TFT MODULE SPECIFICATION

RVT101HVCNWC00-B

Computer Module 10.1” LCD TFT display datasheet
Rev. 1.0
2025-11-13

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ITEM	CONTENTS	UNIT
LCD Type	TFT/Transmissive/Normally Black/IPS	/
Size	10.1	Inch
Viewing Direction	Free	/
Outside Dimensions (W x H x D)	257.96 x 168.60 x 20.05	mm
Active Area (W x H)	216.96 x 135.60	mm
Pixel Pitch (W x H)	0.1695 x 0.1695	mm
Resolution	1280 (RGB) x 800	/
Brightness	850	cd/m^2
Color Depth	16.7 M	/
Pixel Arrangement	RGB Vertical Stripe	/
Interface	Compute Module 4	/
Supply Voltage for Module	7.5-55.0	V
With/Without Touch	With Projected Capacitive Touch Panel	/
CTP Driver	ILI2132A	/
Bonding Technology	Optical Bonding	/
Weight	545	g

Note 1. RoHS3 compliant

Note 2. LCM weight tolerance: ± 5%.

1. REVISION RECORD

REV NO.	REV DATE	CONTENTS	REMARKS
1.0	2025-11-13	Initial release	

2. CONTENTS

3. MODULE CLASSIFICATION INFORMATION

RV	T	101	H	V	C	N	W	C	00	B
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.

NO.	PARAMETER	SYMBOL
1.	BRAND	RV – Riverdi
2.	PRODUCT TYPE	T – TFT Standard
3.	DISPLAY SIZE	101 – 10.1”
4.	MODEL SERIAL NO.	H – High Brightness, IPS
5.	RESOLUTION	V – 1280 x 800 px
6.	INTERFACE	C – Compute Module 4
7.	FRAME	N – Without Mounting Metal Frame
8.	BACKLIGHT TYPE	W – LED White
9.	TOUCH PANEL	C – with Capacitive Touch Panel
10.	VERSION	00 – version
11.	BOONDING TECHNOLOGY	B – Optical bonding

4. ASSEMBLY

4.1 uxTouch Assembly

uxTouch are LCD TFT displays with specially designed projected capacitive touch panels. uxTouch display can be mounted without any additional holes in the housing. Our standard uxTouch displays include double-sided adhesive tape (DST) to stick TFT easily to the housing.

uxTouch models with double-side adhesive tape can be mounted by fastening the glass to the housing.

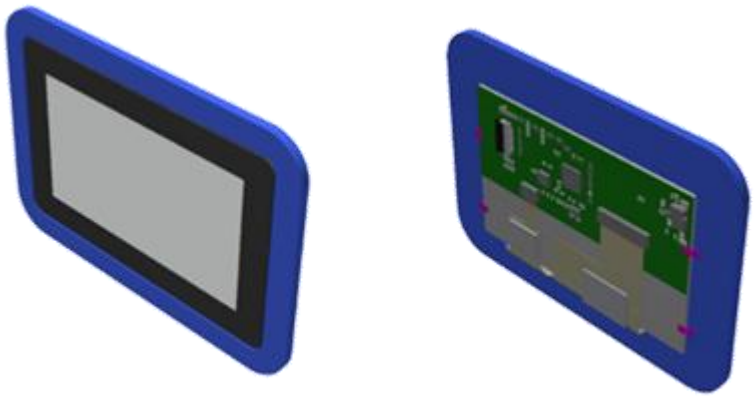
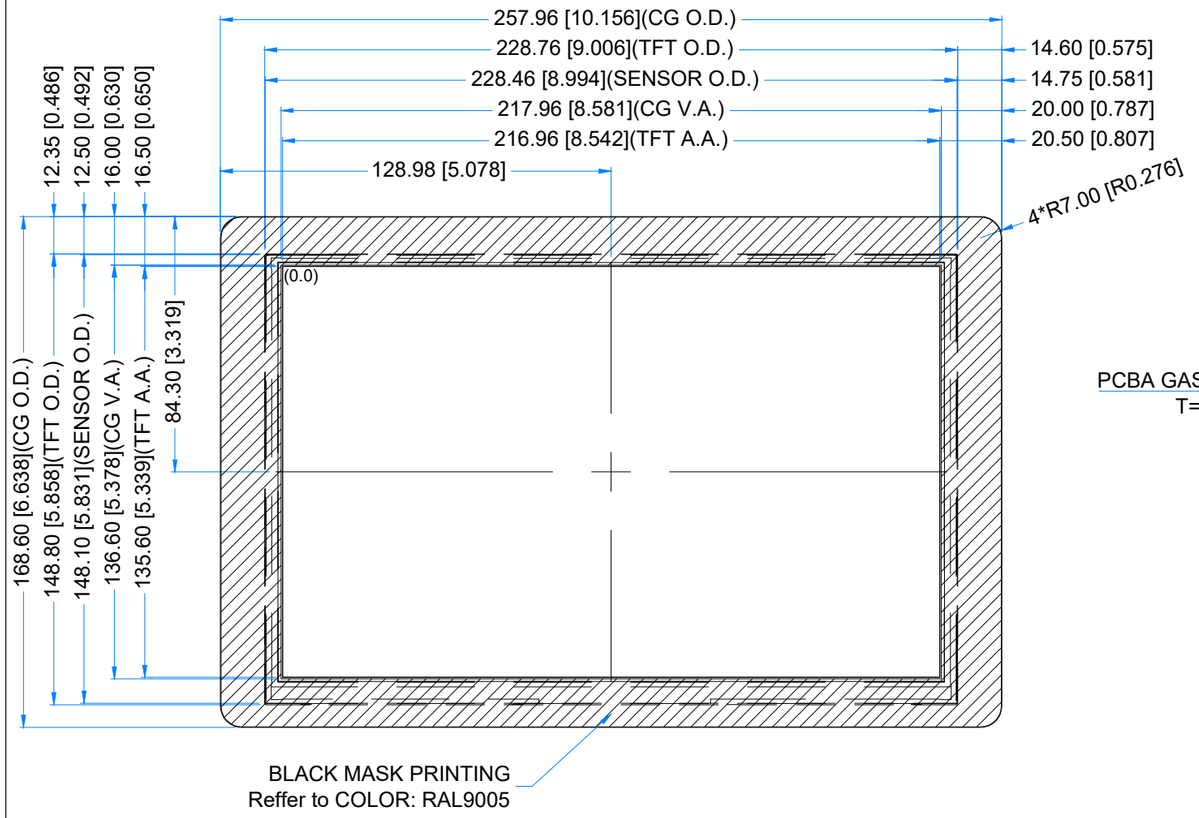
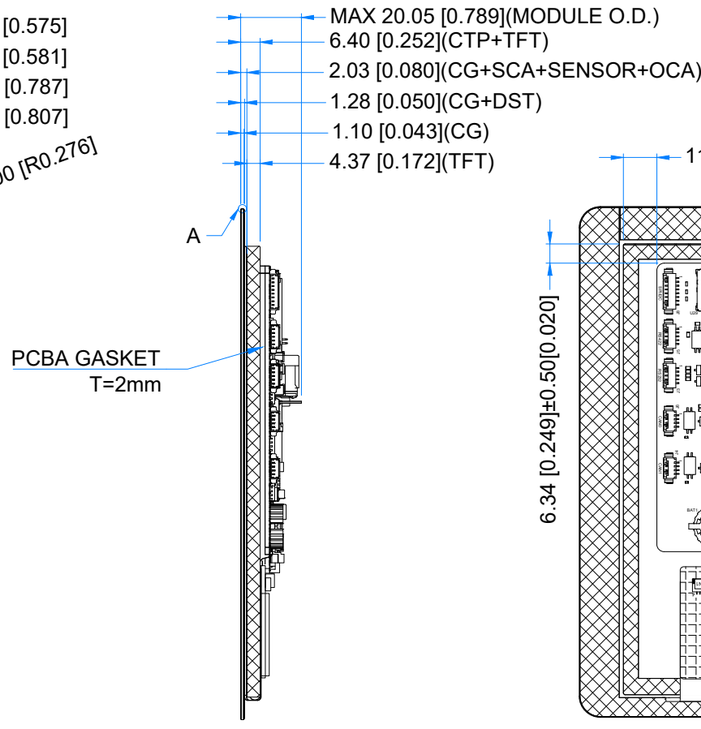
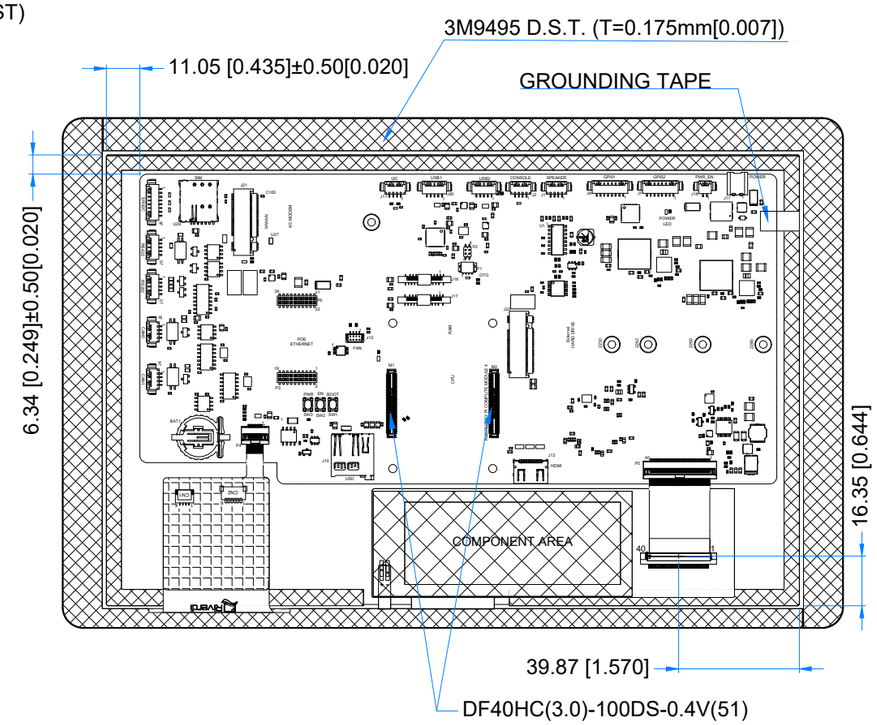


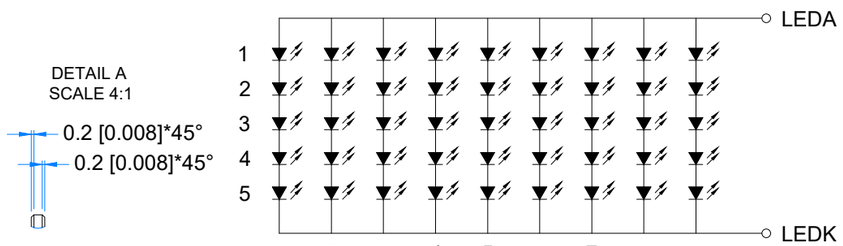
Figure 1. General view of the module

Revision:	Changes:	Date:
1.0	Initial Case	2025.11.13









LED Diagram Circuit

1.25 MM MOLEX CONNECTORS			1.25 MM MOLEX CONNECTORS		
NO.	TYPE	MATE WITH	NO.	TYPE	MATE WITH
J18 (PWR_EN)	53261-0271	51021-0200	J20 (USB1)	53261-0571	51021-0500
J7 (GPIO2)	53261-0871	51021-0800	J11 (I2C)	53261-0471	51021-0400
J9 (GPIO1)	53261-0871	51021-0800	J8 (SPI/I2C)	53261-0871	51021-0800
J1 (SPEAKER)	53261-0471	51021-0400	J5 (RS422)	53261-0571	51021-0500
J2 (CONSOLE)	53261-0471	51021-0400	J3 (RS232)	53261-0571	51021-0500
J19 (USB2)	53261-0571	51021-0500	J6/J4 (CAN0/CAN1)	53261-0471	51021-0400

NO.	TYPE	MATE WITH
J17 (POWER)	PTSM 0.5/2-HH1-2.5-THR R16	PTSM 0.5/2-P-2.5

LCD NOTES:
1. LCD TYPE: TRANSMISSIVE, NORMALLY BLACK, IPS
2. RESOLUTION: 1280x800
3. VIEWING ANGLE: FREE
4. SUPPLY VOLTAGE FOR MODULE: 7.5V-55V
5. RaspberryPI Compute Module 4

TP NOTES:
1. TP STRUCTURE: G+G
2. CG THICKNESS: 1.10mm[0.043inch]
3. SURFACE HARDNESS: 7H
4. DRIVER IC: ILI2132A
5. INTERFACE: CONNECTED TO CM4 VIA I2C

GENERAL NOTES:
1. MODULE SURFACE LUMINANCE:850 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: RVT101HVCNWC00-B

SN:

Riverdi

DRAWN:	M.Stabinski	2025.11.13	1:2.02	
CHECKED:	C.Gao	2025.11.13	[mm]	
APPR:	M.Wierzbowski	2025.11.13	ISO A3	P. 1 of 1

6. ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT
Supply Voltage for Module	V_{DD}	-0.5	60.0	V
Digital I/O signals voltage	-	-0.5	3.3	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.

Most of the GPIOs have the 5.0 V tolerant input voltage, please refer to the datasheet of CM4 for more details.

7. ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage for Module	V_{DD}	7.5	12.0	55.0	V
Power Enable Voltage	V_{EN}	0	-	VDD_IN	V
Input Voltage „L” Level	V_{IL}	0	-	0.8	V
Input Voltage „H” Level	V_{IH}	2.0	-	3.3	V

PARAMETER	CONDITION	SYMBOL	MIN	TYP	MAX	UNIT
Current drawn from V_{DD}@7.5V	Power 'Enable' = '0'	I_{VDD}	-	158	166	uA
Current drawn from V_{DD}@12.0V			-	248	256	uA
Current drawn from V_{DD}@24.0V			-	488	496	uA
Current drawn from V_{DD}@36.0V			-	728	736	uA
Current drawn from V_{DD}@48.0V			-	968	976	uA
Current drawn from V_{DD}@55.0V			-	1108	1116	uA
Current drawn from V_{DD}@7.5V	Power 'Enable' = '1'	I_{VDD}	525	682	837	mA
Current drawn from V_{DD}@12.0V			325	470	612	mA
Current drawn from V_{DD}@24.0V			166	291	412	mA
Current drawn from V_{DD}@36.0V			120	118	318	mA
Current drawn from V_{DD}@48.0V			86	160	236	mA
Current drawn from V_{DD}@55.0V			78	139	200	mA

Note.

POWER 'ENABLE' refers to pin 5, "PWR_EN" of the power input connector(J18).

POWER 'ENABLE' = '1' is when EN pin is floating or shorted to VDD_IN.

POWER 'ENABLE' = '0' is when EN pin is shorted to GND.

By default, POWER 'ENABLE' is set to "1".

MIN, TYP, MAX : Backlight 0%, 50%, 100%.

8. BACKLIGHT ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Lifetime	-	-	50,000	-	hours	Note 1

Note. If LED is driven by high current, high ambient temperature and humidity condition, the lifetime of LED will be reduced. Operating life means brightness goes down to 50% initial brightness. Typical operating lifetime is estimated data.

9. ELECTRO-OPTICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT	RMK	NOTE
Response Time	Tr+Tf	θ=0° ø=0° Ta=25 °C	-	25	35	ms	FIG 1.	4, 7
Contrast Ratio	Cr		-	800	1000	---	FIG 2.	1, 7
Surface Luminance	Lv		-	850	-	cd/m2		2, 7
Viewing Angle Range	θ	ø = 90°	75	85	-	deg	FIG 3.	6
		ø = 270°	75	85	-	deg		
		ø = 0°	75	85	-	deg		
		ø = 180°	75	85	-	deg		
CIE (x, y) Chromaticity	Rx	θ=0° ø=0° Ta=25 °C	0.22	0.26	0.30	-	FIG 2.	5,7
	Ry		0.20	0.24	0.28	-		
	Gx		0.34	0.38	0.42	-		
	Gy		0.50	0.54	0.58	-		
	Bx		0.10	0.14	0.18	-		
	By		0.09	0.13	0.17	-		
	Wx		0.28	0.32	0.36	-		
	Wy		0.29	0.33	0.37	-		

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.

Lv = 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, Tr) and from black to white (Decay Time, Tf). 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.

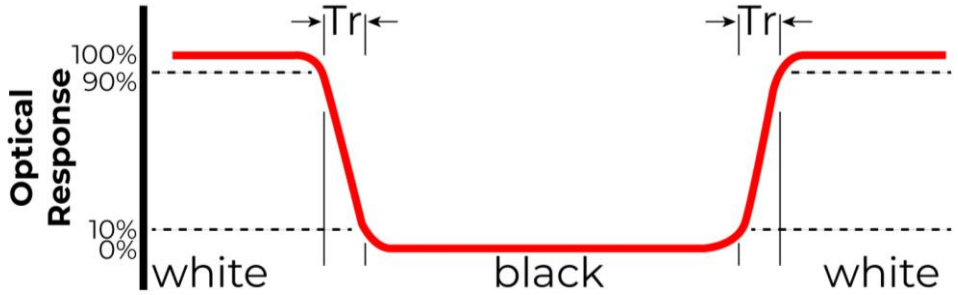
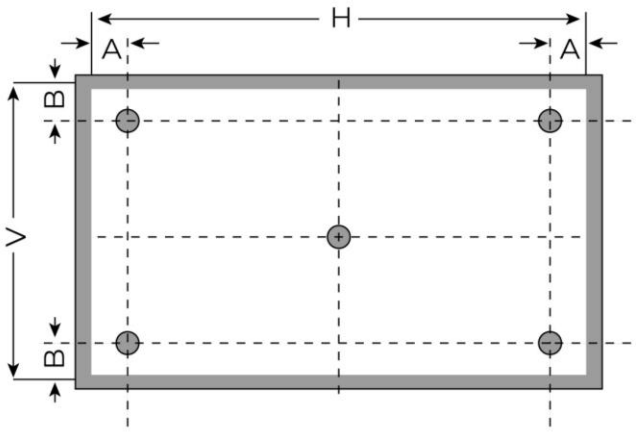


Figure 2. The definition of response time



A: 5mm

B: 5mm

H, V: Active Area

Light spot size ∅=5mm, 500mm distance from the LCD surface to detector lens.

Measurement instrument is SR-3A

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

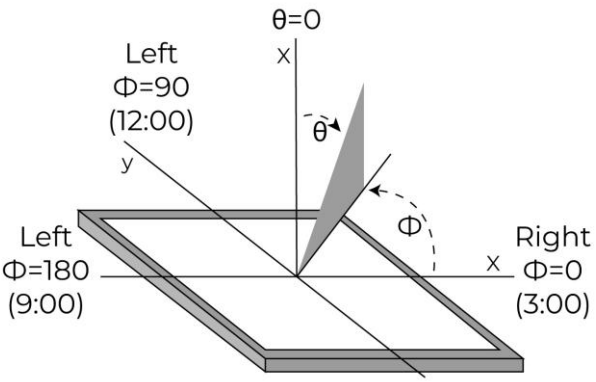
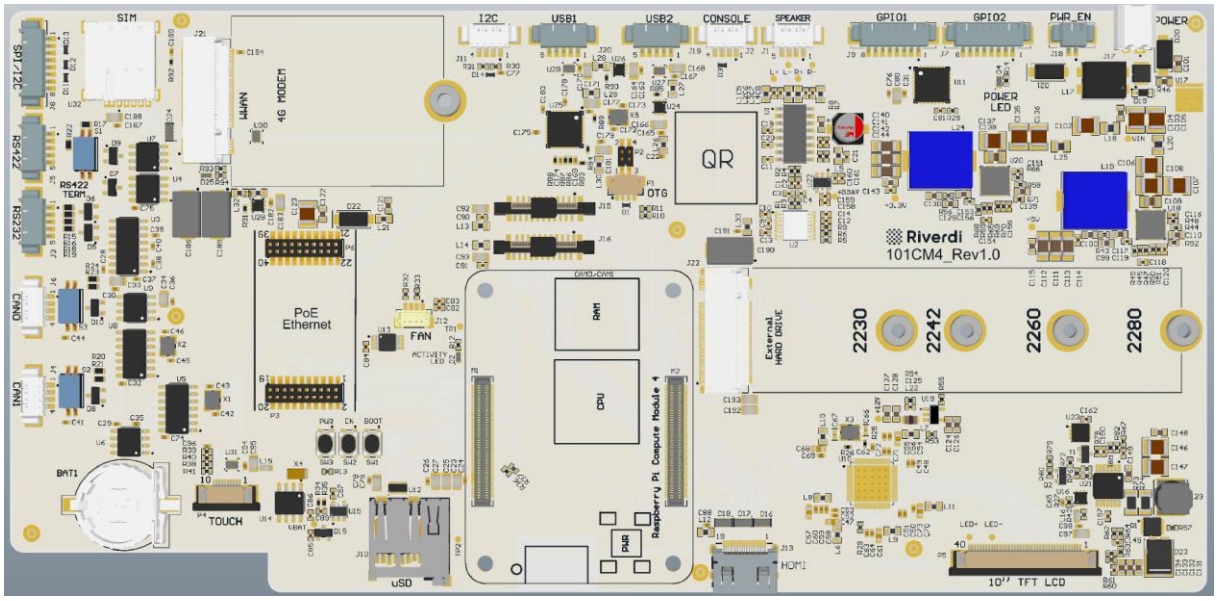


Figure 4. The definition of viewing angle

10. INTERFACES DESCRIPTION

10.1 PCB overview



10.2 Power supply interface (J17)

PIN	SYMBOL	DESCRIPTION
1	VDD_IN	Power supply input; 7.5V-55.0V
2	GND	Ground

10.3 Power enable interface (J18)

PIN	SYMBOL	DESCRIPTION
1	PWR_EN	Power enable pin; Enabled: Open, Disabled: 0V
2	GND	Ground

Note. Matched Riverdi accessory RVA-0102-1.25FF

10.4 GPIO2/GPIO1 – J7/J9

PIN	SYMBOL	DESCRIPTION
1	NC/GPB0	Not connected/ General Purpose IO8
2	GPA1/GPB1	General purpose IO1/ General purpose IO9
3	GPA2/GPB2	General purpose IO2 / General purpose IO10
4	GPA3/GPB3	General purpose IO3 / General purpose IO11
5	GPA4/GPB4	General purpose IO4 / General purpose IO12
6	GPA5/GPB5	General purpose IO5 / General purpose IO13
7	GPA6/GPB6	General purpose IO6 / General purpose IO14
8	GPA7/GPB7	General purpose IO7 / General purpose IO15

Note. Matched Riverdi accessory RVA-0108-1.25FF

10.5 Speaker – J1

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

Note. Matched Riverdi accessory RVA-0104-1.25FF

10.6 Console interface (J2)

PIN	SYMBOL	DESCRIPTION
1	VCC	Power supply, 3.3V
2	CM4_GPIO15	Rx data

3	GND	Ground
4	CM4_GPIO14	Tx data

Note. Matched Riverdi accessory RVA-0104-1.25FF

10.7 USB1/USB2 – J20/J19

PIN	SYMBOL	DESCRIPTION	NOTE
1	VBUS2/VBUS1	Power supply, 5V	
2	U21_N/U11_N	USB data-	
3	U21_P/U11_P	USB data+	
4	NC	Not connected	
5	GND	Ground	

Note. Matched Riverdi accessory RVA-0105-1.25FF

10.8 I2C – J11

PIN	SYMBOL	DESCRIPTION	NOTE
1	VCC	Power supply 3.3V	
2	ID_SCL	I^2C serial clock	
3	ID_SDA	I^2C serial data	
4	GND	Ground	

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

Note 2. Matched Riverdi accessory RVA-0104-1.25FF

10.9 SIM card holder – U29

Standard nano SIM card holder.

10.10 SPI/I2C – J8

PIN	SYMBOL	DESCRIPTION	NOTE
1	VCC	Power supply 3.3V	
2	SPI1_SCK	SPI serial clock signal	
3	SPI1_MOSI	SPI data input	
4	SPI1_MISO	SPI data output	
5	SPI1_CE2	SPI Chip Select	
6	CTP_SCL	I^2C serial clock (connected to internal I^2C)	
7	CTP_SDA	I^2C serial data (connected to internal I^2C)	
8	GND	Ground	

Note. Matched Riverdi accessory RVA-0108-1.25FF

10.11 RS422 – J5

PIN	SYMBOL	DESCRIPTION	NOTE
1	TXA	Driver output A(+)	
2	TXB	Driver output A(-)	
3	RXA	Receiver input(+)	
4	RXB	Receiver input(-)	
5	GND	Ground	

Note. Matched Riverdi accessory RVA-0105-1.25FF

10.12 RS232 – J3

PIN	SYMBOL	DESCRIPTION	NOTE
1	RTS	Request to send	
2	CTS	Clear to send	

3	RXD	Receive data	
4	TXD	Transmit data	
5	GND	Ground	

Note. Matched Riverdi accessory RVA-0105-1.25FF

10.13 CAN0/CAN1 – J6/J4

PIN	SYMBOL	DESCRIPTION	NOTE
1	GND	Ground	
2	CANL	CAN Low differential -	
3	CANH	CAN High differential +	
4	VIN	Power supply, VDD_IN	

Note. Matched Riverdi accessory RVA-0104-1.25FF

10.14 uSD card – J10

The main board is equipeed with Micro-SD slot, which supports all types of Micro SD cards.

10.15 CM4 module – M1&M2

Connector for CM4 Module.

10.16 Mini HDMI – J13

PIN	SYMBOL	DESCRIPTION	NOTE
1	GND	TMDS Data2 Shield	
2	HDMI1 TX2 P	TMDS Data2+	
3	HDMI1 TX2 N	TMDS Data2-	
4	GND	TMDS Data1 Shield	
5	HDMI1 TX1 P	TMDS Data1+	
6	HDMI1 TX1 N	TMDS Data1-	

7	GND	TMDS Data0 Shield	
8	HDMI1 TX0 P	TMDS Data0+	
9	HDMI1 TX0 N	TMDS Data0-	
10	GND	TMDS Clock Shield	
11	HDMI1 CLK P	TMDS Clock+	
12	HDMI1 CLK N	TMDS Clock-	
13	GND	DDC/CEC Ground/HEAC Shield	
14	HDMI1 CEC	CEC	
15	HDMI1 SCL	SCL	
16	HDMI1 SDA	SDA	
17	NC	Utility/HEAC+	
18	V_{DD}	Power Supply, 5V	
19	HDMI1 HOTPLUG	Hot Plug Detect/HEAC-	

10.17 PCIe M2 – J22

Dedicated for PCIe M2 SSD 2230, 2242, 22670, 2280.

10.18 4G Modem – J21

Standard 4G Modem interface

11. DISPLAY SPECIFICATION

The TFT of the module applies Riverdi high brightness, IPS, 10.1” LVDS: RVT101HVLNWC00-B

The supported resolution of the display in this module is 1280*800.

For detailed information, please refer to datasheet of display.

12. CAPACITIVE TOUCH SCREEN PANEL SPECIFICATIONS

12.1 Mechanical characteristics

DESCRIPTION	SPECIFICATION	REMARK
Touch Panel Size	10.1 inch	uxTouch
Outline Dimension of CTP	228.46 mm x 148.10 mm	
Product Thickness	2.35 mm	
Glass Thickness	1.1 mm	
CTP View Area	217.96 mm x 136.60 mm	
Sensor Active Area	216.96 mm x 135.60 mm	
Surface Hardness	7H	

12.2 Electrical characteristics

DESCRIPTION	SPECIFICATION	REMARK
Linearity	+/-1.5mm	
Controller	ILI2132A	
Resolution	1280 x 800	

13. INSPECTION

Standard acceptance/rejection criteria for TFT module according to document available here.

14. 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℃, 90%RH, 120Hrs	
6	Thermal Cycling Test (No operation)	-20℃ for 30min, 70℃ 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

15. 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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contact@riverdi.com

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