TFT MODULE SPECIFICATION

RVT70HSTFWN00 V1.1A

IPS RGB 7.0” display datasheet
Rev. 1.0
2026-05-15

Riverdi Sp. z o.o.

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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)	181.60 x 100.60 x 6.09	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
LCD Interface Type	RGB	/
Color Depth	16.7 M	/
Pixel Arrangement	RGB Vertical Stripe	/
LCD Driver	EK79001HK+EK73215BCGA	/
With/Without Touch	Without Touch Panel	/
LCD Input Voltage	3.3	V
Weight	TBD	g

Note 1. RoHS3 compliant

Note 2. LCM weight tolerance: ± 5%.

1. REVISION RECORD

REV NO.	REV DATE	CONTENTS	REMARKS
1.0	2026-05-15	Initial release	

2. CONTENTS

3. MODULE CLASSIFICATION INFORMATION

RV	T	70	H	S	T	F	W	N	00	V1.1A
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	70 – 7.0”
4.	MODEL SERIAL NO.	H – High Brightness, IPS
5.	RESOLUTION	S – 1024 x 600 px
6.	INTERFACE	T – TFT LCD, RGB
7.	FRAME	F – With Mounting Metal Frame
8.	BACKLIGHT TYPE	W – LED White
9.	TOUCH PANEL	N – Without Capacitive Touch Panel
10.	VERSION	00 – version
11	MODULE REVISION	V1.1A

4. ASSEMBLY

4.1 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 1). The frames are specially designed to fit Riverdi products perfectly. The diameter of the mounting hole is 3.5mm.

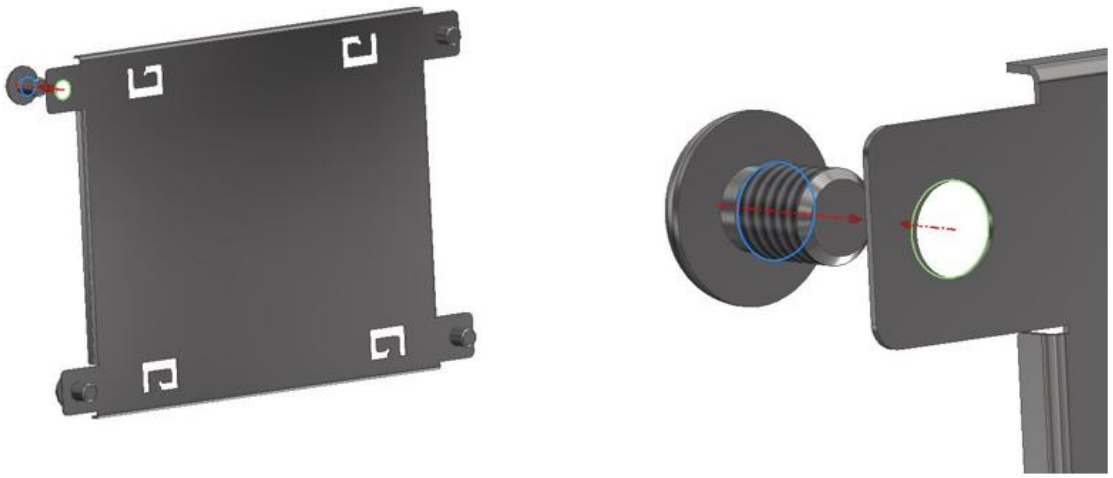
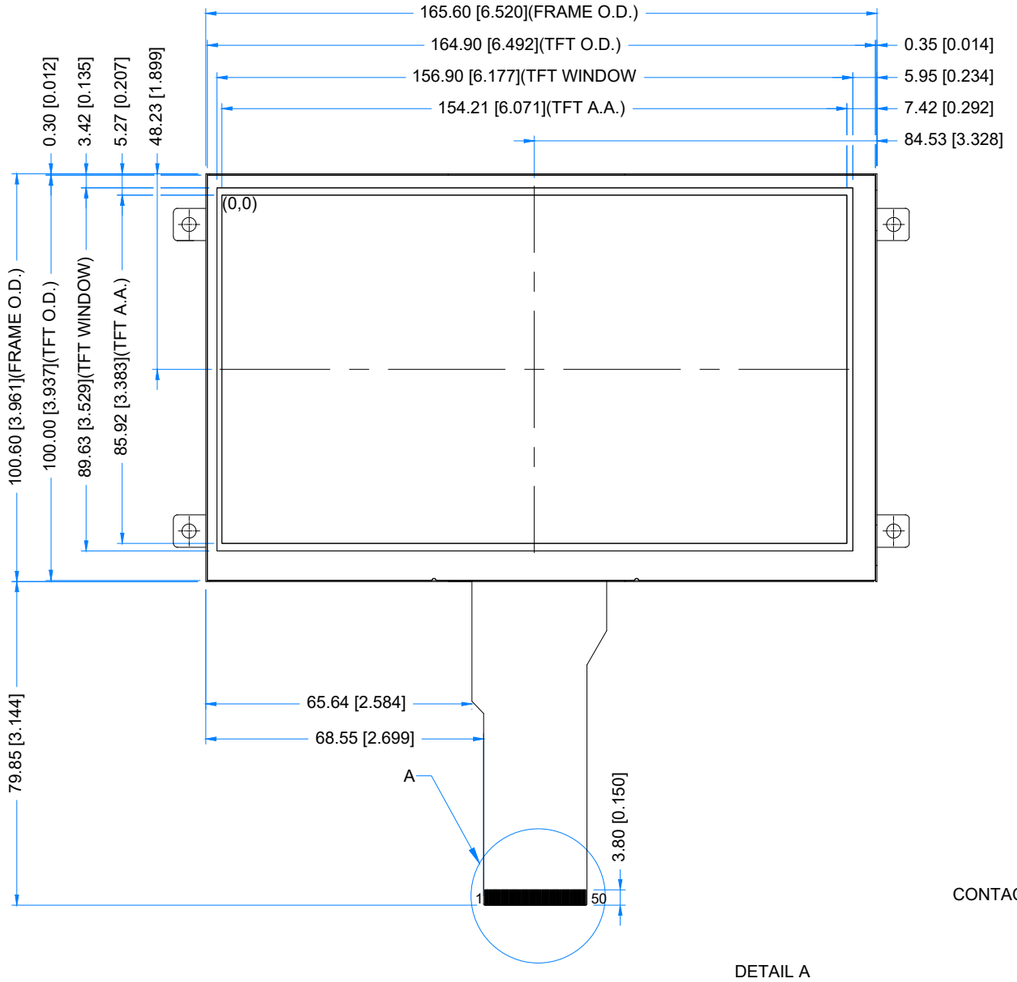
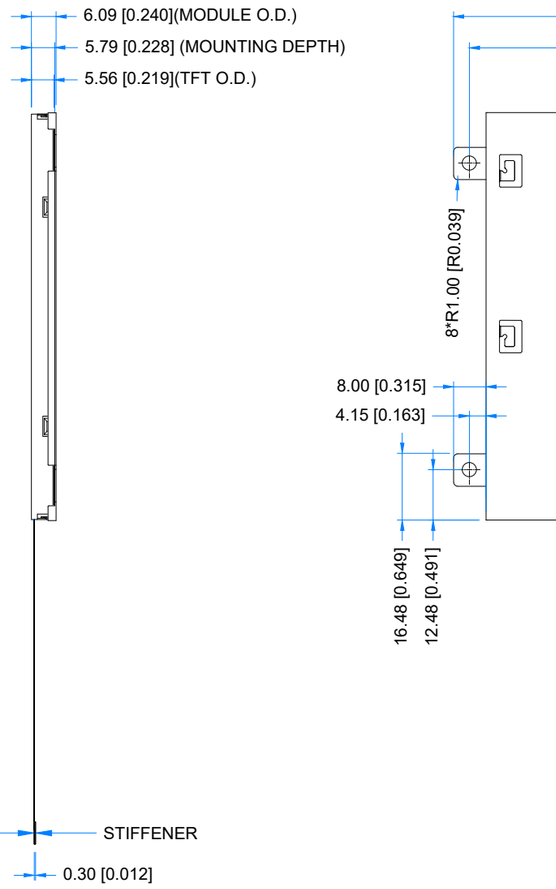
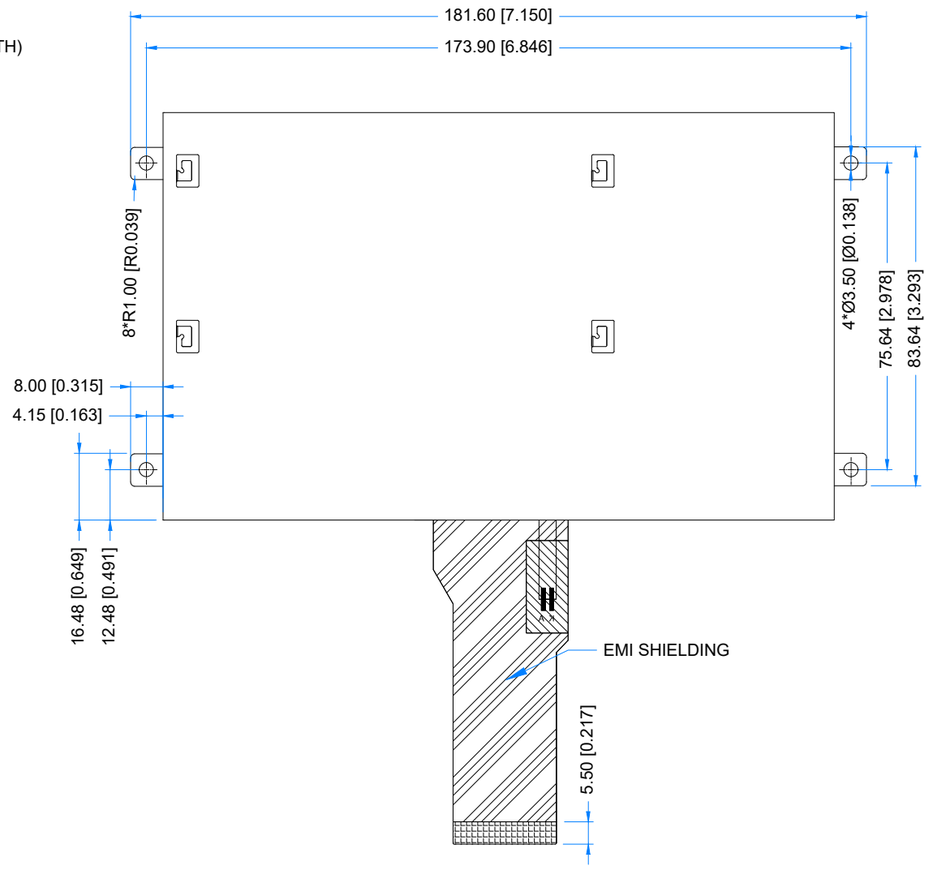


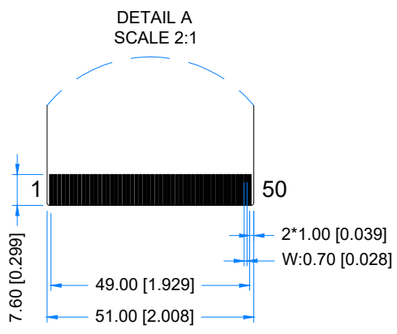
Figure 1. Mounting Frame

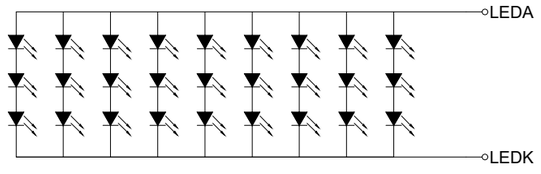
Revision:	Changes:	Date:
1.0	Initial Case	2026.03.19











LED Diagram Circuit

TFT NOTES:
1. LCD TYPE: TRANSMISSIVE, NORMALLY BLACK,IPS
2. RESOLUTION: 1024x600
3. VIEWING ANGLE: FREE
4. IC CONTROLLER:EK79001HK+EK73215BCGA
5. OPERATING VOLTAGE: 3.3V
6. INTERFACE: RGB
7. BACKLIGHT: 27 LEDS WHITE, Vf = 8.4-10.2V, If = 270mA

GENERAL NOTES:
1. MODULE SURFACE LUMINANCE: 1000cd/m^2
2. OPERATING TEMPERATURE: -20°C ~ 70°C
2. STORAGE TEMPERATURE: -30°C ~ 80°C
3. WITHOUT INDIVIDUAL TOLERANCE: ±0.3mm
4. RoHS3 COMPLIANT

PN: RVT70HSTFWN00 V1.1A

SN:

DRAWN:	M.Stabinski	2026.03.19	1:1.51	
CHECKED:	M.Wierzbowski	2026.03.19	[mm]	
APPR:	M.Wierzbowski	2026.03.19	ISO A3	P. 1 of 1

6. ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT	REMARK
Analog supply voltage	V_{CI}	-0.3	+3.6	V	-
Backlight Forward Current	I_F	-	40	mA	For each serial LED
Operating Temperature	T_{OP}	-20	70	°C	-
Storage Temperature	T_{ST}	-30	80	°C	-

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

7. ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT	REMARK
Digital supply voltage		V_{DD}	3.0	3.3	3.6	V	-
		A_{VDD}	8.9	9.0	9.1	V	
		V_{GH}	17	18	19	V	
		V_{GL}	-6.5	-6.0	-5.5	V	
		V_{COM}	3.0	3.15	3.3	V	
Input Signal Voltage	Low Level	V_{IL}	0	-	$0.3V_{DD}$	V	RXIN0-,RXIN0+,RXIN1-,RXIN1+,RXIN2-.RXIN2+SELB,RESET,STBYB,L/R,U/D
	High Level	V_{IH}	$0.7V_{DD}$	-	V_{DD}	V	

8. BACKLIGHT ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Backlight Driving Voltage	V_F	8.4	9.0	10.2	V	Notes 1, 2
Backlight Driving Current	I_F	-	270	-	mA	
Backlight Power Consumption	W_{BL}	-	2430	-	mW	
Backlight Lifetime	-	-	30,000	-	hours	Note 3

Note 1: The LED driving condition is defined for total backlight consumption, and which depend on Forward Current setting.

Note 2: Forward Voltage is just for reference for one serial.

Note 3: The “Operating lifetime” is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and IF =270mA. The LED lifetime could be decreased if operating IF is larger than 270mA.

9. ELECTRO-OPTICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT	RMK	NOTE
Response Time	Tr+Tf	θ=0° ø=0° Ta=25 °C	-	27	45	ms	FIG 2.	4, 7
Contrast Ratio	Cr		600	800	-	---	FIG 3.	1, 7
Surface Luminance	Lv		-	1000	-	cd/m 2		2, 7
Uniformity	U	-	70	75	-	%	FIG 3.	3
Viewing Angle Range	θ	ø = 90°	80	85	-	deg	FIG 4.	6
		ø = 270°	80	85	-	deg		
		ø = 0°	80	85	-	deg		
		ø = 180°	80	85	-	deg		
CIE (x, y) Chromaticity	Rx	θ=0° ø=0° Ta=25 °C	0.581	0.611	0.641	-	FIG 3.	5,7
	Ry		0.295	0.325	0.355	-		
	Gx		0.306	0.336	0.366	-		
	Gy		0.513	0.543	0.573	-		
	Bx		0.117	0.148	0.178	-		
	By		0.127	0.157	0.187	-		
	Wx		0.291	0.321	0.351	-		
	Wy		0.315	0.345	0.375	-		
NTSC ratio	-		40	47	-	%		

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.

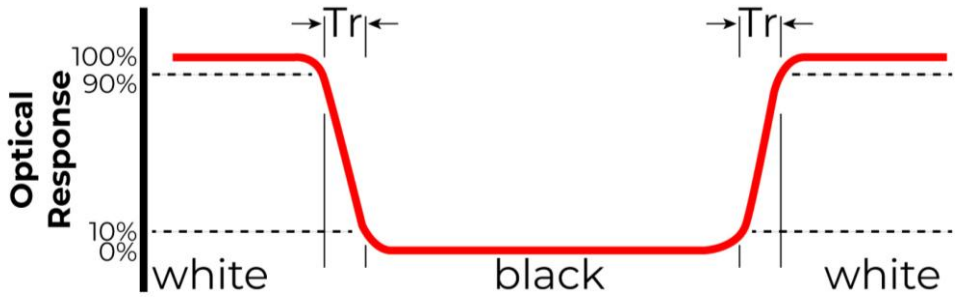
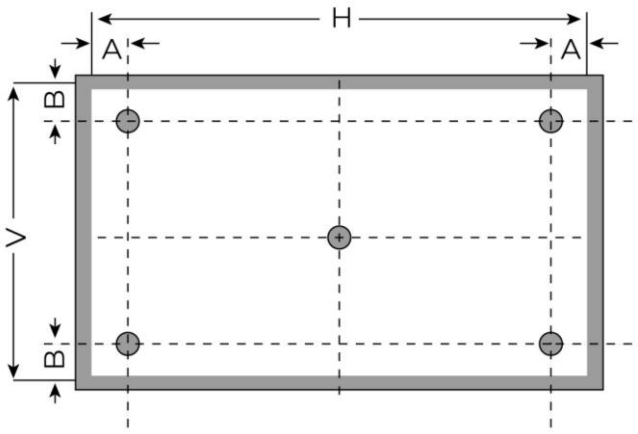


Figure 2. The definition of response time



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

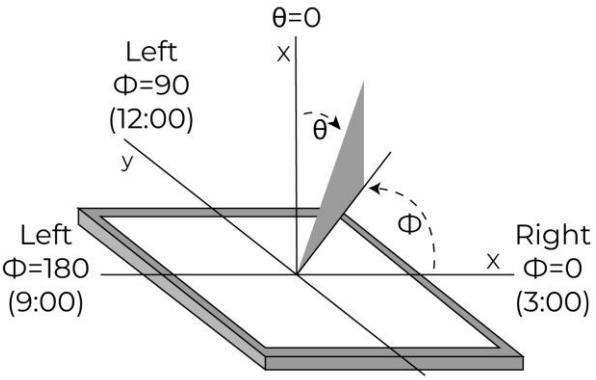


Figure 4. The definition of viewing angle

10. INTERFACES DESCRIPTION

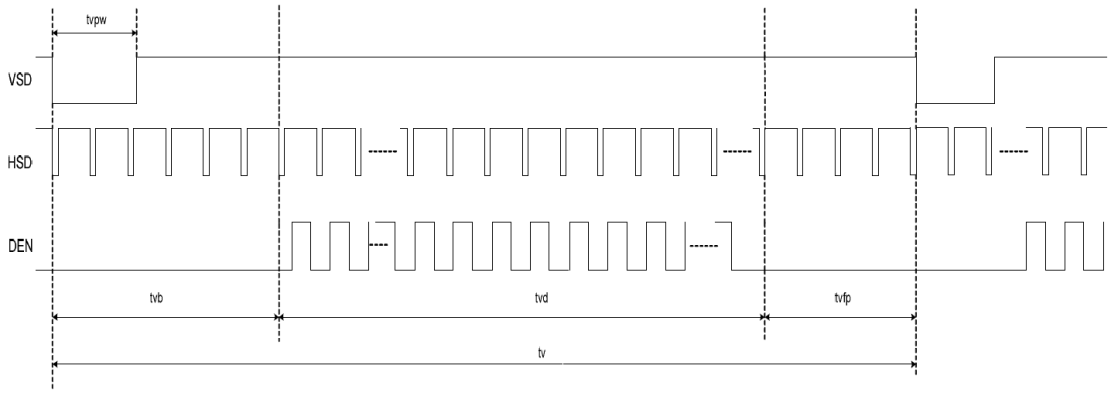
10.1 TFT ASSIGNMENT

PIN	SYMBOL	I/O/P	DESCRIPTION
1	VLED+	P	Power for LED backlight (Anode)
2	VLED+	P	Power for LED backlight (Anode)
3	VLED-	P	Power for LED backlight (Cathode)
4	VLED-	P	Power for LED backlight (Cathode)
5	GND	P	Ground
6	VCOM	P	Common voltage
7	DVDD	P	Power for Digital Circuit
8	MODE	I	DE/SYNC mode select
9	DE	I	Data Input Enable
10	VS	I	Vertical Sync Input
11	HS	I	Horizontal Sync Input
12-19	B7-B0	I	Blue data
20-27	G7-G0	I	Green data
28-35	R7-R0	I	Red data
36	GND	P	Ground
37	DCLK	I	Sample Clock
38	GND	P	Ground
39	L/R	I	Left/right selection
40	U/D	I	Up/down selection
41	VGH	P	Gate ON voltage
42	VGL	P	Gate OFF voltage

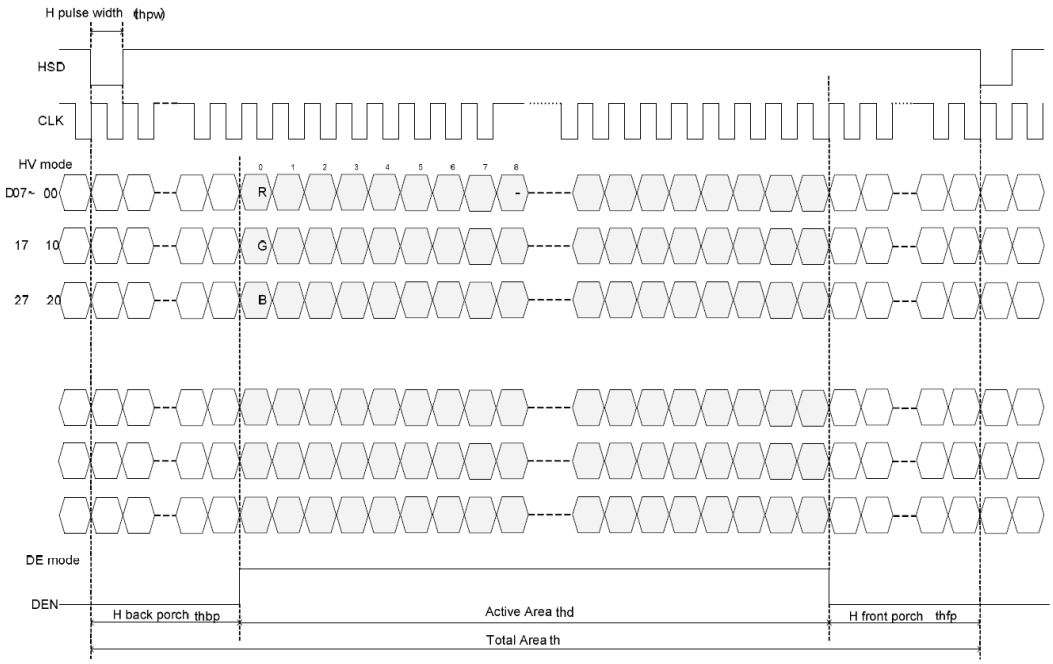
43	AVDD	P	Power for Analog Circuit
44	RESET	I	Global reset pin
45	STBYB	I	ON display and OFF display
46	VCOM	P	Common voltage
47	DITHB	I	Dithering function
48	GND	P	Ground
49-50	NC	-	No connection

11. TIMING CHART

11.1 Vertical Input Timing



11.2 Horizontal Input Timing



11.3 Parallel RGB Timing Characteristic

11.3.1 DE Mode

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
DCLK frequency @Frame rate=60HZ	fclk	40.8	51.2	67.2	MHz
Horizontal display area	Thd		1024		DCLK
HSYNC period time	Th	1114	1344	1400	DCLK
HSYNC blanking	Thb+thfp	90	320	376	DCLK
Vertical display area	Tvd		600		H
VSYNC period time	Tv	610	635	800	H
VSYNC blanking	Tvb+tvfp	10	35	200	H

11.3.2 HV Mode (Horizontal input timing)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
DCLK frequency @Frame rate=60Hz	Fclk	44.9	51.2	63	MHz
Horizontal display area	Thd		1024		DCLK
1 Horizontal line	Th	1200	1344	1400	DCLK
HSYNC Pulse Width	Thpw	1	-	140	DCLK
HSYNC back porch	Thbp	160	160	160	DCLK
HSYNC front porch	Thfp	16	160	216	DCLK

11.3.3 HV Mode (Vertical input timing)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Vertical display area	Tvd		600		H
1 VSYNC period time	Tv	624	635	750	H
VSYNC Pulse Width	Tvpw	1	-	20	H
VSYNC back porch	Tvbp	23	23	23	H
VSYNC front porch	Tvfp	1	12	127	H

12. INSPECTION

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

13. RELIABILITY TEST

NO.	TEST ITEM	TEST CONDITION	NOTE
1	High Temperature Storage	80°C/120 hours	A,B,C,D,E
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	+60℃, 90%RH, 120hrs	
6	Thermal Cycling Test (No operation)	-20℃/30 min ~ +70℃/30 min for a total 10 cycles, Start with cold temperature and end with high temperature.	A,B,C,D,E
7	Vibration Test	Sweep:10Hz~55Hz~10Hz 2G 2 hours for each direction of X. Y. Z. (6 hours for total)	A,B,C,D,E
8	Package Vibration Test	Random Vibration : 0.015G*G/Hz from 5-200HZ, -6dB/Octave from 200-500HZ 2 hours for each direction of X. Y. Z. (6 hours for total)	A,B,C,D,E
8	Package Drop Test	Height: 60 cm 1 corner, 3 edges, 6 surfaces	A,B,C,D,E
9	ESD	Contact=+/-2KV, Air=+/-4KV,(R=330R,C=150pF), 1 sec,9point,10times/point;	A,B,C,D,E

Notes

A. LCM each function is OK.
B. LCM appearance inspection without abnormalities (Including scratch, damage, corrosion and serious deformation)
C. LCM brightness above the Min. value of Spec.
D. Luminance uniformity above the Min. value of Spec.
E. Color chromaticity within tolerance range.

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contact@riverdi.com

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