

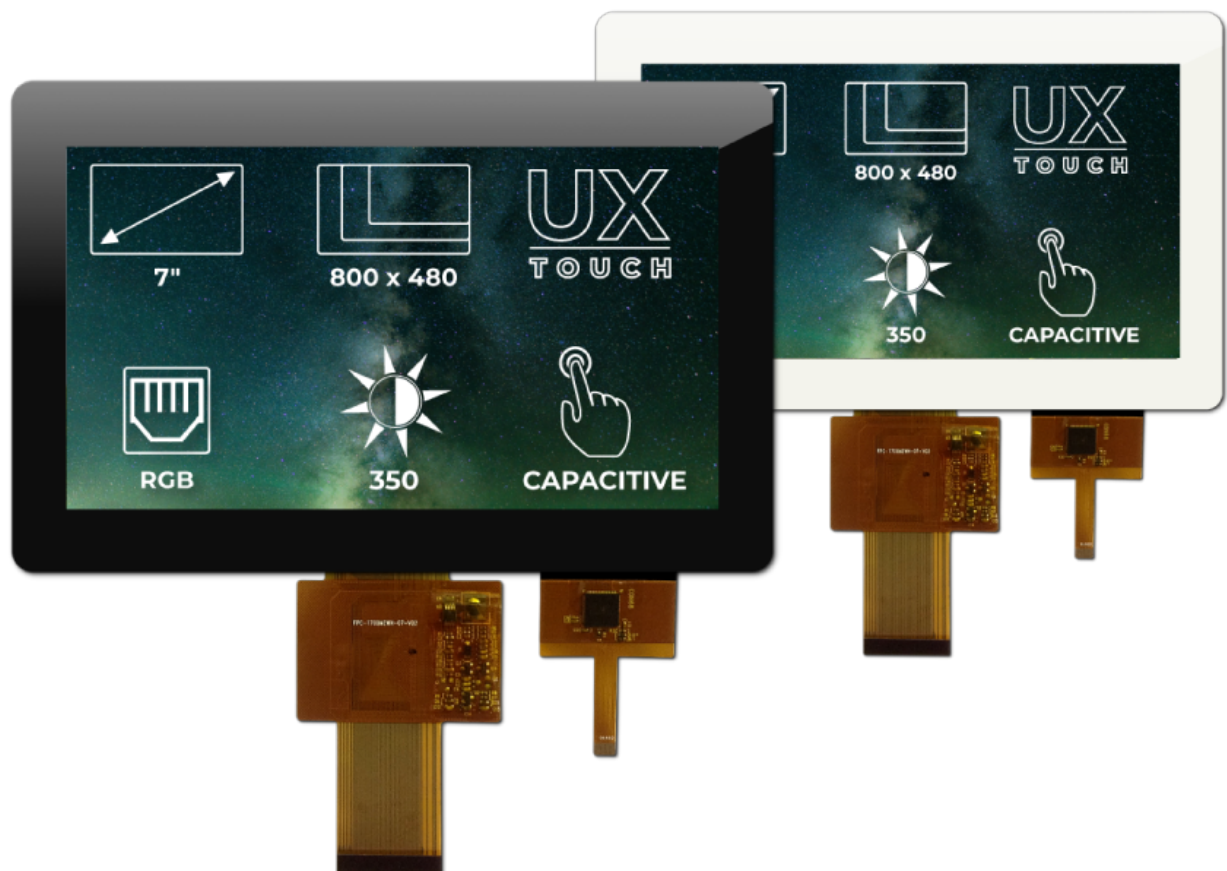
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# RGB 7"



This datasheet gives detailed information about the Riverdi 7" TFT displays with an RGB interface. The displays come in different versions: with **capacitive, resistive, or no touchscreen**, with a decorative **cover glass, high brightness**, as well as with or without a **metal mounting frame**.

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ITEM		CONTENTS	UNIT
LCD Type		TFT/Transmissive/Normally white	/
Size		7.0	Inch
Viewing Direction		12:00 (without image inversion)	O' Clock
Gray Scale Inversion Direction		6:00	O' Clock
Number of Dots		800 x (RGB) x 480	/
Driver IC		HX8264+HX8664/FT5426(for CTP)	/
Interface Type		24bit RGB	/
Brightness	no touch module	500	cd/m <sup>2</sup>
	CTP module	450	
	RTP module	400	
Color Depth		16.7M	/
Pixel Arrangement		RGB Vertical Stripe	/
Surface Treatment		Anti-glare / Clear (for CTP)	/
Input Voltage		3.3	V

**Note 1:** RoHS, REACH SVHC compliant

**Note 2:** LCM weight tolerance: ± 5%.

## Revision Record

REV NO.	REVDATE	CONTENTS	REMARKS
1.0	2019-06-13	Rev 1.0	
2.0	2020-02-12	Rev 2.0	<p><b>Note 1:</b> Due to the EOL of the RVT7.0A800480TNWN00 module,</p> <p>all modules combined are updated and marked with V2 at the end of the PN.</p> <p><b>Note 2:</b> Update Brightness, External dimensions, Timing Characteristics.</p>

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# 1. Module classification information

RV	T	70	x	Q	T	x	W	x	0x
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.

1.	BRAND	RV – Riverdi
2.	PRODUCT TYPE	T – TFT Standard
3.	DISPLAY SIZE	70 – 7.0” 7.0 – 7.0”
4.	MODEL SERIAL NO.	A (A-Z) U – UxTouch
5.	RESOLUTION	Q– 800×480 px 800.480– 800×480 px
6.	INTERFACE	T– LCD TFT
7.	FRAME	N – No Frame F – Mounting Frame
8.	BACKLIGHT TYPE	W – LED White
9.	TOUCH PANEL	N – No Touch Panel R – Resistive Touch Panel C – Capacitive Touch Panel

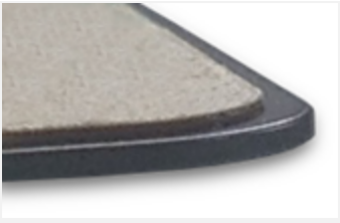
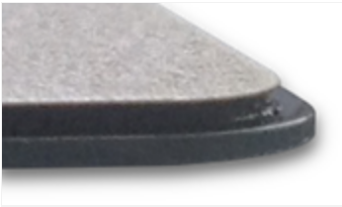
10.	VERSION	0x (00-99)
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## 2. Assembly guide – integration



Three options of rear side adhesive tape are available: double side adhesive tape 0.2 mm with 3M 467MP glue, foam double side adhesive tape 0.5 mm with DST 3M 9495LE glue or without any tape.

There are also two versions of glass color: black and white.

Rear side adhesive tape options:

		
Double side adhesive tape with DST 3M 9495LE glue (total thickness 0.2mm)	Foam double side adhesive tape with 3M 9495LE glue (total thickness 0.5mm)	Without tape

Cover glass color options:

	
BLACK	WHITE

Product options:

PART NUMBER	DESCRIPTION
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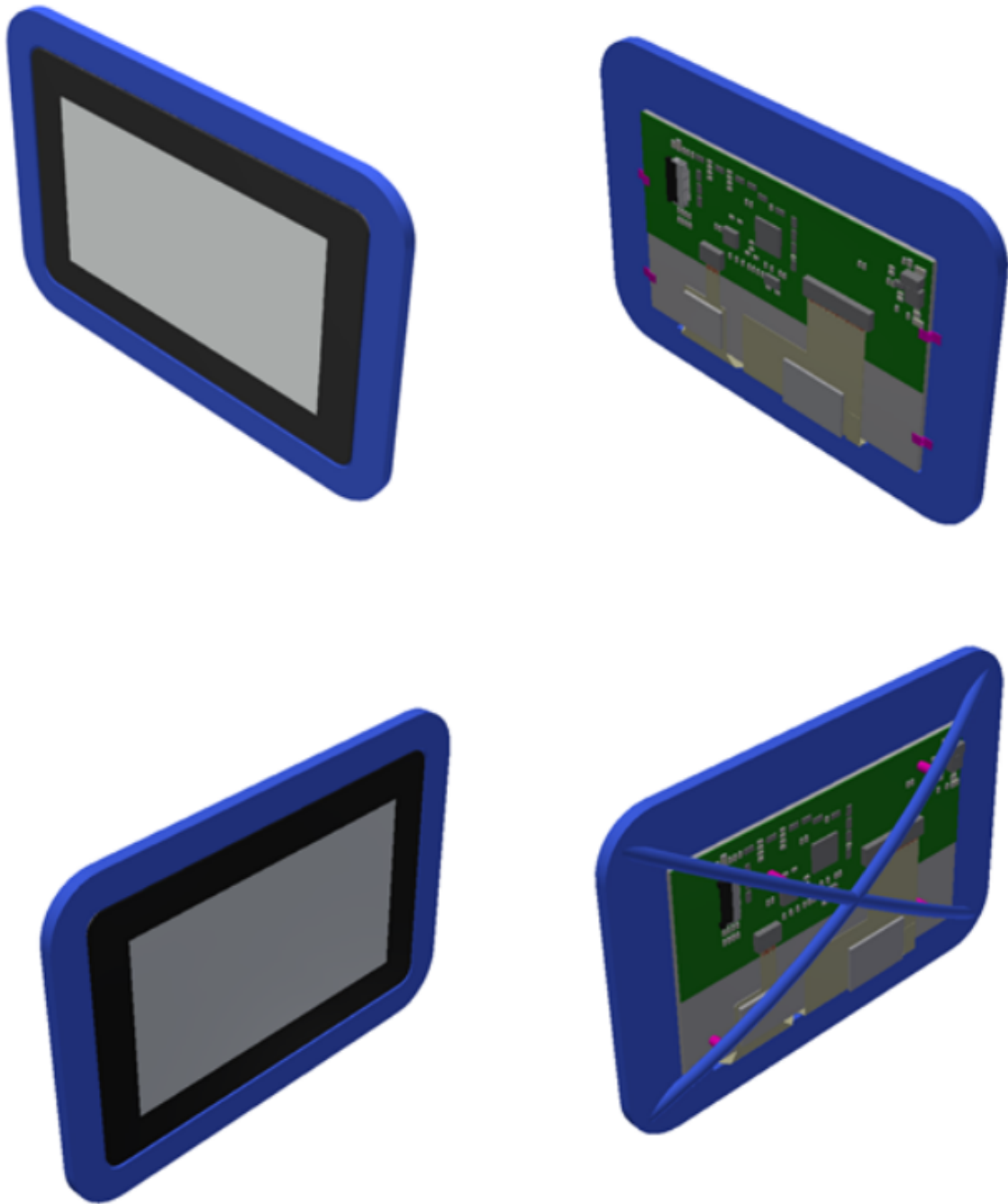
RVT7.0A800480TNWN00 V2	RGB, No mounting frame, No touch panel, Rev 2.0
RVT7.0A800480TNWR00 V2	RGB, No mounting frame, RTP, Rev 2.0
RVT7.0A800480TNWC00 V2	RGB, No mounting frame, CTP, Rev 2.0
RVT7.0A800480TFWN00 V2	RGB, With mounting frame, No touch panel, Rev 2.0
RVT7.0A800480TFWR00 V2	RGB, With mounting frame, RTP, Rev 2.0
RVT7.0A800480TFWC00 V2	RGB, With mounting frame, CTP, Rev 2.0
RVT70UQTNWC01 V2	RGB, CTP uxTouch, black cover glass, 0.5 mm DST, Rev 2.0
RVT70UQTNWC02 V2	RGB, CTP uxTouch, black cover glass, no DST, Rev 2.0
RVT70UQTNWC03 V2	RGB, CTP uxTouch, white cover glass, 0.2mm DST, Rev 2.0
RVT70UQTNWC04 V2	RGB, CTP uxTouch, white cover glass, 0.5 mm DST, Rev 2.0
RVT70UQTNWC05 V2	RGB, CTP uxTouch, white cover glass, no DST, Rev 2.0
RVT70UQTNWC01 V2	RGB, CTP uxTouch, black cover glass, 0.5 mm DST, Rev 2.0

## 2.1. UxTouch assembly

UxTouch are LCD TFT displays with specially designed projected capacitive touch panels. UxTouch display can be mounted without any holed in the housing. Our standard UxTouch displays include double-sided adhesive tape (DST) to stick TFT easily to the housing. Basic series include 4.3", 5.0" and 7.0" display sizes.

UxTouch models with double-side adhesive tape (PN with endings 00, 01, 03, 04) can be mounted by connecting the glass to the housing. Riverdi recommends to use support brackets assembled to display's back. An additional support will stiffen the whole structure and minimize the influence of external factors such as vibration. Figure 1 and Figure 2 below show examples of using support elements.

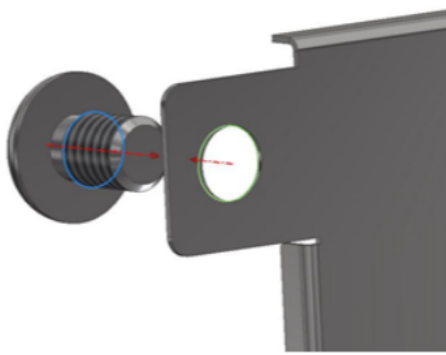
Figure 1. Example of using support brackets



## 2.2. Mounting frame

For dimensions 3.5", 4.3", 5.0" and 7.0" the product with mounting frame version is available. Thanks to the four catches attached to the side, frame provides strong assembly to the surface by mounting element (like the screw, see Figure 3). The frames are specially designed to fit Riverdi products perfectly. The diameter of the mounting hole is 3.5mm.

Figure 1. Mounting frame



### 3. Drawings

### 3. Module drawing

**Note:** new drawings are still in progress, we apologize for the inconvenience .

### 4. Absolute maximum ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
Supply Voltage For Logic	VDD	-0.3	5.0	V
LED reverse voltage (each LED)	VR	–	1.2	V
LED forward voltage (each LED)	IF	–	30	mA
Operating Temperature	TOP	-20	70	°C
Storage Temperature	TST	-30	80	°C

### 5. Electrical characteristics

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Power voltage	VDD	3.0	3.3	3.6	V
Input Current	IVDD	–	TBD	–	mA
Input Voltage ‘ H ’ level	VIH	0.7VDD	–	VDD	V
Input Voltage ‘ L ’ level	VIL	0	–	0.3VDD	V
Voltage for LED backlight	VI	8.4	9.6	10.8	V
Current for LED backlight	II	–	180	–	mA
LED lifetime	–	30000	50000	–	Hrs

**Note 1:** The LED life time is defined as the module brightness decrease to 50% original brightness at Ta=25°C.

### 6. Electro-optical characteristics

ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT	REMARK	NOTE
Response Time	Tr+Tf	$\theta=0^{\circ}$ $\varnothing=0^{\circ}$ Ta=25	–	20	35	ms	Figure 4	4

Contrast Ratio		Cr		400	500	–	—	Figure 5	1
Luminance Uniformity		δ WHITE		70	75	–	%	Figure 5	3
Surface Luminance	TFT	Lv		400	500	–	cd/m2	Figure 5	2
	TFT+CTP			360	450	–			
	TFT+RTP		320	400	–				
Viewing Angle Range		θ	∅ = 90°	40	50	–	deg	Figure 6	6
			∅ = 270°	60	70	–	deg	Figure 6	
			∅ = 0°	60	70	–	deg	Figure 6	
			∅ = 180°	60	70	–	deg	Figure 6	
CIE (x, y) Chromaticity	Red	x	θ=0° ∅=0° Ta=25	0.522	0.572	0.622	Figure 5	5	
		y		0.300	0.350	0.400			
	Green	x		0.311	0.361	0.411			
		y		0.526	0.576	0.626			
	Blue	x		0.097	0.147	0.197			
		y		0.038	0.088	0.138			
	White	x		0.266	0.316	0.366			
		y		0.266	0.316	0.366			

**Note 1.** Contrast Ratio(CR) is defined mathematically as below, for more information see Figure 3.

$$\text{Contrast Ratio} = \frac{\text{Average Surface Luminance with all white pixels (P1, P2, P3, P4, P5)}}{\text{Average Surface Luminance with all black pixels (P1, P2, P3, P4, P5)}}$$

**Note 2.** Surface luminance is the LCD surface from the surface with all pixels displaying white. For more information, see Figure 3.

$$Lv = \text{Average Surface Luminance with all white pixels (P1, P2, P3, P4, P5)}$$

**Note 3.** The uniformity in surface luminance δ WHITE is determined by measuring luminance at each test position 1 through 5, and then dividing the maximum luminance of 5 points luminance by minimum luminance of 5 points luminance. For more information, see Figure 3.

$$\delta \text{ WHITE} = \frac{\text{Minimum Surface Luminance with all white pixels (P1, P2, P3, P4, P5)}}{\text{Maximum Surface Luminance with all white pixels (P1, P2, P3, P4, P5)}}$$

**Note 4.** Response time is the time required for the display to transition from white to black (Rise Time, Tr) and from black to white (Decay Time, Tf). For additional information see FIG 1. The test equipment is Autronic-Melchers's ConoScope series.

**Note 5.** CIE (x, y) chromaticity, the x, y value is determined by measuring luminance at each test position 1 through 5, and then make average value.

**Note 6.** Viewing angle is the angle at which the contrast ratio is greater than 2. For TFT module the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see Figure 4.

**Note 7.** For viewing angle and response time testing, the testing data is based on Autronic-Melchers's ConoScope series. Instruments for Contrast Ratio, Surface Luminance, Luminance Uniformity, CIE the test data is based on TOPCON's BM-5 photo detector.

**Note 8.** For TFT module, Gray scale reverse occurs in the direction of panel viewing angle.

Figure 2. The definition of response time

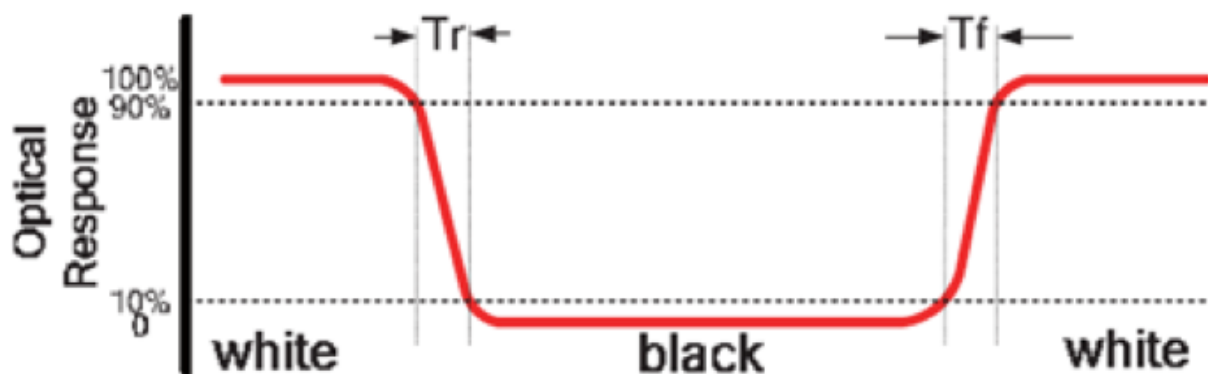


Figure 3. Measuring method for Contrast ratio, surface luminance, Luminance uniformity, CIE (x, y) chromaticity

A : 5 mm  
 B : 5 mm  
 H, V : Active Area  
 Light spot size  $\varnothing=5\text{mm}$ , 500mm distance from the LCD surface to detector lens  
 measurement instrument is TOPCON's luminance meter BM-5

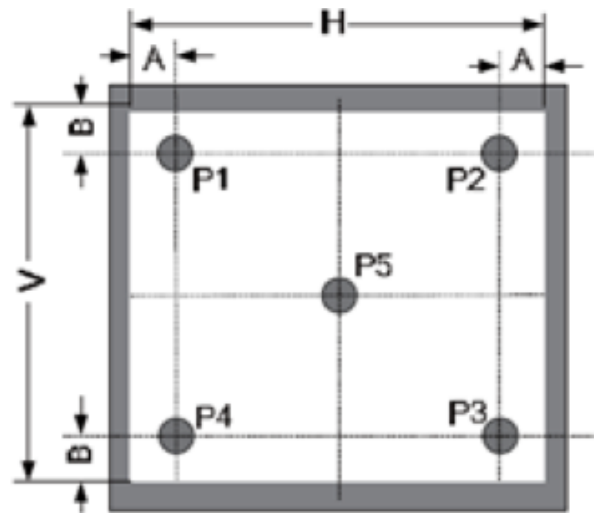
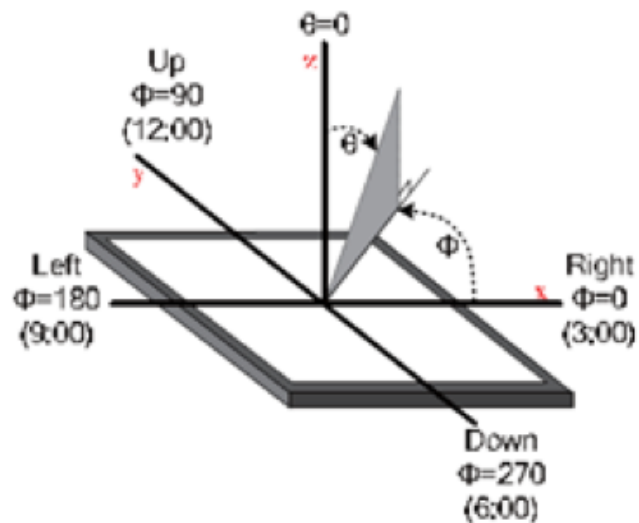


Figure 4.The definition of viewing angle



## 7. Interface description

PIN NO.	SYMBOL	DESCRIPTION	REMARK
1	VLED+	Anode Of LED Backlight	
2	VLED+	Anode Of LED Backlight	
3	VLED-	Cathode Of LED Backlight	
4	VLED-	Cathode Of LED Backlight	
5	GND	Power Ground	
6	VDD	Power For Circuit	
7	VDD	Power For Circuit	
8	MODE	DE/SYNC Mode Select	Note 1

9	DE	Data Input Enable	
10	VSYNC	Vertical Sync Signal	
11	HSYNC	Horizontal Sync Signal	
12	B7	Blue Data (MSB)	
13	B6	Blue Data	
14	B5	Blue Data	
15	B4	Blue Data	
16	B3	Blue Data	
17	B2	Blue Data	
18	B1	Blue Data	Note 2
19	B0	Blue Data (LSB)	Note 2
20	G7	Green Data (MSB)	
21	G6	Green Data	
22	G5	Green Data	
23	G4	Green Data	
24	G3	Green Data	
25	G2	Green Data	
26	G1	Green Data	Note 2
27	G0	Green Data (LSB)	Note 2
28	R7	Red Data (MSB)	
29	R6	Red Data	
30	R5	Red Data	
31	R4	Red Data	
32	R3	Red Data	
33	R2	Red Data	
34	R1	Red Data	Note 2
35	R0	Red Data (LSB)	Note 2
36	GND	Power Ground	
37	DCLK	Clock for Input Data	Note 3
38	GND	Power Ground	
39	LR	Left / Right Selection	Note 4,5,8
40	UD	Up / Down Selection	Note 4,5,9
41	VDD	Power for Circuit	
42	VDD	Power for Circuit	
43	NC	No Connection	
44	RESET	Global Reset Pin	Note 6
45	NC	No Connection	
46	NC	No Connection	
47	DITHB	Dithering Function	Note 7
48	GND	Power Ground	
49	NC	No Connection	
50	NC	No Connection	

**Note 1:** DE/SYNC mode select. Normally (internally) pulled high.

When select DE mode, MODE="1", VS and HS must pull high.

When select SYNC mode, MODE="0", DE must be grounded.

**Note 2:** When input 18bit RGB data, the two low bits of R, G and B data must be grounded.

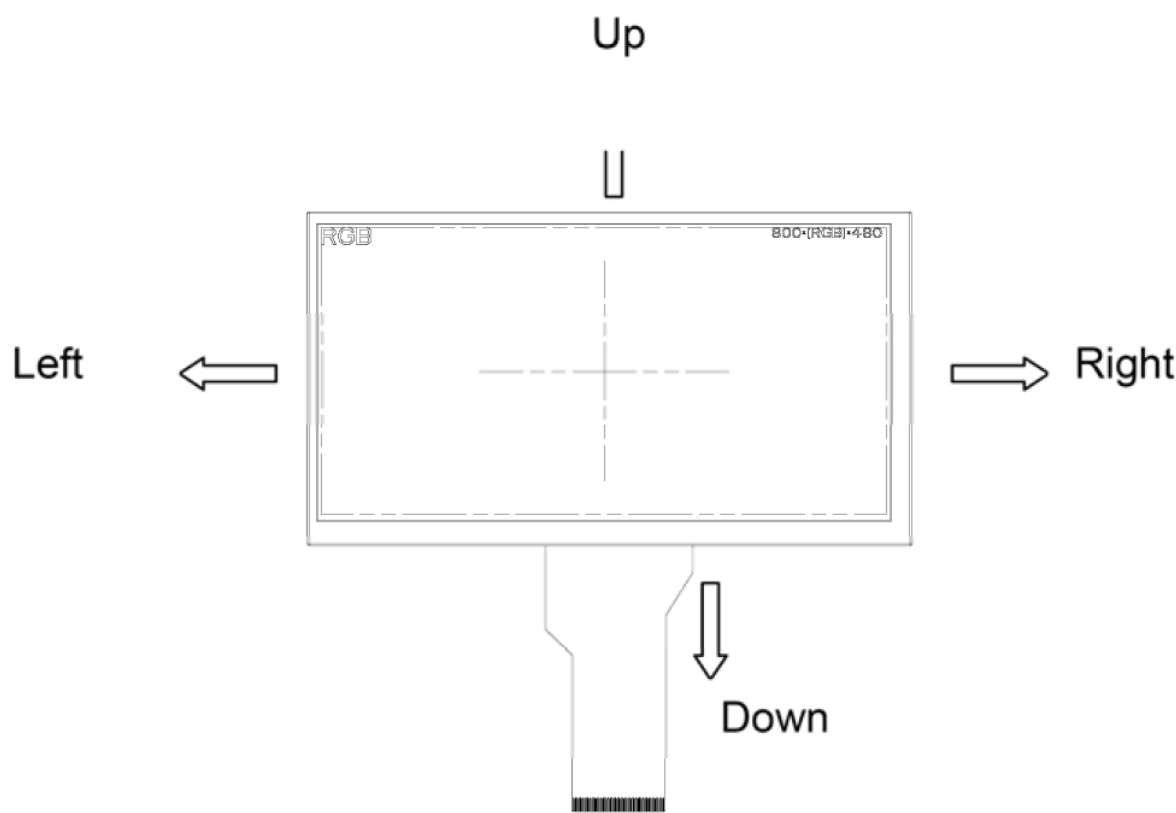
**Note 3:** Data shall be latched at the falling edge of DCLK.

**Note 4:** Selection of scanning mode.

SET OF SCAN CONTROL INPUT		SCANNING DIRECTION
UD	LR	
GND	VCC	Up To Down, Left To Right
VCC	GND	Down To Up, Right To Left
GND	GND	Up To Down, Right To Left
VCC	VCC	Down To Up, Left To Right

**Note 5:** Definition of scanning direction. Refer to the Figure 4.

Figure 4. Definition of scanning direction



**Note 6:** Global reset pin. Active low to enter reset state. Suggest to connect with an RC reset circuit for stability. Normally (internally) pulled high.

**Note 7:** Dithering function enable control, normally (internally) pull high.

When DITHB="1", Disable internal dithering function,

When DITHB="0", Enable internal dithering function,

**Note 8:** Normally (internally) pull high.

**Note 9:** Normally(internally) pull low.

7.1. CTP interface description

PIN NO.	SYMBOL	DESCRIPTION	REMARK
1	VSS	Power Ground	
2	VDD	Power for CTP	
3	SCL	I2C SCL	
4	NC	–	
5	SDA	I2C SDA	
6	NC	–	
7	/RST	Reset pin	
8	/NC	No connection	
9	/INT	Interrupt signal from CTP	
10	VSS	Power Ground	

8. Timing characteristics

8.1. LCD timing characteristics

8.1.1. Clock and data input time diagram

Figure 9. Clock and data input time diagram

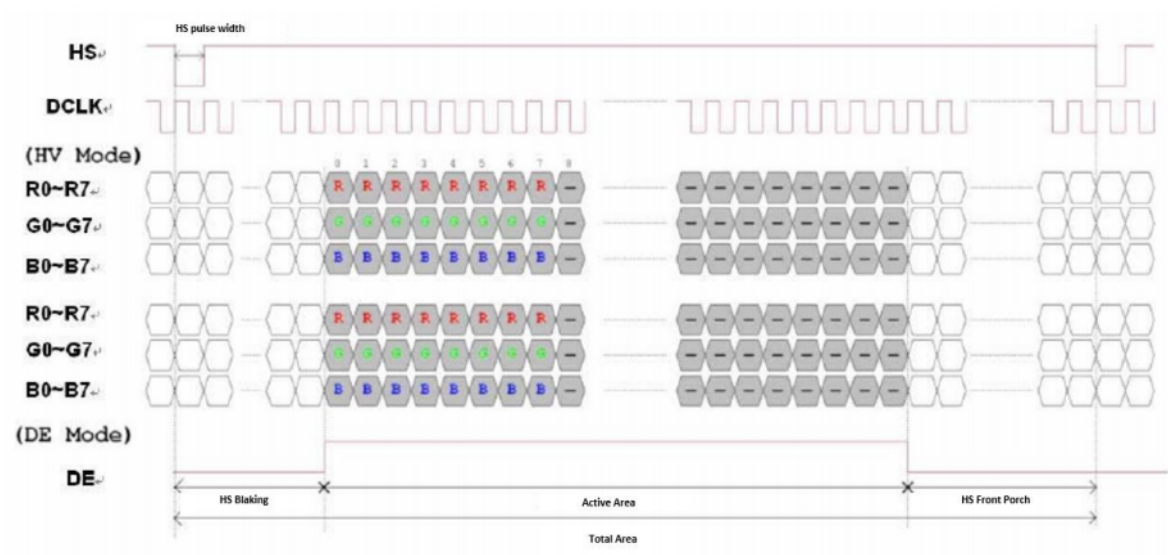
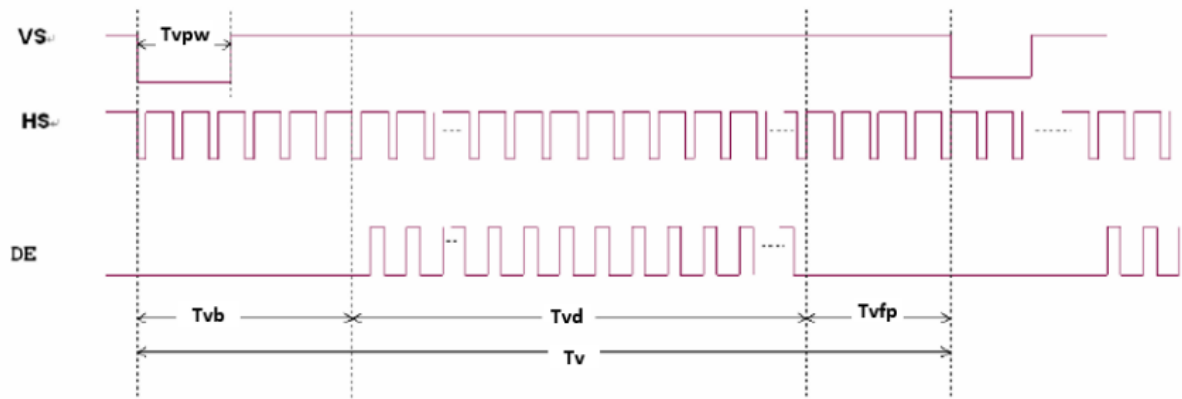


Figure 10. Vertical input timing diagram



## 8.1.2. Parallel RGB input timing table

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
DCLK Frequency	Fclk	26.0	30.0	36.0	MHz
VSD Period Time	tv	515	525	535	TH
VSD Display Area	tvd	480			TH
VSD Blanking	tvb	10			TH
VSD Front Porch	tvfp	12	22	32	TH
VSD Pulse Width	tvpw	–	13	–	TH
HSD Pulse Width	thpw	–	30	–	DCLK
HSD Period Time	th	1026	1056	1086	DCLK
HSD Display Area	thd	800			DCLK
HSD Blanking	thb	16			DCLK
HSD Front Porch	thfp	180	210	240	DCLK

## 8.2. CTP timing characteristics

### 8.2.1. Interface timing characteristics

PARAMETER	MIN	MAX	UNIT
SCL Frequency	0	400	kHz
Bus Free Time Between a STOP and START Condition	4.7	/	μs
Hold Time (repeated) START Condition	4.0	/	μs
Data Setup Time	250	/	ns
Setup Time for Repeated START Condition	4.7	/	μs
Setup Time for STOP Condition	4.0	/	μs

### 8.2.2 I2C Read/Write Interface Description

Figure 7. Write N bytes to I2C slave

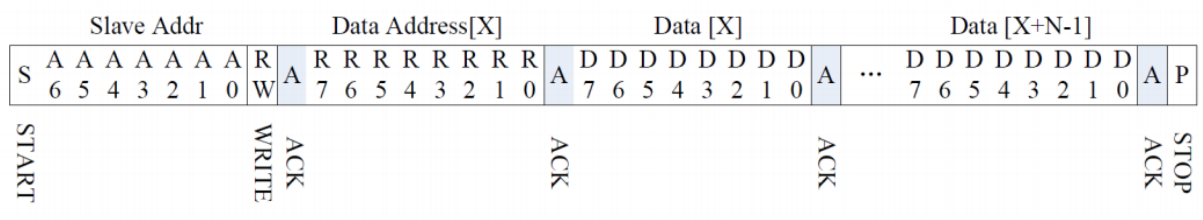
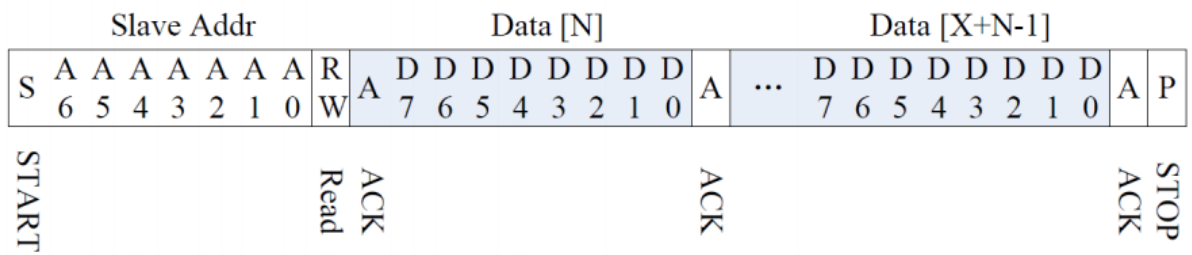
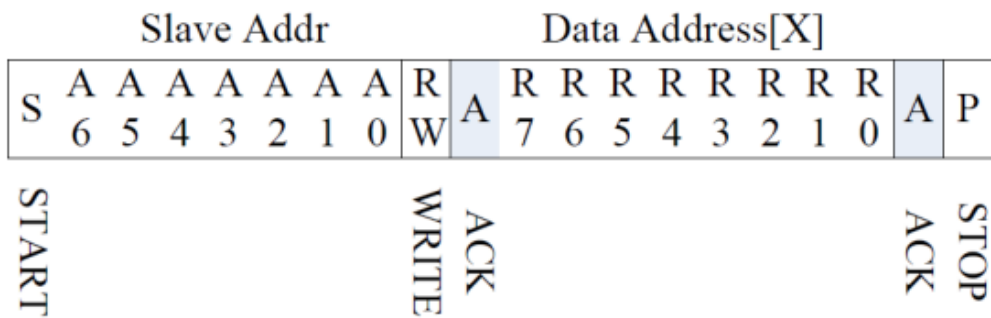


Figure 8. Set Data Address



### 8.2.3. Communication of the I2C interface with Host

Figure 10. Communication of the I2C interface with Host



17h	TOUCH4_YH	4th Touch ID [3:0]				4th Touch X Position [11:8]				R
18h	TOUCH4_YL	4th Touch Y Position [7:0]								R
19h										R
1Ah										R
1Bh	TOUCH5_XH	5th Event Flag				5th Touch X Position [11:8]				R
1Ch	TOUCH5_XL	5th Touch X Position [7:0]								R
1Dh	TOUCH5_YH	5th Touch ID [3:0]				5th Touch X Position [11:8]				R
1Eh	TOUCH5_YL	5th Touch Y Position [7:0]								R

## 8.2.5. Data description

### DEVICE\_MODE

This register is the device mode register, configure it to determine the current mode of the chip.

ADRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
00h	6:4	Device Mode [2:0]	000b Work Mode 100b Factory Mode – Read Raw Data

### GEST\_ID

This register describes the gesture of a valid touch.

ADRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
01h	7:0	Gesture ID [7:0]	Gesture ID 0x10 Move Up 0x14 Move Down 0x18 Move Right 0x48 Zoom In 0x49 Zoom Out 0x00 No Gesture

### TD\_STATUS

This register is the Touch Data status register.

ADRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
02h	3:0	Number of Touch Points [2:0]	How Many Points Detected 1-5 is Valid
	7:4		

### TOUCHn\_XH(n:1-10)

This register describes MSB of the X coordinate of the nth touch point and the corresponding event flag.

ADRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
03h ~ 39h	7:6	Event Flag	00b: Put Down 01b: Put Up 10b: Contact 11b: Reserved
	5:4		Reserved
	3:0		MSB of Touch X Position in Pixels

#### TOUCHn\_XL(n:1-10)

This register describes LSB of the X coordinate of the nth touch point.

ADRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
04h ~ 3Ah	7:0	Touch X Position [7:0]	LSB of the Touch X Position in Pixels

#### TOUCHn\_YH(n:1-10)

This register describes MSB of the Y coordinate of the nth touch point and corresponding touch ID.

ADRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
05h ~ 3Bh	7:4	Touch ID[3:0]	Touch ID of Touch Point
	3:0	Touch X Position [11:8]	MSB of Touch Y Position in Pixels

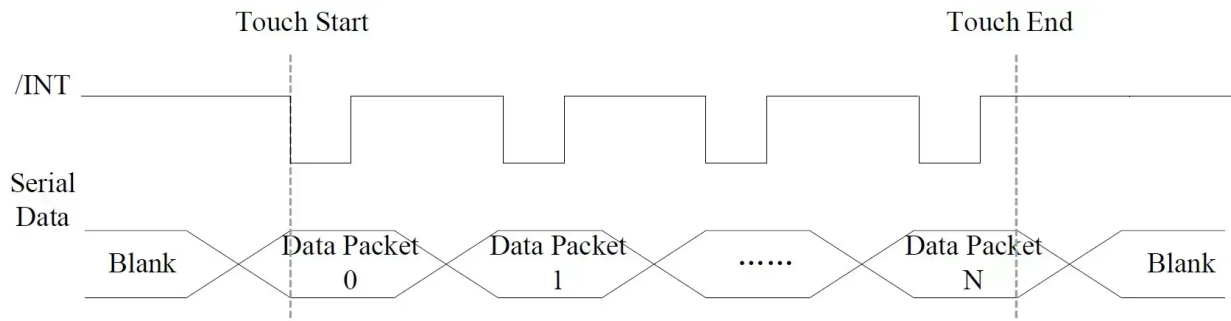
#### TOUCHn\_YL(n:1-10)

This register describes LSB of the Y coordinate of the nth touch point.

ADRESS	BIT ADDRESS	REGISTER NAME	DESCRIPTION
05h ~ 3Bh	7:0	Touch X Position [7:0]	LSB of the Touch Y Position in Pixels

## 8.2.6 Interrupt trigger mode

Figure 11. Interrupt trigger mode timing



## 9. Touch screen panel specification

### 9.1. Electrical characteristics

#### 9.1.1. Capacitive touch panel

DESCRIPTION		SPECIFICATION
Operating Voltage		DC 2.8~3.3V
Power Consumption (IDD)	Active Mode	10~18mA
	Sleep Mode	30~50μA
Interface		I2C
Linearity		<1.5%
Controller		FT5426
I2C address		0x38 (7-bit address)
Resolution		1792*1024

#### 9.1.2. Resistive touch panel

ITEM	VALUE			UNIT	REMARK
	Min.	Typ.	Max.		
Linearity	-3.0	—	3.0	%	Analog X and Y directions
Terminal Resistance	440	—	1100	Ω	X
	100	—	420	Ω	Y
Insulation Resistance	25	—	—	MΩ	DC 25V
Voltage	—	—	10	V	DC
Chattering	—	—	10	ms	100kΩ pull-up
Transparency	78	—	—	%	JIS K7105

**Note:** Avoid operating with hard or sharp material such as a ball point pen or a mechanical pencil except a polyacetal pen (tip R0.8mm or less) or a finger

## 9.2. Mechanical characteristic

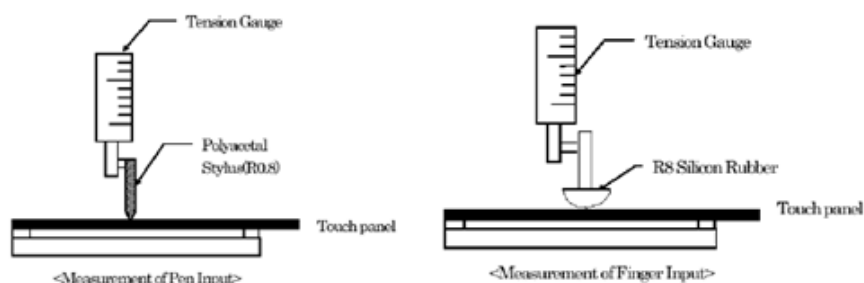
### 9.2.1. Capacitive touch panel

>DESCRIPTION	>INL SPECIFICATION	>REMARK
Touch Panel Size	7 inch	
Outline Dimension (OD)	165.60mm x 100.60mm	Cover Lens Outline
Outline Dimension (OD)- UxTouch	179.96mm x 119.00mm	Cover Lens Outline
Product Thickness	2.3mm	
Glass Thickness	1.1mm	
Ink View Area	155.08mm x 87.42mm	
Sensor Active Area	156.68mm x 88.52mm	
Input Method	5 Finger	
Activation Force	Touch	
Surface Hardness	≥7H	

### 9.2.2. Resistive touch panel

ITEM	VALUE			UNIT	REMARK
	Min.	Typ.	Max.		
Activation Force	20	–	100	gf	
Durability-Surface Scratching	Write 100,000	–	–	characters	
Durability-Surface Pitting	1,000 000	–	–	touches	
Surface Hardness	3	–	–	H	JIS K5400

**Note 1: Force test condition,** Input DC 5V on X direction, Drop off Polyacetal Stylus (R0.8), until output voltage stabilize, then get the R8.0mm Silicon rubber and do finger Activation force test. Next step, 9 points.



**Note 2: Measurement surface area conditions,** Scratch 100,000 times straight line on the film with a stylus change every 20,000 times with Force: 250gf, Speed: 60mm/sec by R0.8 polaceteal stylus.

**Note 3: Pitting test,** Pit 1, 000, 000 times on the film with R0.8 silicon rubber with Force: 250gf and Speed: 2 times/sec.

# 10. Inspection

Standard acceptance/rejection criteria for TFT module.

## 10.1. Inspection condition

Ambient conditions:

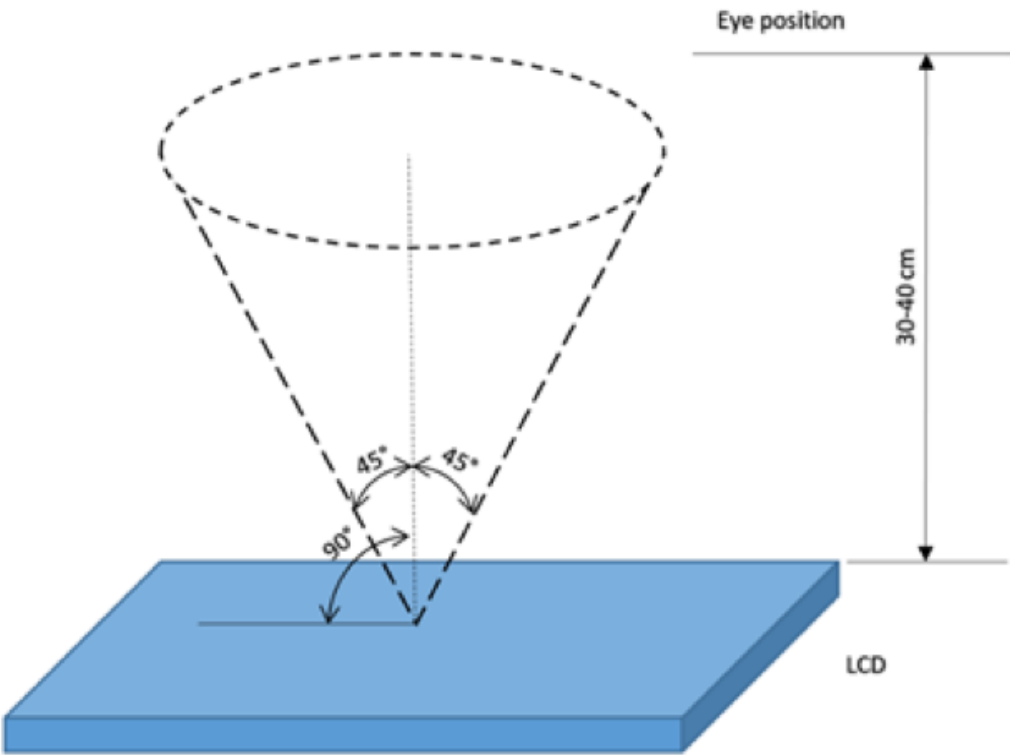
- Temperature: 25±°C
- Humidity: (60±10) %RH
- Illumination: Single fluorescent lamp non-directive (300 to 700 lux)

Viewing distance:

35±5cm between inspector bare eye and LCD.

Viewing Angle:

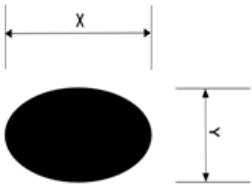
U/D: 45°/45°, L/R 45°/45°



## 10.2 Inspection standard

Item	Criterion
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Black spots, white spots, light leakage, Foreign Particle (round Type)

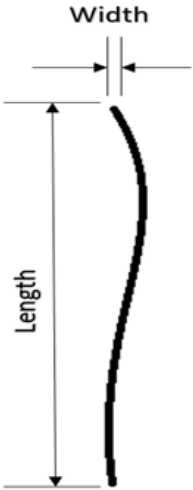


$$D = \frac{(x + y)}{2}$$

Size < 5"	
Average Diameter	Qualified Qty
D < 0.2 mm	Ignored
0.2 mm < D < 0.3 mm	3
0.3 mm < D < 0.5 mm	2
0.5 mm < D	0

Size >= 5"	
Average Diameter	Qualified Qty
D<0.2 mm	Ignored
0.2 mm < D < 0.3 mm	4
0.3 mm < D < 0.5 mm	2
0.5 mm < D	0

LCD black spots, white spots, light leakage (line Type)



Size < 5"		
Length	Width	Qualified Qty
–	W< 0.02	Ignored
L < 3.0	0.02 < W <0.05	2
L < 2.5	0.05 < W <0.08	
–	0.08 < W	0

Size >= 5"		
Length	Width	Qualified Qty
–	W< 0.02	Ignored
L < 3.0	0.02 < W <0.05	4
L < 2.5	0.05 < W <0.08	
–	0.08 < W	0

Item

Criterion

Clear spots

Size < 5"	
Average Diameter	Qualified Qty
D < 0.2 mm	Ignored
0.2 mm < D < 0.3 mm	3
0.3 mm < D < 0.5 mm	2
0.5 mm < D	0

Size >= 5"	
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	<table> <tr><td><b>Average Diameter</b></td><td>Qualified Qty</td></tr> <tr><td><b>D&lt;0.2 mm</b></td><td>Ignored</td></tr> <tr><td><b>0.2 mm &lt; D &lt; 0.3 mm</b></td><td>4</td></tr> <tr><td><b>0.3 mm &lt; D &lt; 0.5 mm</b></td><td>2</td></tr> <tr><td><b>0.5 mm &lt; D</b></td><td>0</td></tr> </table> <p>*Spots density: 10 mm</p>	<b>Average Diameter</b>	Qualified Qty	<b>D&lt;0.2 mm</b>	Ignored	<b>0.2 mm &lt; D &lt; 0.3 mm</b>	4	<b>0.3 mm &lt; D &lt; 0.5 mm</b>	2	<b>0.5 mm &lt; D</b>	0														
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Polarizer bubbles	<table> <tr><td colspan="2">Size &lt; 5"</td></tr> <tr><td><b>Average Diameter</b></td><td>Qualified Qty</td></tr> <tr><td><b>D &lt; 0.2 mm</b></td><td>Ignored</td></tr> <tr><td><b>0.2 mm &lt; D &lt; 0.5 mm</b></td><td>3</td></tr> <tr><td><b>0.5 mm &lt; D &lt; 1 mm</b></td><td>2</td></tr> <tr><td><b>1 mm &lt; D</b></td><td>0</td></tr> <tr><td><b>Total Q'ty</b></td><td>3</td></tr> </table> <table> <tr><td colspan="2">Size &gt;= 5"</td></tr> <tr><td><b>Average Diameter</b></td><td>Qualified Qty</td></tr> <tr><td><b>D&lt;0.25 mm</b></td><td>Ignored</td></tr> <tr><td><b>0.25 mm &lt; D &lt; 0.5 mm</b></td><td>3</td></tr> <tr><td><b>0.5 mm &lt; D</b></td><td>0</td></tr> </table>	Size < 5"		<b>Average Diameter</b>	Qualified Qty	<b>D &lt; 0.2 mm</b>	Ignored	<b>0.2 mm &lt; D &lt; 0.5 mm</b>	3	<b>0.5 mm &lt; D &lt; 1 mm</b>	2	<b>1 mm &lt; D</b>	0	<b>Total Q'ty</b>	3	Size >= 5"		<b>Average Diameter</b>	Qualified Qty	<b>D&lt;0.25 mm</b>	Ignored	<b>0.25 mm &lt; D &lt; 0.5 mm</b>	3	<b>0.5 mm &lt; D</b>	0
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Electrical Dot Defect	<table> <tr><td colspan="2">Size &lt; 5"</td></tr> <tr><td><b>item</b></td><td>Qualified Qty</td></tr> <tr><td><b>Black do defect</b></td><td>4</td></tr> <tr><td><b>Bright dot defect</b></td><td>2</td></tr> <tr><td><b>Total Dot</b></td><td>5</td></tr> </table> <table> <tr><td colspan="2">Size &gt;= 5"</td></tr> <tr><td><b>item</b></td><td>Qualified Qty</td></tr> <tr><td><b>Black do defect</b></td><td>5</td></tr> <tr><td><b>Bright dot defect</b></td><td>2</td></tr> <tr><td><b>Total Dot</b></td><td>5</td></tr> </table>	Size < 5"		<b>item</b>	Qualified Qty	<b>Black do defect</b>	4	<b>Bright dot defect</b>	2	<b>Total Dot</b>	5	Size >= 5"		<b>item</b>	Qualified Qty	<b>Black do defect</b>	5	<b>Bright dot defect</b>	2	<b>Total Dot</b>	5				
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	<b>0.25 mm &lt; D &lt; 0.5 mm</b>	4
	<b>0.5 mm &lt; D</b>	0
Touch panel White Line Scratch	Size < 5"	
	<b>Length</b>	Width Qualified Qty
	–	W< 0.02 Ignored
	<b>L &lt; 3.0</b>	0.02 < W <0.05 2
	<b>L &lt; 2.5</b>	0.05 < W <0.08
	–	0.08 < W 0
	Size >= 5"	
	<b>Length</b>	Width Qualified Qty
	–	W< 0.03 Ignored
	<b>L &lt; 5.0</b>	0.03 < W <0.05 2
	–	0.05 < W 0

## 11. Reliability test

NO.	TEST ITEM	TEST CONDITION
1	High Temperature Storage	80±2°C/240hours
2	Low Temperature Storage	-30±2°C/240hours
3	High Temperature Operating	70±2°C/240hours
4	Low Temperature Operating	-20±2°C/240hours
5	Temperature Cycle	-30±2°C~25~80±2°C × 20 cycles (30min.) (5min.) (30min.)
6	Damp Proof Test	60°C ±5°C × 90%RH/240hours
7	Vibration Test	Frequency 10Hz~55Hz  Amplitude of vibration: 1.5mm  Sweep: 10Hz~55Hz~10Hz  X, Y, Z 2 hours for each direction.
8	Package Vibration Test	Random vibration :0.15G*G/HZ from  5-200HZ, -6dB/Octave from 200-500HZ  of each direction of X.Y. Z  (6 hours for total)
9	Package Drop Test	Height:60 cm

		1 corner,3 edges,6 surfaces
10	ESD Test	Air: $\pm 8\text{KV}$ 150pF/330 $\Omega$ 5 times Contact: $\pm 4\text{KV}$ 150pF/330 $\Omega$ 5 times
11	Mechanical Shock	100G 6ms, X, Y, Z 3 times for each direction



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*Updated on September 30, 2020*

[← RGB 5"](#)

[RGB 7" High Resolution series →](#)

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Yes 1

No