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SOLOMON Goldentek Display Corp.

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PART NO : GG2406N8SKY1S(LM6270SGL)
FOR MESSRS : _____

CONTENTS

Accepted by :_____ Proposed by :_____
Date : 09,04,2002

RECORD OF REVISION

DATE	PAGE	SUMMARY
2002,08,30	ALL	CHANGE NEW ADDRESS & TEL,FAX & COMP NAME. CHANGE PART NO.LM6270SGL→ GG2406N8SKY1S
	04	4.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS SHOCK STORAGE 490.0m/s^2(50G)→ 49.0m/s^2(5G)

3. GENERAL SPECIFICATIONS AND MECHANICAL DATA

3.1 GENERAL SPECIFICATIONS

PLEASE REFER TO :

”CUSTOMER ACCEPTANCE STANDARD SPECIFICATIONS (SP-10-001)”.

3.2 THIS INDIVIDUAL SPECIFICATIONS IS PRIOR TO GENERAL SPECIFICATIONS.

3.3 MECHANICAL DATA

(1) NUMBER OF DOTS ---------- 240.0W*64.0 DOTS

(2) MODULE SIZE ---------- 180.0W*65.0H*17.0 T (MAX) mm

(3) EFFECTION AREA ---------- 133.0W*40.0H mm

(4) DOT SIZE ---------- 0.49W*0.49H mm

(5) DOT PITCH ---------- 0.53W*0.53H mm

(6) VIEWING DIRECTION---------- 6 O′CLOCK

(7) LCD TYPE ---------- STN,GRAY,TRANSFLECTIVE

(8) LED COLOR ---------- YELLOW-GREEN

4. ABSOLUTE MAXIMUM RATINGS

4.1 ELECTRICAL ABSOLUTE MAXIMUM RATINGS.

ITEM	SYMBOL	MIN.	MAX.	UNIT	COMMENT
POWER SUPPLY FOR LOGIC	VDD-VSS	0	7.0	V	
POWER SUPPLY FOR LCD DRIVING	VDD-VEE	0	22.0	V	
INPUT VOLTAGE	VI	VSS	VDD	V	
STATIC ELECTRICITY	----------	--------	100	V	
POWER SUPPLY FOR LED	VLED-GND	--------	5.0	V	

4.2 ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS.

ITEM	OPERATING		STORAGE		COMMENT
	MIN.	MAX.	MIN.	MAX.	
AMBIENT TEMPERATURE	0℃	50℃	-20℃	60℃	NOTE (2)
HUMIDITY	NOTE (3)		NOTE (3)		WITHOUT CONDENSATION
VIBRATION	---------	4.9 m/s^2 (0.5G)	---------	19.6 m/s^2 (1.2G)	10~300HZ XYZ DIRECTIONS 1 Hr.EACH
SHOCK	---------	29.4 m/s^2 (3G)	---------	49.0 m/s^2 (5G)	10 mSEC XYZ DIRECTIONS 1 TIME EACH
CORROSIVE GAS	NOT ACCEPTABLE		NOT ACCEPTABLE		

NOTE(2) : Ta AT -20℃ : 48HR MAX.
60℃ : 168HR MAX.

NOTE(3) : Ta ≦ 40℃ : 90% RH MAX.
Ta ＞ 40℃ : ABSOLUTE HUMIDITY MUST BE LOWER THAN THE HUMIDITY OF 90%RH AT 40℃.

5. ELECTRICAL CHARACTERISTICS.

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
LOGIC CIRCUIT POWER SUPPLY VOLTAGE	VDD - VSS	-----	4.75	5.0	5.25	V
LCD DRIVER POWER SUPPLY VOLTAGE	VEE - VSS	-----	-3.7	-5.7	-10	V
INPUT VOLTAGE NOTE (1)	VI	H LEVEL	VDD-2.2	-----	VDD	V
		L LEVEL	0	-----	0.8	V
OUTPUT CIRCUIT NOTE (2)	VOH	-----	VDD-0.3	-----	VDD	V
	VOL	-----	0	-----	0.3	V
LOGIC CIRCUIT POWER SUPPLY CURRENT NOTE (2)	IDD	VDD – VSS=5.0V VEE – VSS=-5.7	-----	25	-----	mA
LCD DRIVER CIRCUIT POWER SUPPLY CURRENT NOTE (2)	IEE	VDD – VSS=5.0V VEE – VSS=-5.7	-----	3	-----	mA
RECOMMENDED LCD DRIVING VOLTAGE NOTE(3)	VDD-VEE Φ=10° θ = 0° DUTY = 1/64	Ta = 0℃	-----	-----	13.1	V
		Ta = 25 ℃	-----	10.7	-----	V
		Ta = 50 ℃	8.0	-----	-----	V
POWER SUPPLY FOR LED	ILED	VLED-GND=5V	-----	550	-----	mA

NOTE(1) : APPEND TO TERMINALS (WR,RD,CE,C/D,RST,FS,DO~D7)

NOTE(2) : THE DISPLAY PATTERN IS ALL ”Q”

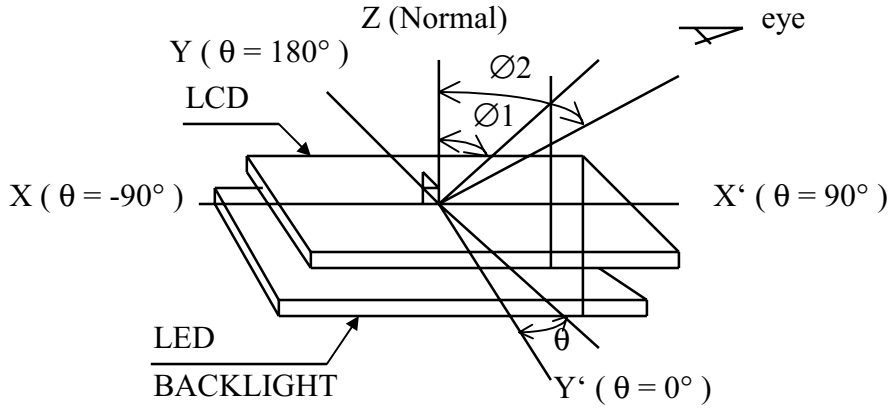
NOTE(3) : RECOMMENDED LCD DRIVING VOLTAGE MAY FLUCTATE ABOUT ± 0.5V BY EACH MODULE.

6. OPTICAL CHARACTERISTICS

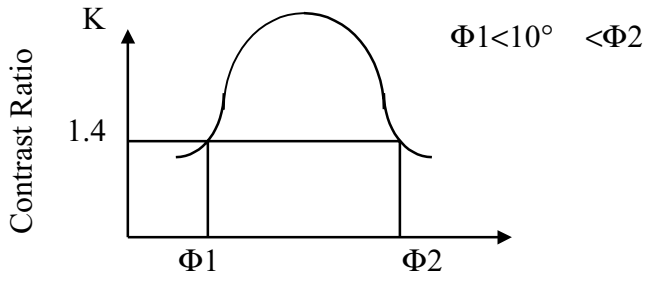
Ta = 25°C VDD = 5.0V±0.25V

I T E M	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	UNIT
VIEWING AREA	Φ2-Φ1	K≧ 1.4	20	30	-----	deg.	1,2,5
CONTRAST RATIO	K	Φ = 10° θ = 0°	1.4	3	-----	-----	3,5
RESPONSE TIME	tr(rise)	Φ = 10° θ = 0°	-----	250	-----	ms	4,5
	tf(fall)	Φ = 10° θ = 0°	-----	400	-----	ms	4,5
BRIGHTNESS OF BACKLIGHT	B	Φ = 0° θ = 0°	4.0	(10)	-----	cd/m^2	-----

NOTE (1) : DEFINITION OF θ AND Φ

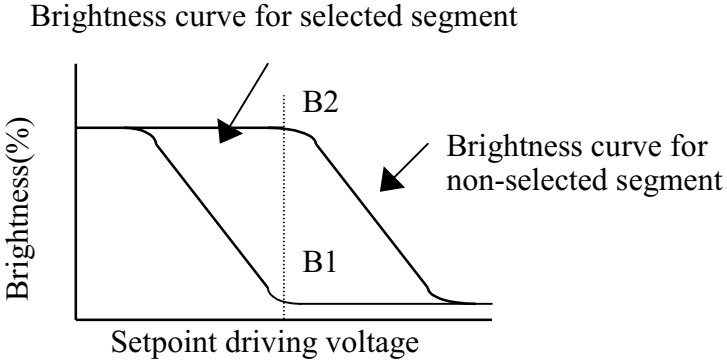


NOTE (2) : DEFINITION OF VIEWING ANGLE Φ1 AND Φ2

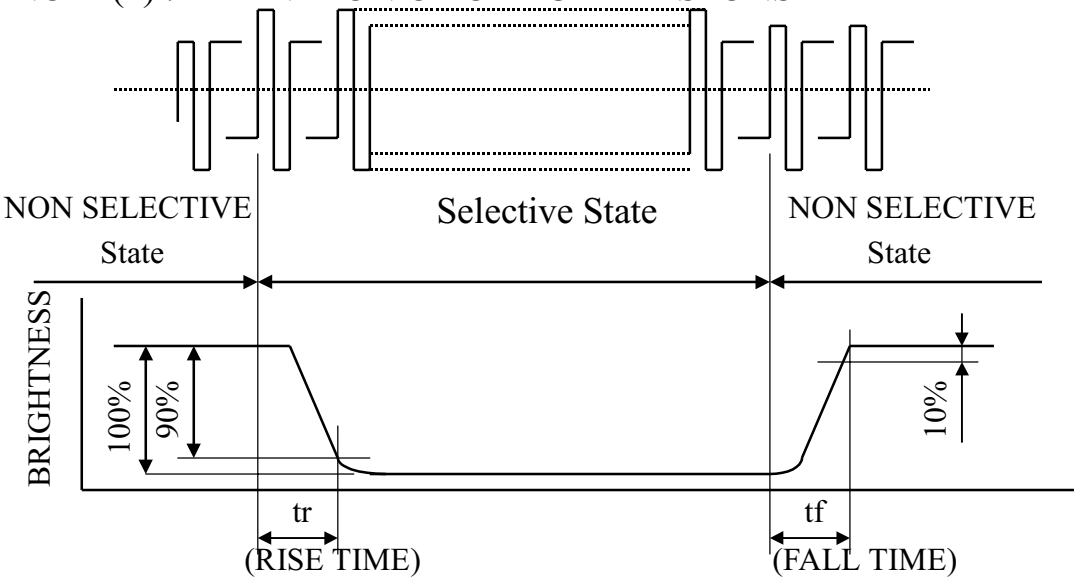


NOTE (3) : DEFINITION OF CONTRAST"K"

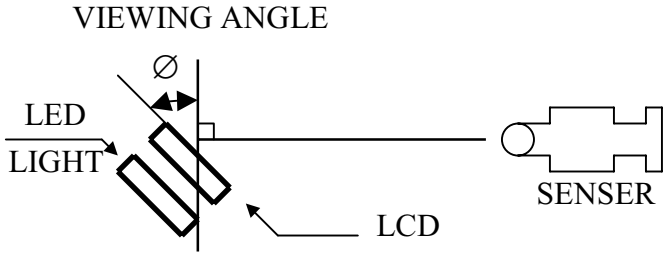
$$K = \frac{\text{Brightness of non-selected segment (B2)}}{\text{Brightness of selected segment (B1)}}$$



NOTE(4) : DEFINITION OF OPTICAL RESPONSE



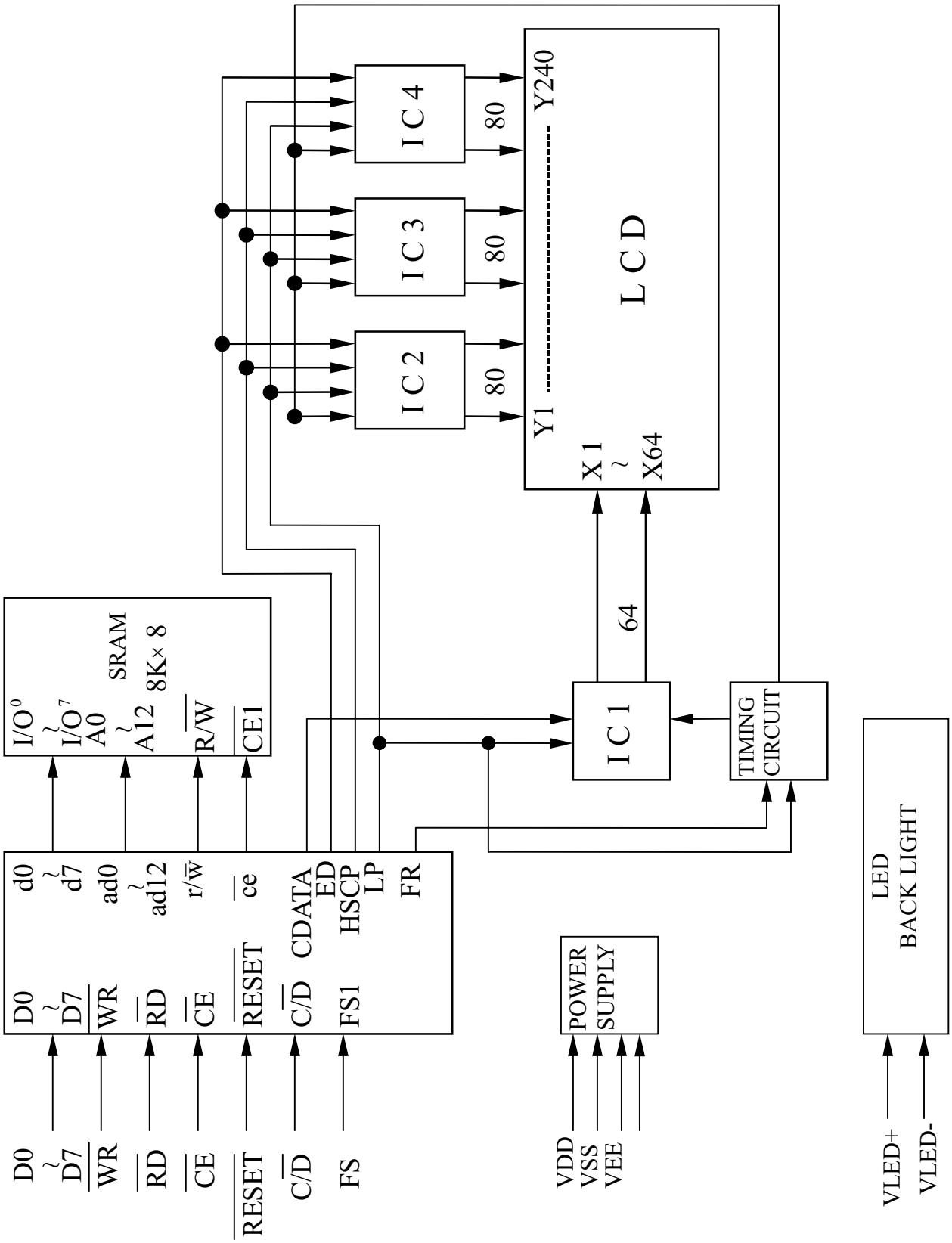
NOTE (5) : POSITION OF LIGHT



NOTE (6) : BRIGHTNESS UNIFORMITY DEFINED AS FOLLWING

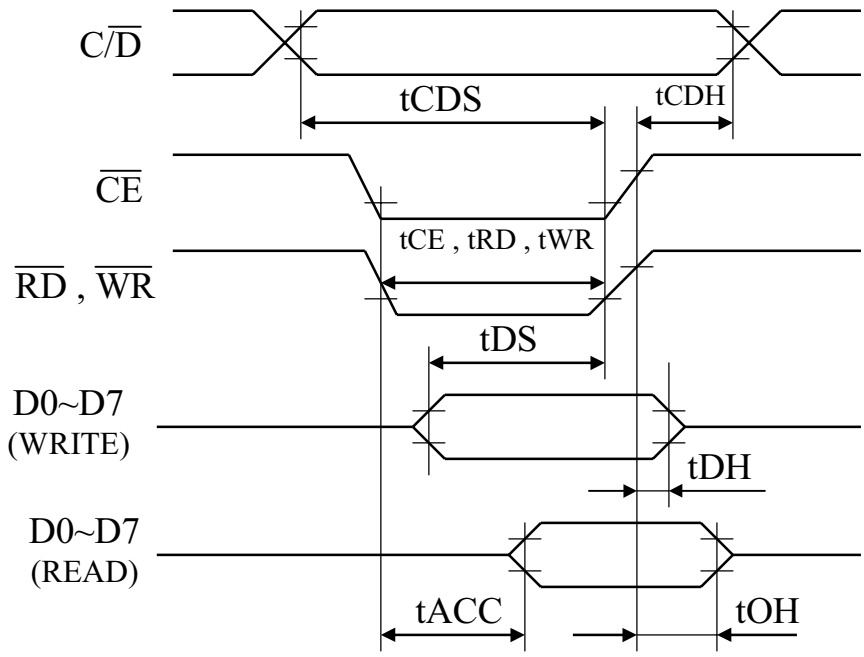
$$\frac{\text{(MAXIMUN BRIGHTNESS OR MINUMUNM BRIGHTNESS)-AVERAGE BRIGHTNESS}}{\text{AVERAGE BRIGHTNESS}}$$

7. BLOCK DIAGRAM.



8. TIMING CHARACTERISTICS.

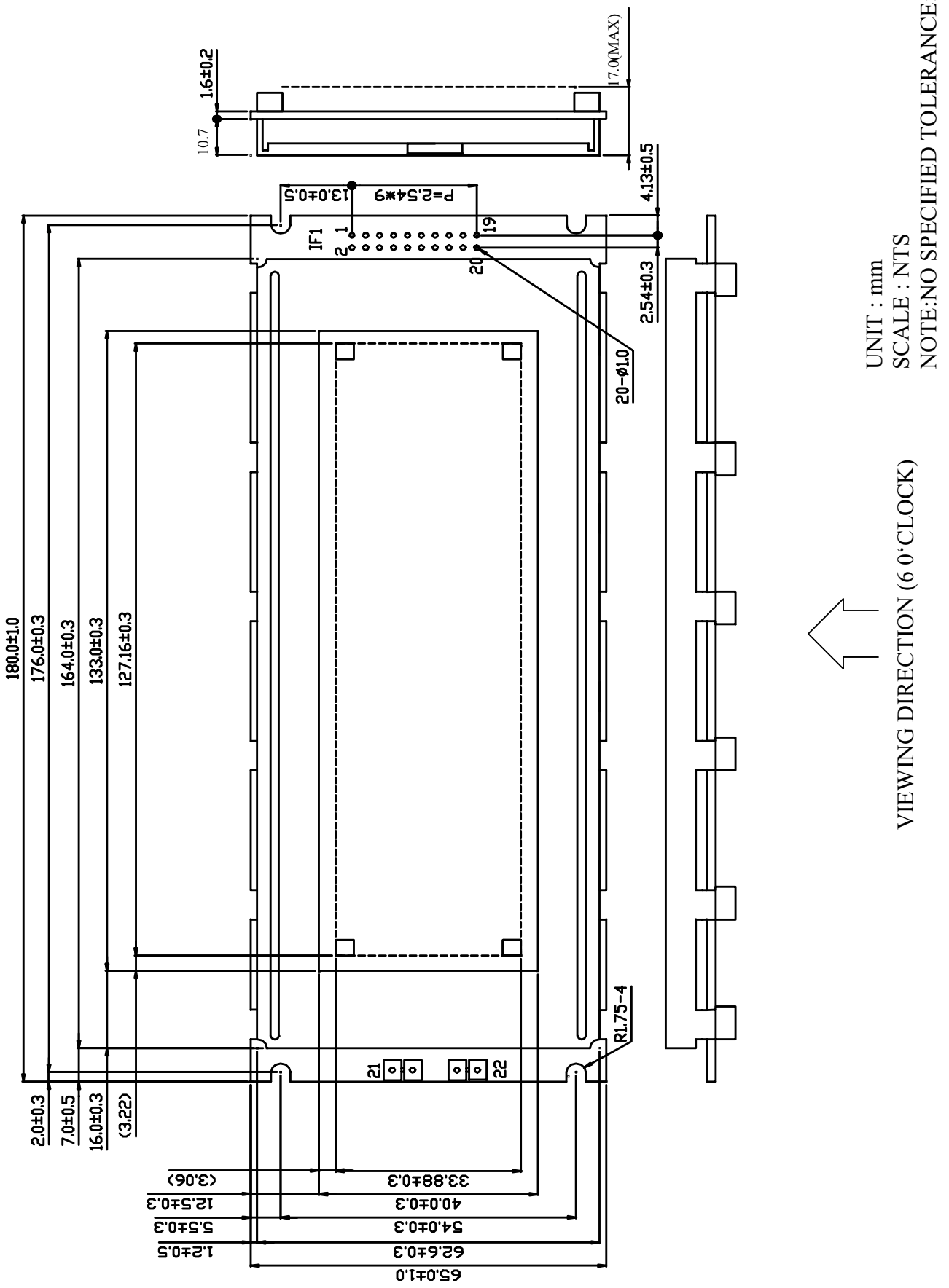
Bus Timing



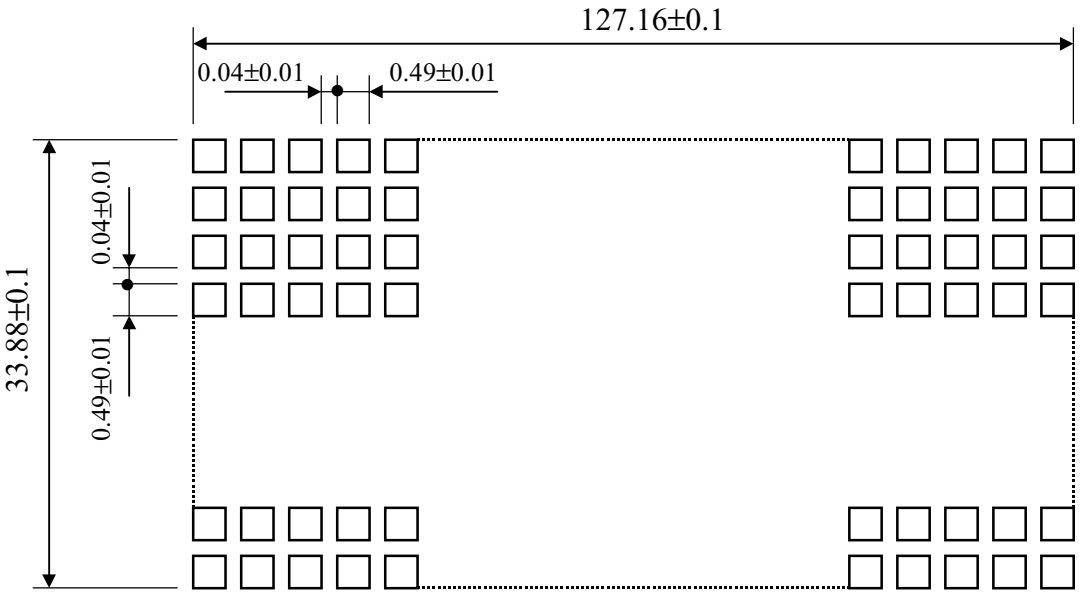
VDD = 5V±0.25V

ITME	SYMBOL	CONDITIONS	MIN.	MAX.	UNIT
C/D Set Up Time	tCDS		100	--------	ns
C/D Hold Time	tCDH		10	--------	ns
CE , RD , WR , Pulse width	tCE,tRD,tWR		80	--------	ns
Data Set Up Time	tDS		80	--------	ns
Data Hold Time	tDH		40	--------	ns
Access Time	tACC		-------	150	ns
Output Hold Time	tOH		10	50	ns

9. OUTLINE DIMENSION



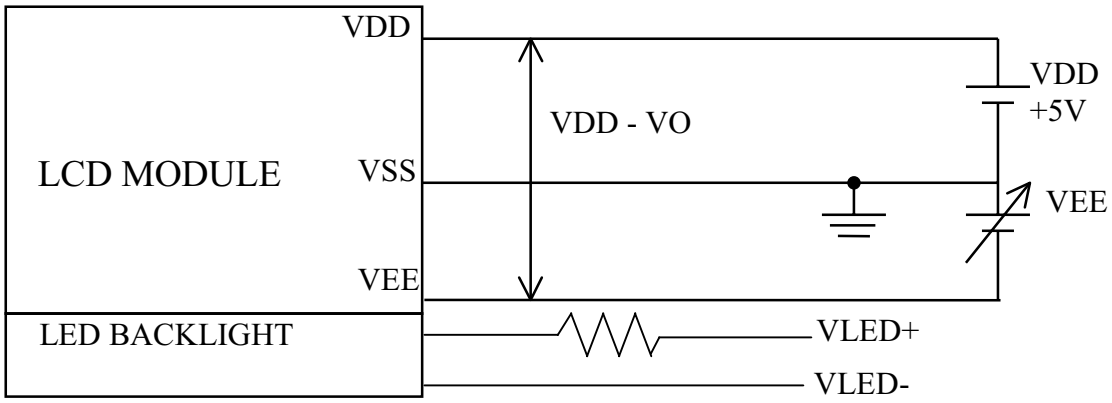
NOTE1. DETAIL DRAWING OF MATRIX PATTERN



IF1:

PIN NO	SYMBOL	FUNCTION
1	FGND	FRAME GROUND (CONNECTED TO METAL BEZEL)
2	GND	GROUND (SIGNAL GROUND 0V)
3	VDD	POWER SUPPLY FOR LOGIC (+5V)
4	VEE	POWER SUPPLY FOR LCD DRIVER
5	$\overline{WR}$	WRITE SIGNAL
6	$\overline{RD}$	READ SIGNAL
7	$\overline{CE}$	CHIP ENABLE
8	C/$\overline{D}$	$\overline{WR}$ = "L" , C / $\overline{D}$ = "H" : COMMAND WRITE C / $\overline{D}$ = "L" : DATA WRITE $\overline{RD}$ = "L" , C / $\overline{D}$ = "H" : STATUS READ C / $\overline{D}$ = "L" : DATA READ
9	NC	NO CONNECTION
10	$\overline{RESET}$	CONTROLLER RESET ("L" : RESET)
11	DO	DATA INPUT / OUTPUT (LSB)
12 | 17	D1 | D6	DATA INPUT/OUTPUT
18	D7	DATA INPUT / OUTPUT (MSB)
19	FS	FONT SELECT : CONNECT TO VDD : 6*8 PIXEL / FONT CONNECT TO GND : 8*8 PIXEL / FONT
20	NC	NO CONNECTION
21	VLED+	POWER SUPPLY FOR VLED+
22	VLED-	POWER SUPPLY FOR VLED-

10. POWER SUPPLY FOR LCM



10.1 POWER AND INTERFACE TIMING SEQUENCE .