



# 深圳市鹏信捷通科技有限公司

Shenzhen Peng Xin Jie Tong Technology Co. Ltd.

## PRDDUCT SPECIFCATION

Model: PX101IH27810188A

CUSTOMER		
Approved 核 准	Checked 审 核	Prepared 确 认

Approved 核 准	Checked 审 核	Prepared 制 作

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## 1.0 General Description

### 1.1 Introduction

**PX101IH27810188A** 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 10.1 (16:9) inch diagonally measured active display area with (800 horizontal by 1280 vertical pixels) resolution.

### 1.2. Features

- 10.1 (16:9 diagonal) inch configuration
- Compatible with NTSC & PAL system
- Image Reversion: UP/DOWN and LEFT/RIGHT
- ROHS design

### 1.3. General information

Item	Specification	Unit
Outline Dimension	143.0(H) x 228.6 (V) x 2.45(D)	mm
Display area	135.36 (H) x 216.58 (V)	mm
Number of Pixel	800RGB (H) x 1280(V)	pixels
Pixel pitch	0.1175 (H) x 3(RGB) 0.1088 (V)	mm
Pixel arrangement	RGB Vertical stripe	
Display mode	IPS(Normal Black)	
Color Filter Array	RGB vertical stripes	
Luminous	300	nits
Weight	TBD	g
Interface	MIPI (4lane)	



## 2.0 Absolute Maximum Ratings

### 2.1 Environment Absolute Rating

Item	Symbol	Min.	Max.	Unit	Note
Operating Temperature	Topa	-10	60	°C	
Storage Temperature	Tstg	-20	70	°C	

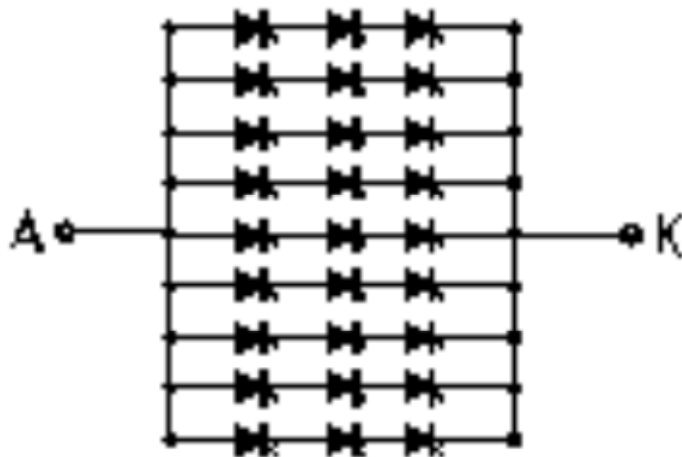
### 2.2 Back-light Unit:

PARAMETER	Sym.	Min.	Typ.	Max.	Unit	Test Condition	Note
LED Current	IF	-	180	225	mA	-	-
LED Voltage	VF		9.6	11.6	V	-	-
Life Time		-	20000	-	Hr.	$I \leq 180\text{mA}$	-
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)  $T_a = 25 \pm 2^\circ\text{C}$

(3) Test condition: LED Current 180mA



LED电路图



## 3.0 Optical Characteristics

### 3.1 Optical Characteristics

Item	Symbol	Condition	Values			Unit	Remark
			Min.	Typ.	Max.		
Viewing angle (CR≥ 10)	$\theta_L$	$\Phi=180^\circ$ (9 o'clock)		80	-	degree	
	$\theta_R$	$\Phi=0^\circ$ (3 o'clock)		80	-		
	$\theta_T$	$\Phi=90^\circ$ (12 o'clock)		80	-		
	$\theta_B$	$\Phi=270^\circ$ (6 o'clock)		80	-		
Response time	$T_{R+T_F}$	Normal $\theta=\Phi=0^\circ$		20	35	msec	-
						msec	-
Contrast ratio	CR		600	800	-	-	-
Color chromaticity	$W_x$		0.26	0.31	0.36	-	
	$W_y$		0.28	0.33	0.38	-	
Luminance	L		200	250	-	cd/m <sup>2</sup>	
Luminance uniformity	$Y_U$		70	75	-	%	

### 3.2 Measuring Condition

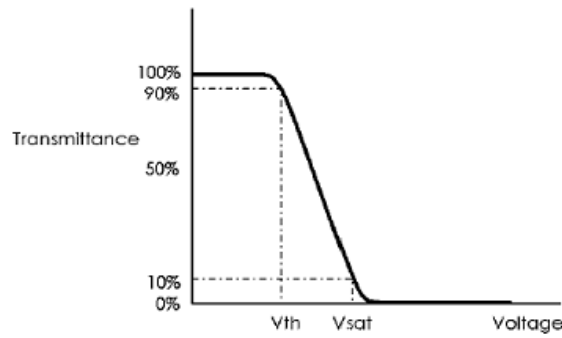
- Measuring surrounding : dark room
- Ambient temperature : 25±2°C
- 30min. warm-up time.

### 3.3 Measuring Equipment

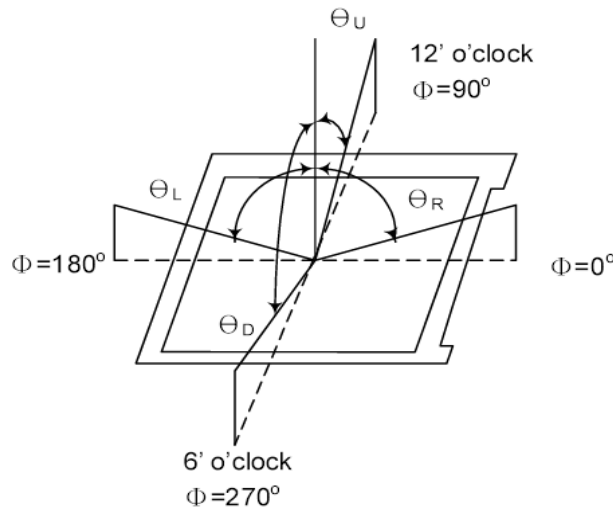
- TOPCON BM-7
- Measuring spot size : field 2°



**Note (1)** Definition of  $V_{sat}$  and  $V_{th}$  (at 20°C)



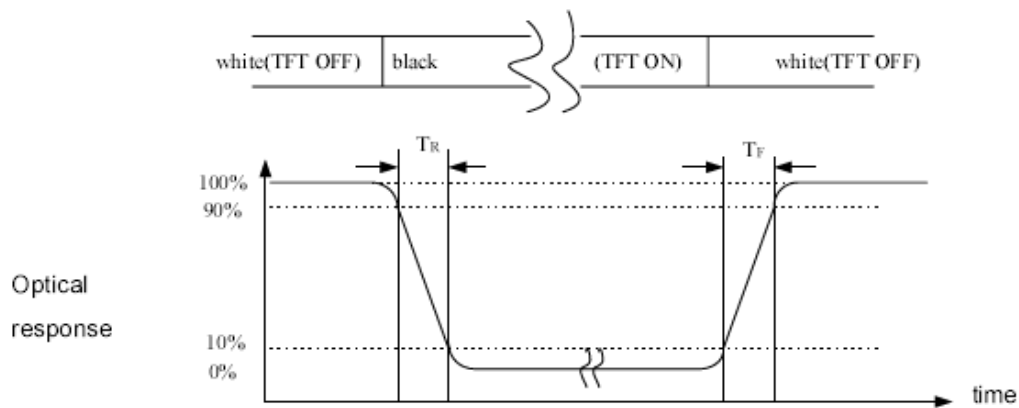
**Note (2)** Definition of Viewing Angle :



**Note (3)** Definition of Contrast Ratio(CR) :  
measured at the center point of panel

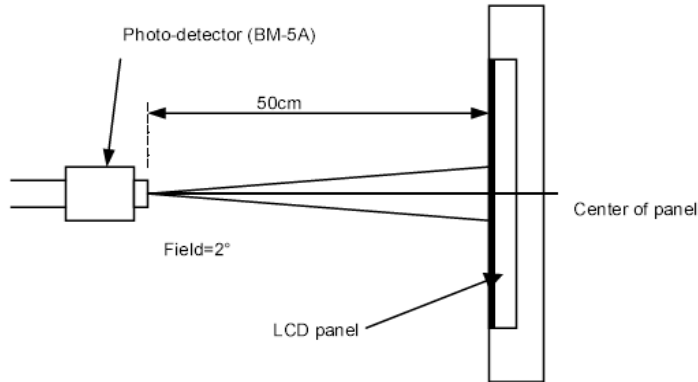
$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

**Note (4)** Definition of Response Time : Sum of  $T_R$  and  $T_F$

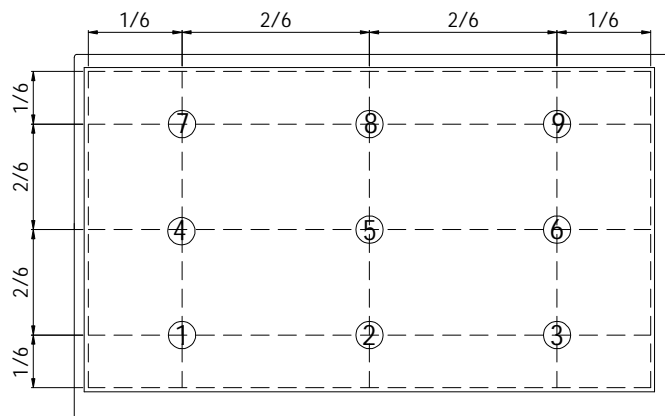




**Note (5)** Definition of optical measurement setup



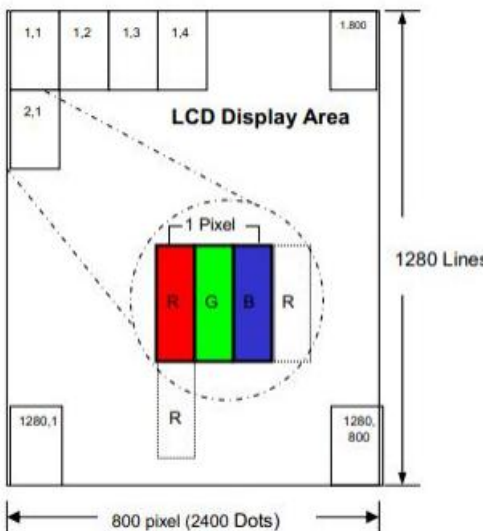
**Note (6)** Definition of brightness uniformity



**Note (7)** Rubbing Direction (The different Rubbing Direction will cause the different optima view direction.)

## 4.0 Block Diagram

### 4.1 TFT-LCD Module







## 5.0 Interface Pin Connection

PIN NO	SYMBOL	DESCRIPTION
1	VCOM	
2	VDDIN	Power supply 3.0-3.6V
3	VDDIN	Power supply 3.0-3.6V
4	NC	No connect
5	RESET	Reset signal
6	NC	No connect
7	GND	Ground
8	MIPI_D0N	HSSI_D0_Nare differential small amplitude signals
9	MIPI_D0P	HSSI_D0_Pare differential small amplitude signals
10	GND	Ground
11	MIPI_D1N	HSSI_D1_Nare differential small amplitude signals
12	MIPI_D1P	HSSI_D1_Pare differential small amplitude signals
13	GND	Ground
14	MIPI_CLKN	HSSI_CLK_Nare differential small amplitude signals
15	MIPI_CLKP	HSSI_CLK_Pare differential small amplitude signals
16	GND	Ground
17	MIPI_D2N	HSSI_D2_Nare differential small amplitude signals
18	MIPI_D2P	HSSI_D2_Pare differential small amplitude signals
19	GND	Ground
20	MIPI_D3N	HSSI_D3_Nare differential small amplitude signals
21	MIPI_D3P	HSSI_D3_Pare differential small amplitude signals
22	GND	Ground
23	NC	No connect
24	NC	No connect
25	GND	Ground
26	NC	No connect
27	NC	No connect
28	NC	No connect
29	NC	No connect
30	GND	Ground
31	LED-	Power for LED backlight (Cathode)
32	LED-	Power for LED backlight (Cathode)
33	NC	No connect
34	NC	No connect
35	NC	No connect
36	NC	No connect
37	NC	No connect
38	NC	No connect
39	LED+	Power for LED backlight(Anode)
40	LED+	Power for LED backlight(Anode)



## 6. Electrical Characteristics

### 6.1 TFTLCDModule

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Supply Voltage	VDDIN	3.0	3.3	3.6	V	
	V <sub>GH</sub>	NC	NC	NC	V	
	V <sub>GL</sub>	NC	NC	NC	V	
	AVDD	NC	NC	NC	V	
Video signal amplitude (V <sub>R</sub> ,V <sub>G</sub> ,V <sub>B</sub> )	V <sub>IA</sub>	-	-	NC	V	
	V <sub>IAC</sub>	-	-	-	V	AC component,
	V <sub>IDC</sub>	-	NC	-	V	DC component
VCOM	V <sub>CAC</sub>		-	-	VP-P	AC component
	V <sub>CDC</sub>	-	-	-	V	DC component, (1)
Input signal voltage	V <sub>IH</sub>	NC	-	NC	V	(2)
	V <sub>IL</sub>	NC	-	NC	V	(2)
Current of power supply	I <sub>VDDIN</sub>	30	-		mA	VDDIN=3.3V
	I <sub>AVDD</sub>	-	-		mA	AVDD=+5.5V
	I <sub>AVEE</sub>				mA	AVDD=-5.5V
	I <sub>GH</sub>	-	-		mA	V <sub>GH</sub> =15V
	I <sub>GL</sub>	-	-		mA	V <sub>GL</sub> =-10V

### 6.2 Power on/off sequence

VCI, VCIP and IOVCC can be applied in any order. VCI, VCIP and IOVCC can be powered down in any order.

During power off, if the display module is in the SLPOUT mode, VCI, VCIP and IOVCC must be powered down minimum 120msec after RESX has been released.

During power off, if the display module is in the SLPIN mode, VCI, VCIP and IOVCC can be powered down minimum 0msec after RESX has been released.

There will be no damage to the display module if the power sequences are not met.

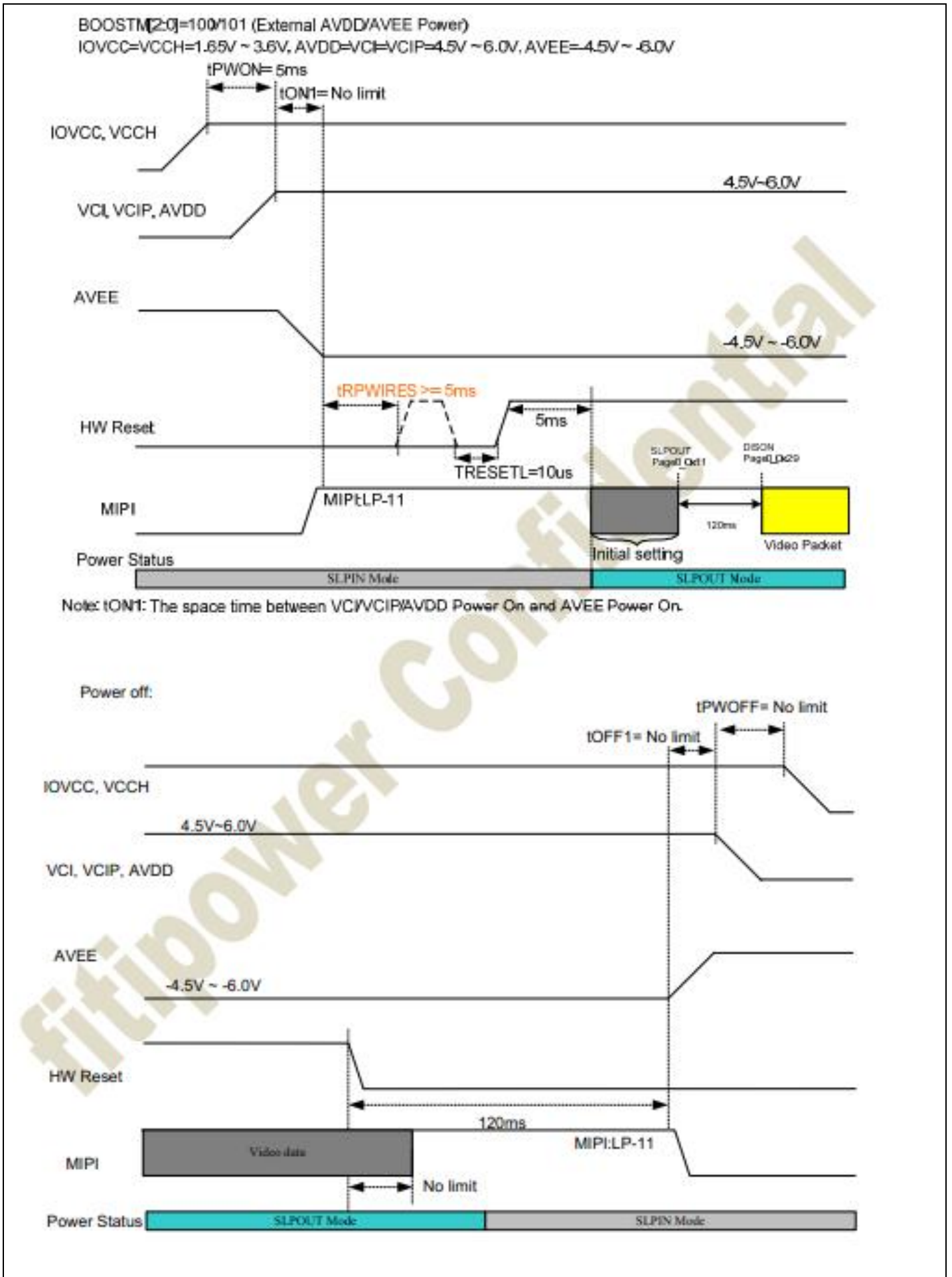
There will be no abnormal visible effects on the display panel during the Power On/Off Sequences.

There will be no abnormal visible effects on the display panel between end of Power On Sequence and before receiving SLPOUT command. Also between receiving SLPOUT command and Power Off Sequence.

If RESX line is not held stable by host during Power On Sequence as defined in Sections 9.5.2, then it will be necessary to apply a Hardware Reset (RESX) after Host

Power On Sequence is complete to ensure correct operation. Other wise function is not guaranteed.

There is not a limit for Rise/Fall time on VCI, VCIP and IOVCC.





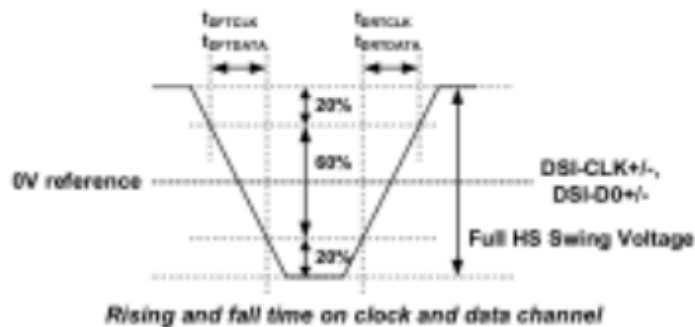
## 6.3 MIPI Signal Timing Characteristics

Signal	Symbol	Parameter	MIN	TYP	MAX	Unit	Description
DSI-CLK+/-	2xUIINST	Double UI instantaneous	4	-	8	ns	4 Lane (Note 2)
			3	-	8	ns	3 Lane (Note 2)
			2.352	-	8	ns	2 Lane (Note 3)
DSI-CLK+/-	UIINSTA UIINSTB	UI instantaneous halves (UI = UIINSTA = UIINSTB)	2	-	4	ns	4 Lane (Note 2)
			1.5	-	4	ns	3 Lane (Note 2)
			1.176	-	4	ns	2 Lane (Note 3)
DSI-Dn+/-	tDS	Data to clock setup time	0.15x UI	-	-	ps	
DSI-Dn+/-	tDH	Data to clock hold time	0.15x UI	-	-	ps	
DSI-CLK+/-	tDRTCLK	Differential rise time for clock	150	-	0.3xUI	ps	
DSI-Dn+/-	tDRTDATA	Differential rise time for data	150	-	0.3xUI	ps	
DSI-CLK+/-	tDFTCLK	Differential fall time for clock	150	-	0.3xUI	ps	
DSI-Dn+/-	tDFTDATA	Differential fall time for data	150	-	0.3xUI	ps	

Note 1) Dn = D0, D1, D2 and D3.

Note 2) Maximum total bit rate is 2Gbps for 24-bit data format, 1.5Gbps for 18-bit data format and 1.33Gbps for 16-bit data format in 3 lanes or 4 lanes application which support to 800RGBx 1280 resolution.

Note 3) Maximum total bit rate is 1.7Gbps for 24-bit data format, 1.275Gbps for 18-bit data format and 1.13Gbps for 16-bit data format in 2 lanes application which support to 720RGBx1280 resolution.





## 7.0 Reliability test items

NO	Item	Conditions	Remark
1	High Temperature Storage	Ta=+70°C,240hrs	
2	Low Temperature Storage	Ta=-20°C,240hrs	
3	High Temperature Operation	Ta=+60°C,240hrs	
4	Low Temperature Operation	Ta=-10°C,240hrs	
5	High Temperature and High Humidity (operation)	Ta=+60°C,90%RH,240hrs	
6	Thermal Cycling Test (non operation)	-20°C(0.5hr)→+70°C(0.5hr),200cycles	
7	Vibration	1.Random:1.04G,10-500HZ,X,Y,Zdirection 30min/each direction 2.Sweep sine:1.5G, 5~500Hz, X/Y/Z,30min/each direction	
8	Shock	100G,6ms, ±X, ±Y, ±Z 3 time for each direction	JIS C7021, A-10 (Condition A)
9	Vibration (with carton)	Random:1.04Grms, 10~500Hz, X/Y/Z 45min/each direction Fixed:5Hz, 1.5Grms, X/Y/Z 45min/each direction	
10	Drop (with carton)	Height: 60cm 1 corner, 3 edges, 6 surfaces	JIS Z0202
11	Electrostatic Discharge	±200V,200PF,0Q1 time/each terminal	

Note: All tests above are practiced at module type.

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

