DISPLAY Elektronik GmbH

DATA SHEET

LCD MODULE

DEM 800480Q6 VMX-PW-N

(A-TOUCH)

Product Specification ***Version: 1***

30.06.2026

GENERAL SPECIFICATION

MODULE NO. :

DEM 800480Q6 VMX-PW-N (A-TOUCH)

CUSTOMER

VERSION NO.	CHANGE DESCRIPTION	DATE
0	ORIGINAL VERSION	09.06.2026
1	ADD 4.2 RGB INTERFACE	30.06.2026

PREPARED BY: LM DATE: 30.06.2026

APPROVED BY: WH DATE: 30.06.2026

CONTENTS

1. GENERAL SPECIFICATIONS **2**

2. EXTERNAL DIMENSIONS **4**

3. BLOCK DIAGRAM **6**

4. PIN ASSIGNMENT **7**

5. OPTICAL CHARACTERISTICS **9**

6. ABSOLUTE MAXIMUM RATINGS **12**

7. ELECTRICAL CHARACTERISTICS **12**

8. RELIABILITY TEST **17**

9. LCD MODULES HANDLING PRECAUTIONS **18**

10. OTHERS **18**

1. GENERAL SPECIFICATIONS

ITEM	STANDARD VALUE	UNIT
LCD SIZE	5.0” TFT	Inch
LCD TYPE	TFT / IPS / NORMALLY BLACK / TRANSMISSIVE	-
MODULE SIZE	120.70 x 75.80 x 4.30	mm
ACTIVE AREA	108.00 x 64.80	mm
PIXEL PITCH (W*H)	0.135 x 0.135	-
NUMBER OF PIXELS	800 x 480	-
DIVER IC	ST72568 (Sitronix)	-
INTERFACE TYPE	RGB	-
RECOMMEND VIEWING DIRECTION	ALL	o’clock
GRAY SCALE INVERSION DIRECTION	-	o’clock
COLORS	16.7 Million	-
BACKLIGHT TYPE	20-DIES WHITE LED	-
TOUCH PANEL TYPE	RTP	-

Touch Panel Features:

Type:	4-Wire Analog Resistive Touch Panel
Input Mode:	Stylus or Finger
ITO Film:	0.175 mm (T)
ITO Glass:	1.1 mm (T)
Connector:	FPC

Touch Panel Mechanical Characteristics

Surface Hardness: 3H or more (according to JIS-K5400).

Touch Panel Optical Characteristics

Transmittance: 80% Typical.

Touch Panel Rating

1. Maximum Voltage
Less than DC 7 volts.

2. Operating Temperature Range
-30℃ to +85℃ (Humidity: 20% RH to 70% RH, No condensation of dew).

3. Storage Temperature Range
-30℃ to +85℃ (Humidity: 20% RH to 80% RH, No condensation of dew).

Electrical Characteristics

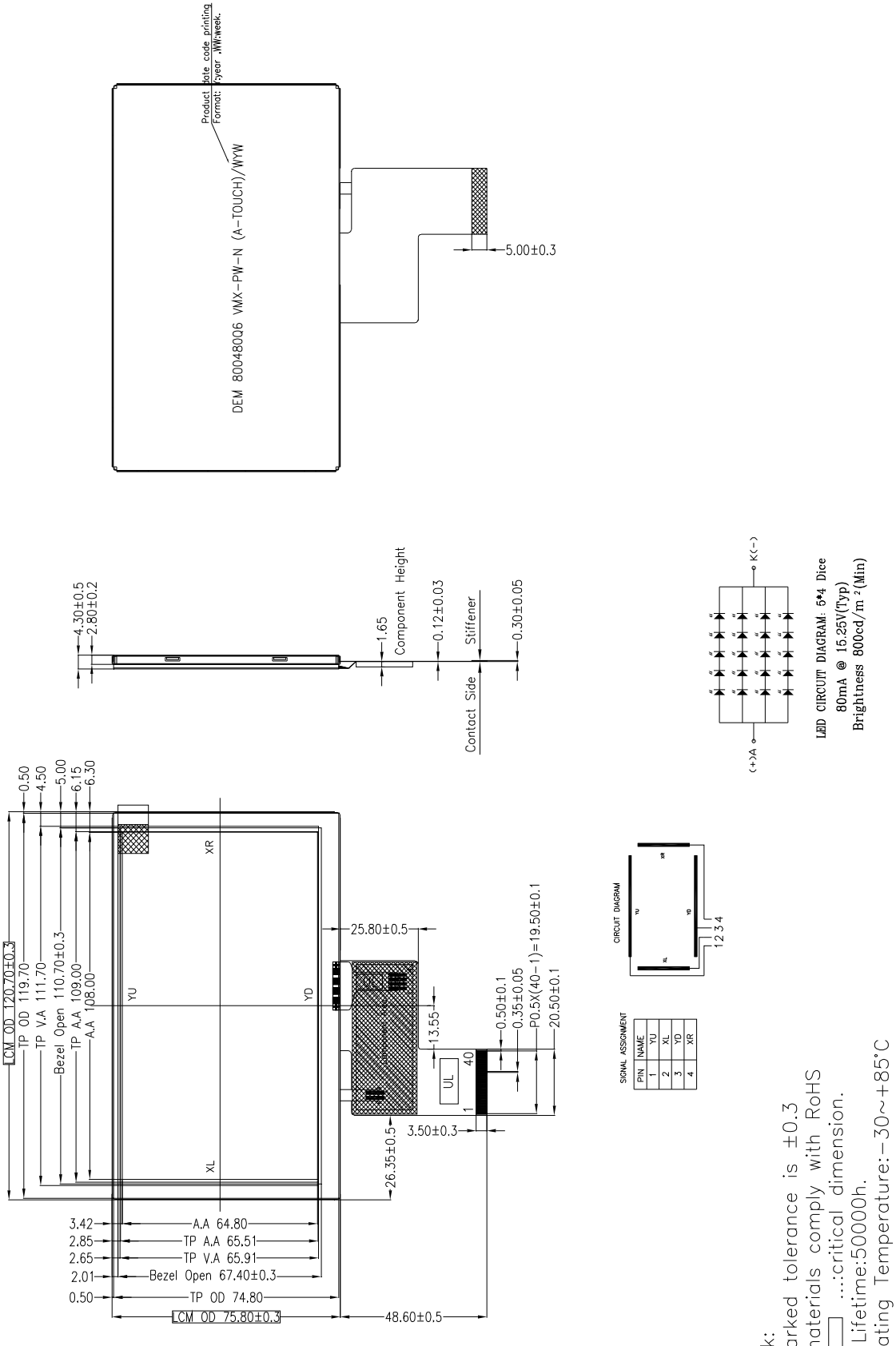
1. Resistance between Terminals
Direction “X”: 410~920Ω
Direction “Y”: 140~340Ω

2. Linearity
X axis:≤±1.5%
Y axis:≤±1.5%

3. Insulation Resistance: 20MΩ or more at DC 25 V.

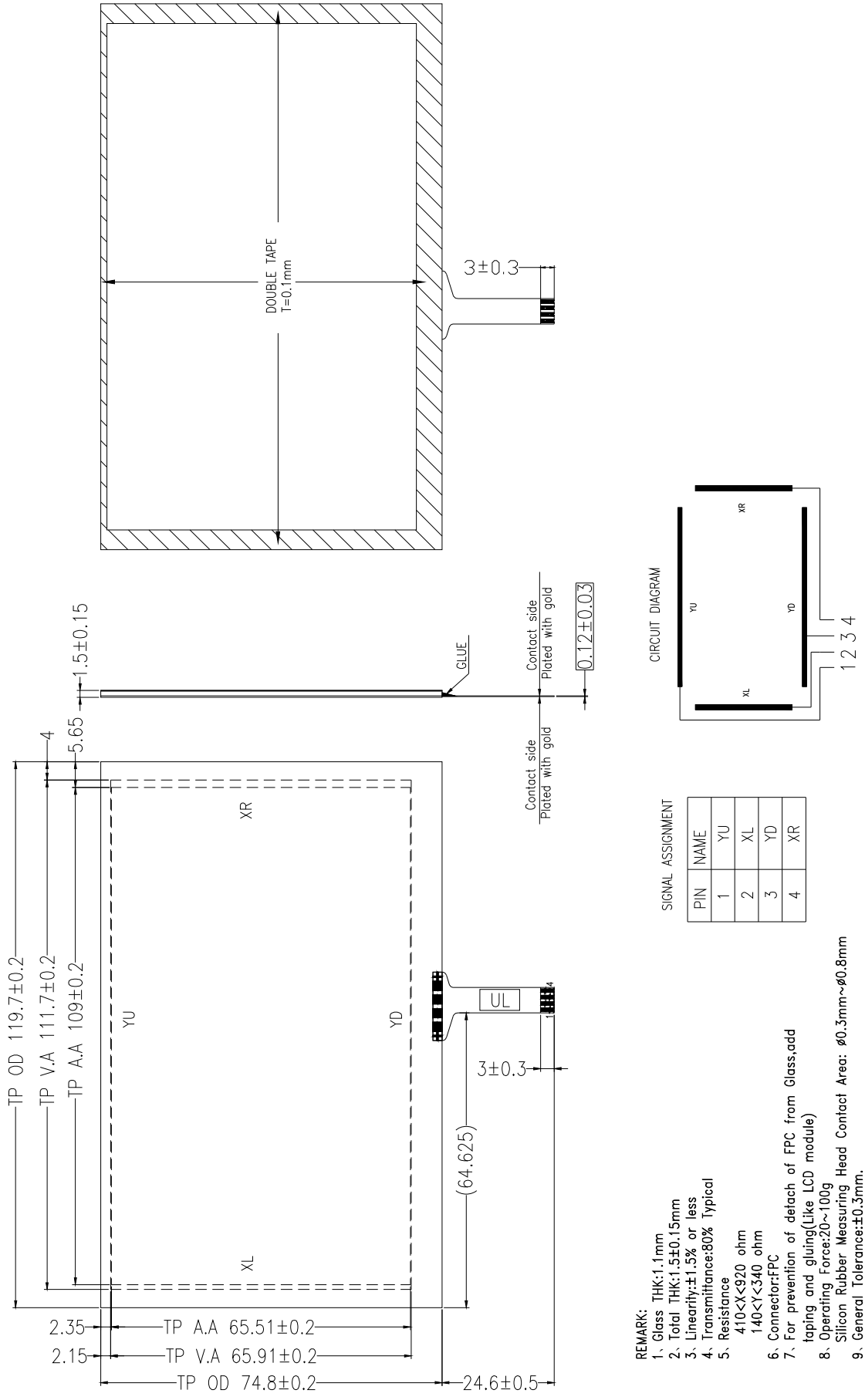
4. Chattering Time: 10 msec or less at 100kΩ Pull-up.

2. EXTERNAL DIMENSIONS



Remark:
1.Unmarked tolerance is ±0.3
2.All materials comply with RoHS
3.□ ...:critical dimension.
4.LED Lifetime:50000h.
5.Operating Temperature:-30~+85°C

TOUCH PANEL DRAWING:

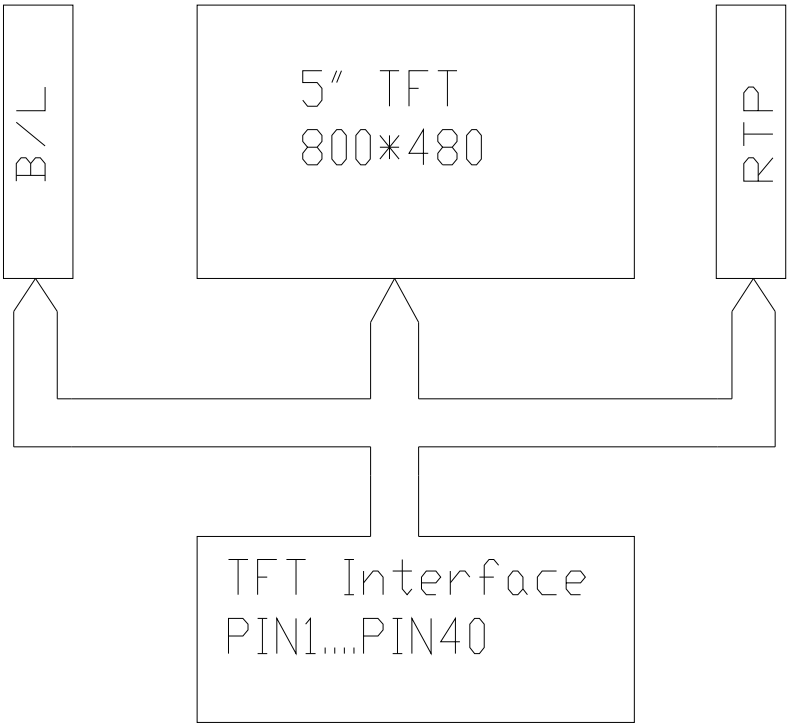


SIGNAL ASSIGNMENT

PIN	NAME
1	YU
2	XL
3	YD
4	XR

REMARK:
1. Glass THK:1.1mm
2. Total THK:1.5±0.15mm
3. Linearity:±1.5% or less
4. Transmittance:80% Typical
5. Resistance
   410<X<920 ohm
   140<Y<340 ohm
6. Connector:FPC
7. For prevention of detach of FPC from Glass,add taping and gluing(Like LCD module)
8. Operating Force:20~100g
   Silicon Rubber Measuring Head Contact Area: ø0.3mm~ø0.8mm
9. General Tolerance:±0.3mm.
10. All materials comply with RoHs
11. □:critical dimension.
12. FPC加上UL版號.

3. BLOCK DIAGRAM



4. PIN DEFINITION

4.1 PIN ASSIGNMENT

PIN NO	SYMBOL	DESCRIPTION
1	VLED-	Cathode of LED back light
2	VLED+	Anode of LED back light
3	GND	Power ground
4	VDD	Power voltage
5	R0	Red data
6	R1	Red data
7	R2	Red data
8	R3	Red data
9	R4	Red data
10	R5	Red data
11	R6	Red data
12	R7	Red data
13	G0	Green data
14	G1	Green data
15	G2	Green data
16	G3	Green data
17	G4	Green data
18	G5	Green data
19	G6	Green data
20	G7	Green data
21	B0	Blue data
22	B1	Blue data
23	B2	Blue data
24	B3	Blue data
25	B4	Blue data
26	B5	Blue data
27	B6	Blue data
28	B7	Blue data
29	GND	Power ground
30	CLK	Sample clock
31	DISP	Display on/off

32	H-SYNC	Horizontal sync signal applied to the RGB interface
33	V-SYNC	Vertical sync signal applied to the RGB interface
34	DE	Data input enable
35	NC	No connection
36	GND	Power ground
37	XR	Touch panel control
38	YD	Touch panel control
39	XL	Touch panel control
40	YU	Touch panel control

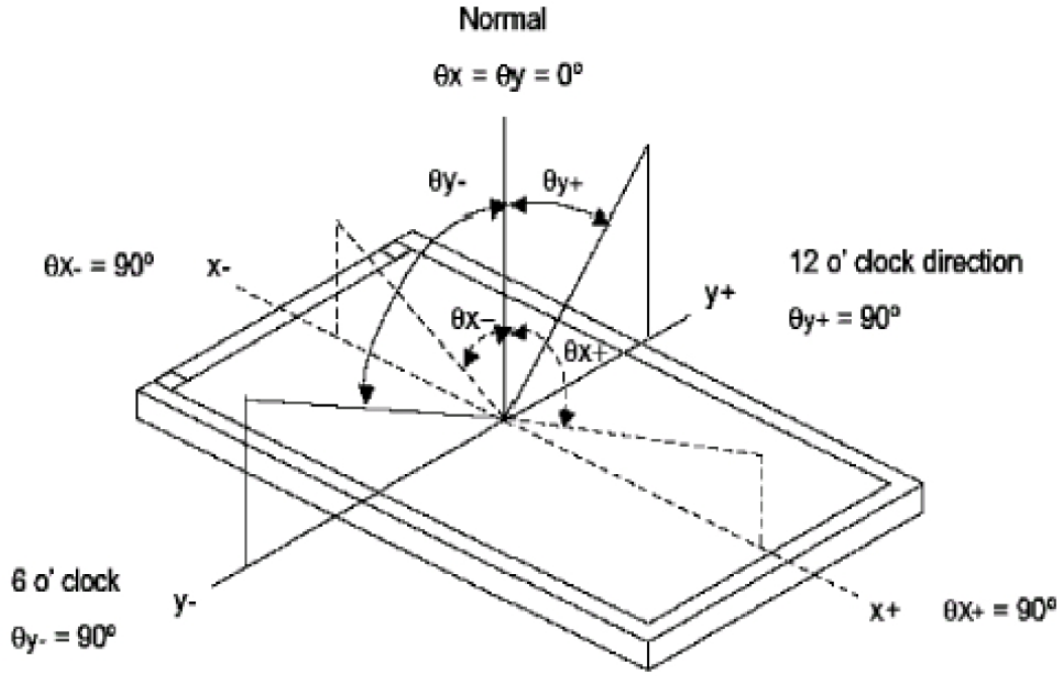
4.2 RGB INTERFACE MODE

RGB Mode Selection Table	DCLK	HSYNC	VSYNC	DE
SYNC - DE Mode	Input	Input	Input	Input
SYNC Mode	Input	Input	Input	GND
DE Mode	Input	GND	GND	Input

5. OPTICAL CHARACTERISTICS

ITEM		SYMBOL	CONDITIONS	SPECIFICATIONS			UNIT
				MIN	TYP.	MAX	
Luminance		L	-	-	800	-	cd/㎡
Contrast Ratio		CR	θ =0 °	800	1000	-	-
Response Time		Ton+ Toff	25℃	-	30	40	ms
CIE COLOUR COORDINATE	RED	XR	VIEWING NORMAL ANGLE	-	0.629	-	-
		YR		-	0.326	-	-
	GREEN	XG		-	0.337	-	-
		YG		-	0.546	-	-
	BLUE	XB		-	0.136	-	-
		YB		-	0.143	-	-
	WHITE	XW		-	0.320	-	-
		YW		-	0.345	-	-
VIEWING ANGLE	Hor.	θ x+	CR≥10	70	80	-	Degree
		θ x-		70	80	-	
	Ver.	θ y+		70	80	-	
		θ y-		70	80	-	

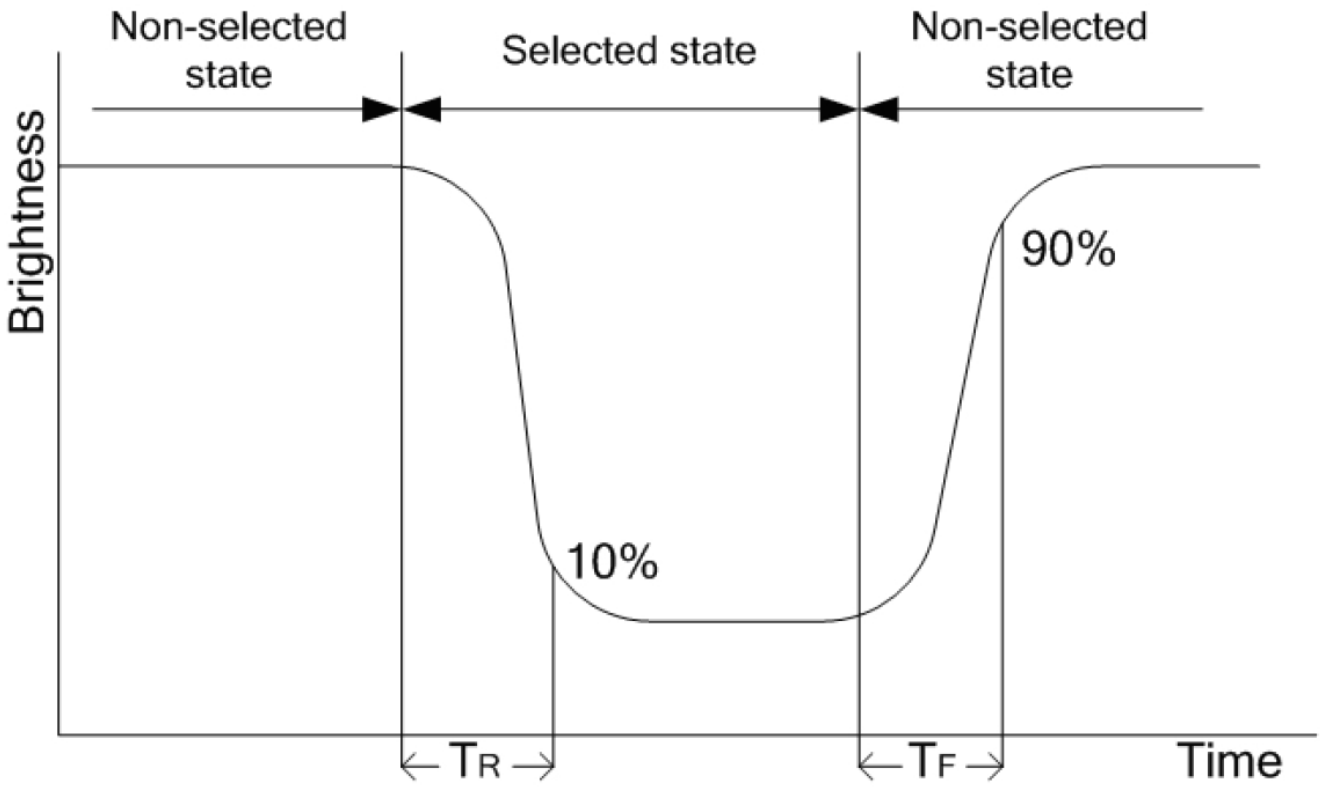
Note 1 : Definition of Viewing Angle θ_x and θ_y :



Note 2: Definition of contrast ratio CR:

$$CR = \frac{\text{Brightness of non-selected dots (white)}}{\text{Brightness of selected dots (black)}}$$

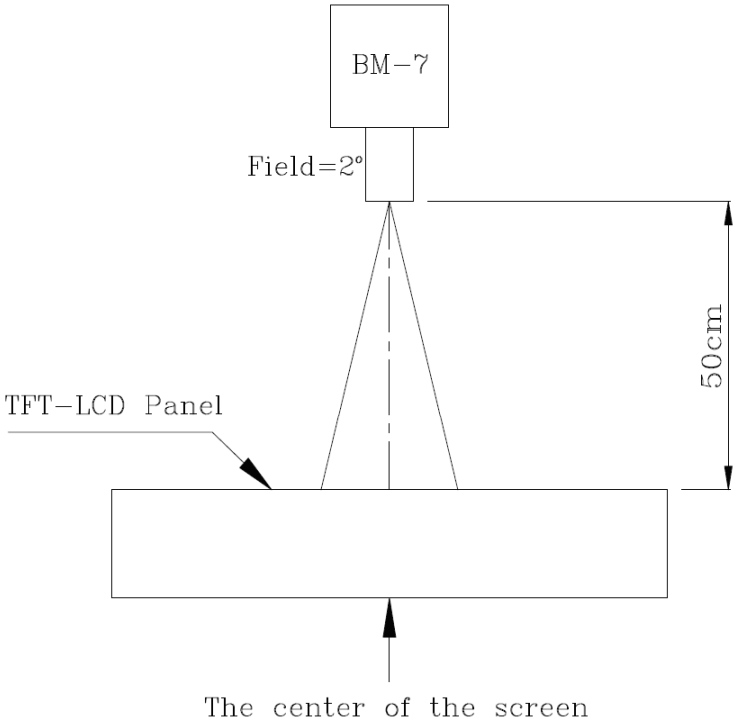
Note 3: Definition of response time (T_R, T_F)



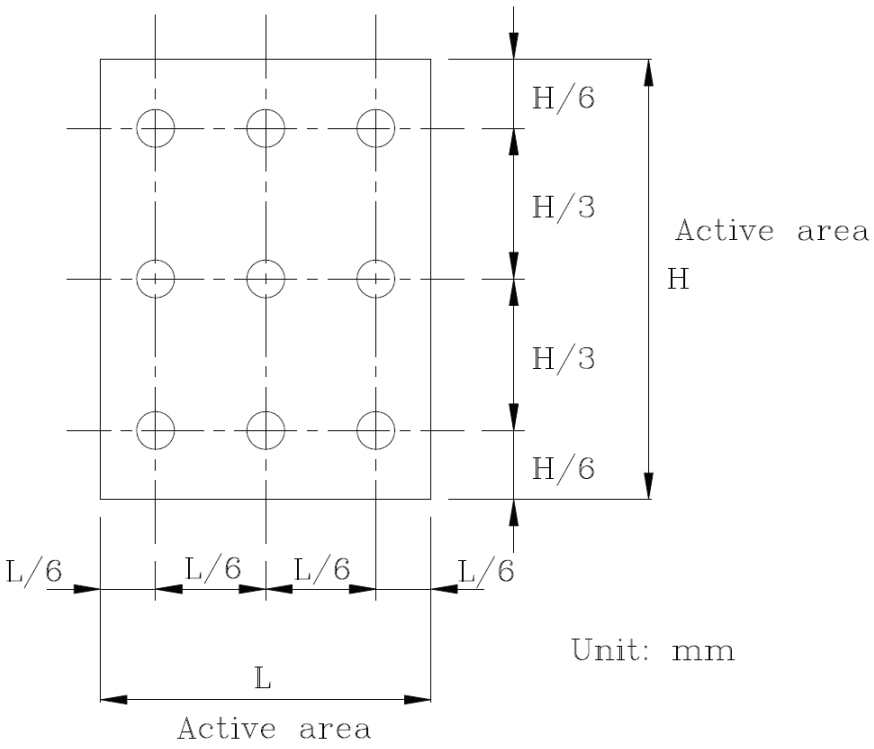
Note 4: Definition of Luminance

①The Brightness Test Equipment Setup

Field=2° (As measuring "black" image, field=2° is the best testing condition)



②The Brightness Test Point Setup



6. ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT
Power Supply Voltage	VDD	-0.3	4	V
Operating Temperature	Top	-30	+85	℃
Storage Temperature	Tst	-30	+85	℃

7. ELECTRICAL CHARACTERISTICS

7.1 ELECTRICAL CHARACTERISTICS

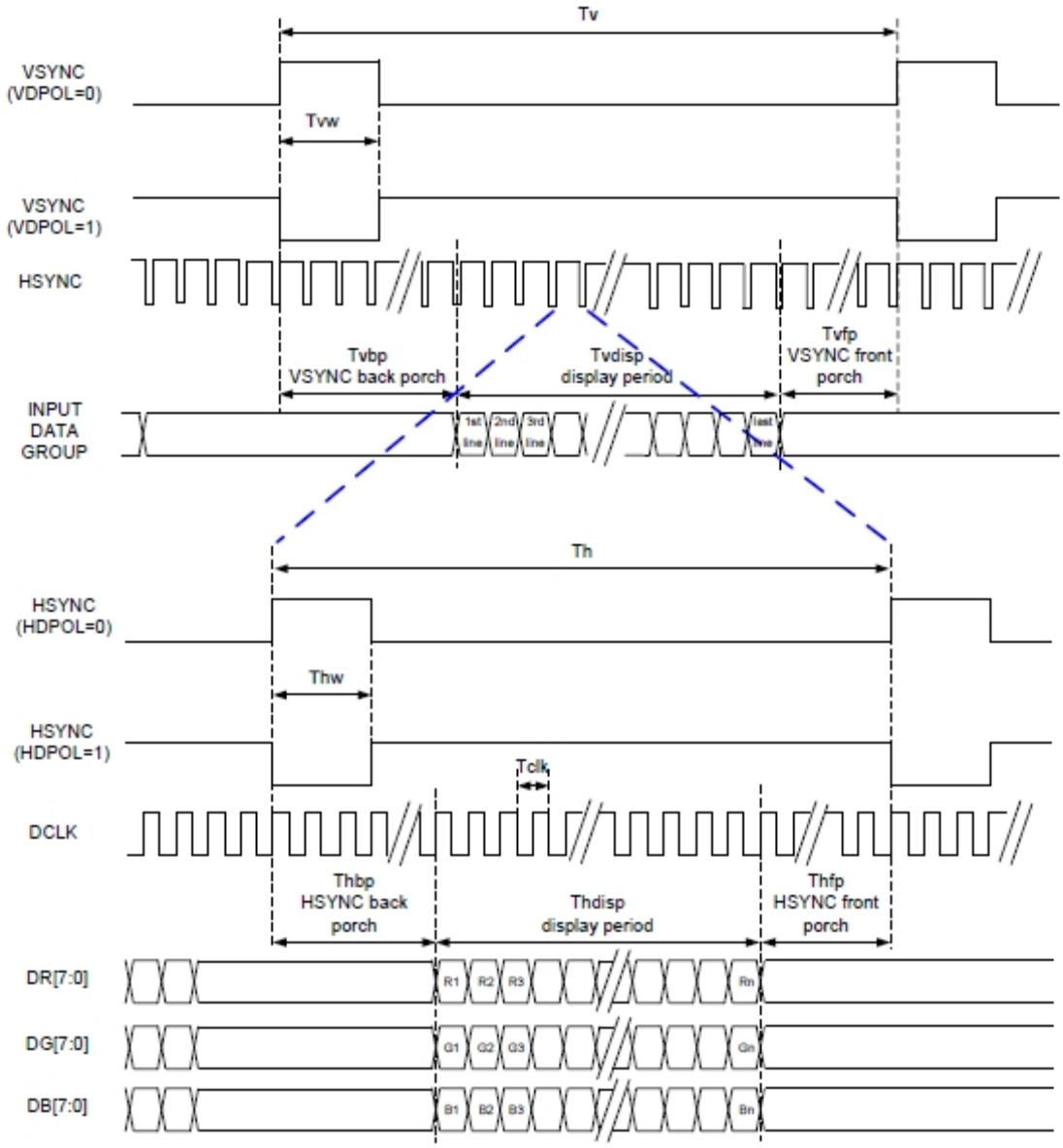
ITEM	SYMBOL	MIN	TYP.	MAX	UNIT
Supply Voltage for Analog	VDD	3.1	3.3	3.5	V
Current for Driver (Black)	IDD	-	110	170	mA
Input Voltage	Vil	GND	-	0.3VDD	V
	Vih	0.7VDD	-	VDD	V

7.2 BLACKLIGHT DRIVING CONDITIONS

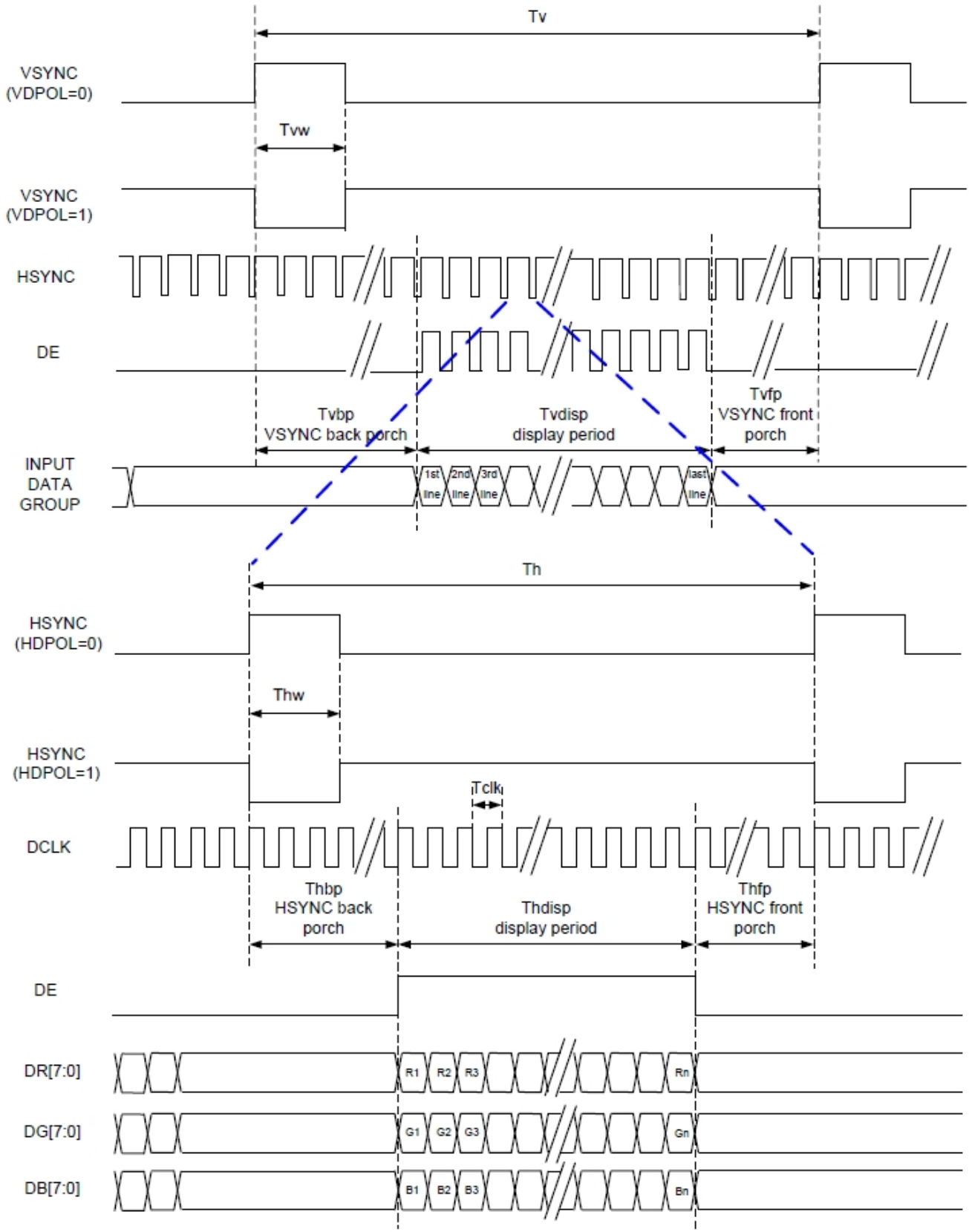
ITEM	SYMBOL	MIN	TYP.	MAX	UNIT
Voltage for LED Backlight	VL	14.50	15.25	16.0	V
Current for LED Backlight	IL	-	80	-	mA
LED Lifetime	-	-	50000	-	Hr

7.3 TIMING CHARACTERISTICS

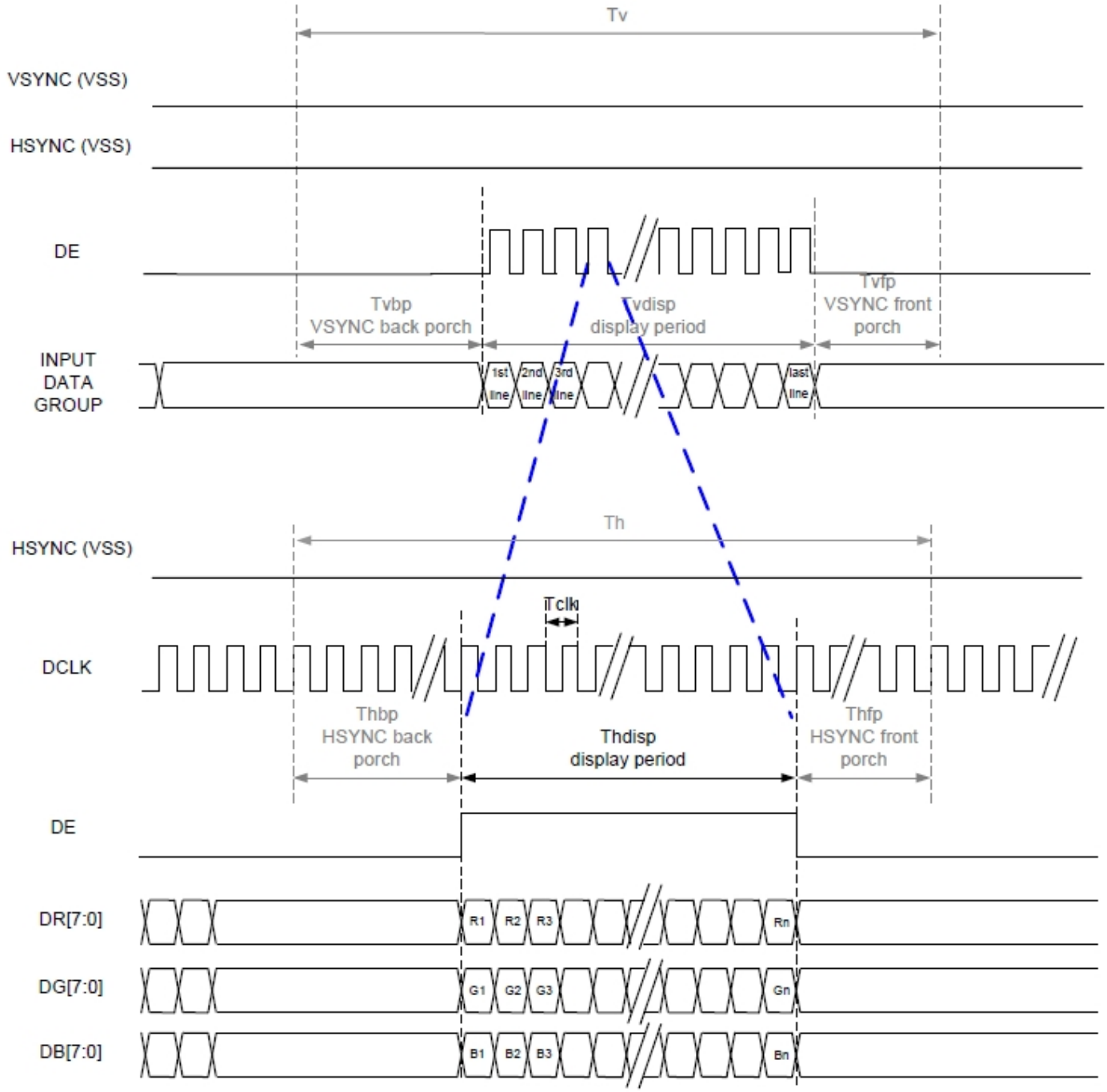
7.3.1 SYNC MODE



7.3.2 SYNC DE MODE



7.3.3 DE MODE


Tv
VSYNC (VSS)
HSYNC (VSS)
DE
Tvbp
VSYNC back porch
Tvdisp
display period
Tvfp
VSYNC front
porch
INPUT
DATA
GROUP
1st line
2nd line
3rd line
last line
Th
HSYNC (VSS)
Tclk
DCLK
Thbp
HSYNC back
porch
Thdisp
display period
Thfp
HSYNC front
porch
DE
DR[7:0]
R1
R2
R3
Rn
DG[7:0]
G1
G2
G3
Gn
DB[7:0]
B1
B2
B3
Bn

7.3.4 PARALLEL 24-BIT RGB INPUT TIMING TABLE

Parallel 24-bit RGB Input Timing (PVDD=VDD=VDDI= 3.3V, AGND= 0V, TA=25°C)

Parallel 24-bit RGB Interface Timing Table							
Item		Symbol	Min.	Typ.	Max.	Unit	Remark
DCLK Frequency		Fclk	23	25	27	MHz	.
HSYNC	Period Time	Th	808	816	848	DCLK	
	Display Period	Thdisp		800		DCLK	
	Back Porch	Thbp	4	8	24	DCLK	
	Front Porch	Thfp	4	8	24	DCLK	
	Pulse Width	Thw	2	4	8	DCLK	
VSYNC	Period Time	Tv	496	512	528	HSYNC	
	Display Period	Tvdisp		480		HSYNC	
	Back Porch	Tvbp	8	16	24	HSYNC	
	Front Porch	Tvfp	8	16	24	HSYNC	
	Pulse Width	Tvw	2	4	8	HSYNC	

8. RELIABILITY TEST

NO	TEST ITEM	CONDITIONS
1	HIGH TEMPERATURE STORAGE	TA=85°C 240h
2	LOW TEMPERATURE STORAGE	TA=-30°C 240h
3	HIGH TEMPERATURE OPERATION	TA=85°C 240h
4	LOW TEMPERATURE OPERATION	TA=-30°C 240h
5	HIGH TEMPERATURE AND HIGH HUMIDITY OPERATION	+60°C , 90%RH 240h

9. LCD MODULES HANDLING PRECAUTIONS

- The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

- If the display panel is damaged and the liquid crystal substance inside it leaks out, do not get any in your mouth. If

- The substance come into contact with your skin or clothes promptly wash it off using soap and water.

- Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.

- The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarize carefully.

- To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.
  - Be sure to ground the body when handling the LCD module.
  - Tools required for assembly, such as soldering irons, must be properly grounded.
  - To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.
  - The LCD module is coated with a film to protect the display surface. Exercise care when peeling off this protective film since static electricity may be generated.

- Storage precautions
  When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps. Keep the modules in bags designed to prevent static electricity charging under low temperature / normal humidity conditions (avoid high temperature / high humidity and low temperatures below 0°C).
  Whenever possible, the LCD modules should be stored in the same conditions in which they were shipped from our company.

10. OTHERS

- Liquid crystals solidify at low temperature (below the storage temperature range) leading to defective orientation of liquid crystal or the generation of air bubbles (black or white). Air bubbles may also be generated if the module is subjected to a strong shock at a low temperature.

- If the LCD modules have been operating for a long time showing the same display patterns may remain on the screen as ghost images and a slight contrast irregularity may also appear. Abnormal operating status can be resumed to be normal condition by suspending use for some time. It should be noted that this phenomena does not adversely affect performance reliability.

- To minimize the performance degradation of the LCD modules resulting from caused by static electricity, etc. exercise care to avoid holding the following sections when handling the modules:
  - Exposed area of the printed circuit board
  - Terminal electrode sections.