TFT MODULE SPECIFICATION

RVT35HITNWC00-B V1.0A

HB, IPS 3.5” LCD TFT display datasheet
Rev. 1.2
2026-10-23

Riverdi Sp. z o.o.

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ITEM	CONTENTS	UNIT
LCD Type	TFT/Transmissive/Normally Black/IPS	/
Size	3.5	Inch
Viewing Direction	Free	/
Outside Dimensions (W x H x D)	59.56 x 93.34 x 5.66	mm
Active Area (W x H)	48.96 x 73.44	mm
Pixel Pitch (W x H)	0.153 x 0.153	mm
Resolution	320 (RGB) x 480	/
Brightness	1200	cd/m²
LCD Interface Type	RGB/SPI	/
LCD IC	ILI9488	/
Color Depth	262K	/
Pixel Arrangement	RGB Vertical Stripe	/
With/Without Touch	With Projected Capacitive Touch Panel	/
CTP Driver	ILI2130	/
Touch Interface Type	I2C	/
Bonding Technology	Optical Bonding	/
Weight	55	g

Note 1. RoHS3 compliant

Note 2. LCM weight tolerance: ± 5%.

1. REVISION RECORD

REV NO.	REV DATE	CONTENTS	REMARKS
1.0	2024-11-19	Initial Release	
1.1	2026-07-20	Added LCD IC information	
1.2	2026-10-23	Corrected timing table and added module revision. Corrected electrical parameters description.	

2. CONTENTS

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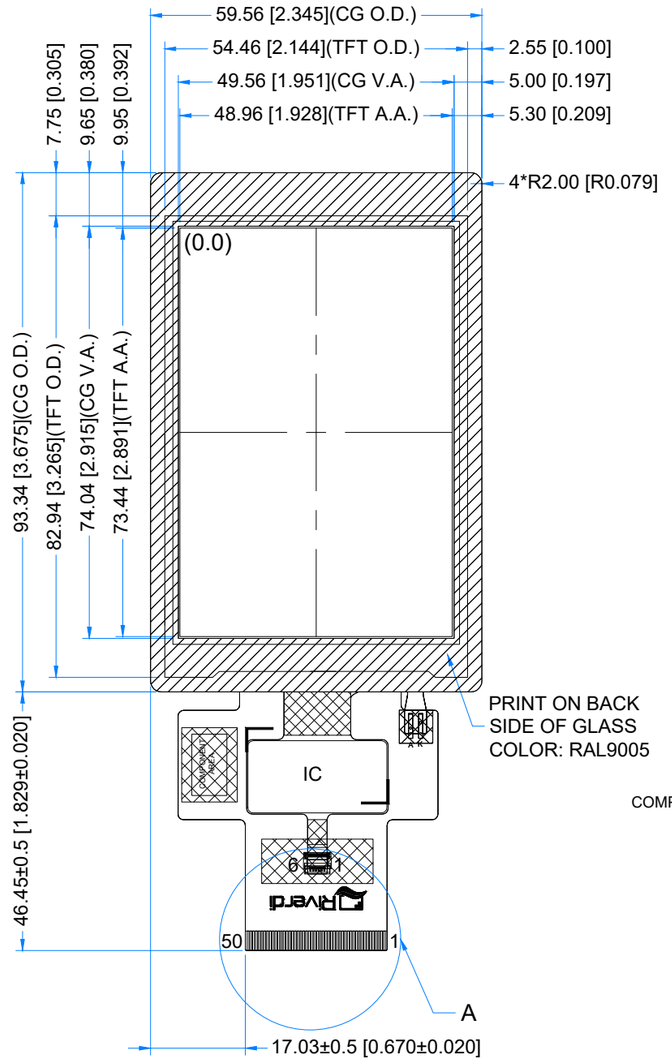
3. MODULE CLASSIFICATION INFORMATION

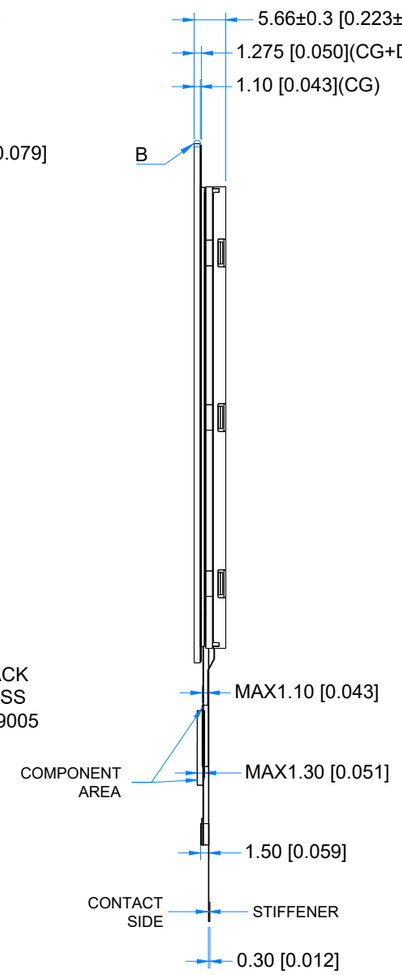
RV	T	35	H	I	T	N	W	C	00	B	V1.0A
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.

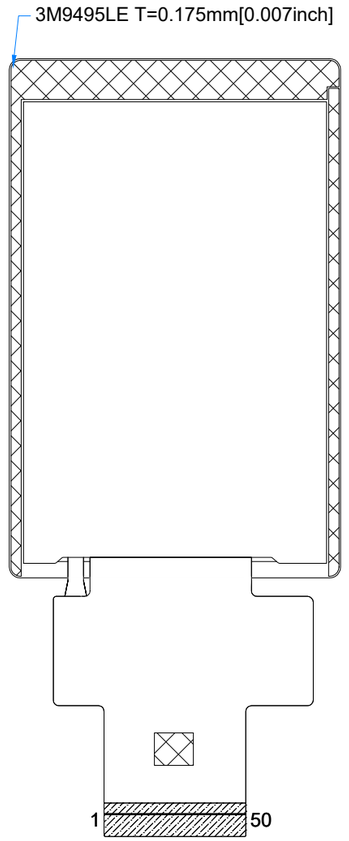
NO.	PARAMETER	SYMBOL
1.	BRAND	RV – Riverdi
2.	PRODUCT TYPE	T – TFT Standard
3.	DISPLAY SIZE	35 – 3.5”
4.	MODEL SERIAL NO.	H – High Brightness, IPS
5.	RESOLUTION	I – 320 x 480 px
6.	INTERFACE	T – RGB/SPI
7.	FRAME	N – Without Mounting Metal Frame
8.	BACKLIGHT TYPE	W – LED White
9.	TOUCH PANEL	N – Without Touch Panel
10.	VERSION	00 – (00-99)
11.	BONDING TECHNOLOGY	B – Optical bonding
12.	MODULE REVISION	V1.0A

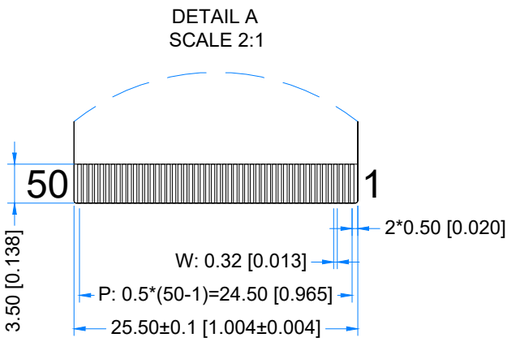
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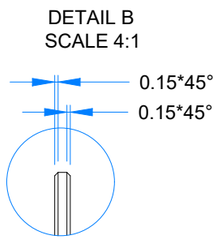
Revision:	Changes:	Date:
1.0	Initial Case	2024.09.03
1.1	Drawing updated to actual standard	2026.11.03

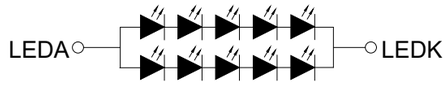












BACKLIGHT CIRCUIT DIAGRAM

TFT NOTES:
1. DISPLAY TYPE: TFT, TRANSMISSIVE, NORMALLY BLACK
2. RESOLUTION: 320*480
3. VIEWING ANGLE: FREE
4. DRIVER IC: ILI9488
5. SURFACE LUMINANCE: 1200cd/m^2
6. BACKLIGHT: 10LEDS, V_f=14-16v, I_f=100mA

TP NOTES:
1. TP STRUCTURE: G+G
2. DRIVER IC: ILI2130
3. OPERATING VOLTAGE: 2.8V
4. SURFACE HARDNESS: ≥6H
5. TRANSMITTANCE: ≥80%

GENERAL NOTES:
1. OPERATING TEMPERATURE: -20°C ~ 70°C
2. STORAGE TEMPERATURE: -30°C ~ 80°C
3. WITHOUT INDIVIDUAL TOLERANCE: ±0.2mm
4. RoHS COMPLIANT

PN: RVT35HITNWC00-B V1.0A				
SN:				
DRAWN:	M.Stabinski	2026.11.03	1:1.10	
CHECKED:	M.Wierzbowski	2026.11.03	[mm]	
APPR:	M.Wierzbowski	2026.11.03	ISO A3	P. 1 of 1

5. ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT
Supply Voltage for Module	V_{CI}	-0.3	3.3	V
Input Voltage	V_{IN}	-0.3	V_{CI}+0.3	V

Note 1. The above are maximum values. If exceeded, they may cause permanent damage to the unit.
Note 2. VCC_{IO} is connected to V_{CI}.

6. ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply voltage	V_{CI}	2.5	2.8	3.3	V
Input High Voltage for LCD	V_{IH}	0.7*V_{CI}	-	V_{CI}	V
Input Low Voltage for LCD	V_{IL}	GND	-	0.3*V_{CI}	V
Output High Voltage for LCD	V_{OH}	0.8*V_{CI}	-	V_{CI}	V
Output Low Voltage for LCD	V_{OL}	GND	-	0.3*V_{CI}	V

7. BACKLIGHT ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Backlight Driving Voltage	V_F	13.5	14.0	17.0	V	Notes 1, 2
Backlight Driving Current	I_F	-	100	-	mA	
Backlight Power Consumption	W_{BL}	-	1.4	-	W	
Backlight Lifetime	-	30000	40000	-	hours	Note 3

Note 1. Unless specified, the ambient temperature T_a = 25°C

Note 2. The recommended operating conditions refer to a range in which operation of this product is guaranteed. The operation cannot be guaranteed if the absolute maximum values exceed.

Note 3. 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.

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8. ELECTRO-OPTICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT	RMK	NOTE
Response Time	Tr+Tf	θ=0° ø=0° Ta=25 °C	-	30	-	ms	FIG 1.	4, 7
Contrast Ratio	Cr			700	-	---	FIG 2.	1, 7
Surface Luminance	Lv		-	1200	-	cd/m2		2, 7
Viewing Angle Range	θ	ø = 90°	-	80	-	deg	FIG 3.	6
		ø = 270°	-	80	-	deg		
		ø = 0°	-	80	-	deg		
		ø = 180°	-	80	-	deg		
CIE (x, y) Chromaticity	Rx	θ=0° ø=0° Ta=25 °C	0.621	0.651	0.681	-	FIG 2.	5,7
	Ry		0.301	0.331	0.361	-		
	Gx		0.295	0.325	0.355	-		
	Gy		0.575	0.605	0.635	-		
	Bx		0.102	0.132	0.162	-		
	By		0.033	0.063	0.093	-		
	Wx		0.281	0.311	0.341	-		
	Wy		0.325	0.355	0.385	-		

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.

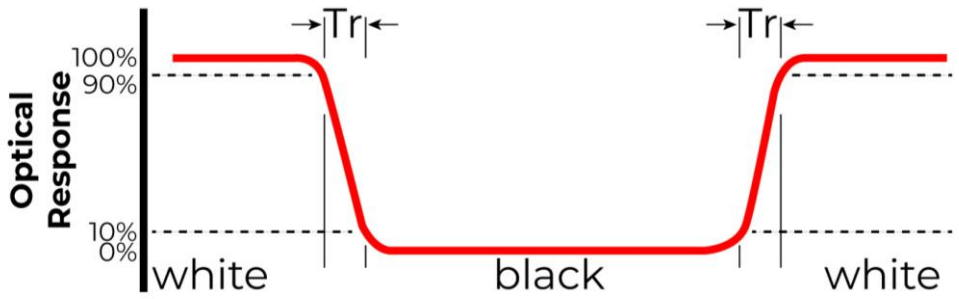
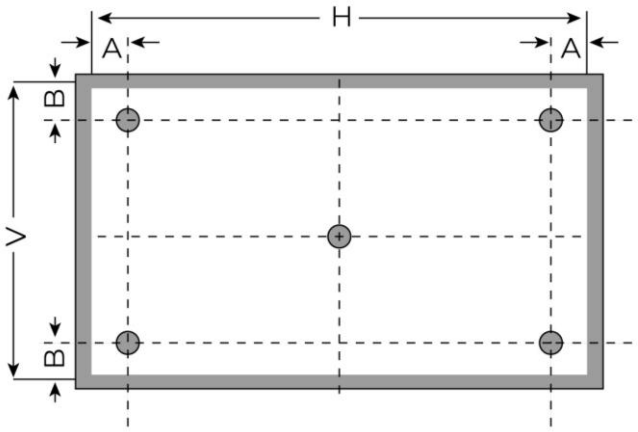


Figure 1. The definition of response time



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

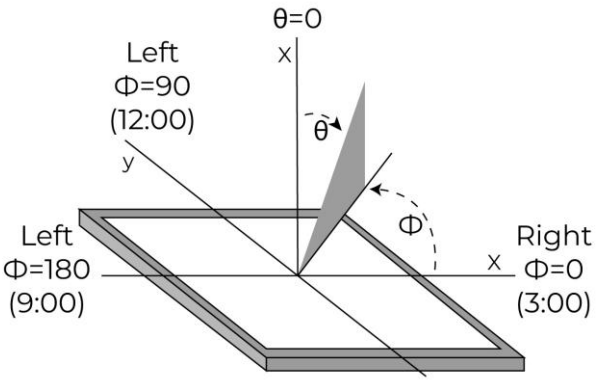


Figure 3. The definition of viewing angle

9. INTERFACES DESCRIPTION

9.1 TFT assignment

PIN	SYMBOL	I/O	DESCRIPTION	NOTE
1	GND	P	Ground	
2	V_{CI}	P	System Voltage	
3	I_{M0}	-	The interface mode select (Note 2)	
4	I_{M1}	-	The interface mode select (Note 2)	
5	I_{M2}	-	The interface mode select (Note 2)	
6	RESET	I	Reset signal	
7	VSYNC	I	Vertical synchronizing signal	
8	HSYNC	I	Horizontal synchronizing signal	
9	PCLK	I	Dot clock signal	
10	DE	I	Data enable signal	
11-34	DB23~DB0	I	Data bus	
35	TE	I	Tear effect signal	
36	SDO	O	Serial data output	
37	SDA	I	Serial data input signal	
38	RD	I	Read signal	
39	WR/SCL	I	DBI Type B: WRX pin, serves as write signal DBI Type C: SCL pin, as serial Clock when operates in the serial interface	
40	DCX	I	Data/Command Seleciton pin; Low: Command High: Parameter	
41	CS	I	CS signal	
42	GND	P	Ground	

43	TP_RESET	I	TP Reset signal	
44	TP_INT	O	IIC Interrupt signal	
45	TP_SDA	O	IIC Data	
46	TP_SCL	I	IIC Clock Signal	
47	TP_VDD	P	CTP System Voltage	
48	GND	P	Ground	
49	LEDA	P	LED+	
50	LEDK	P	LED-	

Note 1. I: Input, O: Output, P: Power

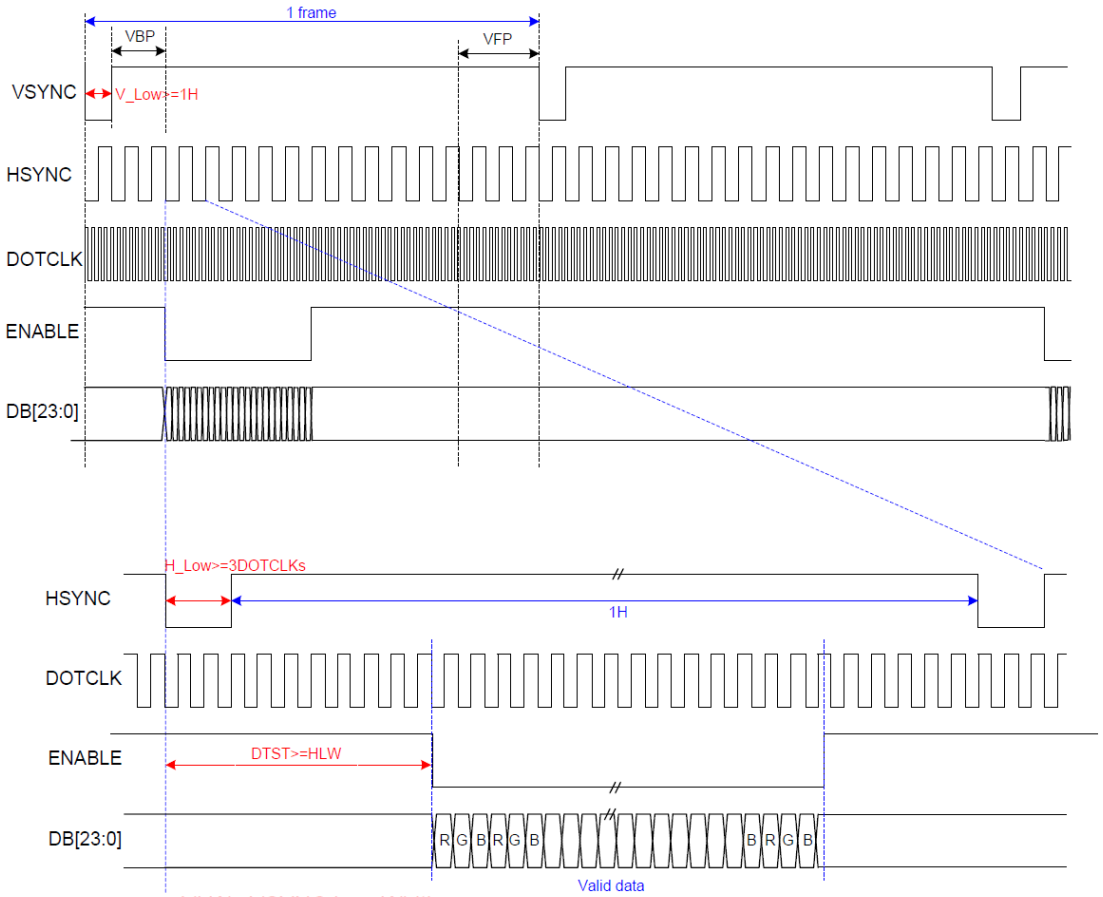
Note 2. Interface mode select

IM2	IM1	IM0	INTERFACE
0	0	0	MCU18
0	0	1	MCU9
0	1	0	MCU16
0	1	1	MCU8
1	0	1	3-line SPI
1	1	1	4-line SPI

10. TIMING CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Horizontal synchronization	HSW	3	10	-	DOTCLK
Horizontal back porch	HBP	3	20	-	DOTLCK
Horizontal address	HACT	-	320	-	DOTCLK
Horizontal front porch	HFP	3	40	-	DOTCLK
Horizontal frequency	fH	-	30.8	33	kHz
Vertical synchronization	VSW	1	2	-	Line
Vertical back porch	VBP	2	8	-	Line
Vertical address	VACT	-	480	-	Line
Vertical front porch	VFP	2	18	-	Line
Vertical frequency	fV	60	60.6	70	Hz
DOTCLK cycle	tDCLK	50	83.3	100	ns
DOTCLK frequency	fDCLK	10	12	20	MHz

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VLW : VSYNC Low Width
HLW : HSYNC Low Width
DTST : Data Transfer Startup Time

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/96 hours	Note 1
2	Low Temperature Storage	-30°C/96 hours	
3	High Temperature Operating	70°C/96 hours	
4	Low Temperature Operating	-20°C/96 hours	
5	High Temperature and High Humidity	Humidity 40℃, 90%RH, 96Hrs	
6	Electro static discharge	Contact = ±4kV; Air = ±8kV,	Note 2
7	Thermal Cycling Test (No operation)	-20℃ for 30min, 25℃ for 5 min 70℃ for 30 min. 25℃ for min (1 cycle) 5 cycles.	
8	Vibration Test	10Hz~50Hz Swing: 0.75mm time: 30 min	
9	Package Drop Test	Height: 60 cm 1 corner, 3 edges, 6 surfaces	

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.

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

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