



深圳市宇锡科技有限公司

SHENZHEN YOUSEE TECHNOLOG CO., LTD

DISPLAY SPECIFICATION

Product NO: (产品型号) YX07022611881CB

Customer : (客户) _____

APPROVED BY CUSTOMER 客户签署栏	
Approved by 审核	Remark 备注

APPROVED BY YOUSEE 宇锡签署栏			
Prepared by 制作	Checked by 检查		Approved by 审核
	电子	结构	

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1.0 General Description

1.1 Introduction

YX07022611881CB 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 7 inch diagonally measured active display area with (800 horizontal by 1280 vertical pixels) resolution.

1.2. General information

Item	Specification	Unit
Outline Dimension	99.80(H) x 161.10(V) x 2.60(D)	mm
Display area	94.2 (H) x 150.72(V)	mm
Number of Pixel	800 (H) x 3(RGB) x 1280 (V)	pixels
Pixel pitch	0.11775(H) x 3(RGB) x 0.11775 (V)s	mm
Pixel arrangement	RGB Vertical stripe	
Display mode	Normally Black, FFS	
Color Filter Array	RGB vertical stripes	
Backlight	White LED	
Weight	TBD	g
Interface	MIPI	



2.0 Absolute Maximum Ratings

(GND=VSSA=VSSD=0V)

Ta=25°C

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Analog Supply Voltage	VCI	3.0	3.3	3.6	V	
I/O Operating Voltage	VDDI	1.7	1.8	1.9	V	
TFT Gate High Voltage	VGH	14	15	18	V	Note 1
TFT Gate Low Voltage	VGL	-12	-10	-8	V	
TFT Common Electrode Voltage	VCOMDC	-2.5	--	0	V	Note 2
TFT Feed-Through Voltage	ΔVp	0.34	1.34	2.34	V	
Input Signal Voltage	VIH	0.7*VDDI	--	VDDI	VIH	
	VIL	GND	--	0.3*VDDI	VIL	
Output Signal Voltage	VOH	0.8*VDDI	--	VDDI	VOH	
	VOL	GND	--	0.2*VDDI	VOL	

Note 1. VGH/VGL must be adjusted by software to optimize display quality.

Note 2. VCOM DC must be adjusted to optimize display quality.

2.1 Environment Absolute Rating

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

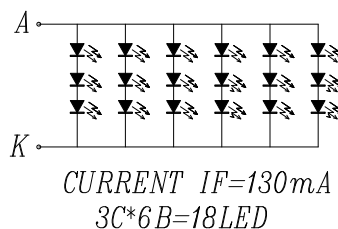
2.2 Back-light Unit:

PARAMETER	Sym.	Min.	Typ.	Max.	Unit	Test Condition	Note
LED Current	IF	–	130	–	mA	–	–
LED Voltage	VF	9.0	9.6	10.5	V	–	–
Life Time		–	20000	–	Hr.	$I \leq 130mA$	–
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 130mA





3.0 Optical Characteristics

3.1 Optical specification

Ta = 25°C, VCC=3.3V

ITEM	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT	NOTE	
Constrast Ratio	CR	Point-5	700	800		--	1, 2, 3	
Luminance(CEN)	Lw	Point-5	400	500		cd/m ²	1, 3	
Luminance Uniformity	ΔL		70	75		%	1, 3	
Response Time (White - Black)	Tr +Tf	Point-5	-		40	ms	1, 3, 5	
	-				-	%	1, 3	
Viewing Angle	Left	Deg.	CR ≥ 10 Point-5	80	--	°	1, 4	
	Right	Deg.		80			1, 4	
	Upper	Deg.		80	--	°	1, 4	
	Lower	Deg.		80			1, 4	
Color Coordinate	White	Wx Wy	Point-5	0.273 0.289	0.313 0.329	0.353 0.369	--	1, 3
	Red	Rx Ry			-			
	Green	Gx Gy			-			
	Blue	Bx By			-			

3.2 Measuring Condition

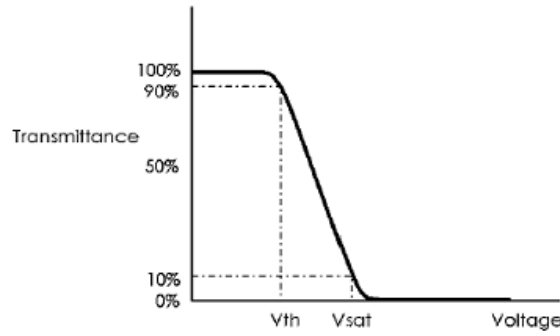
- Measuring surrounding : dark room
- Ambient temperature : 25±2°C
- 30min. warm-up time.

3.3 Measuring Equipment

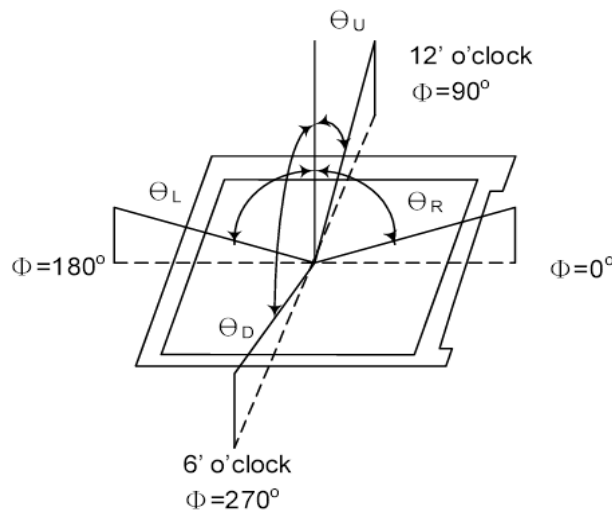
- TOPCON BM-7
- Measuring spot size : field 2°



Note (1) Definition of Vsat and Vth (at 20°C)



Note (2) Definition of Viewing Angle :

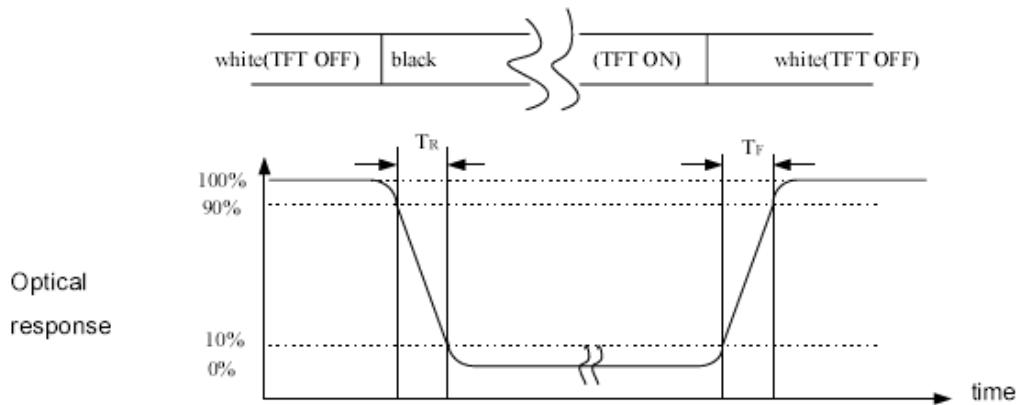


Note (3) Definition of Contrast Ratio(CR) :

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





5.0 Interface Pin Connection

PIN NO	SYMBOL	DESCRIPTION
1	GND	Ground
2	RSE	Global reset pin.
3	VCC	Power supper 1.8V
4	GND	Ground
5	VDD 2.8V	Power supper 2.6~3.3V
6	VDD 2.8V	Power supper 2.6~3.3V
7	GND	Ground
8	GND	Ground
9	D0P	MIPI DATA INPUT
10	D0N	MIPI DATA INPUT
11	GND	Ground
12	D1P	MIPI DATA INPUT
13	D1N	MIPI DATA INPUT
14	GND	Ground
15	CLKP	MIPI CLOCK INPUT
16	CLKN	MIPI CLOCK INPUT
17	GND	Ground
18	D2P	MIPI DATA INPUT
19	D2N	MIPI DATA INPUT
20	GND	Ground
21	D3P	MIPI DATA INPUT
22	D3N	MIPI DATA INPUT
23	GND	Ground
24	GND	Ground
25	LEDA	Power for LED backlight (Anode)
26	LEDA	Power for LED backlight (Anode)
27	LEDA	Power for LED backlight (Anode)
28	LEDK	Power for LED backlight (Cathode)
29	LEDK	Power for LED backlight (Cathode)
30	LEDK	Power for LED backlight (Cathode)

6. INTERFACE TIMING CHART

6.1 MIPI Interface Timing Sequence

(a) MIPI interface DC characteristic :

Item		Parameter	Min.	Typ.	Max.	Unit
LP_TW	Thevenin output high level	VOH	1.1	1.2	1.3	V
	Thevenin output low level	VOL	-50		50	mV
	Output impedance of LP transmitter	ZOLP	110	-	-	Ω
HS_RX	Common-mode voltage HS receive mode	VCMRX(DC)	70	-	330	mV
	Differential input high threshold	VIDTH	-	-	70	mV
	Differential input low threshold	VIDTL	-70	-	-	mV
	Single-ended input high voltage	VIHHS	-	-	460	mV
	Single-ended input low voltage	VILHS	-40	-	-	mV
	Single-ended threshold for HS termination enable	VTERM-EN	-	-	450	mV
	Differential input impedance	ZID	80	100	125	Ω
LP_RX	Logic 1 input voltage	VIH	880	-	-	mV
	Logic 0 input voltage, not in ULPState	VIL	-	-	550	mV
	Input hysteresis	VHYST	25	-	-	mV
LP_CD	Logic 1 contention threshold	VIHCD	450	-	-	mV
	Logic 1 contention threshold	VILCD	-	-	200	mV

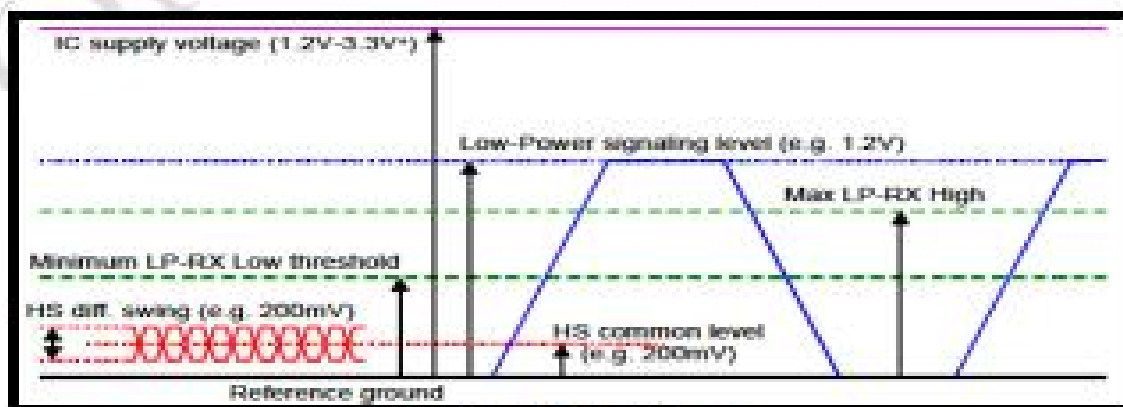
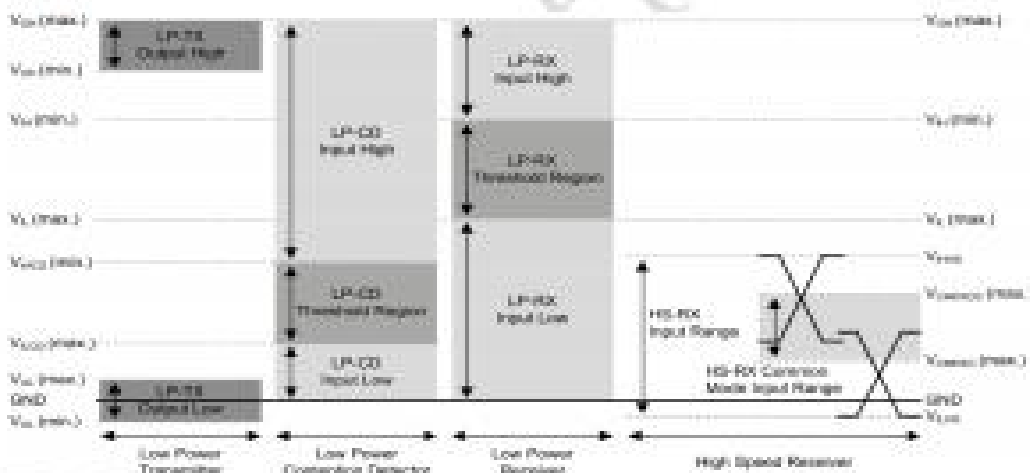


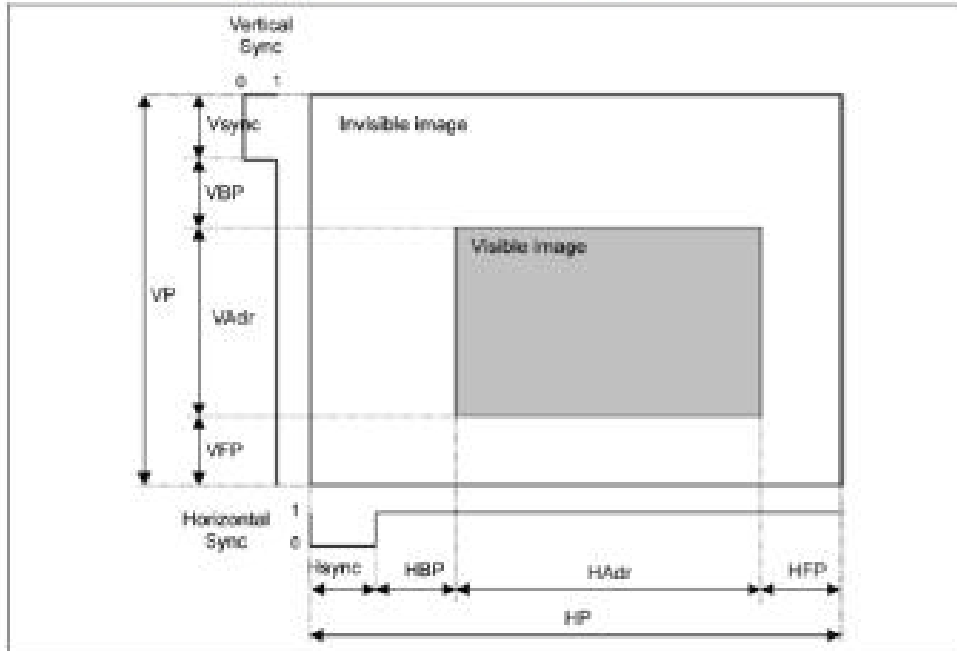
Figure1. MIPI DC Diagram

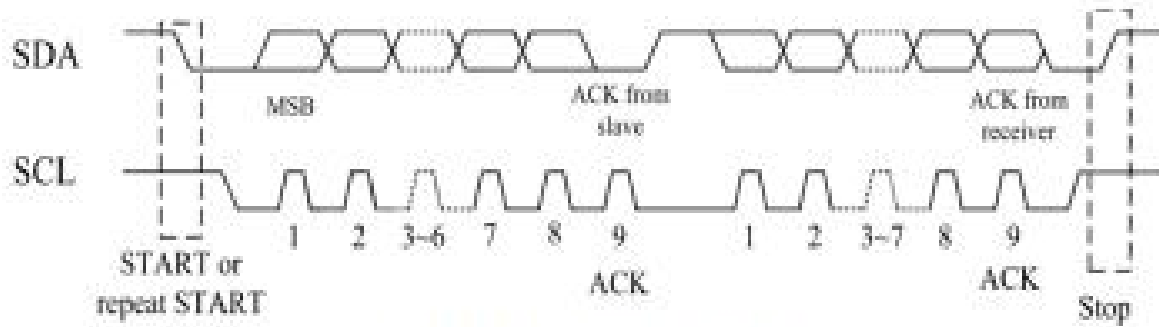
6.3 Timing Diagram of Interface Signal

ITEM		SYMBOL	Timing	UNIT	
LCD	Frame Rate	-	60	Hz	
Timing	DCLK	Frequency	fCLK	66.8	MHz
		Period	Tclk	14.9	ns
	Horizontal	Horizontal total time	tHP	884	tCLK
		Horizontal Active time	tHadr	800	tCLK
		Horizontal Pulse Width	tHsync	4	tCLK
		Horizontal Back Porch	tHBP	40	tCLK
		Horizontal Front Porch	tHFP	40	tCLK
	Vertical	Vertical total time	tvp	1320	tH
		Vertical Active time	tVadr	1280	tH
		Vertical Pulse Width	tVsync	2	tH
		Vertical Back Porch	tVBP	22	tH
		Vertical Front Porch	tVFP	16	tH
	Differential Swing		VDswing	200	mV
	Bit Rate		TX SPD(MBPS)	420	Mbps
Lane			4	Lane	

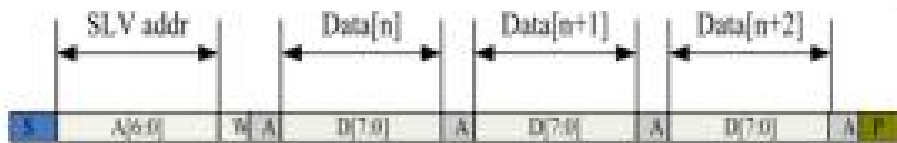
【Note】

- *1) DENA (DATA ENABLE) usually is positive.
- *2) During the whole blank period, DCLK should keep input.

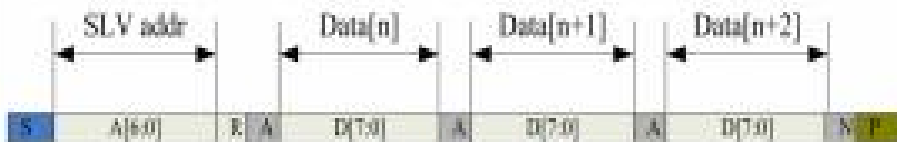




I2C Serial Data Transfer Format



I2C master write, slave read



I2C master read, slave write

lists the meanings of the mnemonics used in the above figures.

Mnemonics Description

Mnemonics	Description
S	I2C Start or I2C Restart
A[6:0]	Slave address
R/W	READ/WRITE bit, '1' for read, '0' for write
A(N)	ACK(NACK) bit
P	STOP: the indication of the end of a packet (if this bit is missing, S will indicate the end of the current packet and the beginning of the next packet)

I2C Interface Timing Characteristics is shown

I2C Timing Characteristics

Parameter	Min	Max	Unit
SCL frequency	0	400	KHz
Bus free time between a STOP and START condition	1.3		us
Hold time (repeated) START condition	0.6		us
Data setup time	100		ns
Setup time for a repeated START condition	0.6		us
Setup Time for STOP condition	0.6		us

6.4 Reset Input Timing

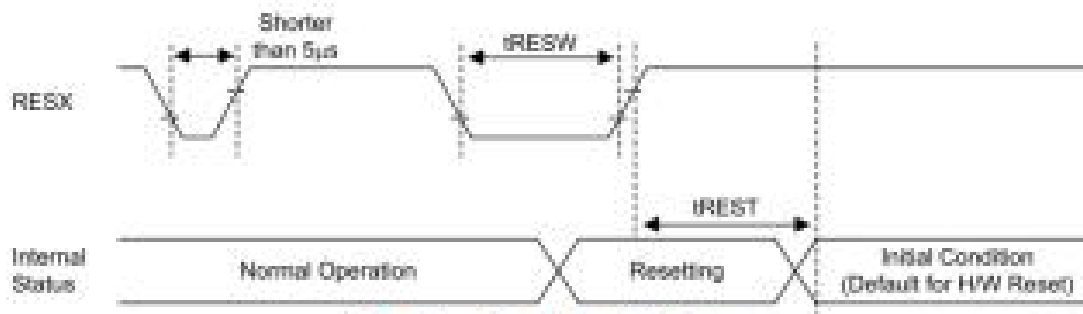


Figure4. Reset Input Timing

Symbol	Parameter	Pad	Min.	Typ.	Max.	Unit	Note
tRESW	Reset low pulse width	RESX	10	-	-	µs	-
tREST	Reset completion time	RESX	-	-	5	ms	Reset during Sleep In mode
		RESX	-	-	120 (2)		Reset during Sleep Out mode

[Note]

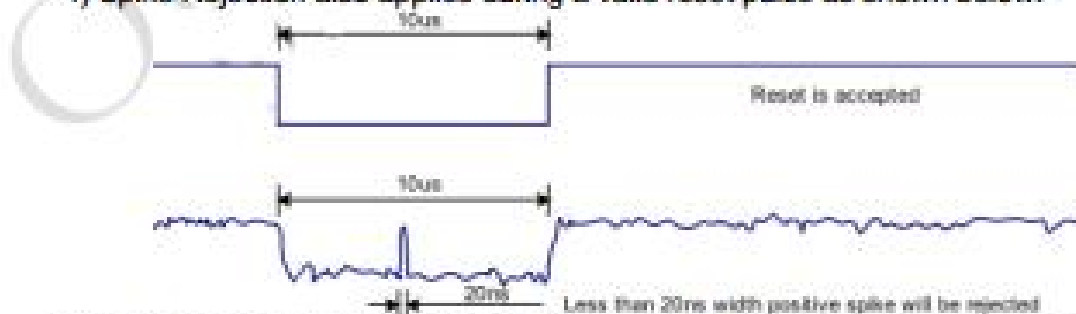
*1) Spike due to an electrostatic discharge on RESX line does not cause irregular system reset according to the table below.

RESX Pulse	Action
Shorter than 5µs	Reset Rejected
Longer than 10µs	Reset
Between 5µs and 10µs	Reset Start

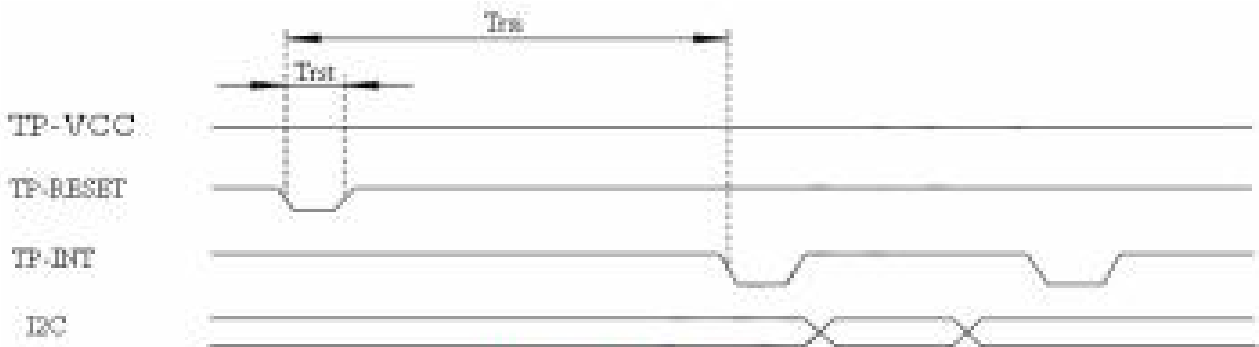
*2) During the reset period, the display will be blanked. (The display is entering blanking sequence, for which the maximum time is 120ms, when Reset starts is sleep out-mode. The display remains in the blank state is Sleep In-mode) and then return to default condition for H/W reset.

*3) During Reset Completion Time, ID bytes (or similar) value in MTP block will be latched to the internal register during this period. This loading is done every time when there is H/W reset complete time (tREST) within 5ms after a rising edge of RESX.

*4) Spike Rejection also applies during a valid reset pulse as shown below:



*5) It is necessary to wait for 5msec after releasing RESX before sending commands. Also Sleep Out command cannot be sent for 120msec.



TP reset sequence

Reset Sequence Parameters

Parameter	Description	Min	Max	Units
Trst1	Time of starting to report point after resetting	200	—	ms
Trst	Reset time	1	—	ms

5.6. Data Mapping

COLOR	INPUT DATA	R DATA								G DATA								B DATA							
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
BASIC COLOR	BLACK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREEN(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	BLUE(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	CYAN	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	MAGENTA	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	YELLOW	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	WHITE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
RED	RED(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(1)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(254)	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GREEN	GREEN(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREEN(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	
	GREEN(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
	GREEN(254)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	
	GREEN(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	
BLUE	BLUE(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	BLUE(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	BLUE(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	BLUE(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
	BLUE(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

**7.0 Reliability test items**

NO	Item	Conditions	Remark
1	High Temperature Storage	Ta=+70°C,24hrs	
2	Low Temperature Storage	Ta=-20°C,24hrs	
3	High Temperature Operation	Ta=+70°C,24hrs	
4	Low Temperature Operation	Ta=-20°C,24hrs	
5	High Temperature and High Humidity (operation)	Ta=+40°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,0Ω1 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.



8.0 Outline dimension

