ILLUMINANT 北極光企業有限公司

PRODUCT SPECIFICATION FOR TFT LCM

CUSTOMER:	
MODEL NO:	I1812-6IPN1216B
ACCEPTED BY:	

APPROVED BY:	CHECKED BY:	ORGANIZED BY:
LCM產品部 2009.07.01 long	LCM產品部 2009.07.01 Vicky	LCM產品部 2009.07.01 Vicky

☐Approval for Specifications Only

■Approval for Specifications and Sample

Note: 1. Version of Specifications : 1

2. Others: Rohs Compliment

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Version	Date	Contents
1	09/07/01	Initial Release

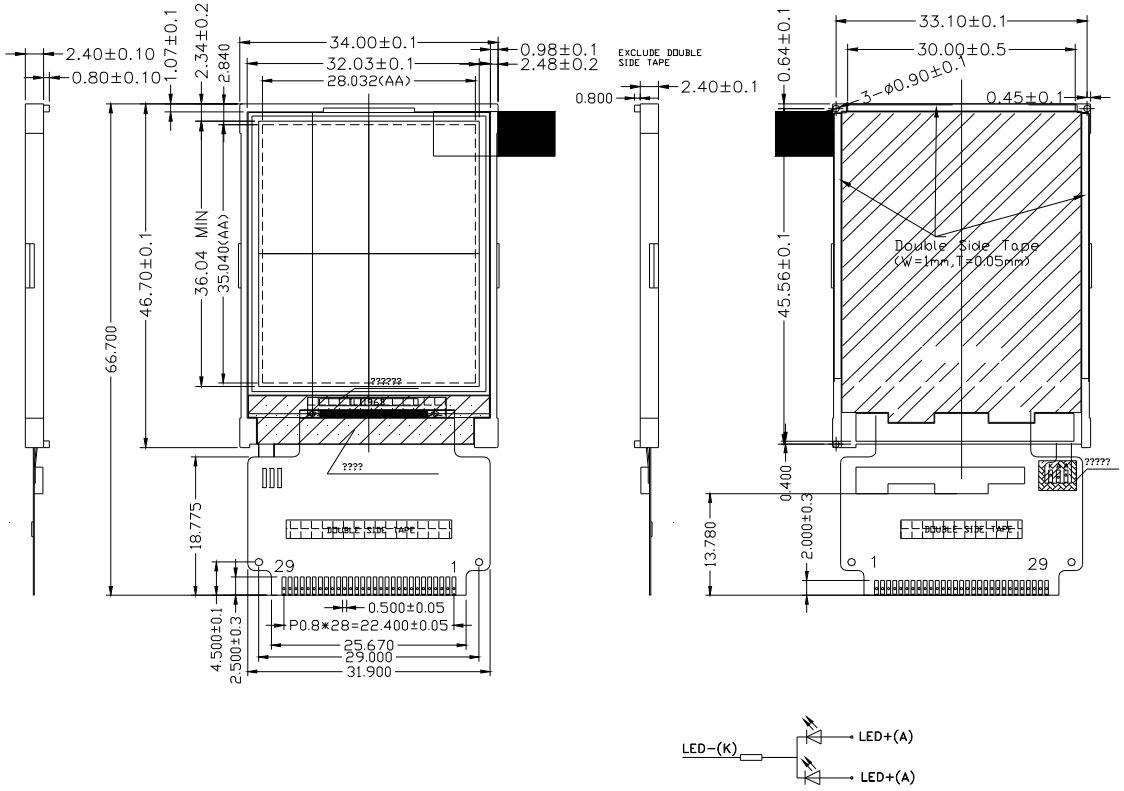
CONTENTS

1. Mechanical Specification

Item	Standard Value	Unit
Display Size	1.77	inch
Module Dimension	34.0(W)×66.7(H)×2.4(D)	mm
Active Area	28.032 (W)×35.04(H)	mm
Number of Dots	128 × RGB × 160	Dot
Pixel Pitch	0.219(W)×0.219(H)	mm
LCD Type	Normal White	-
Viewing Direction	6H	-
Driver	ILI9163	-
Approx. Weight	TBD	g
Various Color Display	262	K
Backlight Type	2-LED parallel （White）	

ILLUMINANT

2008/11/17	modify the B/L fpc



引脚号	名称
1	GND
2	NC
3	NC
4	/RESET
5	DB15
6	DB14
7	DB13
8	DB12
9	DB11
10	DB10
11	DB9
12	DB8
13	DB7
14	DB6
15	DB5
16	DB4
17	DB3
18	DB2
19	DB1
20	DB0
21	/RD
22	/WR
23	RS
24	CS
25	VDD
26	GND
27	LED-
28	LED+
29	LED+

NOTE:

1 DISPLAY TYPE: Main LCD: 262K TFT
2 VIEWING DIRECTION: 6:00 O'CLOCK
3 OPERATING TEMP: -20° C ~ +70° C
4 STORAGE TEMP: -30° C ~ +80° C
5 DRIVE IC: ILI916 3
6 CONNECTOR: FPC
7 BACKLIGHT: 2CHIP-LED PARALL (WHITE),
8 GENERAL TOLERANCE: REFERENCE FORM

DIMENSION	TOLERANCE
L ≦ 6	±0.1 (mm)
6 < L ≦ 18	±0.15 (mm)
18 < L ≦ 50	±0.2 (mm)
50 < L ≦ 125	±0.2 (mm)
125 < L	±0.3 (mm)
ANGLE	±1 ° (DEG)

ILLUMINANT CO.,LTD.

DESIGNED BY: vicky 20090701	I1812-6IPN1216A	VERSION: VERSION
CHECKED BY:		NO. 1 OF 1
APPROVED BY:		UNIT: MM
		DATE: YYYY-MM-DD

2. Absolute Maximum Ratings

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Supply Voltage for Logic	V_{DD}	-0.3		+4.6	V	
Input Voltage	Vin	-0.5		V_{DD}+0.3	V	
Driver Supply Voltage	VGH-VGL	V_{DD}=3V	--	15	--	-
Operating Temperature	T_{OP}	-20	-	+70	℃	-
Storage Temperature	T_{ST}	-30	-	+80	℃	-

*NOTE: Based on Vss=0V.

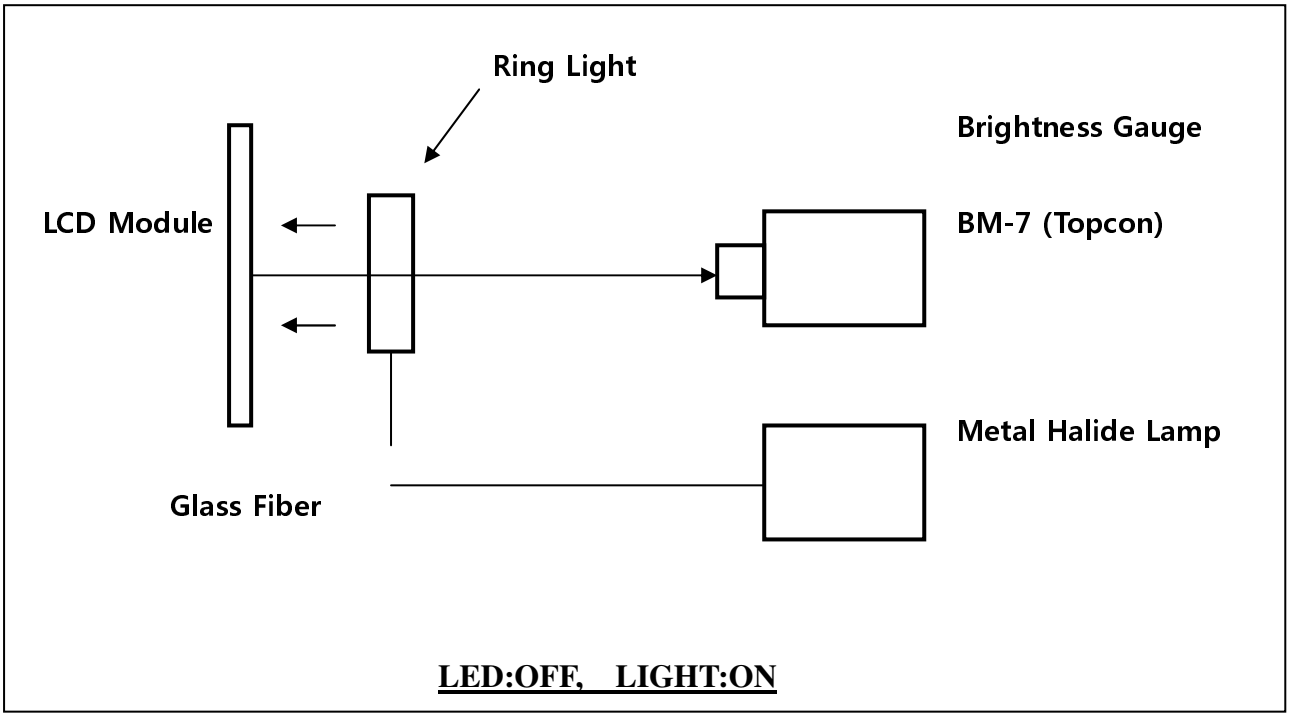
3. Electrical Characteristics

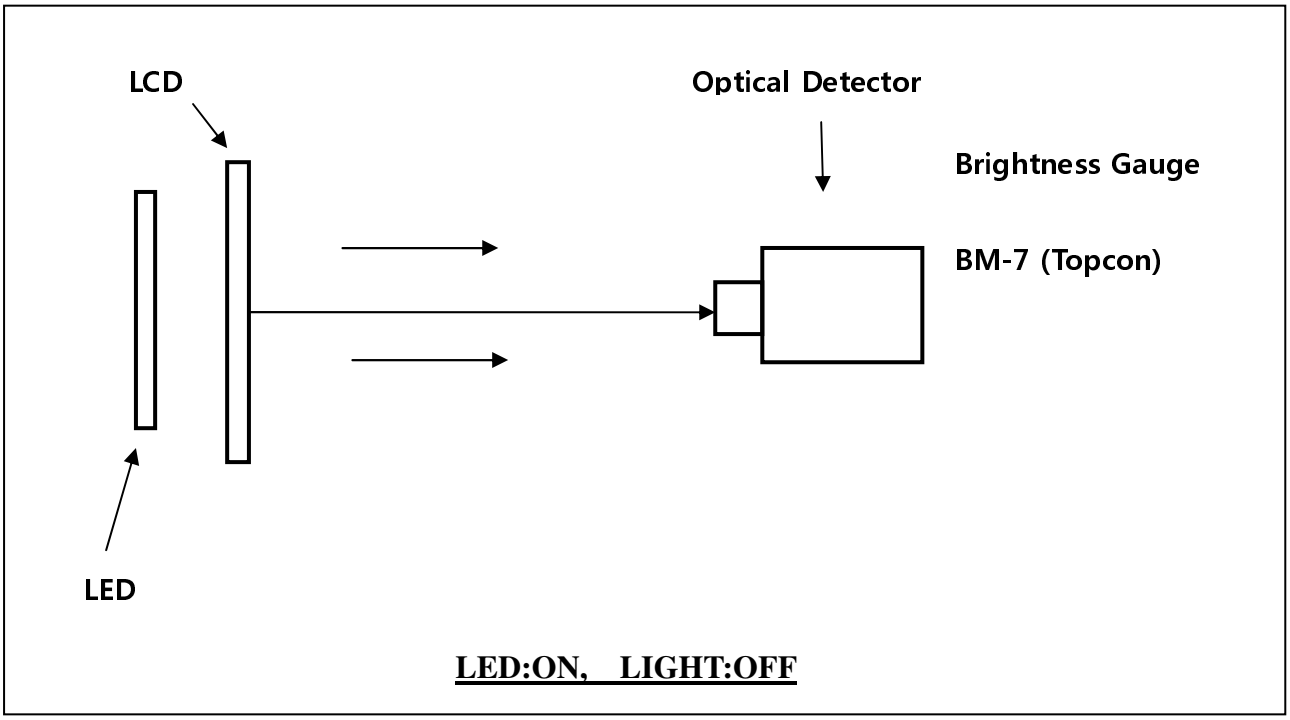
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply Voltage for Logic	V_{DD}	Ta=25℃	2.6	3.0	3.3	V
High-Level Input Voltage	VIHC	V_{DD}=3V	0.7V_{DD}		V_{DD}	
Low-Level Input Voltage	VILC	V_{DD}=3V	-0.3		0.3V_{DD}	
Power Supply Current for V_{DD}	I_{DD}	V_{DD}=3V	-	8.5		mA

4. Optical Characteristics

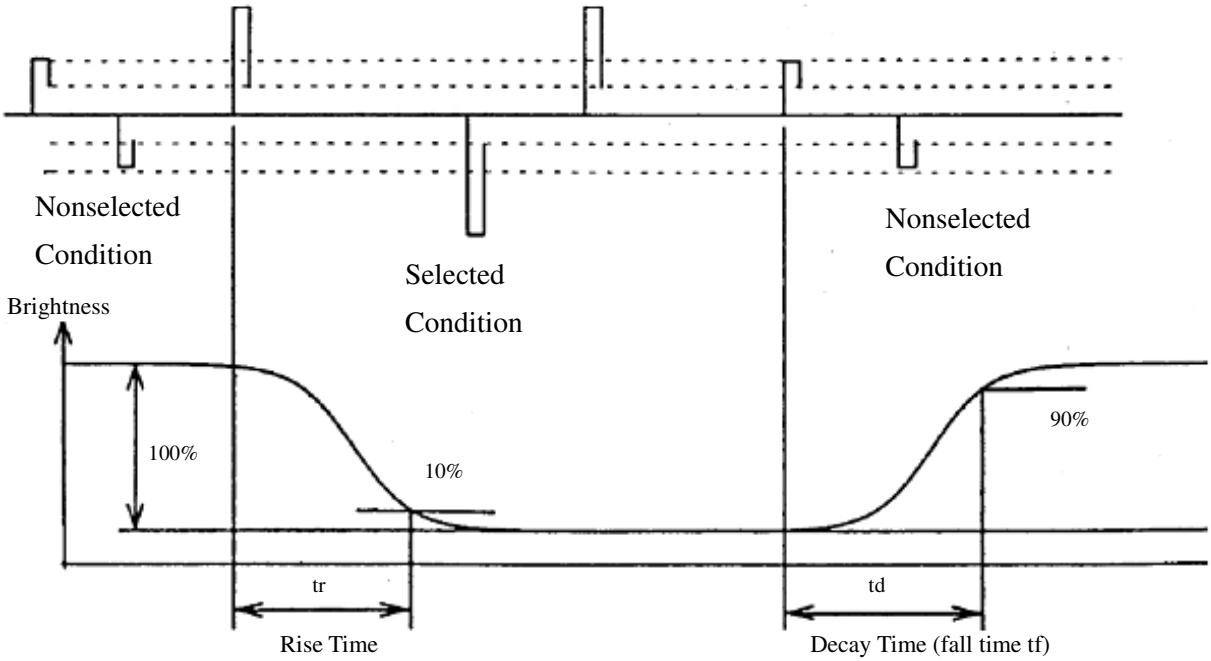
Item		Symbol	Conditions	Specifications			Unit	Note
				Min.	Typ.	Max.		
Transmittance		T%	Viewing normal angle θx-θy-0°		6.5		%	
Contrast Ratio		CR		150	250	-	-	
Response Time		T_R		-	10	20	ms	
		T_F		-	20	30	ms	
Chromaticity	Red	X_R		0.611	0.641	0.671		
		Y_R		0.315	0.345	0.375		
	Green	X_G		0.266	0.296	0.326		
		Y_G		0.554	0.584	0.614		
	Blue	X_B		0.102	0.132	0.162		
		Y_B		0.106	0.136	0.166		
	White	X_W		0.279	0.309	0.339		
		Y_W		0.318	0.348	0.378		
Viewing Angle	Hor.	θx+	Center CR≥ 10	-	45		Deg.	
		θx-		-	45			
	Ver.	θy+		-	15			
		θy-		-	35			

NOTE 1: Optical Characteristic Measurement System

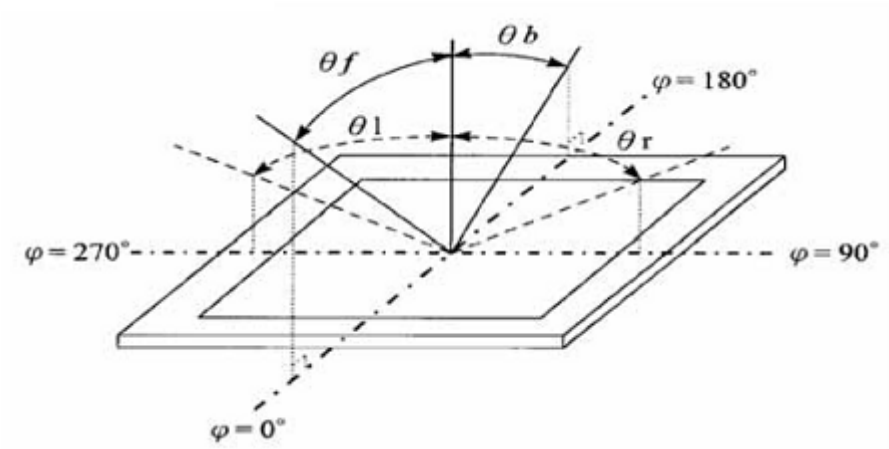




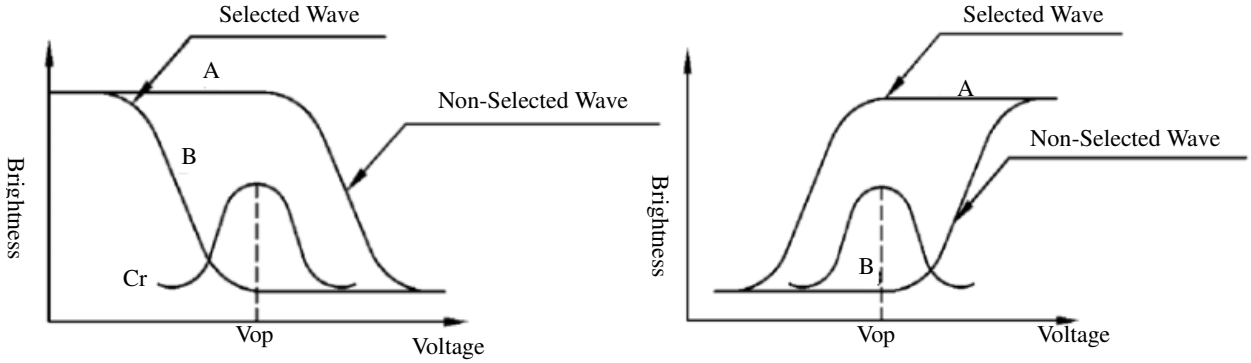
NOTE 2: Response Time Definition



NOTE 3: φ · θ Definition



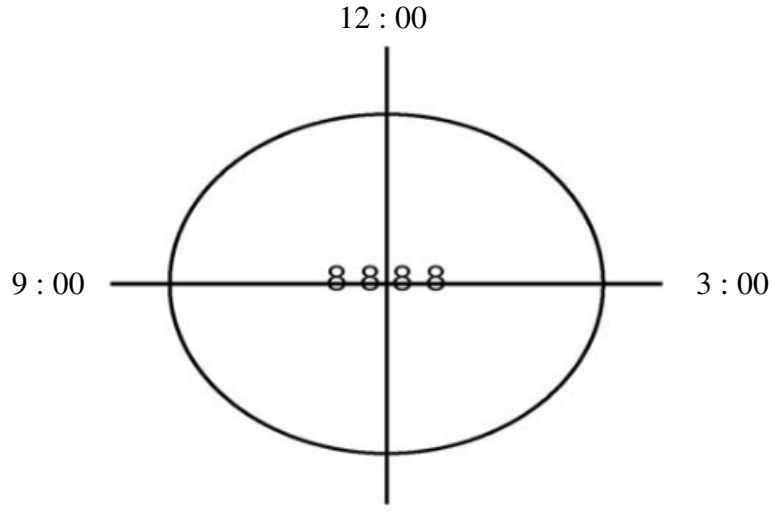
NOTE 4: Contrast Definition



<Positive Type> <Negative Type>

Contrast Ratio : Cr=A/B

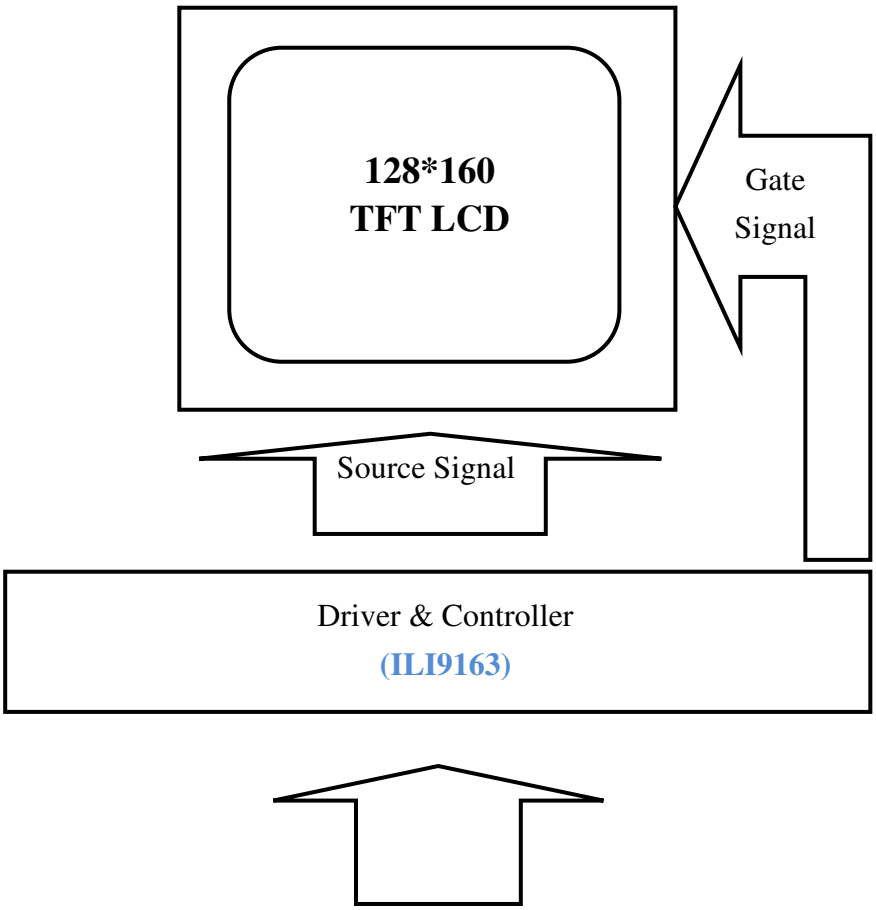
NOTE 5: Visual Angle Direction Priority



5. Interface

Pin No.	Symbol	Function
1	GND	Ground
2	NC	No Connection
3	NC	No Connection
4	/RESET	Reset Signal
5	DB15	Data Bus
6	DB14	Data Bus
7	DB13	Data Bus
8	DB12	Data Bus
9	DB11	Data Bus
10	DB10	Data Bus
11	DB9	Data Bus
12	DB8	Data Bus
13	DB7	Data Bus
14	DB6	Data Bus
15	DB5	Data Bus
16	DB4	Data Bus
17	DB3	Data Bus
18	DB2	Data Bus
19	DB1	Data Bus
20	DB0	Data Bus
21	/RD	Read Execute Control Signal
22	/WR	Write Execute Control Signal
23	RS	Command/Data Select Pin
24	CS	Chip Select Pin
25	VDD	Power Supply
26	GND	Ground
27	LED-	LED cathode
28	LED1+	LED anode
29	LED2+	LED anode

6. Block Diagram



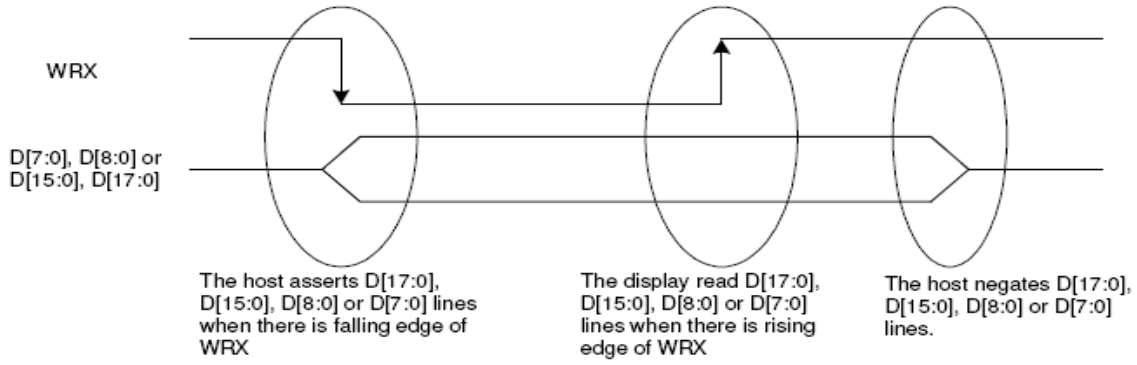
7. Timing Control

Normal Write Mode (IOVCC=1.65~3.3V, VCC=2.4~3.3V)

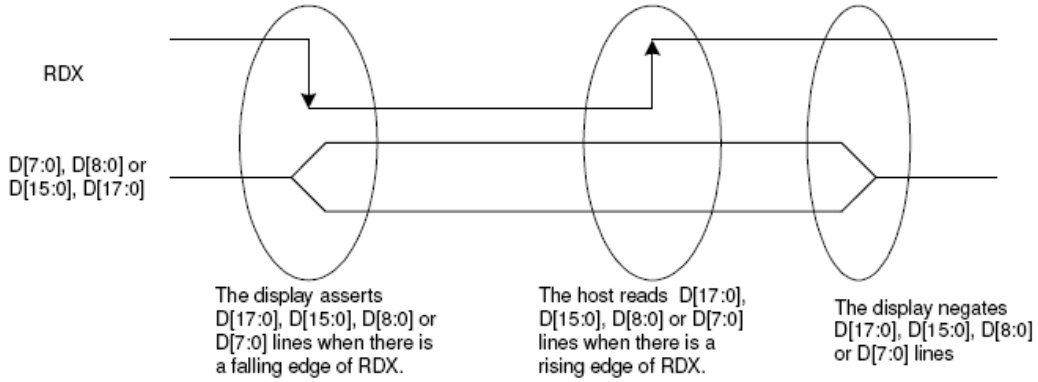
Item		Symbol	Unit	Min.	Typ.	Max.	Test Condition
Bus cycle time	Write	t_{CYCW}	ns	100	-	-	-
	Read	t_{CYCR}	ns	300	-	-	-
Write low-level pulse width		PW_{LW}	ns	50	-	-	-
Write high-level pulse width		PW_{HW}	ns	50	-	-	-
Read low-level pulse width		PW_{LR}	ns	150	-	-	-
Read high-level pulse width		PW_{HR}	ns	150	-	-	
Write / Read rise / Fall time		t_{WRr}/t_{WRf}	ns	-	-	25	
Setup time	Write (RS to nCS, E/nWR)	t_{AS}	ns	10	-	-	
	Read (RS to nCS, RW/nRD)			5	-	-	
Address hold time		t_{AH}	ns	5		-	
Write data set up time		t_{DSW}	ns	10		-	
Write data hold time		t_H	ns	15		-	
Read data delay time		t_{DDR}	ns	-		100	
Read data hold time		t_{DHR}	ns	5		-	

i80 18/16-bit System Bus Interface Timing

(a) Write to Register



(b) Read from Register



8. Backlight

8.1 Standard Lamp Styles (Edge Lighting Type):

The LED chips are distributed over the edge light area of the illumination unit, which gives the less power consumption:

8.2 The Main Advantages of the LED Backlight are as Following:

The brightness of the backlight can simply be adjusted. By a resistor or a potentiometer.

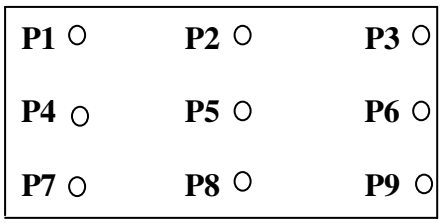
8.3 Data About LED Backlight:

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward voltage	**Vf**	**If =36**	-	**3.2**	**3.5**	**V**
Forward current	**If**		-	**36**		**mA**
Uniformity	-	**If=36**	**80%**	-	-	-
Luminous color	-	**White**				
Chip connection	-	**2-LED parallel connection**				

NOTE:

1.Backlight Only
2.Average Luminous Intensity of P1-P9
3.Uniformity = Min(P1~P9)/Max(P1~P9) * 100%>80%

8.4 Measured Method:



(Effective spatial Distribution)
Hole Diameter±1ø ; 1 to 9per Position Measured Luminous