

[Home](#) > [Docs](#) > [Datasheets](#) > [EVE 1/2](#) > EVE1 4.3"

EVE1 4.3"



This datasheet gives detailed information about the Riverdi 4.3" EVE1 displays. The displays come in different versions: with **capacitive, resistive, or no touchscreen**, with a decorative **cover glass**, as well as with or without a **metal mounting frame**

ORDER NOW



Rev.1.0
2019-06-07

ITEM	CONTENTS	UNIT
LCD Type	TFT/Transmissive/Normally white	/
Size	4.3	Inch
Viewing Direction	12:00 (without image inversion)	O' Clock
Gray Scale Inversion Direction	6:00	O' Clock

Number of Dots		480 x (RGB) × 272	/
Driver IC		FT80x	/
Interface Type		SPI/I2C	/
Brightness	no touch module	550	cd/m2
	CTP module	500	
	RTP module	440	
Color Depth		262k	/
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	2019-06-07	Initial Release	

Table of Content

1. Module classification information	10. Touch screen panel specifications
2. Assembly guide – integration	10.1. Electrical characteristics
2.1. Mounting frame	10.1.1. For capacitive touch panel
3. Drawings	10.1.2. For resistive touch panel
4. Absolute maximum ratings	10.2. Mechanical characteristics
5. Electrical characteristics	10.2.1. For capacitive touch panel
6. Electro-optical characteristics	10.2.2. For resistive touch panel
7. Interface description	11. Inspection
8 FT80x Controller specifications	11.1. Inspection condition
8.1. Serial host interface	11.2. Inspection standard
8.2. Block diagram	12. Reliability test
8.3. Host Interface SPI mode 0	
8.4. Backlight driver block diagram	
9. LCD timing characteristics	
9.1. Timing Chart	
9.2. 24Bit RGB Mode for 320 x RGB x 240	

1. Module classification information

RV	T	4.3	x	480 272	C	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	43 – 4.3”
4.	MODEL SERIAL NO.	x (A-Z)
5.	RESOLUTION	480272– 480×272 px
6.	INTERFACE	C– TFT+controller FT8xx
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)

2. Assembly guide – integration


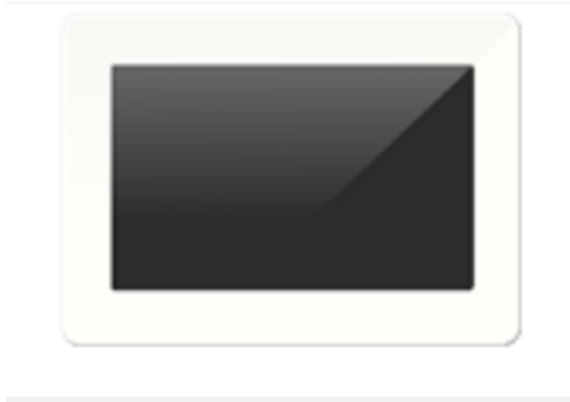
Three options of rear side adhesive tape are available: double side adhesive tape 0.2 mm with 3M 467MP glue, foam double side adhesive tape 0.5 mm with DST 3M 9495LE glue or without any tape.

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:

	
<p>BLACK</p>	<p>WHITE</p>

Product options:

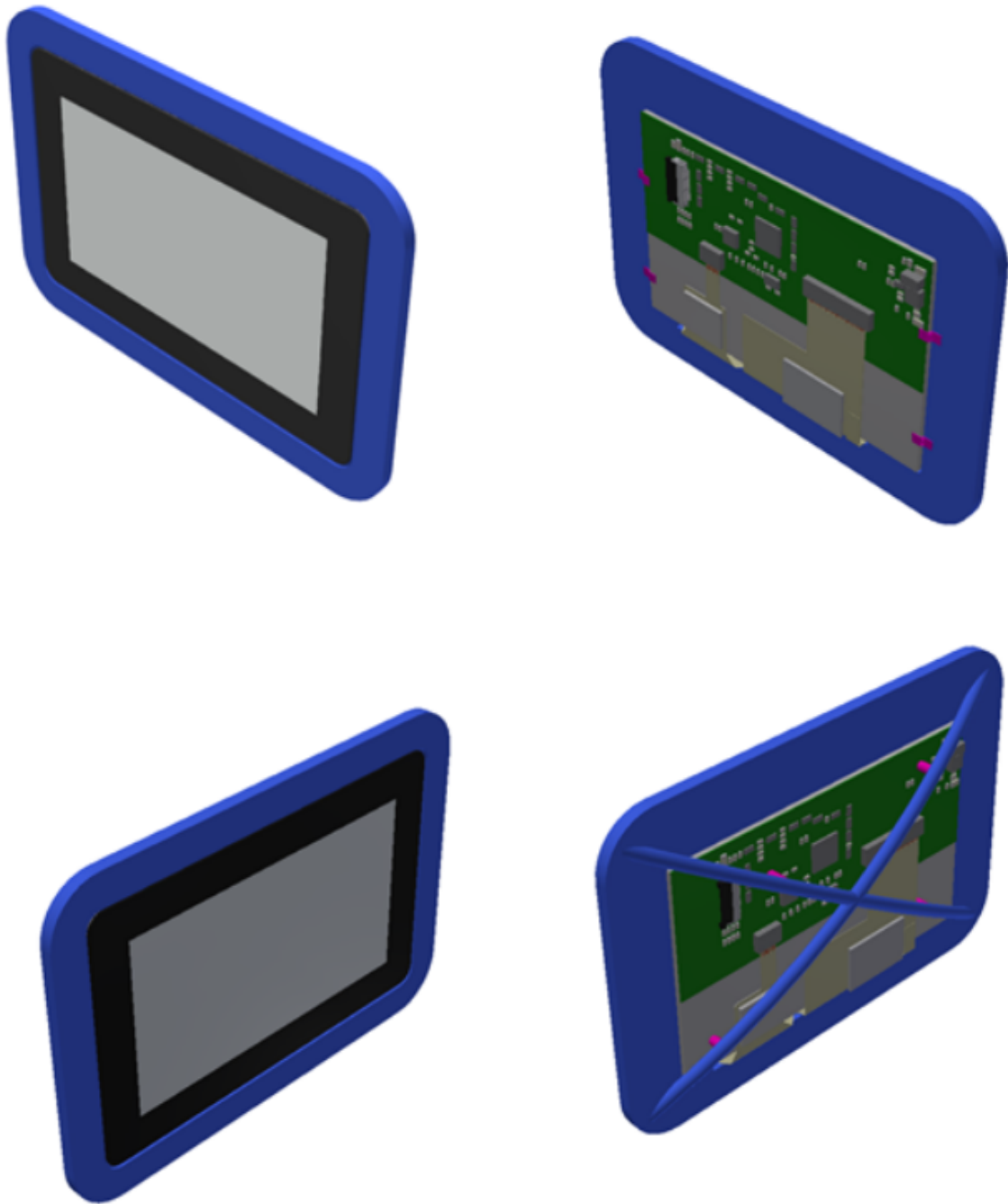
PART NUMBER	DESCRIPTION
RVT43ULFNWC00	FT801, uxTouch, black cover glass, 0.2mm DST
RVT43ULFNWC01	FT801, uxTouch, black cover glass, 0.5 mm DST
RVT43ULFNWC02	FT801, uxTouch, black cover glass, no DST
RVT43ULFNWC03	FT801, uxTouch, white cover glass, 0.2mm DST
RVT43ULFNWC04	FT801, uxTouch, white cover glass, 0.5 mm DST
RVT43ULFNWC05	FT801, uxTouch, white cover glass, no DST

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.

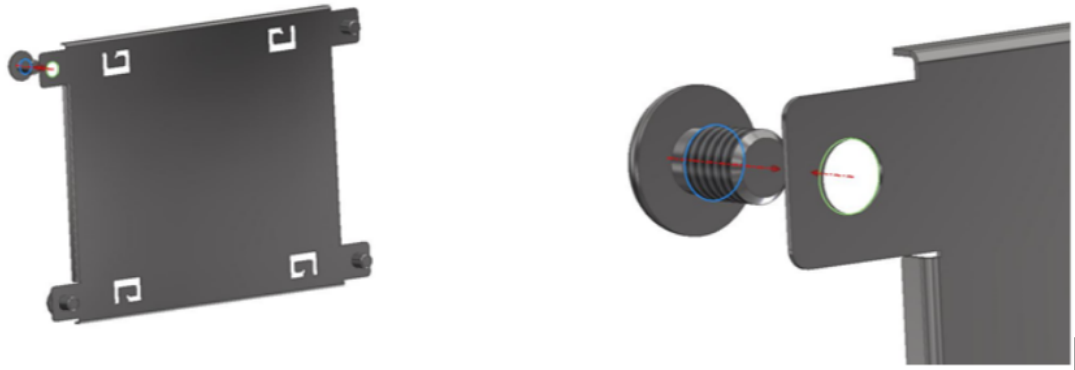
Figure 1. Example of using support brackets



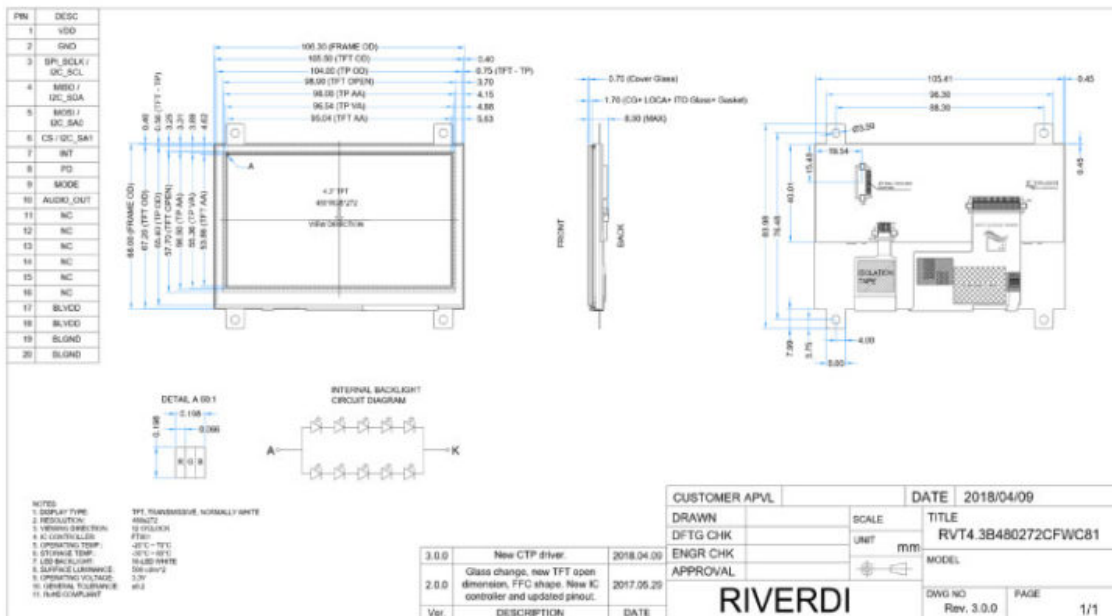
2.2. Mounting frame

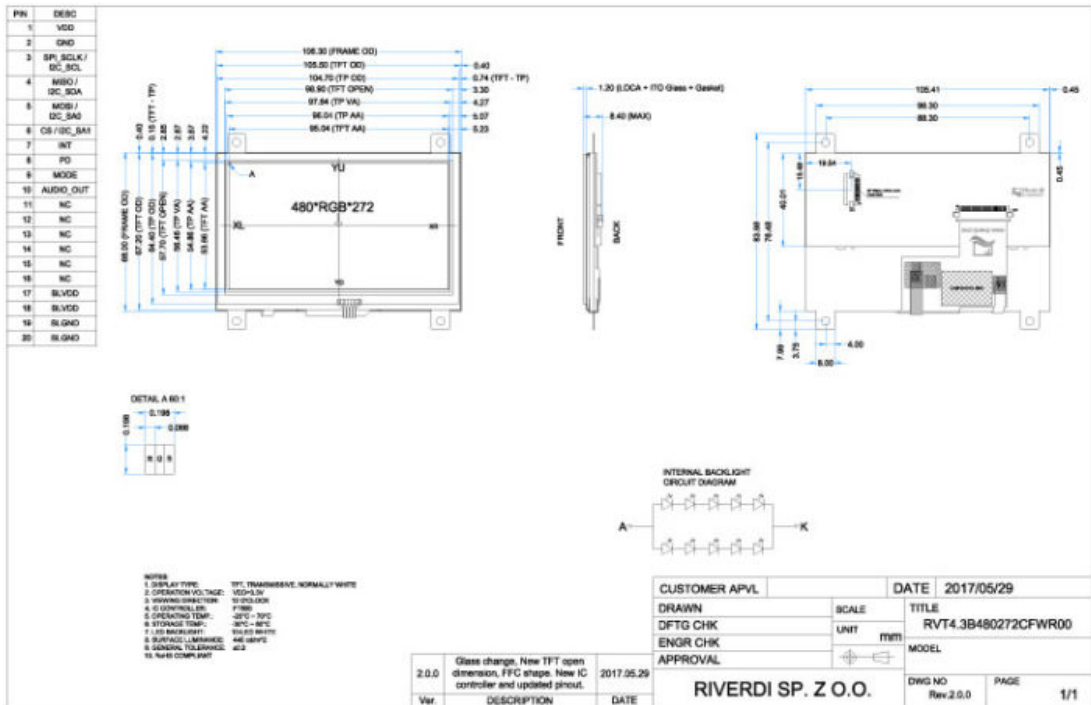
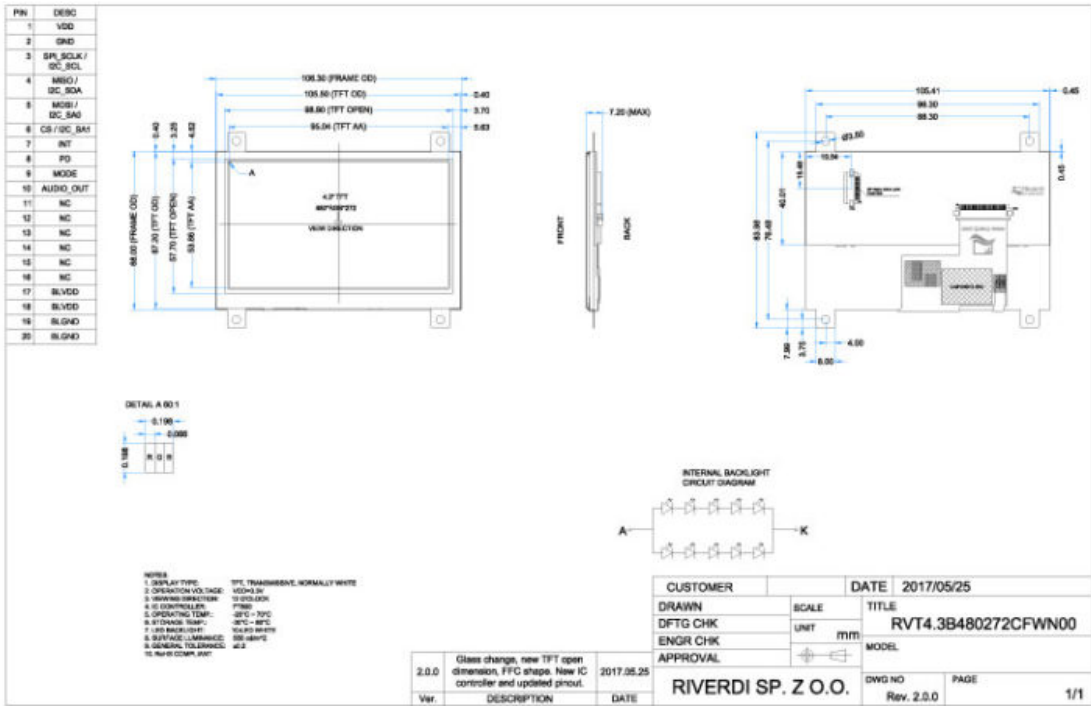
For dimensions 3.5", 4.3", 5.0" and 7.0" the product with mounting frame version is available. Thanks to the four catches attached to the side, frame provides strong assembly to the surface by mounting element (like the screw, see Figure 3). The frames are specially designed to fit Riverdi products perfectly.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

Figure 2. Mounting frame

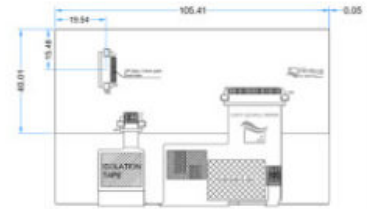
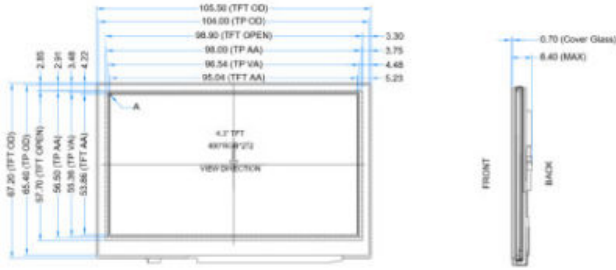


3. Drawings





PN	DESC
1	VDD
2	GND
3	SPI_SCLK / DC_SCL
4	MISO / DC_SDA
5	MOSI / DC_SAC
6	CS /DC_BA1
7	INT
8	PD
9	MODE
10	AUDIO_OUT
11	NC
12	NC
13	NC
14	NC
15	NC
16	NC
17	BLVDD
18	BLVDD
19	BLGND
20	BLGND



INTERNAL BACKLIGHT
CIRCUIT DIAGRAM

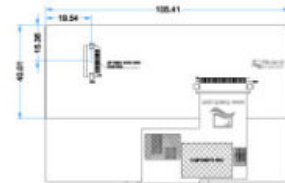
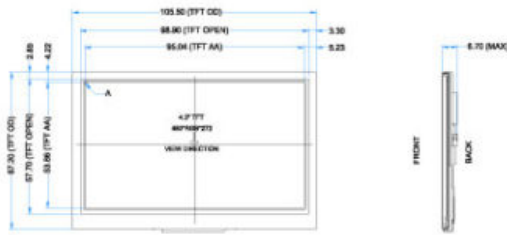


- NOTES
1. DISPLAY TYPE: 480x272
 2. RESOLUTION: 480x272
 3. VIEWING DIRECTION: 12 O'CLOCK
 4. IC CONTROLLER: F7801
 5. OPERATING TEMP: -20°C ~ 70°C
 6. STORAGE TEMP: -20°C ~ 80°C
 7. LED BACKLIGHT: FULL-LED WHITE
 8. SURFACE LUMINANCE: 500 cd/m²
 9. OPERATING VOLTAGE: 3.3V
 10. GENERAL TOLERANCE: M2
 11. ROHS COMPLIANT

Ver.	DESCRIPTION	DATE
3.0.0	New IC CTP controller.	2018.04.09
2.0.0	Glass change, new TFT open dimension, FFG shape. New IC controller and updated pinout.	2017.05.29

CUSTOMER APVL	DATE	2018/04/09
DRAWN	SCALE	TITLE
DFTG CHK	UNIT	RVT4.3B480272CNWC81
ENGR CHK	mm	MODEL
APPROVAL		
RIVERDI		DWG NO
		Rev. 3.0.0
		PAGE
		1/1

PN	DESC
1	VDD
2	GND
3	SPI_SCLK / DC_SCL
4	MISO / DC_SDA
5	MOSI / DC_SAC
6	CS /DC_BA1
7	INT
8	PD
9	MODE
10	AUDIO_OUT
11	NC
12	NC
13	NC
14	NC
15	NC
16	NC
17	BLVDD
18	BLVDD
19	BLGND
20	BLGND



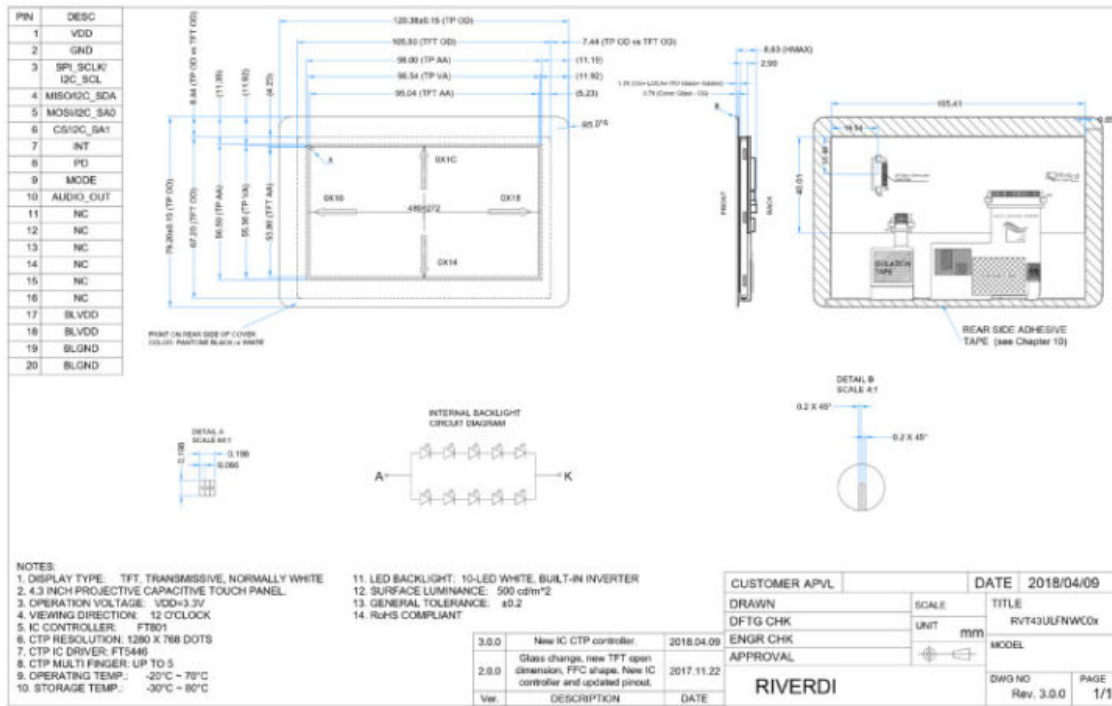
INTERNAL BACKLIGHT
CIRCUIT DIAGRAM



- NOTES
1. DISPLAY TYPE: 480x272
 2. RESOLUTION: 480x272
 3. VIEWING DIRECTION: 12 O'CLOCK
 4. IC CONTROLLER: F7801
 5. OPERATING TEMP: -20°C ~ 70°C
 6. STORAGE TEMP: -20°C ~ 80°C
 7. LED BACKLIGHT: FULL-LED WHITE
 8. SURFACE LUMINANCE: 500 cd/m²
 9. OPERATING VOLTAGE: 3.3V
 10. GENERAL TOLERANCE: M2
 11. ROHS COMPLIANT

Ver.	DESCRIPTION	DATE
2.0.0	Glass change, New TFT open dimension, FFG shape. New IC controller and updated pinout.	2017.05.29

CUSTOMER APVL	DATE	2017/05/29
DRAWN	SCALE	TITLE
DFTG CHK	UNIT	RVT4.3B480272CNWN00
ENGR CHK	mm	MODEL
APPROVAL		
RIVERDI SP. Z O.O.		DWG NO
		Rev. 2.0.0
		PAGE
		1/1



4. Absolute maximum ratings

PARAMETER	SYMBOL	MIN	MAX	UNIT
Supply Voltage for Logic	VDD	-0.3	3.6	V
Input Voltage for Logic	VIN	-0.3	VDD	V
Input Voltage For LED inverter	BLVDD	-0.3	7.0	V
Operating Temperature	TOP	-20	70	°C
Storage Temperature	TST	-30	80	°C
Humidity	RH	-	90% (Max 60°C)	RH

5. Electrical characteristics

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	NOTES
Supply Voltage For Module	VDD	3.0	3.3	3.6	V	
Input Voltage For LED inverter	BLVDD	2.8	3.3	5.5	V	
Input Current (Exclude LED Backlight)	IDD	-	70	87	mA	VDD=3.3V
LED Backlight Current	IDDbacklight	-	260	325	mA	BLVDD=3.3V
LED Backlight Current	IDDbacklight	-	150	187	mA	BLVDD=5V

Total Input current (Include LED Backlight 100%)	IDDtotal	–	330	412	mA	BLVDD=3.3V
Input Voltage 'H' level	Vih	0.7VDD	–	VDD	V	
Input Voltage 'L' level	Vil	0	–	0.2VDD	V	
LED Life Time	–	30000	50000	–	Hrs	Note1

Note: 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	θ=0° ø=0° Ta=25	–	20	30	ms	Figure 4	4
Contrast Ratio		Cr		320	400	–	—	Figure 5	1
Luminance Uniformity		δ WHITE		80	–	–	%	Figure 5	3
Surface Luminance	TFT	Lv		440	550	–	cd/m2	Figure 5	2
	TFT+CTP		400	500	–				
	TFT+RTP		350	440	–				
Viewing Angle Range		θ	ø = 90°	35	50	–	deg	Figure 6	6
			ø = 270°	55	70	–	deg	Figure 6	
			ø = 0°	55	70	–	deg	Figure 6	
			ø = 180°	55	70	–	deg	Figure 6	
CIE (x, y) Chromaticity		Red	x	0.57	0.62	0.67	Figure 6	5	
			y	0.294	0.344	0.394			
		Green	x	0.256	0.306	0.356			
			y	0.513	0.563	0.613			
		Blue	x	0.083	0.133	0.183			
			y	0.099	0.149	0.199			
		White	x	0.25	0.3	0.35			
			y	0.28	0.33	0.38			

Note 1. Contrast Ratio(CR) is defined mathematically as below, for more information see Figure 4.

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

Note 2. Surface luminance is the LCD surface from the surface with all pixels displaying white. For more information, see Figure 4 .

L_v = 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 4 .

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

Note 4. Response time is the time required for the display to transition from white to black (Rise Time, T_r) and from black to white (Decay Time, T_f). 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 3. The definition of response time

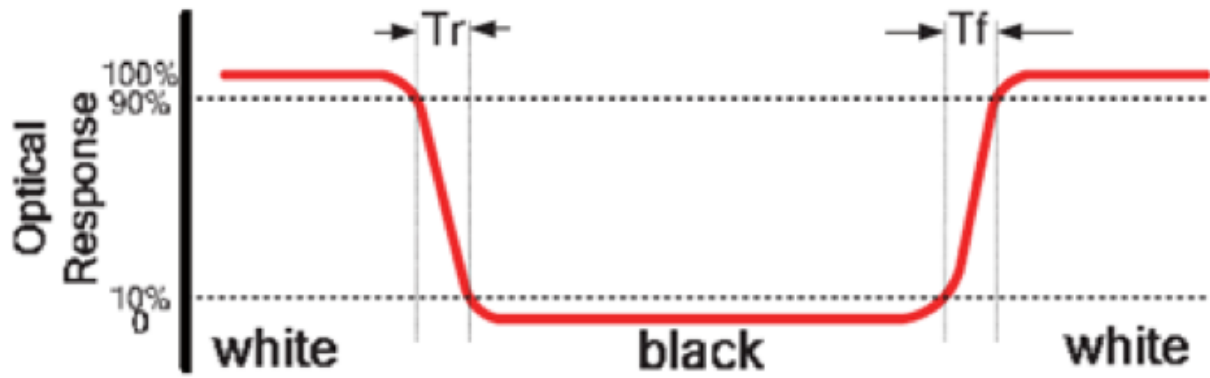


Figure 4. Measuring method for Contrast ratio, surface luminance, Luminance uniformity, CIE (x, y) chromaticity

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

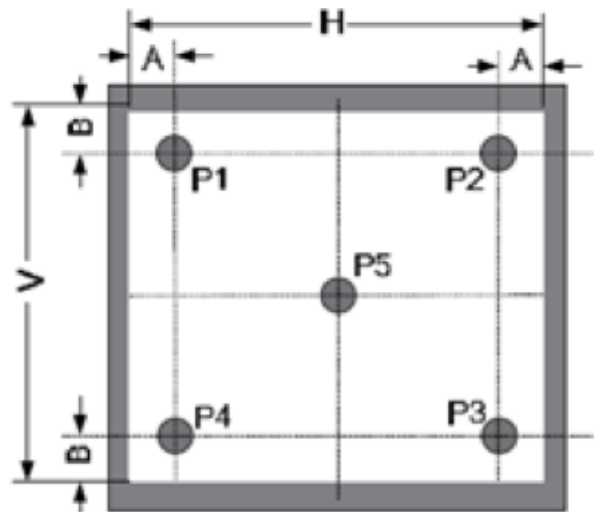
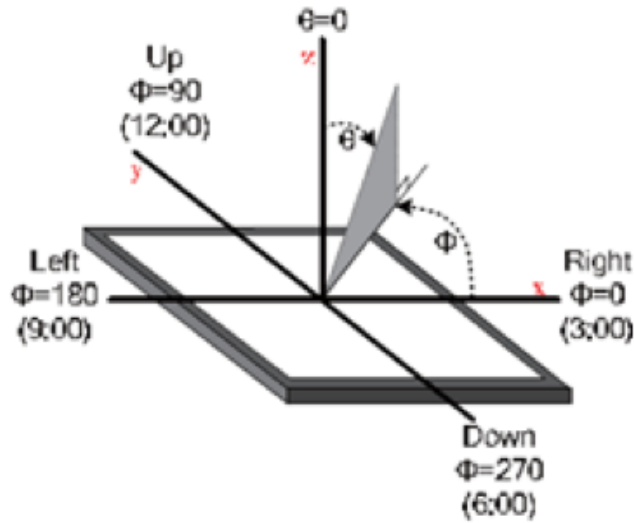


Figure 5. The definition of viewing angle



7. Interface description

PIN NO.	SYMBOL	DESCRIPTION
1	VDD	Power Supply
2	GND	Ground
3	SPI_SCLK/ I2C_SCL	SPI SCK Signal / I2C SCL Signal, Internally 47k Pull UP
4	MISO/ I2C_SDA	SPI MISO Signal / I2C SDA Signal, Internally 47k Pull UP
5	MOSI/ I2C_SA0	SPI MOSI Signal / I2C Slave Address Bit 0, Internally 47k Pull UP
6	CS/I2C_SA1	SPI Chip Select Signal / I2C Slave Address Bit 1, Internally 47k Pull UP
7	INT	Interrupt Signal, Active Low, Internally 47k Pull UP
8	PD	Power Down Signal, Active Low, Internally 47k Pull UP
9	MODE	Host Interface SPI(Pull Low) or I2C(Pull Up) Mode Select Input, Internally 10k Pull DOWN
10	AUDIO_OUT	Audio Out Signal
11	NC	Not Connected
12	NC	Not Connected
13	NC	Not Connected
14	NC	Not Connected
15	NC	Not Connected
16	NC	Not Connected
17	BLVDD	Backlight Power Supply, Can Be Connected to VDD
18	BLVDD	Backlight Power Supply, Can Be Connected to VDD
19	BLGND	Backlight Ground, Internally connected to GND
20	BLGND	Backlight Ground, Internally connected to GND

8. FT80x Controller specifications

FT80x or EVE (Embedded Video Engine) simplifies the system architecture for advanced human machine interfaces (HMIs) by providing functionality for display, audio, and touch as well as an object-oriented architecture approach that extends from display creation to the rendering of the graphics.

8.1. Serial host interface

Figure 6. SPI interface connection

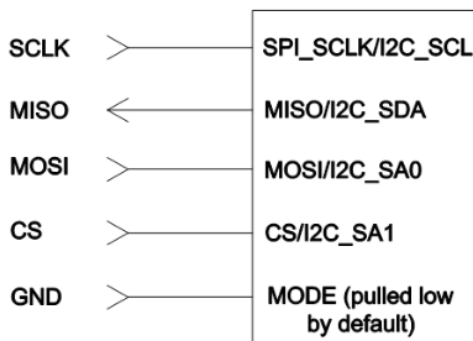
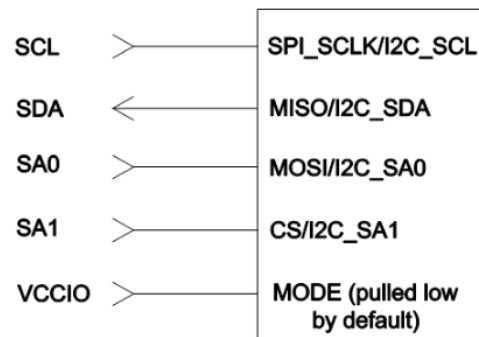


Figure 7. I2C interface connection



SPI Interface – the SPI slave interface operates up to 30MHz.

Only SPI mode 0 is supported. The SPI interface is selected by default (MODE pin is internally pulled low by 47k resistor).

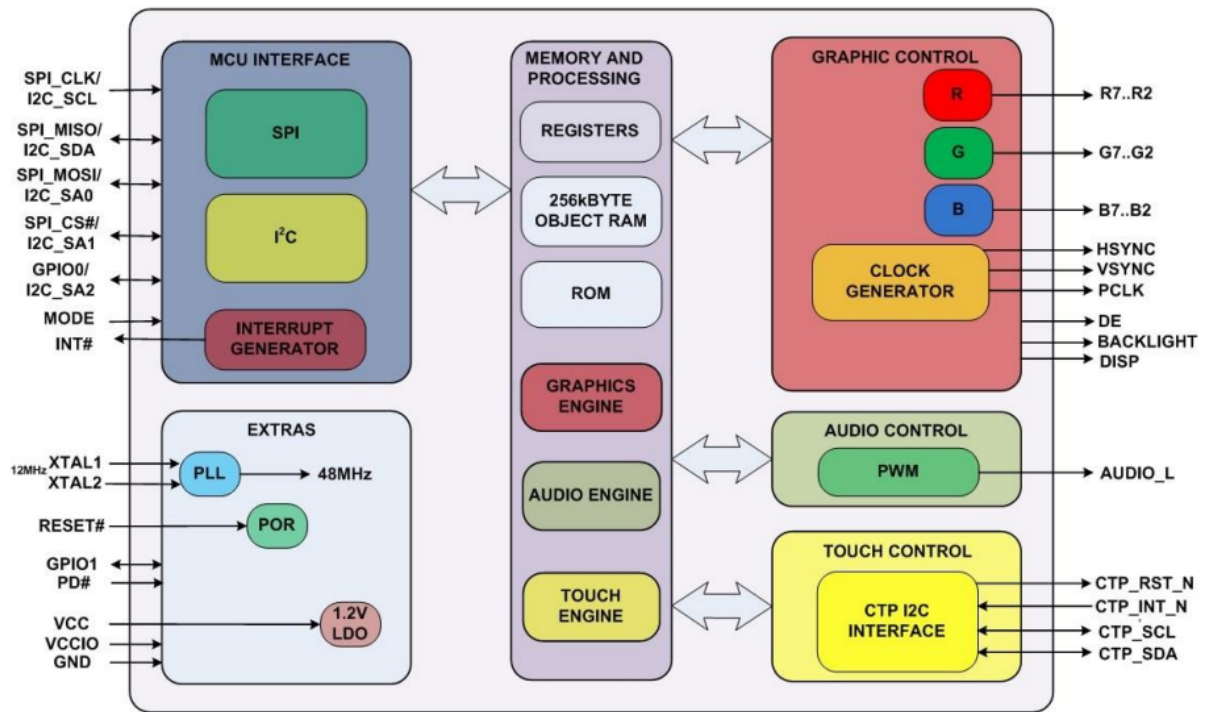
I²C Interface – the I²C slave interface operates up to 3.4MHz, supporting standard-mode, fast-mode, fast-mode plus and high-speed mode.

The I²C device address is configurable between 20h to 23h depending on the I²C_SA[1:0] pin setting, i.e. the 7-bit I2C slave address is 0b'01000A1A0.

The I²C interface is selected when the MODE pin is tied to VDDIO.

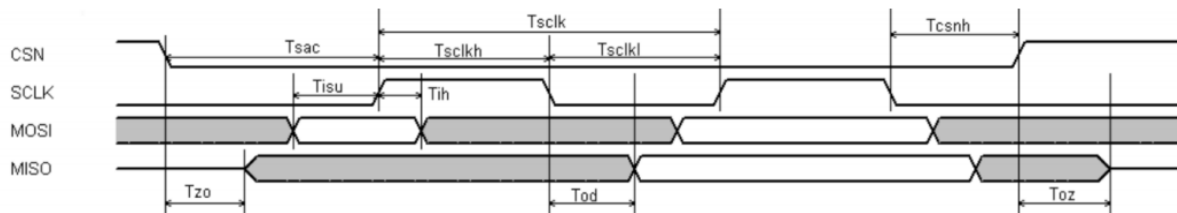
8.2. Block diagram

Figure 8. FT80x Block diagram



8.3. Host Interface SPI mode 0

Figure 9. SPI timing diagram



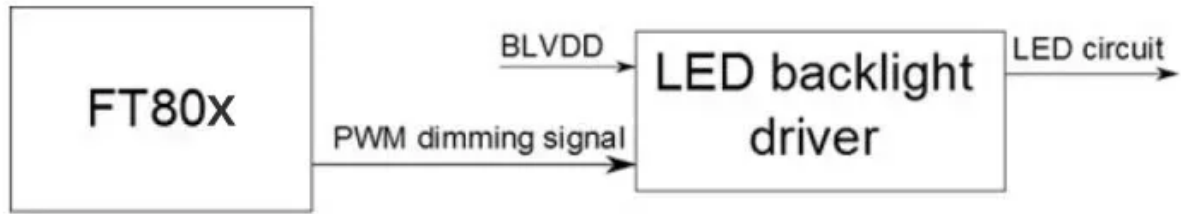
For more information about FT801 controller please go to official FT801 Datasheet.

http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS_FT801.pdf

8.4. Backlight driver block diagram

Backlight enable signal is internally connected to FT80x Backlight control pin. This pin is controlled by two FT80x's registers. One of them specifies the PWM output frequency, second one specifies the duty cycle. Refer to FT80x datasheet for more information.

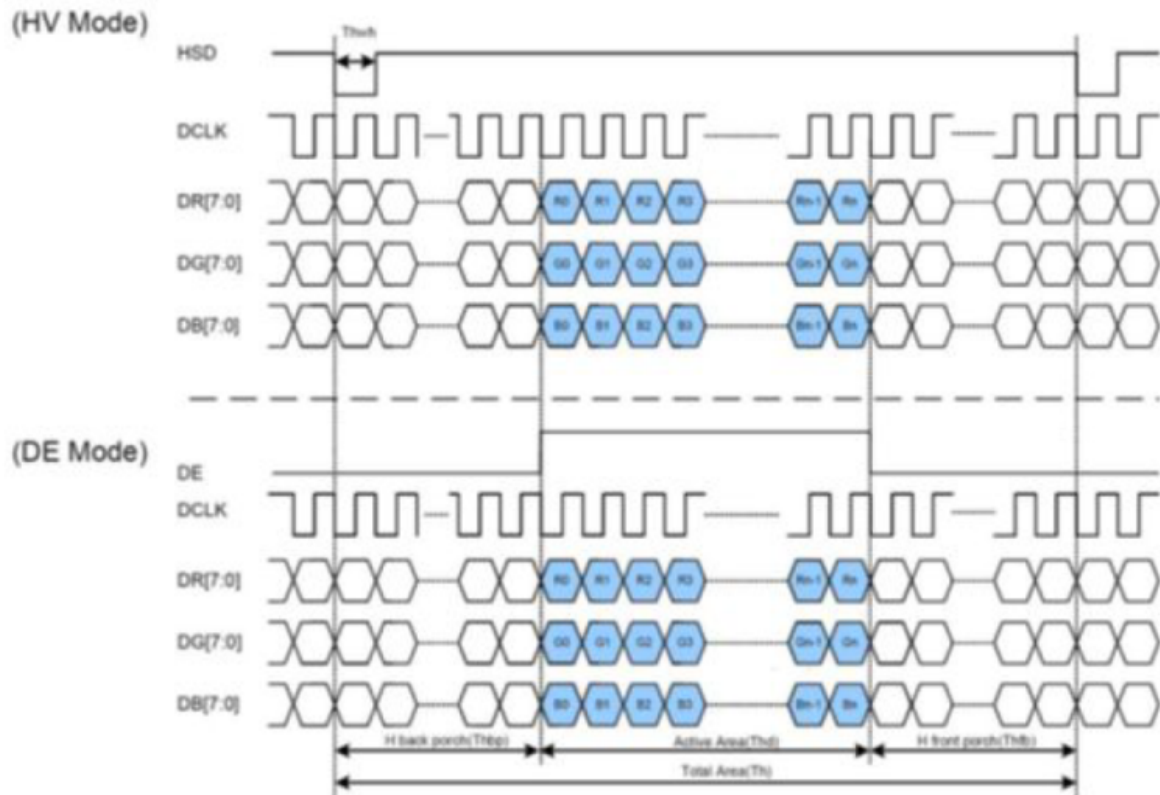
Figure 10. Backlight driver block diagram



9. LCD timing characteristics

9.1. Clock and data input time diagram

Figure 11. Clock and data input time diagram



9.2. Parallel RGB input timing table

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
DCLK Frequency	Fclk	5	9	12	MHz
VSD Period Time	Tv	277	288	400	H
VSD Display Area	Tvd	272			H
VSD Back Porch	Tvb	3	8	31	H
VSD Front Porch	Tvfp	2	8	97	H
HSD Period Time	Th	520	525	800	DCLK
HSD Display Area	Thd	480			DCLK
HSD Back Porch	Thbp	36	40	255	DCLK
HSD Front Porch	Thfp	4	5	65	DCLK

10. Touch screen panel specifications

10.1. Electrical characteristics

10.1.1. For 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		FT5446
I2C address		0x38 (7-bit address)
Resolution		1280*768

10.1.2. For resistive touch panel

ITEM	VALUE			UNIT	REMARK
	Min.	Typ.	Max.		
Linearity	-3.0	-	3.0	%	Analog X and Y directions
Terminal Resistance	400	-	1050	Ω	X
	100	-	450	Ω	Y
Insulation Resistance	-	-	-	MΩ	DC 25V
Voltage	-	-	10	V	DC
Chattering	-	-	10	ms	100kΩ pull-up
Transparency	80	-	-	%	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

10.2. Mechanical characteristics

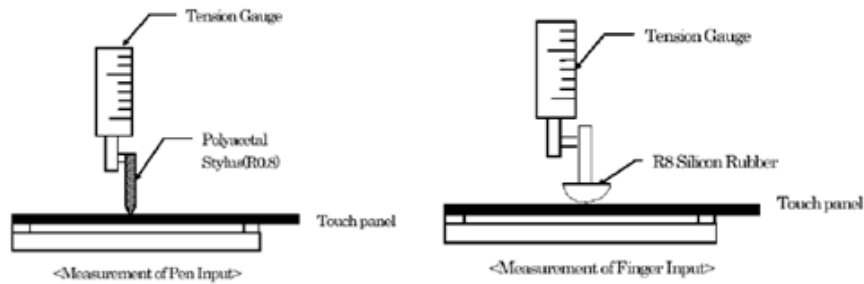
10.2.1 for capacitive touch panel

DESCRIPTION	INL SPECIFICATION	REMARK
Touch Panel Size	4.3 inch	
Outline Dimension (OD)	103.1mm x 65.4mm	Cover Lens Outline
Outline Dimension (OD) – UxTouch	120.38mm x 79.20mm	Cover Lens Outline
Product Thickness	1.7mm	
Glass Thickness	0.7mm	
Ink View Area	97.0mm x 55.5mm	
Sensor Active Area	97.4mm x 56.4mm	
Input Method	5 Finger	
Activation Force	Touch	
Surface Hardness	≥7H	

10.2.2. For resistive touch panel

ITEM	VALUE			UNIT	REMARK
	Min.	Typ.	Max.		
Activation Force	80	-	-	gf	Note 1
Durability – Surface Scratching	Write 100,000	-	-	characters	Note 2
Durability-Surface Pitting	1,000,000	-	-	touches	Note 3
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 polacetal 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.

11. Inspection

Standard acceptance/rejection criteria for TFT module.

11.1. Inspection condition

Ambient conditions:

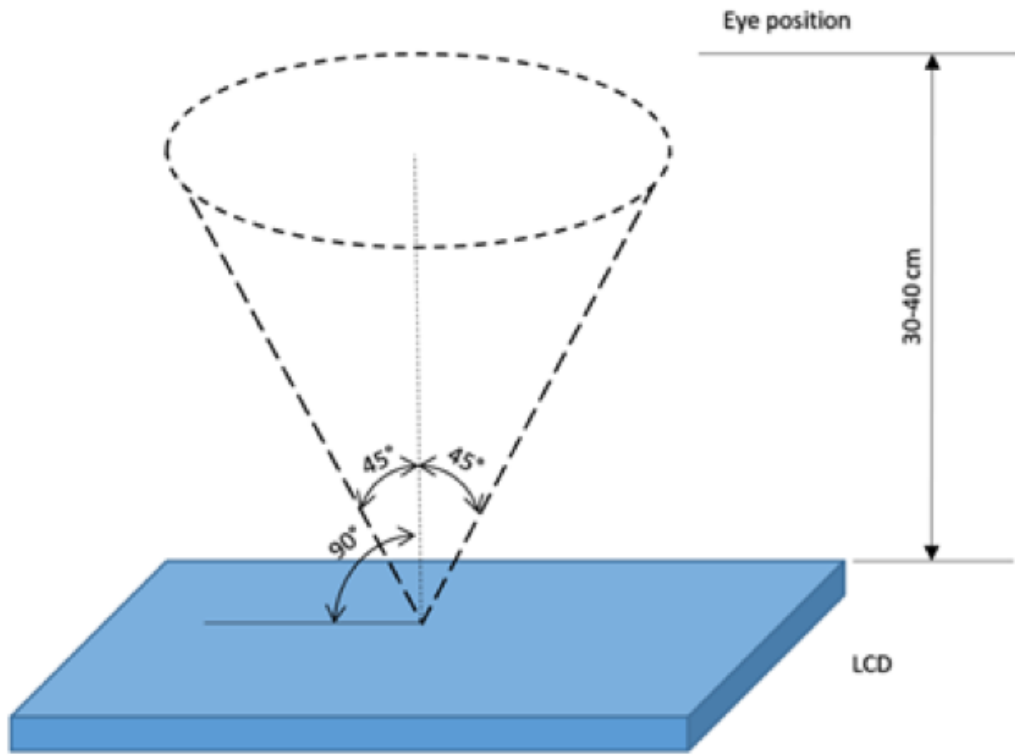
- Temperature: 25±°C
- Humidity: (60±10) %RH
- Illumination: Single fluorescent lamp non-directive (300 to 700 lux)

Viewing distance:

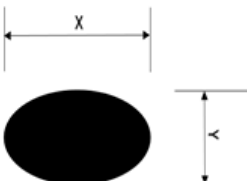
35±5cm between inspector bare eye and LCD.

Viewing Angle:

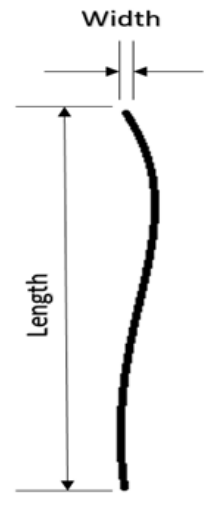
U/D: 45°/45°, L/R 45°/45°



11.2 Inspection standard

Item	Criterion																								
<p>Black spots, white spots, light leakage, Foreign Particle (round Type)</p>	<div style="text-align: center;">  <p>$D = \frac{(x + y)}{2}$</p> </div> <p>*Spots density: 10 mm</p> <table border="1" data-bbox="1002 1211 1418 2063"> <thead> <tr> <th colspan="2" style="background-color: #cccccc;">Size < 5"</th> </tr> <tr> <th>Average Diameter</th> <th>Qualified Qty</th> </tr> </thead> <tbody> <tr> <td>D < 0.2 mm</td> <td>Ignored</td> </tr> <tr> <td>0.2 mm < D < 0.3 mm</td> <td>3</td> </tr> <tr> <td>0.3 mm < D < 0.5 mm</td> <td>2</td> </tr> <tr> <td>0.5 mm < D</td> <td>0</td> </tr> </tbody> </table> <table border="1" data-bbox="1002 1648 1418 2063"> <thead> <tr> <th colspan="2" style="background-color: #cccccc;">Size >= 5"</th> </tr> <tr> <th>Average Diameter</th> <th>Qualified Qty</th> </tr> </thead> <tbody> <tr> <td>D < 0.2 mm</td> <td>Ignored</td> </tr> <tr> <td>0.2 mm < D < 0.3 mm</td> <td>4</td> </tr> <tr> <td>0.3 mm < D < 0.5 mm</td> <td>2</td> </tr> <tr> <td>0.5 mm < D</td> <td>0</td> </tr> </tbody> </table>	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
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)



*Spots density: 10 mm

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"	
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

*Spots density: 10 mm

Polarizer bubbles

Size < 5"	
Average Diameter	Qualified Qty
D < 0.2 mm	Ignored
0.2 mm < D < 0.5 mm	3
0.5 mm < D < 1 mm	2
1 mm < D	0
Total Q'ty	3

Size >= 5"	
Average Diameter	Qualified Qty

D<0.25 mm	Ignored
0.25 mm < D < 0.5 mm	3
0.5 mm < D	0

Electrical Dot Defect

Size < 5"	
item	Qualified Qty
Black do defect	4
Bright dot defect	2
Total Dot	5

Size >= 5"	
item	Qualified Qty
Black do defect	5
Bright dot defect	2
Total Dot	5

Item	Criterion
------	-----------

Touch panel spot

Size < 5"	
Average Diameter	Qualified Qty
D < 0.2 mm	Ignored
0.2 mm < D < 0.4 mm	5
0.4 mm < D < 0.5 mm	2
0.5 mm < D	0

Size >= 5"	
Average Diameter	Qualified Qty
D<0.25 mm	Ignored
0.25 mm < D < 0.5 mm	4
0.5 mm < D	0

Touch panel White Line Scratch

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< 0.03	Ignored
L < 5.0	0.03 < W <0.05	2
-	0.05 < W	0

12. 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 Drop Test	Height:60 cm 1 corner,3 edges,6 surfaces
9	ESD Test	Air: ±4KV 150pF/330Ω 5 times Contact: ±2KV 150pF/330Ω 5 time

Note 1: Without water condensation.

Note 2: The function test shall be conducted after 2 hours storage at the room temperature and humidity after removed from the test chamber.



Was this article helpful to you

Yes 1

No