



TFT MODULE SPECIFICATION

RVT70HSUNWN00

HB, IPS, USB C 7.0" LCD TFT display datasheet
Rev. 1.0
2025-12-19

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ITEM	CONTENTS	UNIT
LCD Type	TFT/Transmissive/Normally Black/IPS	/
Size	7.0	Inch
Viewing Direction	Free	/
Outside Dimensions (W x H x D)	164.90 x 100.00 x 13.02	mm
Active Area (W x H)	154.21 x 85.92	mm
Pixel Pitch (W x H)	0.1506 x 0.1432	mm
Resolution	1024 (RGB) x 600	/
Brightness	1000	cd/m ²
Color Depth	16.7 M	/
Pixel Arrangement	RGB Vertical Stripe	/
Controller of the main board	LT7911D	/
Interface	USB-C	/
With/Without Touch	Without Touch Panel	/
Power Supply	USB-C (5.0V) or (6-36V DC)	V
Weight	172	g

Note 1. RoHS3 compliant

Note 2. LCM weight tolerance: ± 5%.

1. REVISION RECORD

REV NO.	REV DATE	CONTENTS	REMARKS
1.0	2025-12-19	Initial release	

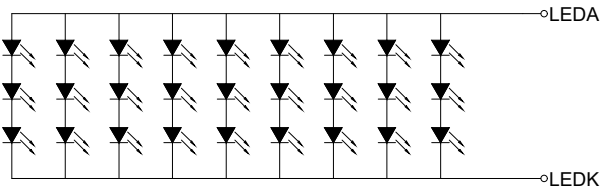
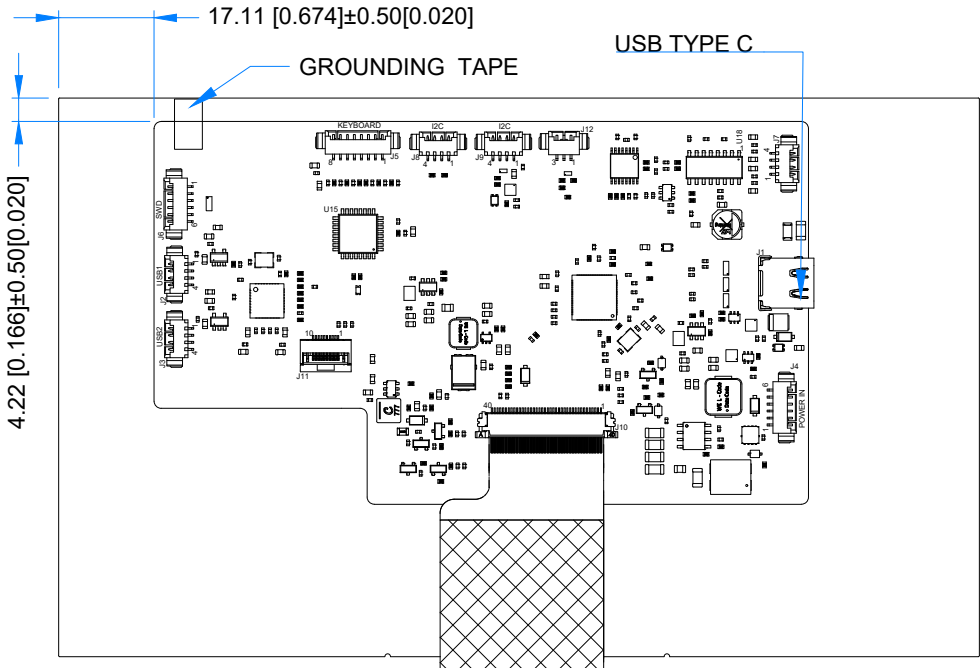
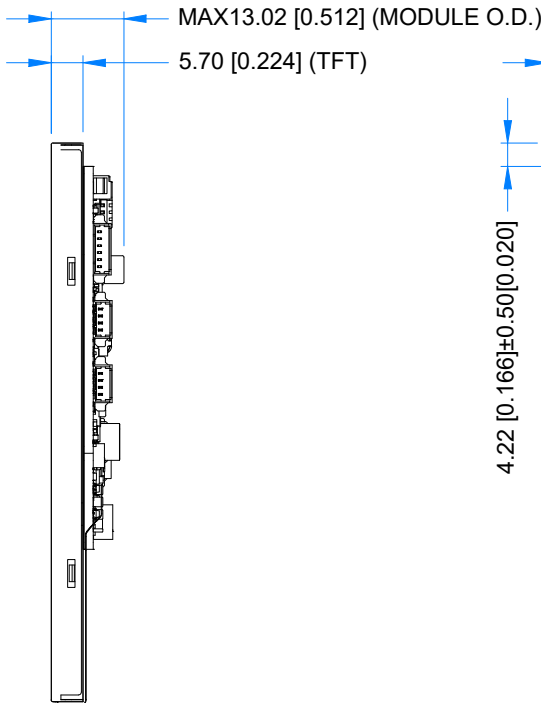
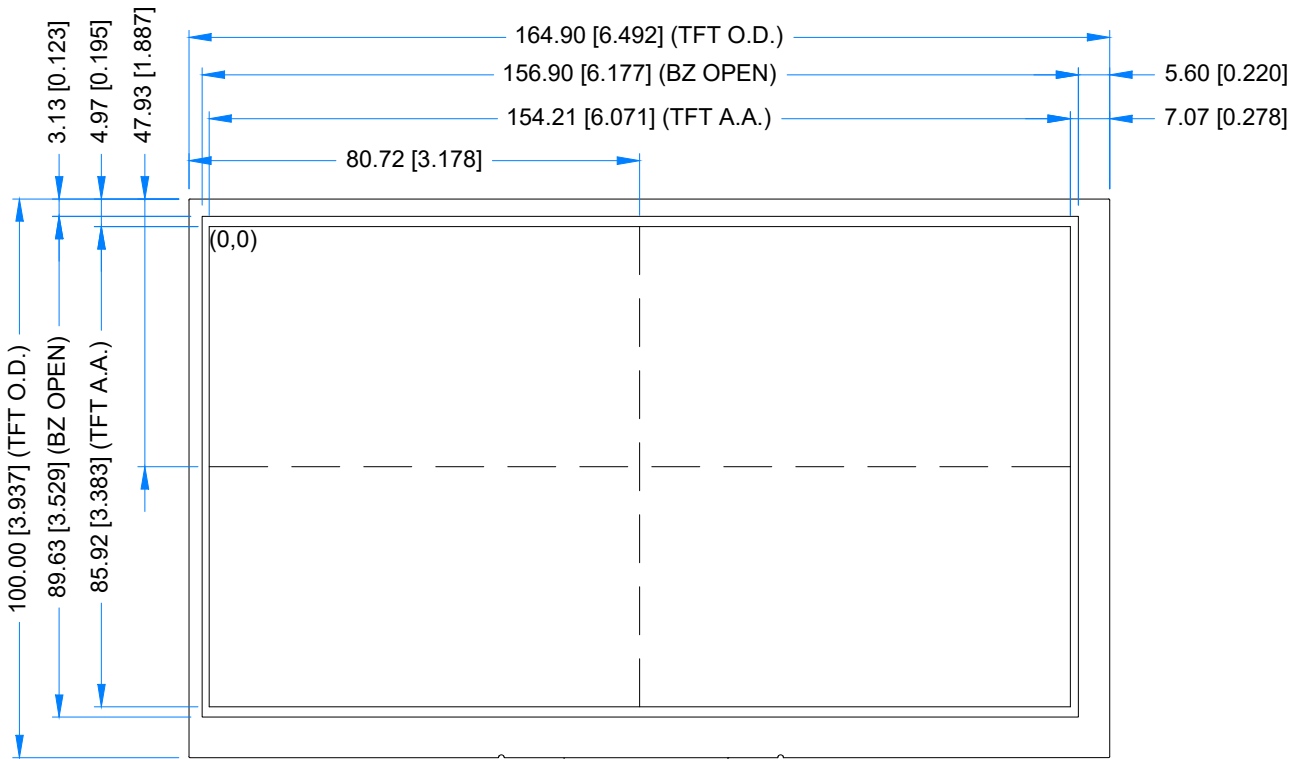
2. CONTENTS

1.	REVISION RECORD	3
2.	CONTENTS	4
3.	MODULE CLASSIFICATION INFORMATION	5
4.	MODULE DRAWING	6
5.	ABSOLUTE MAXIMUM RATINGS	7
6.	ELECTRICAL CHARACTERISTICS	7
7.	ELECTRO-OPTICAL CHARACTERISTICS	9
8.	INTERFACES DESCRIPTION	12
8.1	PCB overview	12
8.2	Power IN (J4)	13
8.3	Video - USB-C (J1)	14
8.4	Speaker - J7	14
8.5	I2C - J8, J9	15
8.6	External keyboard - J5	15
8.7	USB interface (J2, J3)	16
9.	DISPLAY SPECIFICATION	16
10.	INSPECTION	17
11.	RELIABILITY TEST	17
12.	LEGAL INFORMATION	18
13.	CONTACT	19

3. MODULE CLASSIFICATION INFORMATION

RV	T	70	H	S	U	N	W	N	00
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.

NO.	PARAMETER	SYMBOL
1.	BRAND	RV – Riverdi
2.	PRODUCT TYPE	T – TFT Standard
3.	DISPLAY SIZE	70 – 7.0”
4.	MODEL SERIAL NO.	H – High Brightness, IPS
5.	RESOLUTION	S – 1024 x 600 px
6.	INTERFACE	U – USB C
7.	FRAME	N – Without Mounting Metal Frame
8.	BACKLIGHT TYPE	W – LED White
9.	TOUCH PANEL	N – Without Touch Panel
10.	VERSION	00 – version



LED Diagram Circuit

LCD NOTES: 1. LCD TYPE: TRANSMISSIVE, NORMALLY BLACK, IPS 2. RESOLUTION: 1024x600 3. VIEWING ANGLE: FREE 4. CONTROLLER IC OF MAIN BOARD: LT7911D 5. VIDEO INTERFACE: USB-C 6. USB-C Power supply 5.0V		GENERAL NOTES: 1. MODULE SURFACE LUMINANCE: 1000 cd/m^2 2. OPERATING TEMPERATURE: -20°C ~ 70°C 3. STORAGE TEMPERATURE: -30°C ~ 80°C 4. WITHOUT INDIVIDUAL TOLERANCE: ±0.3mm[0.012inch] 5. RoHS3 COMPLIANT					
			PN: RVT70HSUNWN00				
			SN:				
			DRAWN:	M.Stabinski	2025.12.16	1:1.35	
			CHECKED:	A.Demko-Karolczuk	2025.12.16	[mm]	
			APPR:	M.Wlerzbowski	2025.12.16	ISO A3	



5. ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT
Supply Voltage for Module	V _{DD}	-0.5	38	V
Operating Temperature	T _{OP}	-20	70	°C
Storage Temperature	T _{ST}	-30	80	°C
Storage Humidity (@ 25 ± 5°C)	H _{ST}	10	-	% RH
Operating Ambient Humidity (@ 25 ± 5°C)	H _{OP}	10	-	% RH

Note. The above are maximum values. If exceeded, they may cause permanent damage to the unit.

6. ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Supply Voltage for Module (USB-C)	V _{USB}	4.7	5.0	5.3	V	
Supply Voltage for Module (DC Input)	V _{DD}	6	12	36	V	

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Current drawn from V _{DD} @5.0V	I _{VUSB}	-	450	1240	mA	Note 1

Note 1.

MIN, when brightness set to 0% and module is in Sleep mode.

TYP, when brightness set to 50% and no audio output.

MAX, when brightness is 100% and Audio out max 3W.

Values of current may vary due to type of used USB-C cable.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Current drawn from $V_{DD}@6.0V$ (DC-DC)	I_{VDD}	350	417	817	mA	Note 1
Current drawn from $V_{DD}@12.0V$ (DC-DC)	I_{VDD}	175	207	411	mA	Note 1
Current drawn from $V_{DD}@36.0V$ (DC-DC)	I_{VDD}	58	70	136	mA	Note 1

Note 1. Power is constant for 0%BL(2.1W), 50%BL(2.5W), 100% BL(4.9W)

7. ELECTRO-OPTICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT	RMK	NOTE
Response Time	Tr+Tf	$\theta=0^\circ$ $\phi=0^\circ$ Ta=25 °C	-	35	-	ms	FIG 2.	4, 7
Contrast Ratio	Cr		-	800		---	FIG 3.	1, 7
Surface Luminance	Lv		-	1000	-	cd/m ²		2, 7
Viewing Angle Range	θ	$\phi = 90^\circ$	75	85	-	deg	FIG 4.	6
		$\phi = 270^\circ$	75	85	-	deg		
		$\phi = 0^\circ$	75	85	-	deg		
		$\phi = 180^\circ$	75	85	-	deg		
CIE (x, y) Chromaticity	Rx	$\theta=0^\circ$ $\phi=0^\circ$ Ta=25 °C	0.578	0.618	0.658	-	FIG 3.	5,7
	Ry		0.489	0.329	0.369	-		
	Gx		0.376	0.416	0.456	-		
	Gy		0.493	0.533	0.573	-		
	Bx		0.071	0.111	0.151	-		
	By		0.108	0.148	0.188	-		
	Wx		0.270	0.310	0.350	-		
	Wy		0.290	0.330	0.370	-		

Note 1. Contrast Ratio (CR) is defined mathematically as below, for more information see Figure 2.

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

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

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

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 minimum luminance of 5 points luminance by maximum luminance of 5 points luminance. For more information see Figure 2.

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

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 Figure 1. The test equipment is BM-7A.

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. For TFT module, viewing angle is the angle at which the contrast ratio is greater 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 LCD surface. For more information see Figure 3.

Note 7. Viewing angle is measured at the center point of the LCD by CONOSCOPE (ergo-80). For response time testing, the testing data is based on BM-7A. Instruments for Contrast Ratio, Surface Luminance, Luminance Uniformity, Chromaticity the test data is based on SR-3A.

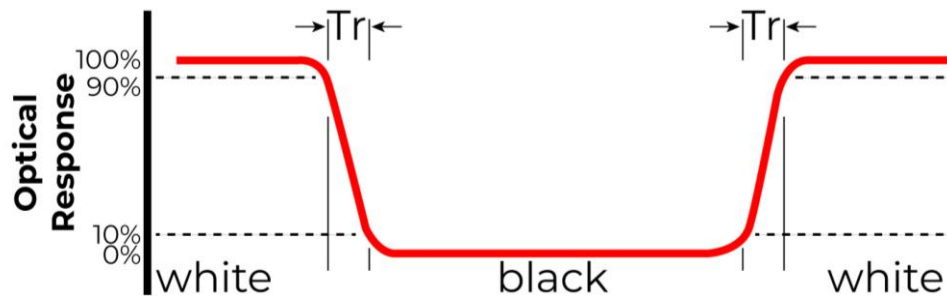


Figure 2. The definition of response time

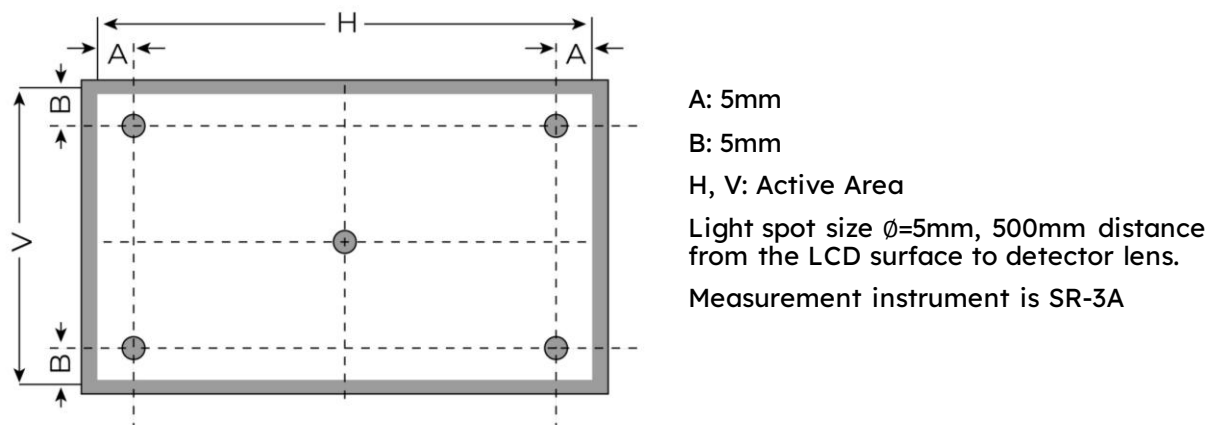


Figure 3. Measuring method for Contrast ratio, surface luminance, Luminance uniformity, CIE (x, y) chromaticity

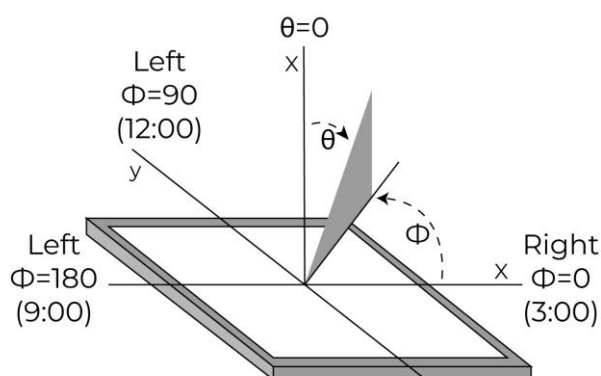


Figure 4. The definition of viewing angle

8.2 Power IN (J4)

PIN	SYMBOL	DESCRIPTION	NOTE
1	VIN	Power supply, 6-36V	
2	VIN	Power supply, 6-36V	
3	EXT_EN	External dimming enable	Note 3
4	EXT_DIMM	External dimming	Note 1, 3
5	GND	Ground	Note 2
6	GND	Ground	Note 2

Note 1. PWM frequency range for external dimming is 100Hz - 10kHz.

100% PWM duty cycle corresponds to maximum brightness

0% PWM duty cycle corresponds to minimum brightness.

Note 2. Matched Riverdi cable accessory: RVA-0106M-1.25FF-1.

Note 3. Notice

$V_L < 1.2V$ = active low

$V_H > 2.4V \dots 36V$ = active high

Socket used for external power supply

8.3 Video – USB-C (J1)

PIN	SYMBOL	DESCRIPTION
A4/B4	VBUSA/VBUSB	Power supply, 5.0V
A9/B9	VBUSA/VBUSB	Power supply, 5.0V
A2/B2	SSTXP1/SSTXP2	Super speed differential pair transmit positive
A3/B3	SSTXN1/SSTXN2	Super speed differential pair transmit negative
A5/B5	CC1/CC2	Configuration channel
A6/B6	DP1/DP2	Differential pair positive
A7/B7	DN1/DN2	Differential pair negative
A8/B8	SBU1/SBU2	Sideband use
A10/B10	SSRXN2/SSRXN1	Super speed differential pair receive positive
A11/B11	SSRXP2/SSRXP1	Super speed differential pair receive positive
A1/B1	GND	Ground
A12/B12	GND	Ground

Note 1. All the signals in Touch panel connector are in accordance with USB-C standard.

Note 2. Matched Riverdi cable accessory: USB-A 2.0 TO USB-C CABLE

8.4 Speaker – J7

PIN	SYMBOL	DESCRIPTION	NOTE
1	Right+	Right-channel speaker positive output	
2	Right-	Right-channel speaker negative output	
3	Left-	Left-channel speaker negative output	
4	Left+	Left-channel speaker positive output	

Note. Max available power for connected speaker 3W (4 Ω).

8.5 I2C – J8, J9

PIN	SYMBOL	DESCRIPTION	NOTE
1	VBUS	Power supply, 5.0V	
2	SCL	Serial clock	
3	SDA	Serial data	
4	GND	Ground	
10	I2C_SDA	I2C_Data signal	NC

8.6 External keyboard – J5

PIN	SYMBOL	DESCRIPTION
1	INP1	Backlight level rise
2	INP2	Backlight level decrease
3	INP3	Switch Input 3 – reserved, not used
4	INP4	Switch Input 4 – reserved, not used
5	INP5	Switch Input 5 – reserved, not used
6	INP6	Switch Input 6 – reserved, not used
7	GND	Ground
8	VCC	Power supply, 3.3V

Note. External keyboard is by default to change backlight brightness level.

8.7 USB interface (J2, J3)

PIN	SYMBOL	DESCRIPTION
1	VBUS	Power supply, 5.0V
2	USB_N	USB_D-
3	USB_P	USB_D+
4	GND	Ground

9. DISPLAY SPECIFICATION

The TFT of the module applies Riverdi high brightness, IPS, 7.0" LVDS: RVT70HSLNWN00

The supported resolution of the display in this module is 1024*600.

For detailed information, please refer to datasheet of display.

10. INSPECTION

Standard acceptance/rejection criteria for TFT module according to document available [here](#).

11. RELIABILITY TEST

NO.	TEST ITEM	TEST CONDITION	NOTE
1	High Temperature Storage	80°C/120 hours	Note 1
2	Low Temperature Storage	-30°C/120 hours	
3	High Temperature Operating	70°C/120 hours	
4	Low Temperature Operating	-20°C/120 hours	
5	High Temperature and High Humidity	40°C, 90%RH, 120Hrs	
6	Thermal Cycling Test (No operation)	-20°C for 30min, 70°C for 30 min. 100 cycles. Then test at room temperature after 1 hour	Note 2
7	Vibration Test	Frequency: 10 ÷ 55 Hz. Stroke: 1.5 mm. Sweep: 10Hz ÷ 55Hz ÷ 10 Hz. 2 hours for each direction of X, Y, Z (Total 6 hours)	

Note 1. Sample quantity for each test item is 5 ÷ 10 pcs.

Note 2. The device is kept at room temperature for 2 hours prior to starting the test

12. LEGAL INFORMATION

CE marking is usually obligatory only for a complete end product. Riverdi display modules are semi-finished goods which are used as inputs to become part of the finished products.

Therefore, Riverdi display modules are not CE marked.

This is not a standalone product. It was designed as an electronic component. It needs integration with a whole system to be fully functional.

Riverdi grants the guarantee for the proper operation of the goods for a period of 12 months from the date of possession of the goods. If in a consequence of this guaranteed execution the customer has received the defects-free item as replacement for the defective item, the effectiveness period of this guarantee shall start anew from the moment the customer receives the defects-free item.

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