TFT MODULE SPECIFICATION

RVT70HSUNWCA0

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 15.47	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	800	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	With Projected Capacitive Touch Panel	/
CTP Driver	ILI2132A	/
Touch Panel Interface	USB-C	/
Power Supply	USB-C (5.0V) or (6-36V DC)	V
Weight	244	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

3. MODULE CLASSIFICATION INFORMATION

RV	T	70	H	S	U	N	W	C	A0
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	C – Capacitive Touch Panel
10.	VERSION	A0 – aTouch

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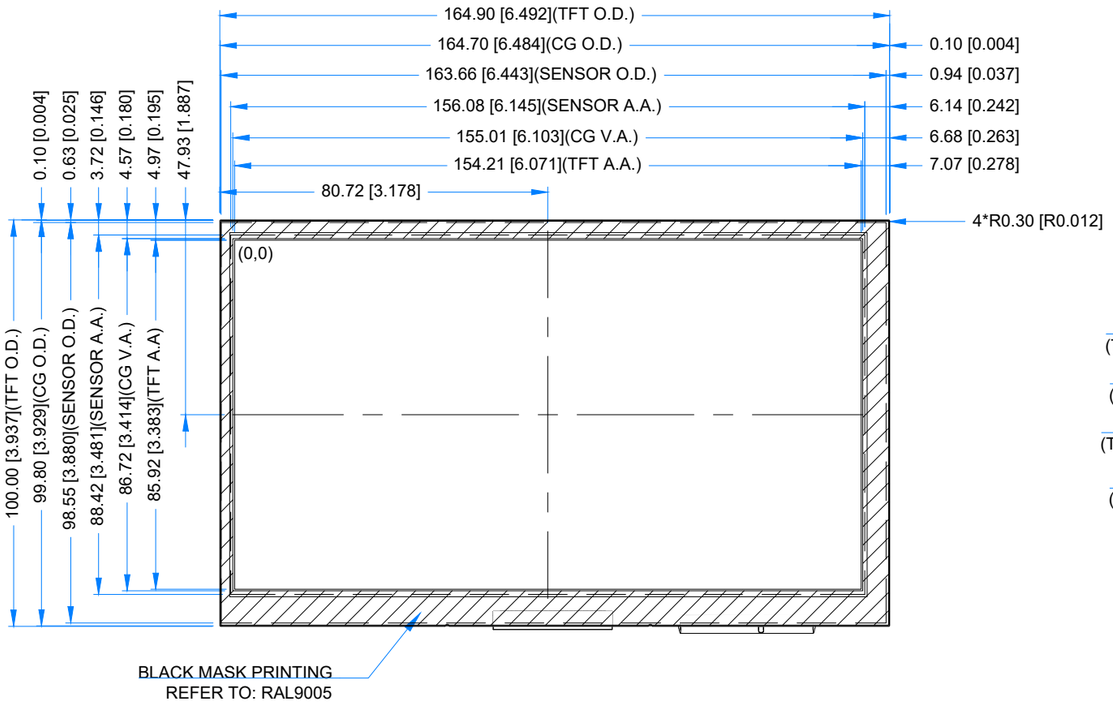
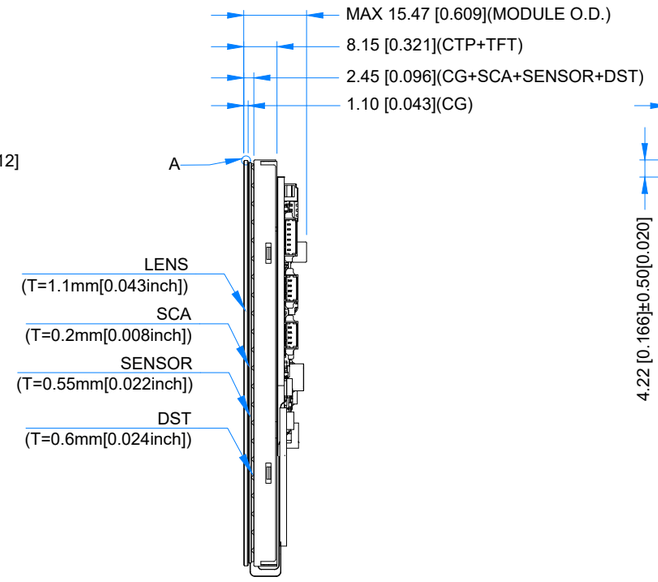
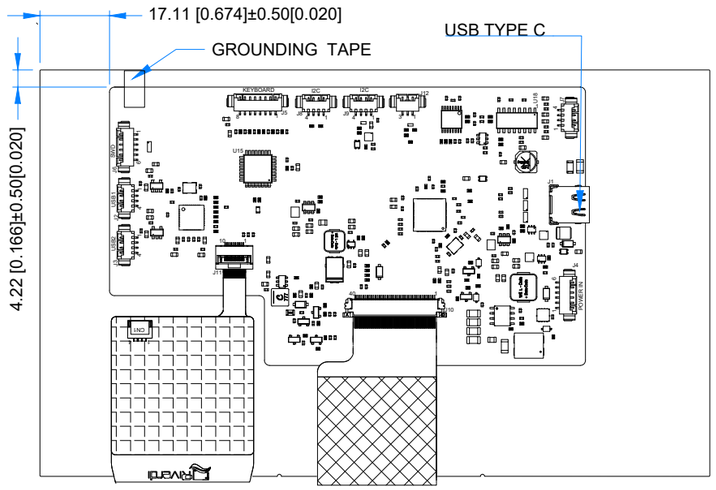
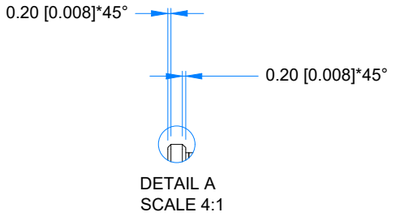
Revision:	Changes:	Date:
1.0	Initial Case	2025.12.16

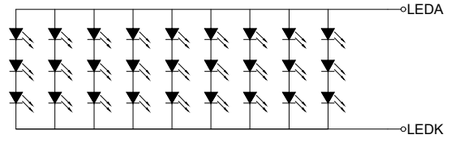








DETAIL A
SCALE 4:1



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

TP NOTES:
1. TP STRUCTURE: G+G
2. CG THICKNESS: 1.10mm[0.043inch]
3. SURFACE HARDNESS: 7H
4. DRIVER IC: ILI2132A
5. INTERFACE: USB-C

GENERAL NOTES:
1. MODULE SURFACE LUMINANCE:800 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: RVT70HSUNWCA0				Riverdi
SN:				
DRAWN:	M.Stabinski	2025.12.16	1:1.51	
CHECKED:	A.Demko-Karolczuk	2025.12.16	[mm]	
APPR:	M.Wierzbowski	2025.12.16	ISO A3	P. 1 of 1

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)

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7. ELECTRO-OPTICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT	RMK	NOTE
Response Time	Tr+Tf	θ=0° ø=0° Ta=25 °C	-	35	-	ms	FIG 1.	4, 7
Contrast Ratio	Cr		-	800		---	FIG 2.	1, 7
Surface Luminance	Lv		-	800	-	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	0.578	0.618	0.658	-	FIG 2.	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.

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.

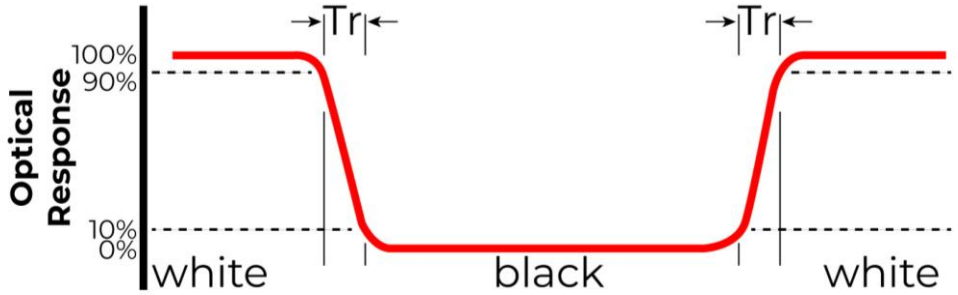
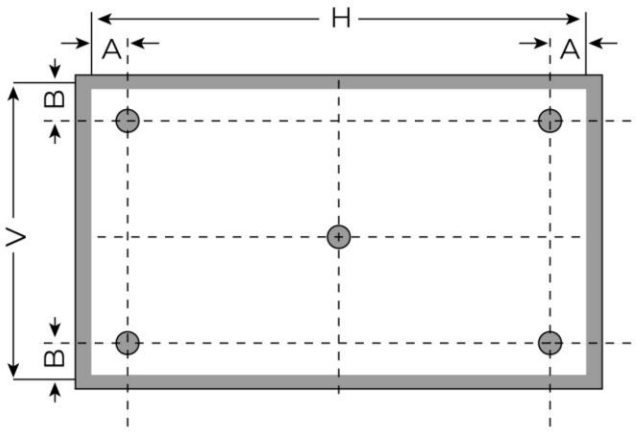


Figure 1. The definition of response time



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

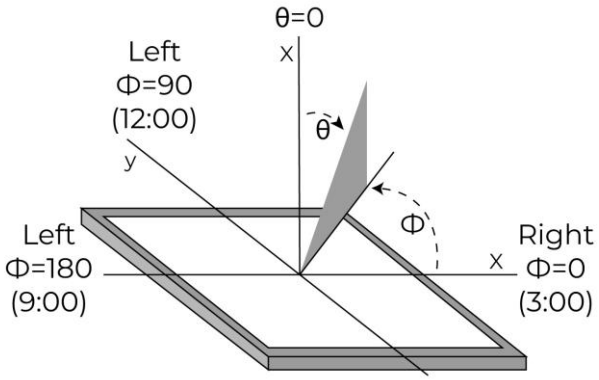
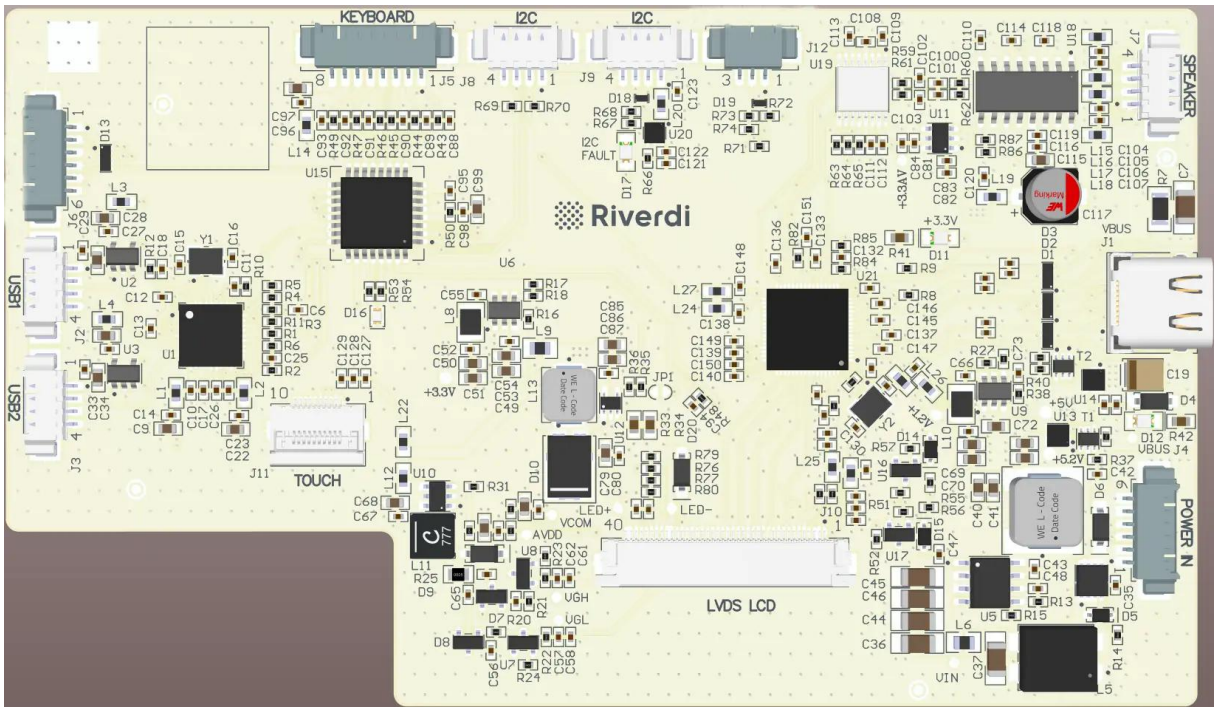


Figure 3. The definition of viewing angle

8. INTERFACES DESCRIPTION

8.1 PCB overview



NAME	CONNECTOR	DESCRIPTION	NOTE
J4	Power_IN	Molex 53261-0671 or alternative; Horizontal, 1.25mm pitch; 6 pins. The unit realizes the function of digital dimming. This connector enables to control backlight PWM externally. Alternative power supply.	
J1	USB-C	Video interface/Touch panel interface	
J7	Speaker	Speaker molex, Molex 53261-0471	
J9/J8	I2C	I2C molex, Molex 53261-0471	
J5	External keyboard connector	Molex 53261-0871 or alternative; Horizontal, 1.25mm pitch; 8 pins. The connector is reserved for external keyboard.	
J2/J3	USB1/USB2	USB molex, Molex 53261-0471	

Note 1. External keyboards are optional, not included in the standard kit.

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 … 36V = active high

Socket used for external power supply

8.3 Video/Touch panel interface – 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: RVT70HSLNWCA0

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

For detailed information, please refer to datasheet of display.

10. CAPACITIVE TOUCH SCREEN PANEL SPECIFICATIONS

10.1 Mechanical characteristics

DESCRIPTION	SPECIFICATION	REMARK
Touch Panel Size	7.0 inch	aTouch
Outline Dimension of CTP	164.90 mm x 100.00 mm	
Product Thickness	2.45 mm	
Glass Thickness	1.1 mm	
CTP View Area	155.01 mm x 86.72 mm	
Sensor Active Area	156.08 mm x 88.42 mm	
Surface Hardness	7H	

10.2 Electrical characteristics

DESCRIPTION	SPECIFICATION	REMARK
Linearity	+/-1.5mm	
Controller	ILI2132A	
Resolution	1024 x 600	

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11. INSPECTION

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

12. 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

13. 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.

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