EXAMINED BY : Jason Ma.	EMERGING DISPLAY	FILE NO . CAS-10231
		ISSUE : JAN.19,2001
APPROVED BY: David Chang	TECHNOLOGIES CORPORATION	TOTAL PAGE : 8
		VERSION : 2

CUSTOMER ACCEPTANCE SPECIFICATIONS

MODEL NO . :

32FA0(LED TYPES)

FOR MESSRS :

_____

CUSTOMER'S APPROVAL

DATE :

_____

BY :

_____

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EMERGING DISPLAY TECHNOLOGIES CORPORATION	MODEL NO. 32FA0(LED TYPES)	VERSION 2
RECORDS OF REVISION	DOC. FIRST ISSUE DEC.06,2000	

DATE	REVISED PAGE NO.	SUMMARY
JAN.19,2001	8	10.1 POWER SUPPLY FOR LCM VR : 20KΩ WAS DELETED .

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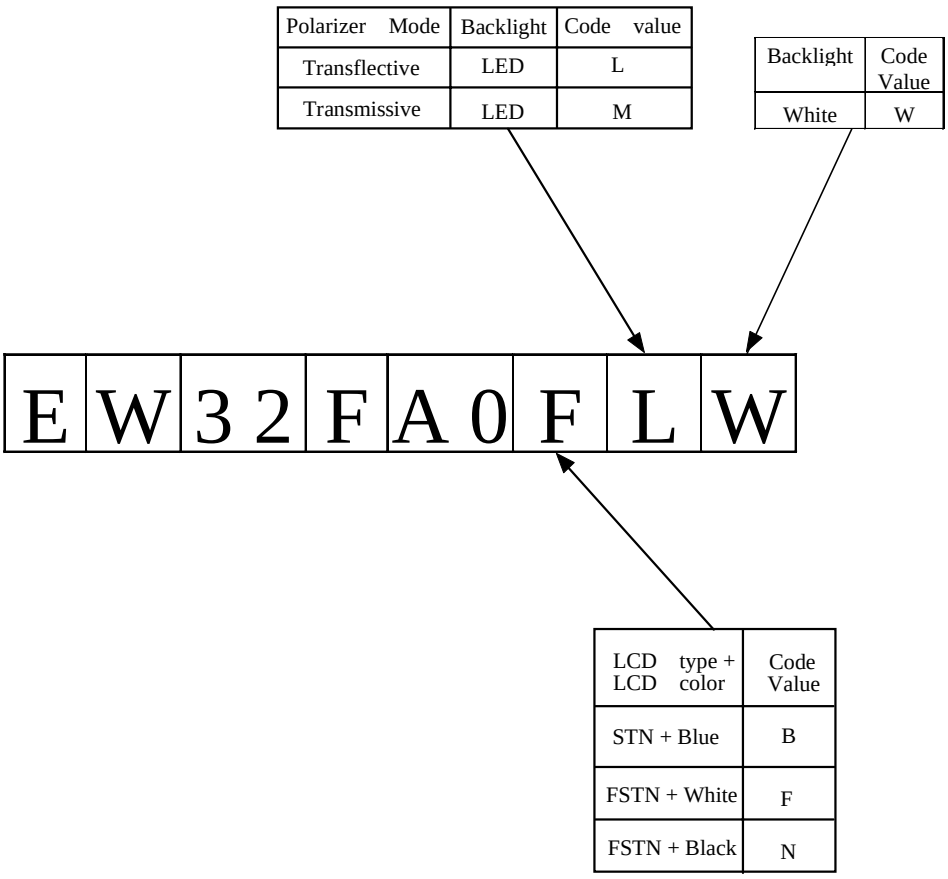
NUMBERING SYSTEM



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1. GENERAL SPECIFICATIONS

1.1 GENERAL SPECIFICATIONS
PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

E U - 0 0 2 A

1.2 APPLICATION NOTES FOR CONTROLLER / DRIVER :
PLEASE REFER TO :

CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS :

E U - S E D 1 3 3 5

1.3 THIS INDIVIDUAL SPECIFICATION IS PRIOR TO GENERAL SPECIFICATIONS .

2. MECHANICAL SPECIFICATIONS

(1)	NUMBER OF DOTS	320W * 240H DOTS
(2)	MODULE SIZE	93.8W * 66.6H * 8.5D mm
(3)	EFFECTIVE AREA	78.8W * 59.6H mm
(4)	ACTIVE AREA	76.79W * 57.59H mm
(5)	DOT SIZE	0.23W * 0.23H mm
(6)	DOT PITCH	0.24W * 0.24H mm
(7)	LCD TYPE *	
(8)	DRIVING METHOD	1 / 240 DUTY MULTIPLEX DRIVE
(9)	BACKLIGHT	LED , COLOR : WHITE
(10)	VIEWING DIRECTION	6 O'CLOCK

* PLEASE REFER TO NUMBERING SYSTEM .

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	
POWER SUPPLY FOR LCD DRIVING	VEE – VSS	0	27	V	
INPUT VOLTAGE	VI	VSS	VDD	V	
STATIC ELECTRICITY	—	—	100	V	NOTE (1)
POWER SUPPLY FOR LED	VLED – VLSS	—	5	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.

ITEM	OPERATING		STORAGE		REMARK
	MIN.	MAX.	MIN.	MAX.	
AMBIENT TEMPERATURE	-20 °C	70 °C	-20 °C	70 °C	NOTE (2), (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 mSECONDS XYZ DIRECTIONS 1 TIME EACH
CORROSIVE GAS	NOT ACCEPTABLE		NOT ACCEPTABLE		

NOTE (2) : Ta AT -20°C : 48HR MAX.
70°C : 168HR MAX.
NOTE (3) : BACKGROUND COLOR CHANGES SLIGHTLY DEPENDING ON AMBIENT TEMPERATURE THIS PHENOMENON IS REVERSIBLE.
NOTE (4) : CCFL BACKLIGHT IS NOT AVAILABCE TO FUNCTION BELOW 0°C

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	—	2.5	—	5.0	V
POWER SUPPLY VOLTAGE FOR LCD DRIVE	VEE – VSS	—	+15	—	+27	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 VEE – VSS = 21.5 V	—	15	—	mA
POWER SUPPLY CURRENT FOR LCD DRIVE NOTE (2)	IEE	VDD – VSS = 5 . 0 V VEE – VSS = 21.5 V	—	12	—	mA
RECOMMENDED LCD DRIVING VOLTAGE NOTE (3)	VEE – VSS ∅ = 10° θ = 0° DUTY =1/240	Ta =-20 °C	—	24	—	V
		Ta = 25 °C	—	21.5	—	V
		Ta = 70 °C	—	18	—	V
CLOCK OSCILLATION FREQUENCY	f OSC	—	—	8	—	MHZ
POWER SUPPLY FOR LED	VLED – VLSS	IF = 100 mA	—	5	—	V

NOTE (1): APPLIED TO TERMINALS D0 TO D7 , A0 , $\overline{CS}$, $\overline{RD}$, $\overline{WR}$.
NOTE (2): THE DISPLAY PATTERN IS ALL " OFF " / " ON" .
NOTE (3): RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTUATE ABOUT ± 1 . 0V BY EACH MODULE .

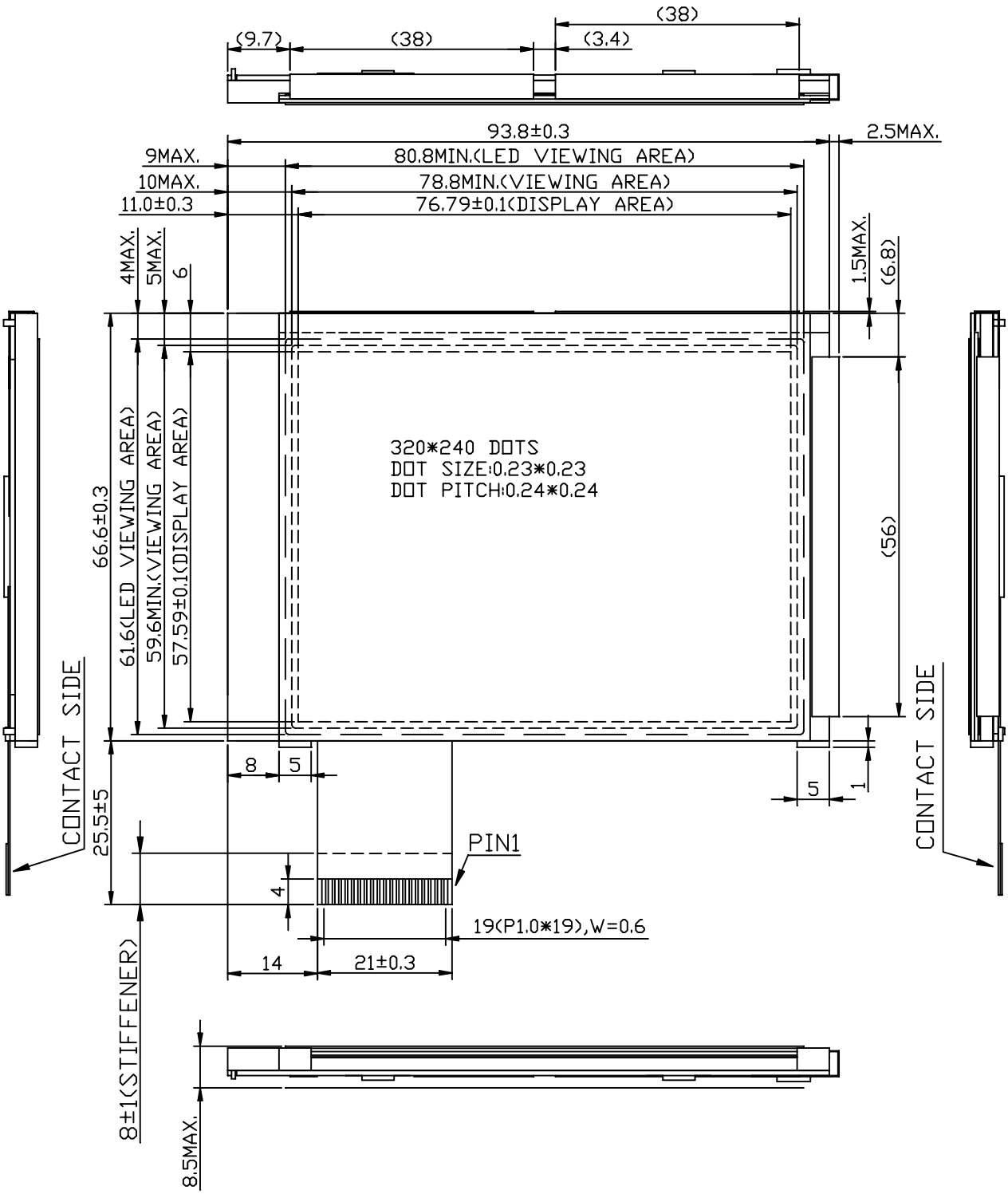
5. OPTICAL CHARACTERISTICS

Ta = 25 °C VDD = 5.0 V

ITEM		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
VIEWING AREA	STN	∅2 - ∅1	K ≧ 2.0	—	40	—	deg.	1
	FSTN			50	—	—	deg.	1
CONTRAST RATIO	STN	K	∅ = 10 ° θ = 0 °	3	—	—	—	1
	FSTN			5	—	—	—	1
RESPONSE TIME		t r (rise)	∅ = 10 ° θ = 0 °	—	(330)	—	msec	1
		t f (fall)	∅ = 10 ° θ = 0 °	—	(330)	—	msec	1
BRIGHTNESS OF BACKLIGHT		B	—	10	—	—	cd / m^2	1

NOTE (1) : PLEASE REFER TO :
CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS. (EU - 001A)

6. OUTLINE DIMENSION



UNIT : mm
SCALE : NTS
NOT SPECIFIED TOLERANCE IS ± 0.5

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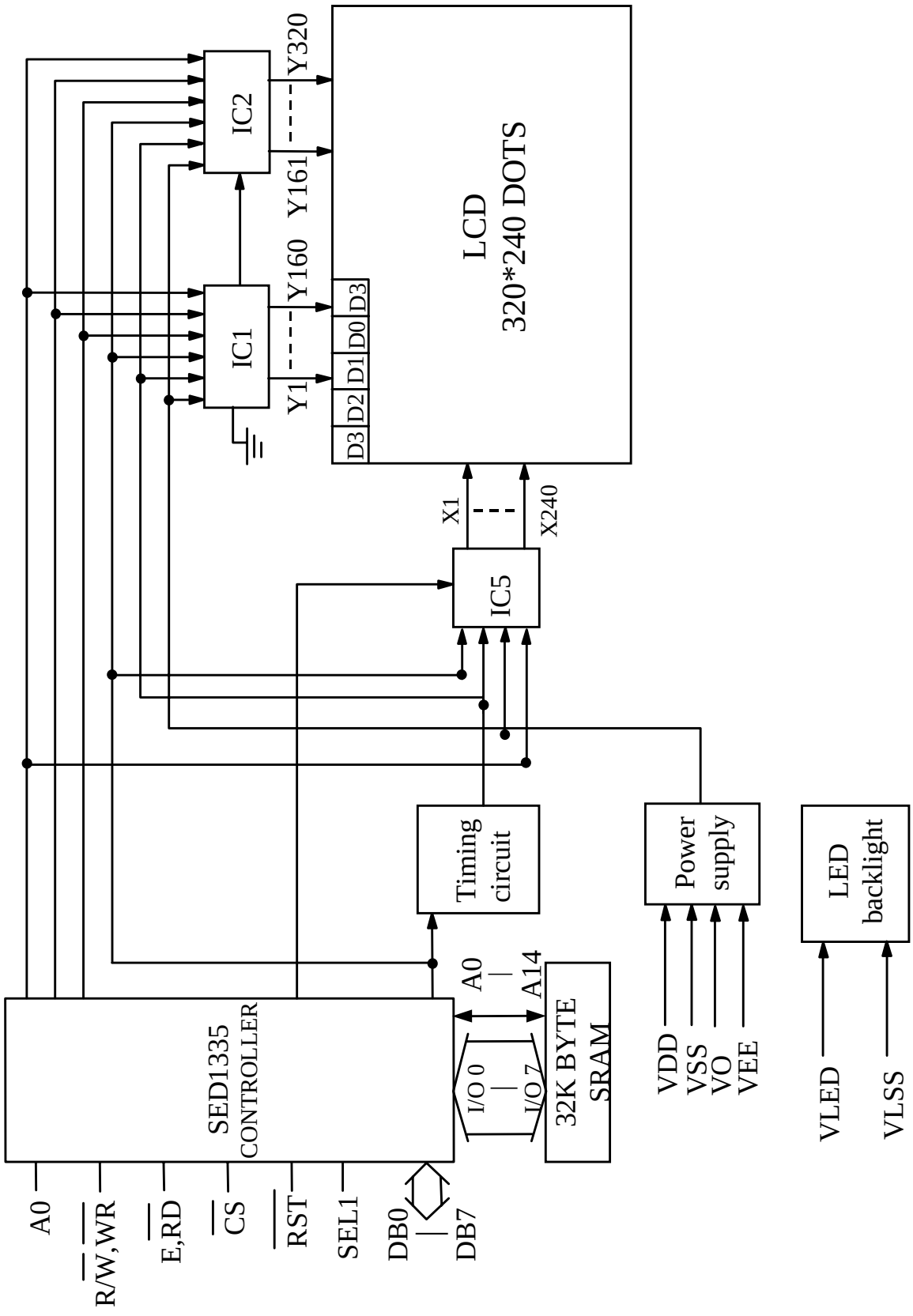
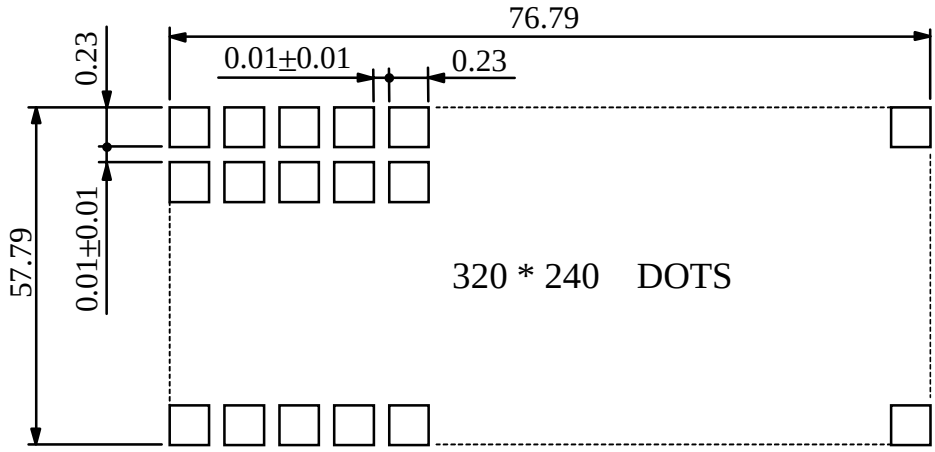
7. BLOCK DIAGRAM



8. DETAIL DRAWING OF DOT MATRIX



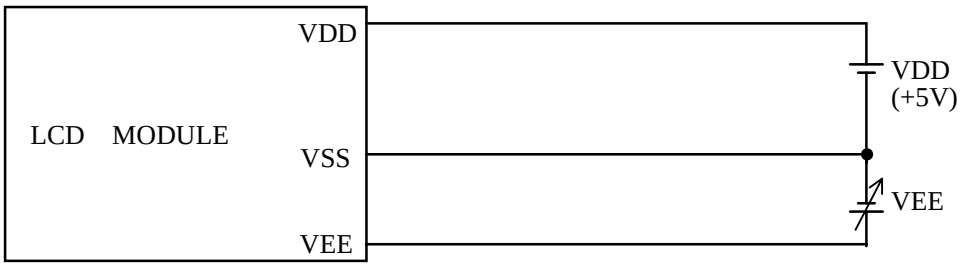
UNIT : mm
SCALE : NTS
NOT SPECIFIED TOLERANCE IS ± 0.1

9. INTERFACE SIGNALS

PIN NO	SYMBOL	LEVEL	FUNCTION
1	VSS	—	GROUND
2	VDD	—	POWER SUPPLY FOR LOGIC CIRCUIT
3	N.C	—	N.C.
4	A0	—	8080 FAMILY INTERFACE AO, $\overline{RD}$, $\overline{WR}$: 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 AO, R/$\overline{W}$, E: 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
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	VEE	—	POWER SUPPLY FOR LCD DRIVING
18	SEL1	H/L	8080 OR 6800 FAMILY INTERFACE SELECT , H:6800 , L:8080
19	VLED	—	POWER SUPPLY FOR LED B.L
20	VLSS	—	POWER SUPPLY FOR LED B.L

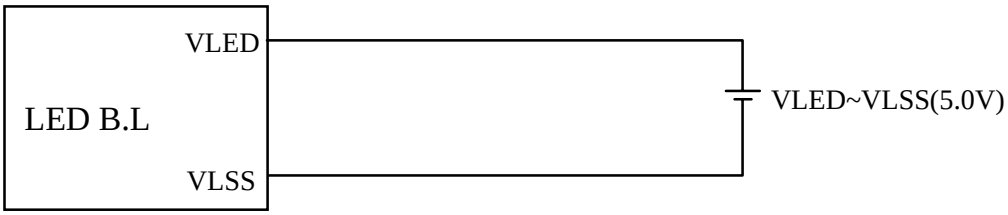
10. POWER SUPPLY

10.1 POWER SUPPLY FOR LCM



VEE – VSS : LCD DRIVING VOLTAGE

10.2 POWER SUPPLY FOR LED BACK - LIGHT



10.3 TIMING OF POWER SUPPLY AND INTERFACE SIGNAL