MAR.06, 2007
---------------------	-------------------	--------------

DATE	REVISED PAGE NO.	SUMMARY

TABLE OF CONTENTS

NO.	ITEM	PAGE
1.	GENERAL SPECIFICATIONS -----	1
2.	MECHANICAL SPECIFICATIONS -----	1
3.	ABSOLUTE MAXIMUM RATINGS -----	2
4.	ELECTRICAL CHARACTERISTICS -----	3
5.	OPTICAL CHARACTERISTICS -----	4
6.	OUTLINE DIMENSION -----	5
7.	BLOCK DIAGRAM -----	6
8.	DETAIL DRAWING OF DOT MATRIX -----	7
9.	INTERFACE SIGNALS -----	7
10.	POWER SUPPLY -----	8

MODEL NO.	VERSION	PAGE
E W 5 0 8 5 3 B M W (RoHS)	1	1

1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

E U - 0 0 2 B

1.2 APPLICATION NOTES FOR CONTROLLER / DRIVER :

PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

A M T 3 3 5 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 ----- STN , BLUE , TRANSMISSIVE
- (8) DRIVING METHOD ----- 1 / 240 DUTY MULTIPLEX DRIVE
- (9) BACKLIGHT ----- LED , 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	- 10°C	60°C	-20°C	70°C	NOTE (1) , (3)
HUMIDITY	—	85% RH	—	85% RH	WITHOUT CONDENSATION
VIBRATION	—	2.45 m /s ² (0.25 G)	—	11.76 m /s ² (1.2 G)	10~100 Hz XYZ DIRECTIONS 1 Hr . EACH
SHOCK	—	29.4 m /s ² (3 G)	—	490.0 m /s ² (50 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	VIH	H LEVEL	0.5*VDD	—	—	V
NOTE (1)	VIL	L LEVEL	—	—	0.2*VDD	V
OUTPUT VOLTAGE	VOH	H LEVEL	2.4	—	—	V
NOTE (1)	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 FORWAD VOLTAGE	VLED – VLSS	—	—	5.0	—	V
LED FORWAD VOLTAGE	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

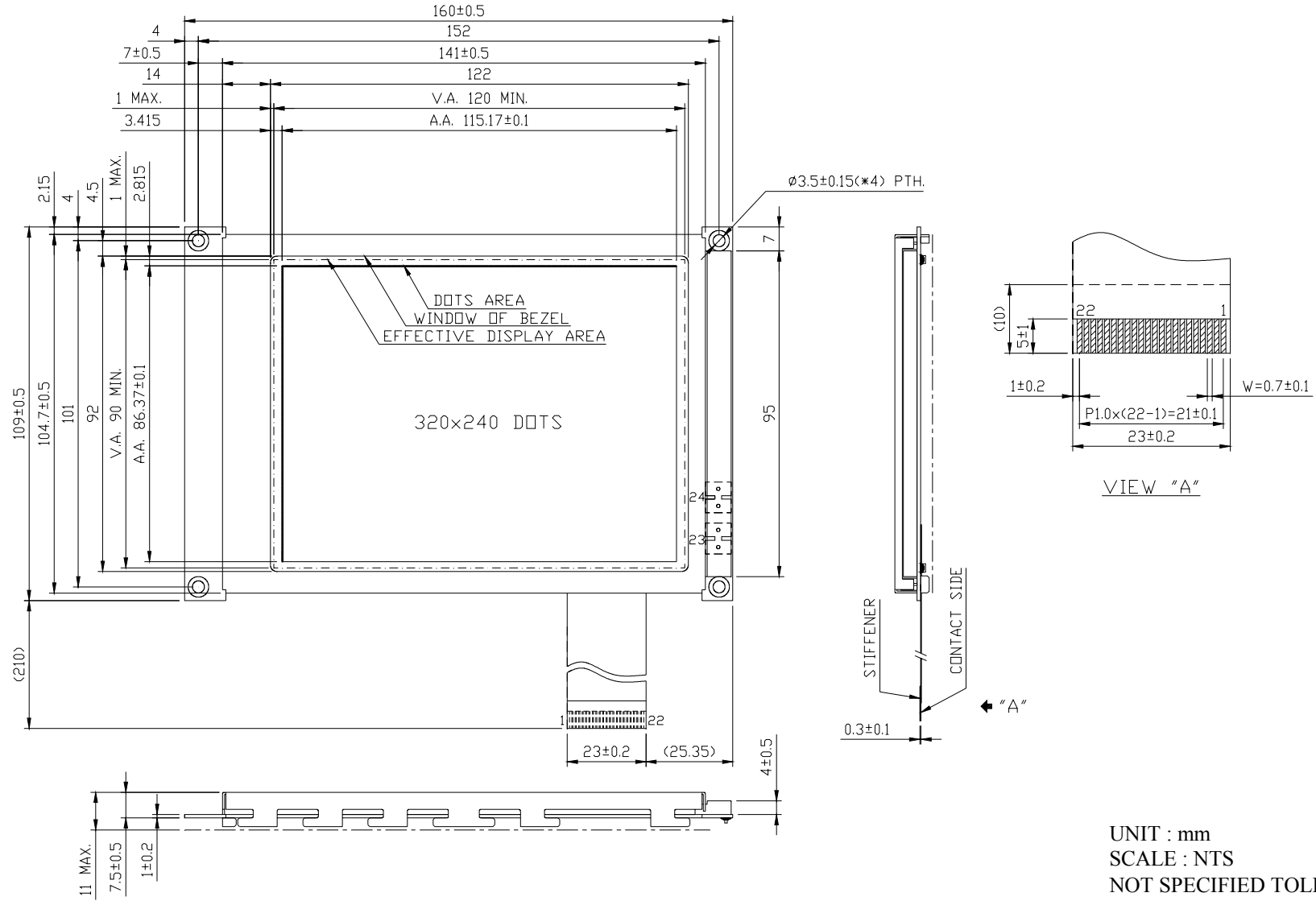
Ta = 25 °C VDD = 5.0 V

I T E M		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING AREA	STN	$\varnothing 2 - \varnothing 1$	$K \geq 2.0$	—	40	—	deg.	1
CONTRAST RATIO	STN	K	$\varnothing = 10^\circ$ $\theta = 0^\circ$	3.5	—	—	—	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	(7)	—	—	cd / m ²	1 , 2	
CHROMATICITY COORDINATES	X	IF = 140 mA	0.26	0.315	0.33	—	—	
	Y		0.29	0.305	0.32			

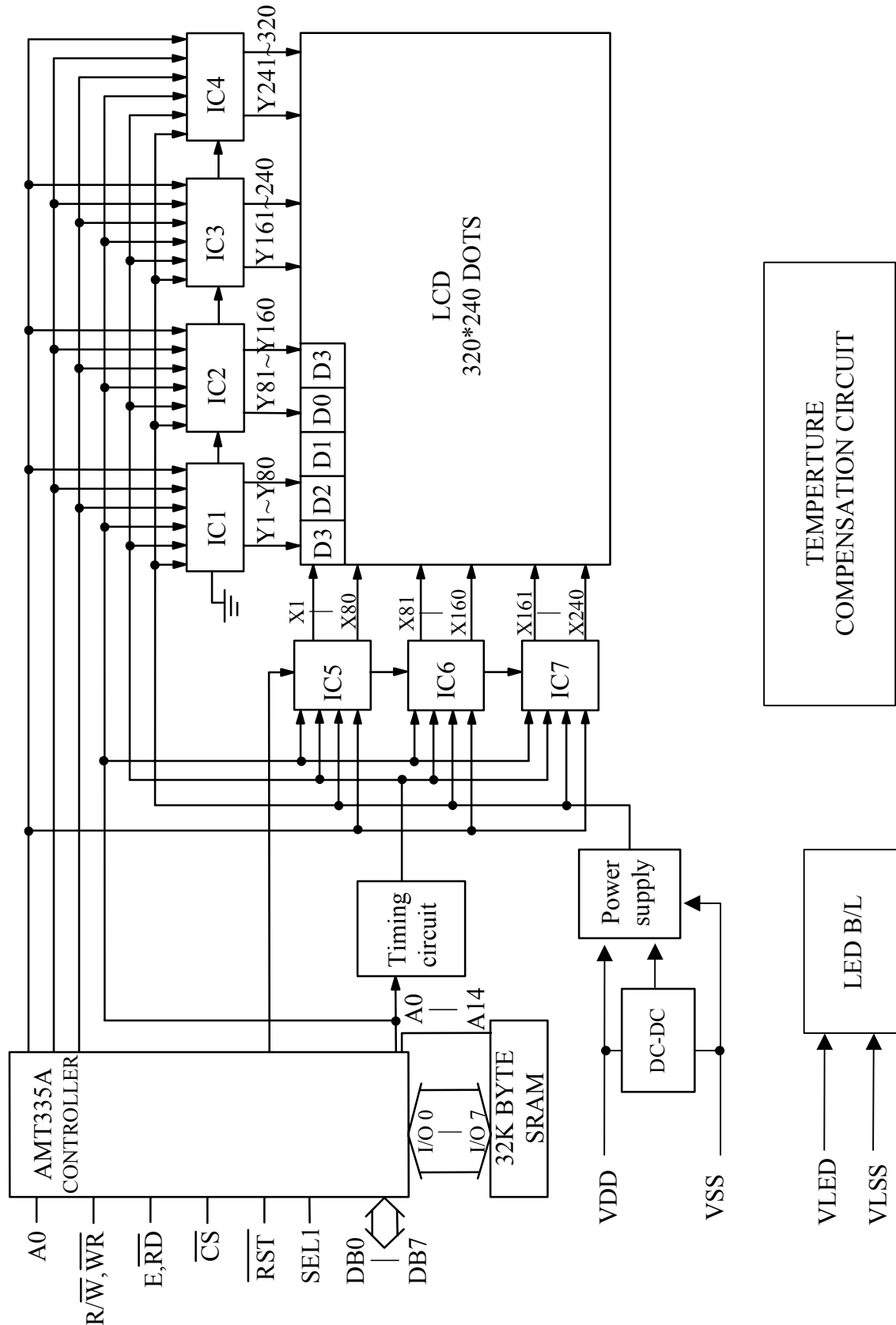
NOTE (1) : PLEASE REFER TO :
CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS. (EU – 002B)

NOTE (2) : POLARIZER MODE : TRANSMISSIVE

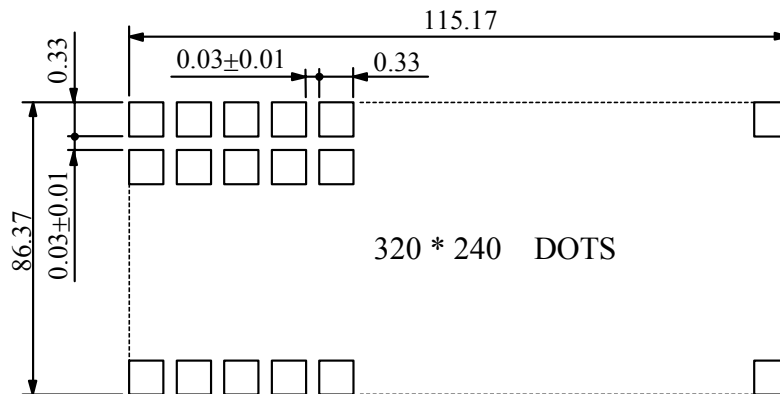
6. OUTLINE DIMENSIONS



7. BLOCK DIAGRAM



8. DETAIL DRAWING OF DOT MATRIX



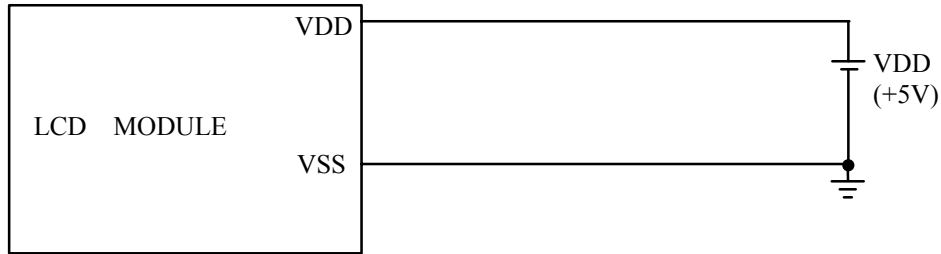
UNIT : mm
SCALE : NTS
NOT SPECIFIED TOLERANCE IS ± 0.1

9. INTERFACE SIGNALS

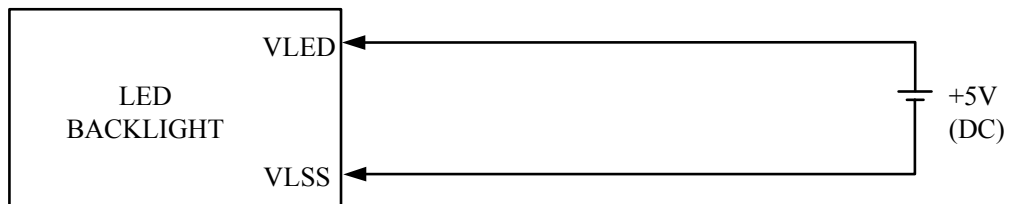
PIN NO	SYMBOL	LEVEL	FUNCTION																				
1	VSS	—	GROUND																				
2	VDD	—	POWER SUPPLY FOR LOGIC CIRCUIT																				
3	NC	—	NOT USE.																				
4	A0	—	8080 FAMILY INTERFACE																				
			<table border="1"> <thead> <tr> <th>AO</th> <th>\overline{RD}</th> <th>\overline{WR}</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
			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																	
			6800 FAMILY INTERFACE																				
			<table border="1"> <thead> <tr> <th>AO</th> <th>R / \overline{W}</th> <th>E</th> <th>FUNCTION</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>1</td> <td>STATUS FLAG READ</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> <td>DISPLAY DATA AND CURSOR ADDRESS READ</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>DISPLAY DATA AND PARAMETER WRITE</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>COMMAND WRITE</td> </tr> </tbody> </table>	AO	R / \overline{W}	E	FUNCTION	0	1	1	STATUS FLAG READ	1	1	1	DISPLAY DATA AND CURSOR ADDRESS READ	0	0	1	DISPLAY DATA AND PARAMETER WRITE	1	0	1	COMMAND WRITE
			AO	R / \overline{W}	E	FUNCTION																	
0	1	1	STATUS FLAG READ																				
1	1	1	DISPLAY DATA AND CURSOR ADDRESS READ																				
0	0	1	DISPLAY DATA AND PARAMETER WRITE																				
1	0	1	COMMAND WRITE																				
8080 FAMILY INTERFACE ACTS AS THE ACTIVE-LOW WRITE STROBE . 6800 FAMILY INTERFACE ACTS AS THE READ/ WRITE CONTROL SIGNAL .																							
8080 FAMILY INTERFACE ACTS AS THE ACTIVE-LOW READ STROBE . 6800 FAMILY INTERFACE ACTS AS THE ACTIVE-HIGH ENABLE CLOCK .																							
D0 ∩	H/L	DISPLAY DATA																					
D7	H/L	DISPLAY DATA																					
\overline{CS}	H/L	CHIP SELECT																					
\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

