



**SPECIFICATION
FOR
LCD MODULE**

Customer : _____

Product Model: YH080CBH3101

Sample code: _____

Designed by	Checked by	Approved by

Final Approval by Customer

<input type="checkbox"/> LCM Machinery OK Checked By _____ <input type="checkbox"/> LCM Display OK Checked By _____	<input type="checkbox"/> LCM OK <input type="checkbox"/> NG , Problem survey: Approved By _____
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※The specification of “TBD” should refer to the measured value of sample . If there is difference between the design specification and measured value, we naturally shall negotiate and agree to solution with customer.



DOCUMENT REVISION HISTORY

Version	DATE	DESCRIPTION	CHANGED BY
00	JUNE-09-2020	First Issue	HDW
01	JULY-20-2020	First Issue	HDW
02	Nov-30-2020	First Issue	HDW

1.0 General Description

1.1 Introduction

YH080CBS3101 Display model 8.0" LCM is a color active matrix thin film transistor (TFT) liquid crystal display (LCD) that uses amorphous silicon TFT as a switching device. This model is composed of a TFT LCD panel and a driving circuit. This TFT LCD has a 8.0(10:16) inch diagonally measured active display area with (800horizontal by 1280 vertical pixel) resolution.

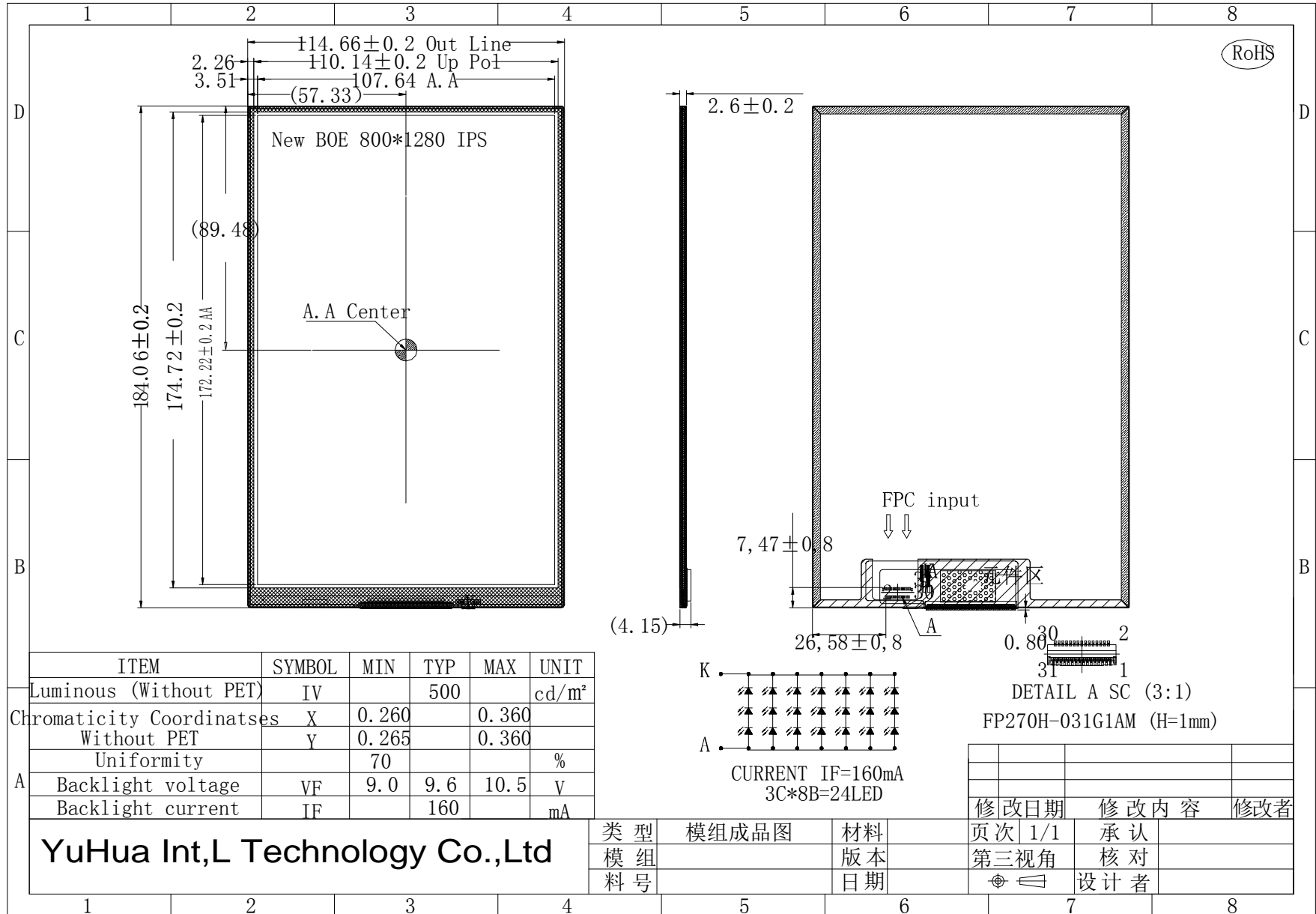
1.2. Features

- 8.0 (10:16 diagonal) inch configuration
- MIPI interface
- 16.7M color
- RoHS Compliance
- Halogen Free

1.3. General information

Item	Specification	Unit
Outline Dimension	114.66 (H) x 184.16 (V) x5.4(D)	mm
Display area	107.64(H) x 172.22 (V)	mm
Number of Pixel	800 RGB (H) x1280 (V)	pixels
Pixel pitch	0.13455(H) x 0.13455(V)s	mm
Pixel arrangement	RGB Vertical stripe	
Display mode	Normally Black	
Color Filter Array	RGB vertical stripes	
Backlight	24 White LED	
Interface	MIPI	
Weight	TBD	g

模组图



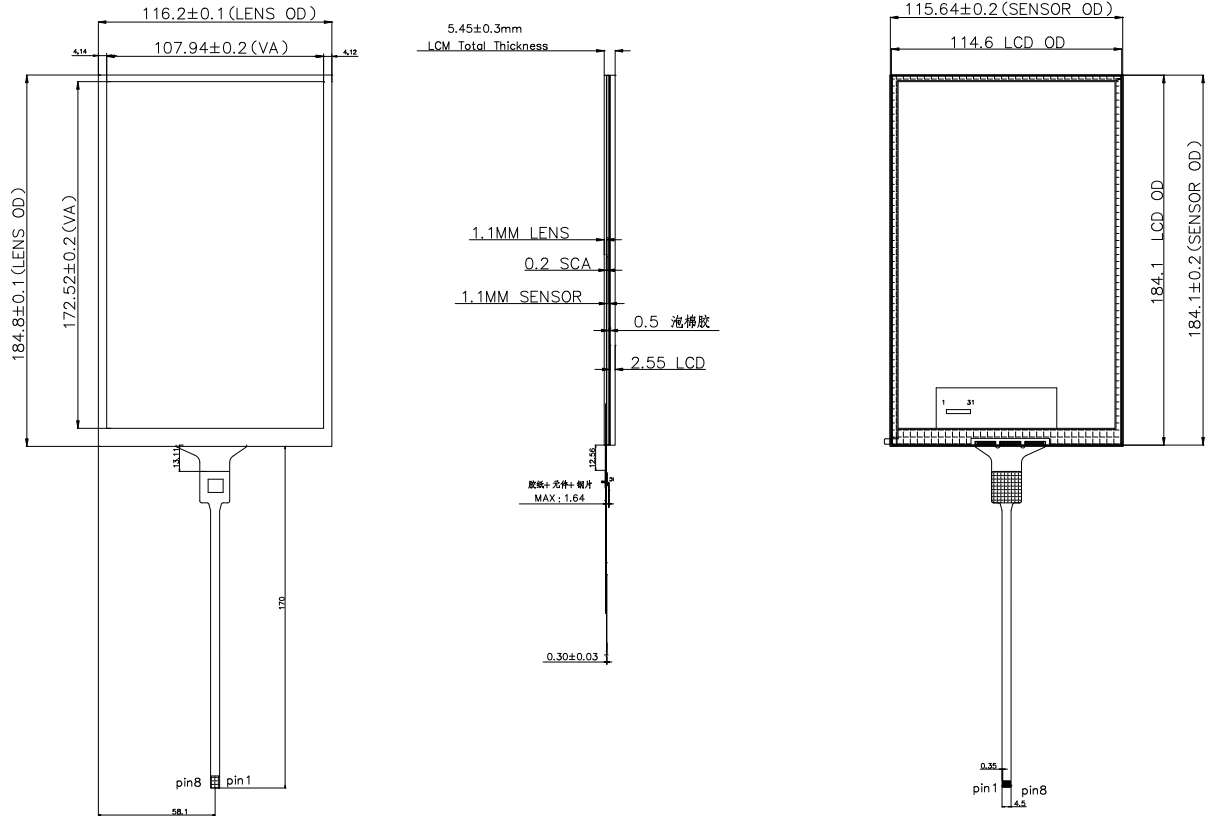
2.0 Outline dimension

总成图

Front

Side

Back



技术参数:

Lens + ITO Glass + Adhesive + FPC

IC: GT911

Voltage: 2.8V~3.3V

4. Transparency: ≥80%

5. Surface hardness: ≥6H

6. Working temperature: -10℃~+60℃, ≤90%RH

7. Storage temperature: -20℃~+70℃, ≤90%RH

8. Unmarked tolerance: ±0.2mm.

9. Product is ROHS compliant.

PIN#	Name
1	GND
2	IOVDD
3	RESET
4	INT
5	SDA
6	SCL
7	AVDD (3.3V)
8	GND

SCALE: 1 : 1 NOT TO SCALE			
PAGE: 1 OF 1		CTP80017	
GENERAL TOL.	UNITS MM	MODEL NUMBER :	CUSTOMER NO:
APPROVALS	DATE		DATE:
APP:			
CHK: YANHAI	2019-06-28		

3.0 Interface Pin Connection

3.1 TFT LCD Module

PIN NO	SYMBOL	DESCRIPTION
1	LEDA	Power for LED backlight (Anode)
2	LEDA	Power for LED backlight (Anode)
3	LEDA	Power for LED backlight (Anode)
4	NC	No connect.
5	LEDK	Power for LED backlight (Cathode)
6	LEDK	Power for LED backlight (Cathode)
7	LEDK	Power for LED backlight (Cathode)
8	LEDK	Power for LED backlight (Cathode)
9	GND	Ground
10	GND	Ground
11	MIPI_D2+	HSSI_D2_P are differential small amplitude signals.
12	MIPI_D2-	HSSI_D2_N are differential small amplitude signals.
13	GND	Ground
14	MIPI_D1+	HSSI_D1_P are differential small amplitude signals.
15	MIPI_D1-	HSSI_D1_N are differential small amplitude signals.
16	GND	Ground.
17	MIPI_CLK+	HSSI_CLK_P are differential small amplitude signals
18	MIPI_CLK-	HSSI_CLK_N are differential small amplitude signals
19	GND	Ground.
20	MIPI_D0+	HSSI_D0_P are differential small amplitude signals.
21	MIPI_D0-	HSSI_D0_N are differential small amplitude signals.
22	GND	Ground.
23	MIPI_D3+	HSSI_D3_P are differential small amplitude signals.
24	MIPI_D3-	HSSI_D3_N are differential small amplitude signals.
25	GND	Ground.
26	TE	Output for monitoring
27	RESET	Global reset pin.
28	ID	Ground. If no used, Please No Connect.
29	IOVCC	Power supper 1.8V
30	VCI	Power supper 3.0-3.6 V
31	VCI	Power supper 3.0-3.6 V

3.2 CTP Interface

PIN#	Name
1	GND
2	IOVDD
3	RESET
4	INT
5	SDA
6	SCL
7	AVDD (3.3V)
8	GND

4.0 Absolute Maximum Ratings

4.1 Electrical Absolute Rating

Item	Symbol	Min	TYP	Max.
Digital Power Supply Voltage	IOVCC	1.65V	1.8V	2.0V
Analog Power Supply Voltage	VCI	3.0V	3.3V	3.6V

4.2 Environment Absolute Rating

Item	Symbol	Min.	Max.	Unit	Note
Operating Temperature	Topa	-10	60	°C	
Storage Temperature	Tstg	-15	65	°C	

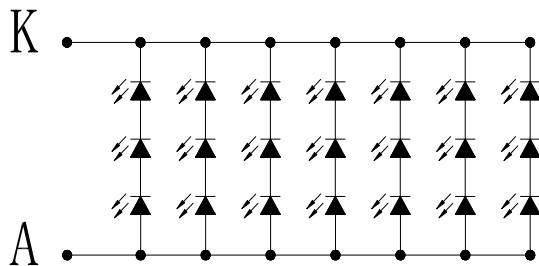
4.3 Back-light Unit:

PARAMETER	Sym.	Min.	Typ.	Max.	Unit	Test Condition	Note
LED Current	IF	–	160	–	mA	–	–
LED Voltage	VF	9	9.9	10.8	V	I=160mA	–
Brightness		450	500		cd/m ²	I=160mA@BM-7	
Life Time		–	15000	–	Hr.	I ≤ 160mA	–
Color	White						

Note (1) Permanent damage may occur to the LCD module if beyond this specification. Functional operation should be restricted to the conditions described under normal operating conditions.

(2) Ta=25±2°C

(3) Test condition: LED Current 140mA



CURRENT IF=160MA

3C*8B=24LED

5.0 Optical Characteristics

5.1 Optical specification

Items	Symbol	Condition	Specifications			Unit	Note
			Min.	Typ.	Max.		
Contrast Ratio	CR		900	1200	-	-	
Response Time	T_R+T_F		-	30	35	ms	
Chromaticity	Red	X_R	TYP-0.03	0.634	TYP+0.03	-	
		Y_R		0.334		-	
	Green	X_G		0.286		-	
		Y_G		0.536		-	
	Blue	X_B		0.140		-	
		Y_B		0.103		-	
	White	X_W		0.303		-	
		Y_W		0.328		-	
Viewing angle	Hor.	$\Phi 1(3 \text{ o'clock})$	Center	-	89	-	deg.
		$\Phi 2(9 \text{ o'clock})$	CR \geq 10	-	89	-	
	Ver.	$\theta 2(12 \text{ o'clock})$	-	89	-		
		$\theta 1(6 \text{ o'clock})$	-	89	-		
NTSC ratio			-	56.9		%	

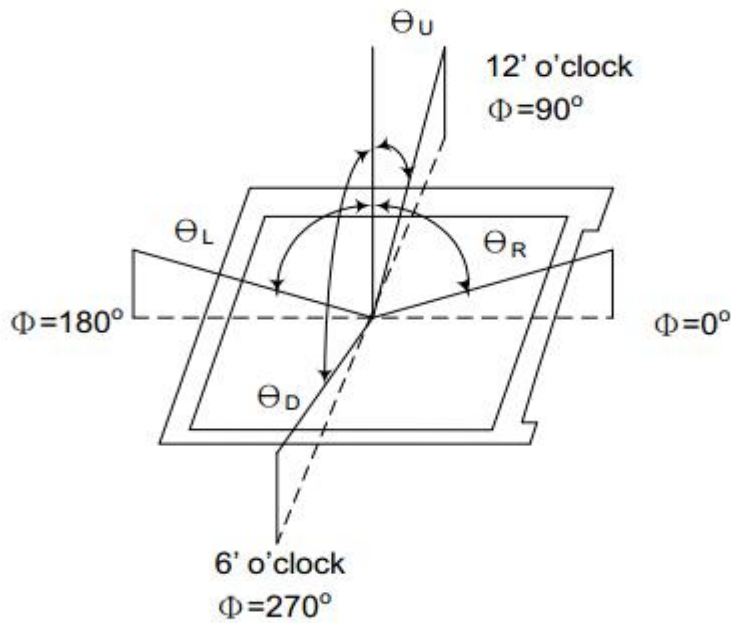
5.2 Measuring Condition

- Measuring surrounding : dark room
- Ambient temperature : 25±2°C
- 15min. warm-up time.

5.3 Measuring Equipment

- TOPCON BM-7
- Measuring spot size : field 2°

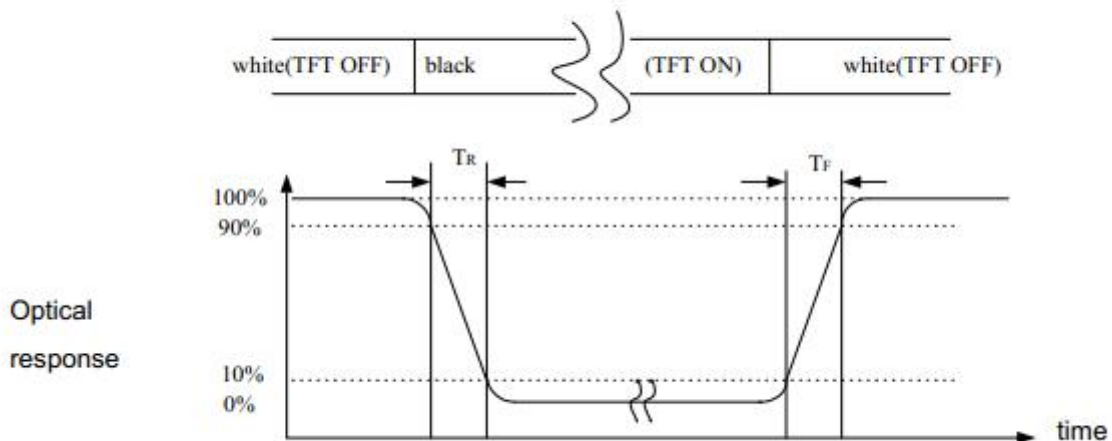
Note (1) Definition of Viewing Angle:



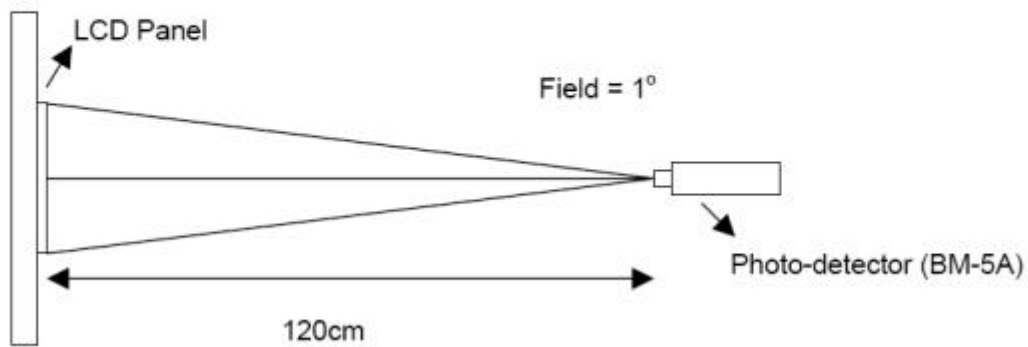
Note (2) Definition of Contrast Ratio (CR) :
measured at the center point of panel

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

Note (3) Definition of Response Time : Sum of T_R and T_F

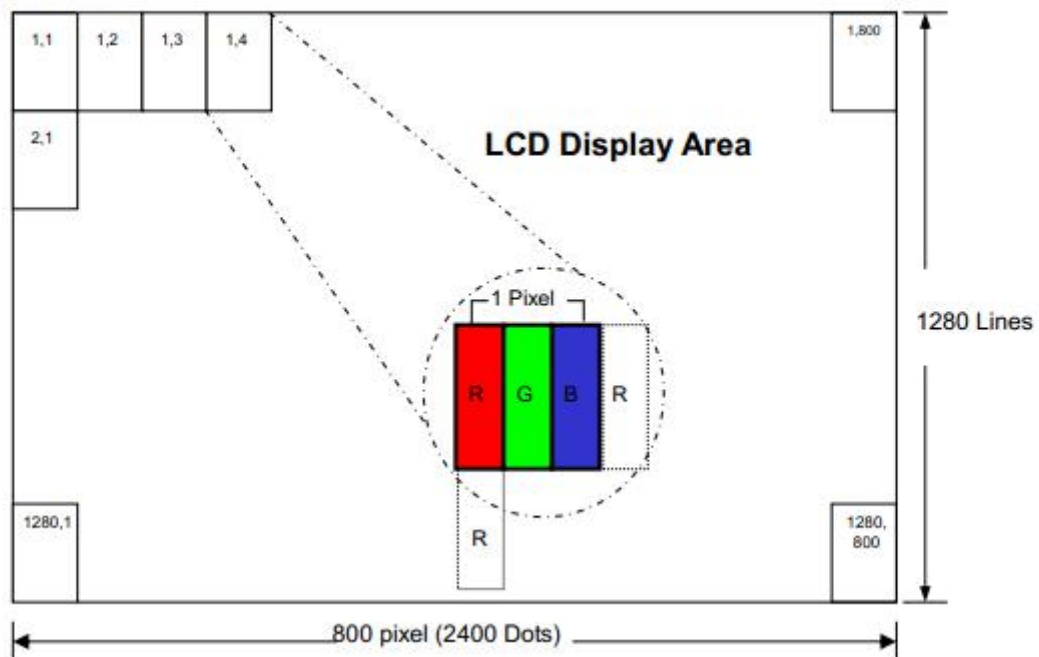


Note (4) Definition of optical measurement setup



4.0 BLOCK DIAGRAM

Pixel Format



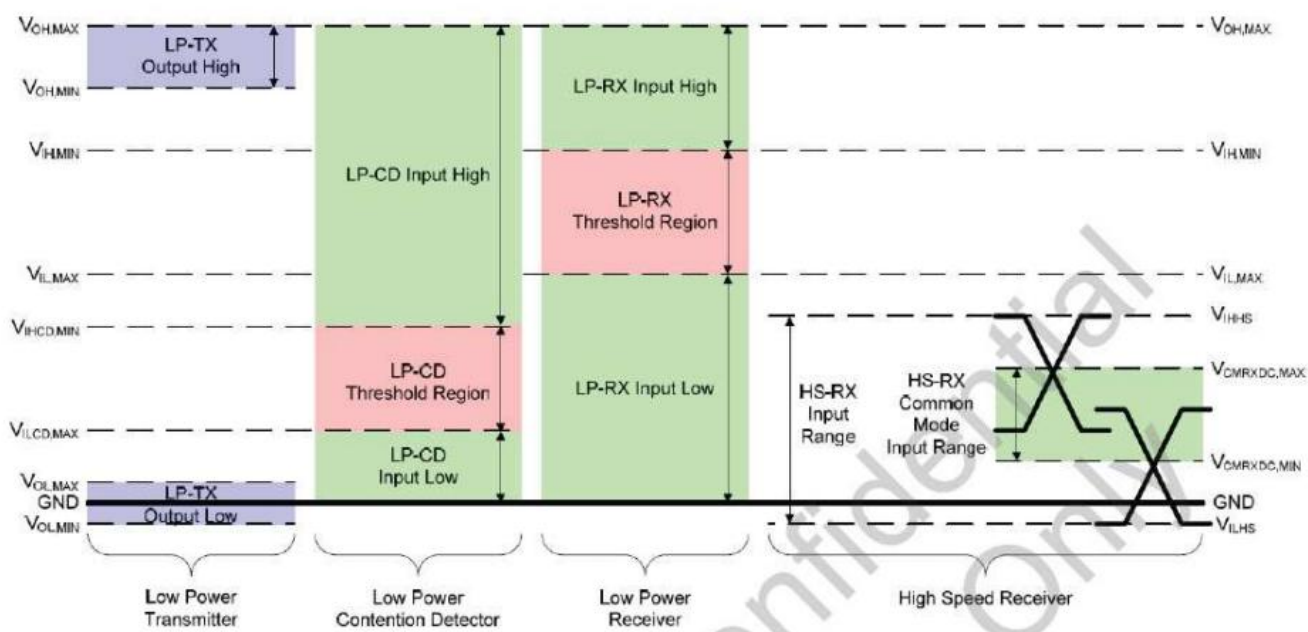
6.01 DC Characteristics

6.02.1DC CHARACTERISTICS FOR DSI LP MODE

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
LPDT Logic 1 contention threshold	VILCD,MIN	LP-CD	450	-	1600	mV
LPDT Logic 0 contention threshold	VIHCD,MAX	LP-CD	0	-	200	mV
LPDT Logic 1 input threshold	VIH	LP-RX (CLK, D0)	880	-	1600	mV
LPDT Logic 0 input threshold	VIL	LP-RX (CLK, D0)	0	-	550	mV
LPDT Output high level	VOH	LP-TX (D0)	1.1		1.3	V
LPDT Output low level	VOL	LP-TX (D0)	-50		50	mV

Note (1) IOVCC=1.65~3.3V, VCC=3.0 to 3.6V, GND=0V, Ta=-20 to 60 °C

Note (2) Includes 50mV (-50mV to 50mV) ground difference.



6.03DC CHARACTERISTICS FOR DSI HS MODE

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Common mode voltage	VCMRXDC	DSI-CLK+/-, DSI-D0+/-	70		330	mV
Hi-Speed transmit voltage	VOD	DSI-CLK+/-, DSI-D0+/-	140	200	250	mV
Single-ended input low voltage	VILHS	DSI-CLK+/-, DSI-D0+/-	-40	-	-	mV
Single-ended input high voltage	VIHHS	DSI-CLK+/-, DSI-D0+/-	-	-	460	mV
Differential input impedance	ZID	DSI-CLK+/-, DSI-D0+/-	80	100	125	Ω

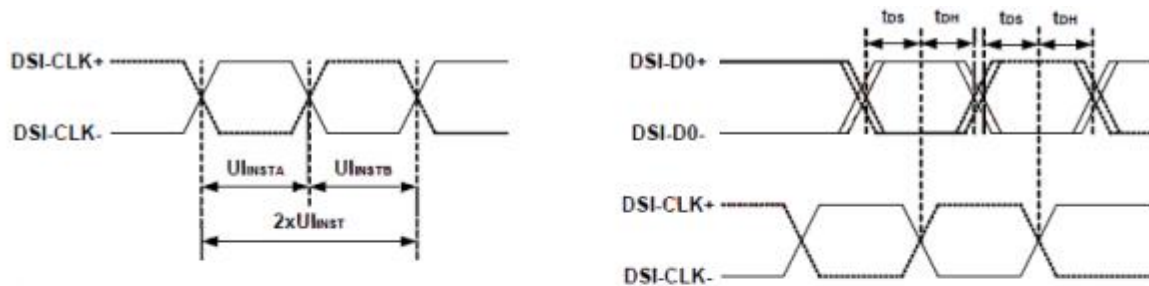
Note (1) IOVCC=1.65~3.3V, VCC=3.0 to 3.6V, GND=0V, Ta=-30 to 70 °C

6.04 Interface Timing (MIPI DSI)

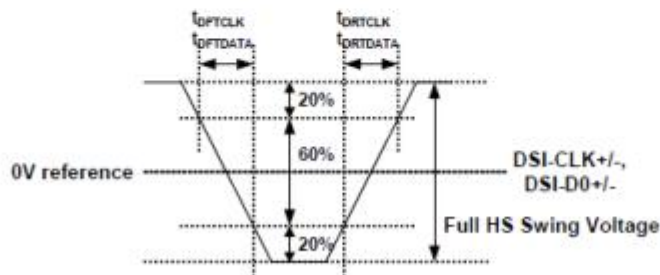
6.04.1 HIGH SPEED MODE

Signal	Symbol	Parameter	Min.	Typ.	Max.	Unit	Description
DSI-CLK+/-	$2 \times UI_{INST}$	Double UI instantaneous	4	-	25	ns	
DSI-CLK+/-	UI_{INSTA} UI_{INSTB}	UI instantaneous halves	2	-	12.5	ns	$UI = UI_{INSTA} = UI_{INSTB}$
DSI-Dn+/-	t_{DS}	Data to clock setup time	$0.15 \times UI$	-	-	ps	
DSI-Dn+/-	t_{DH}	Data to clock hold time	$0.15 \times UI$	-	-	ps	
DSI-CLK+/-	t_{DRTCLK}	Differential rise time for clock	150	-	$0.3 \times UI$	ps	
DSI-Dn+/-	$t_{DRTDATA}$	Differential rise time for data	150	-	$0.3 \times UI$	ps	
DSI-CLK+/-	t_{DFTCLK}	Differential fall time for clock	150	-	$0.3 \times UI$	ps	
DSI-Dn+/-	$t_{DFTDATA}$	Differential fall time for data	150	-	$0.3 \times UI$	ps	

Note: Dn = D0 and D1.



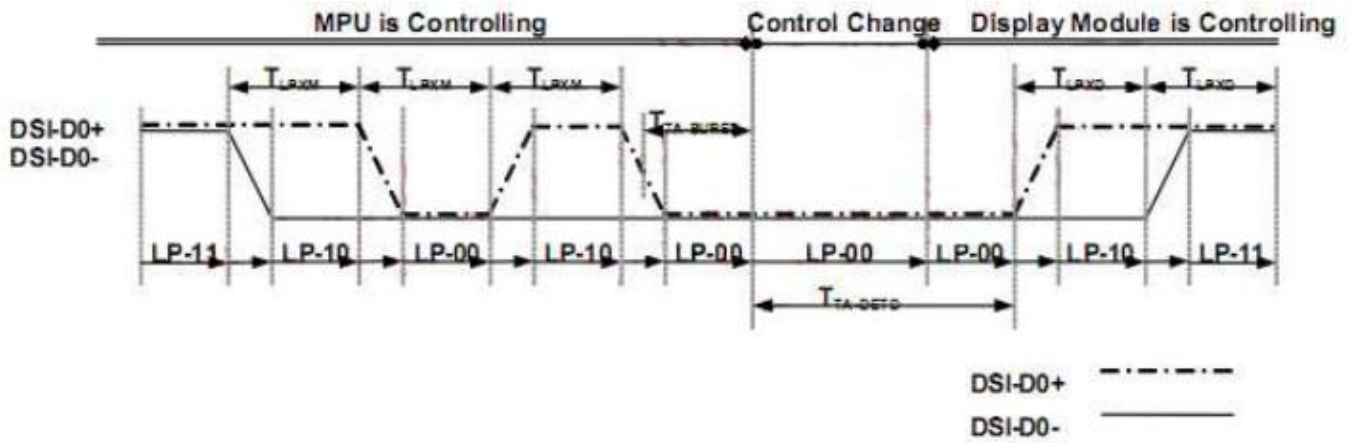
DSI clock channel timing



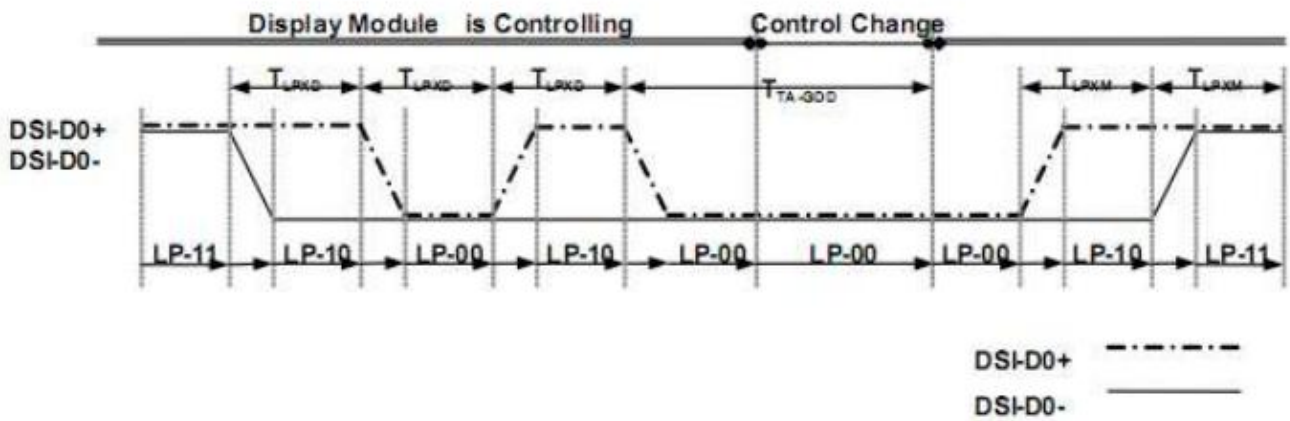
Rising and fall time on clock and data channel

6.04.2 LOW POWER MODE

Signal	Symbol	Parameter	Min.	Typ.	Max.	Unit	Description
DSI-D0+/-	T_{LPXM}	Length of LP-00, LP-01, LP-10 or LP-11 periods MPU , Display Module	50	-	75	ns	Input
DSI-D0+/-	T_{LPXD}	Length of LP-00, LP-01, LP-10 or LP-11 periods Display Module , MPU	58	-	75	ns	Output
DSI-D0+/-	$T_{TA-SURED}$	Time-out before the MPU start driving	T_{LPXD}	-	$2 \times T_{LPXD}$	ns	Output
DSI-D0+/-	$T_{TA-GETD}$	Time to drive LP-00 by display module	$5 \times T_{LPXD}$	-	-	ns	Input
DSI-D0+/-	T_{TA-GOD}	Time to drive LP-00 after turnaround request - MPU	$4 \times T_{LPXD}$	-	-	ns	Output



Bus Turnaround (BAT) from MPU to display module Timing



Bus Turnaround (BAT) from display module to MPU Timing

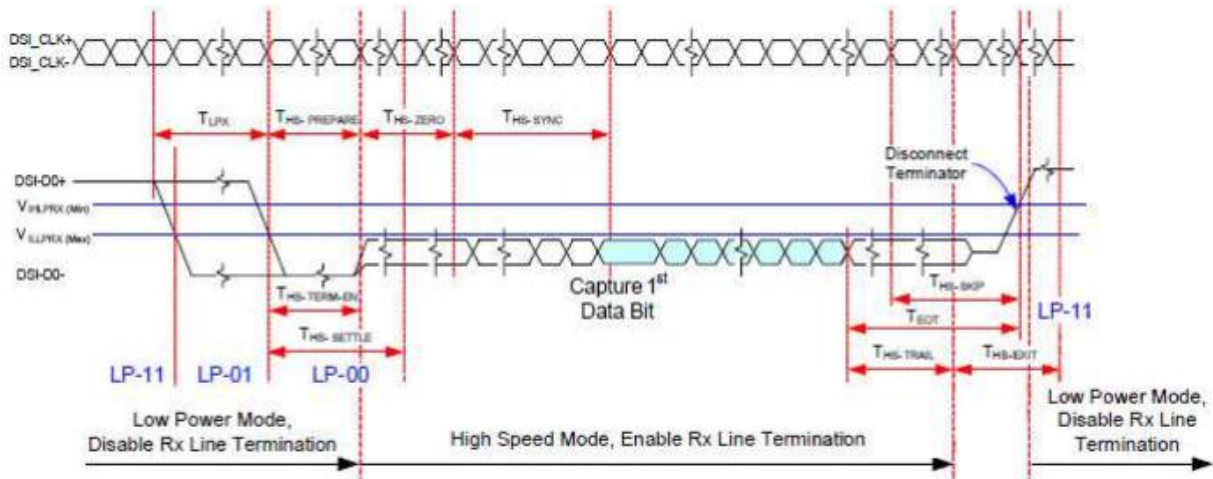


Fig. 7.6.8 Data lanes-Low Power Mode to/from High Speed Mode Timing

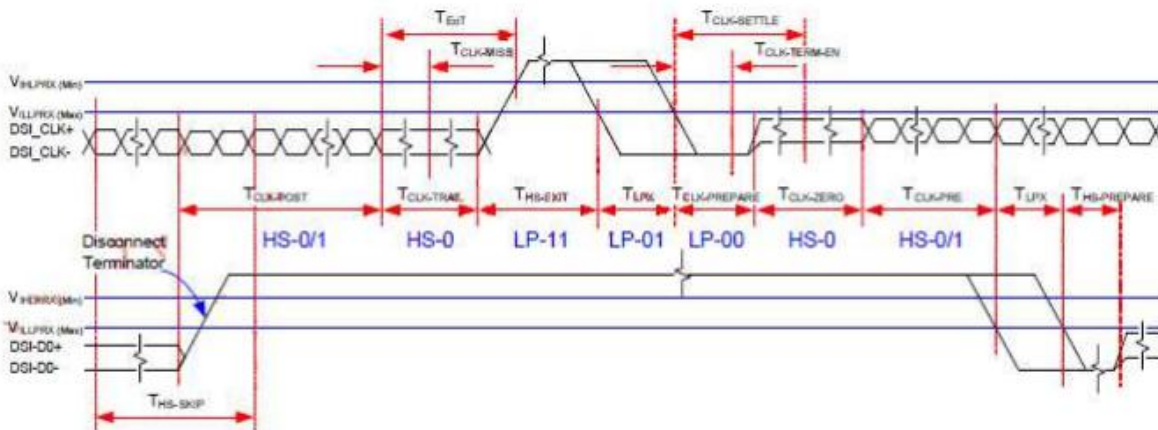


Fig. 7.6.9 Clock lanes- High Speed Mode to/from Low Power Mode Timing

6.05 Interface Timing

params->dsi.vertical_sync_active=4

params->dsi.vertical_backporch=12

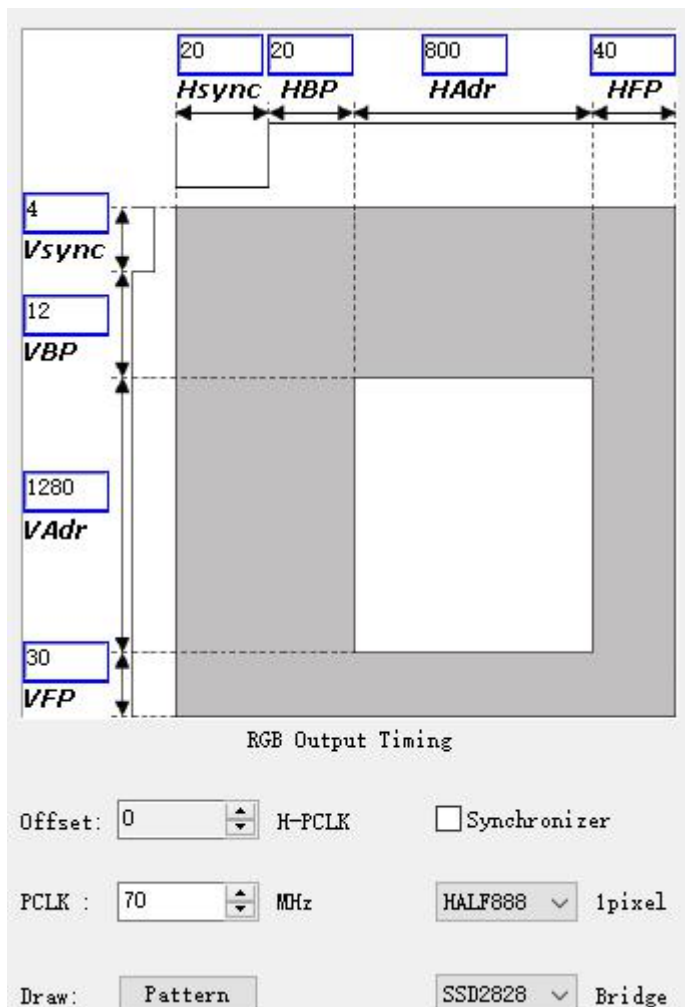
params->dsi.vertical_frontporch=30

params->dsi.horizontal_sync_active=20

params->dsi.horizontal_backporch=20

params->dsi.horizontal_frontporch=40

params->dsi.PLL_CLOCK=421



6.0 Reliability test items

NO	Item	Conditions	Remark
1	High Temperature Storage	Ta=+60°C,48hrs	
2	Low Temperature Storage	Ta=-15°C,48hrs	
3	High Temperature Operation	Ta=+50°C,48hrs	
4	Low Temperature Operation	Ta=-10°C,48hrs	
5	High Temperature and High Humidity (operation)	Ta=+50°C,80%RH,48hrs	

Note: (1) All tests above are practiced at module type.

(2) There is no display function NG issue occurred, All the cosmetic specification is judged before the reliability stress.

7.0 Packing form

7.1 Packing form 1

TFT 模组 100

