TFT MODULE SPECIFICATION

# RVT70HSTFWCA0 V1.1A

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

**Riverdi Sp. z o.o.**

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riverdi.com

| 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 8.54 | 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 | $cd/m^2$ |
| LCD Interface Type | RGB | / |
| Color Depth | 16.7 M | / |
| Pixel Arrangement | RGB Vertical Stripe | / |
| LCD Driver | EK79001HK+EK73215BCGA | / |
| With/Without Touch | With Capacitive Touch Panel | / |
| CTP IC | ILI2132A | / |
| 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 | C | A0 | 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 | C – With Capacitive Touch Panel |
| 10. | VERSION | A0 – aTouch |
| 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.

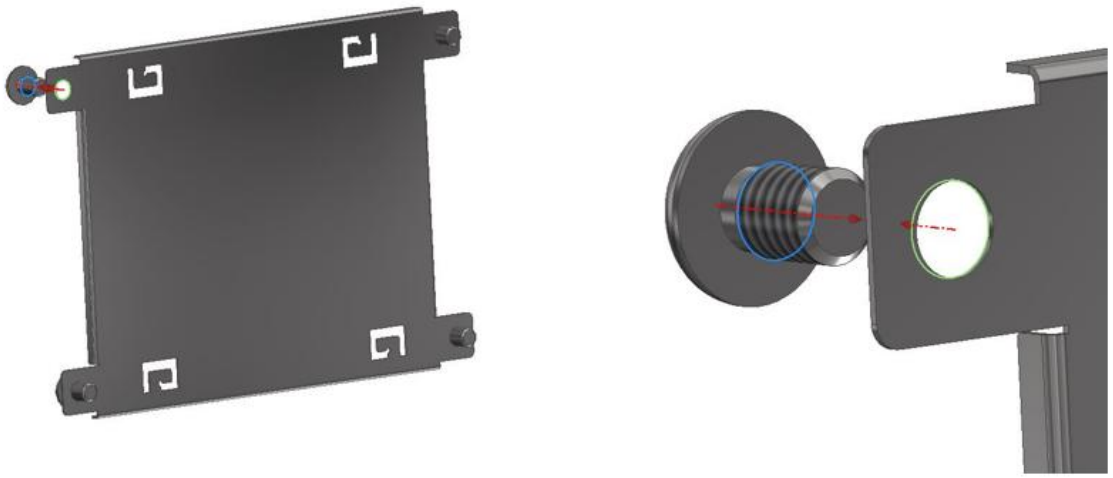
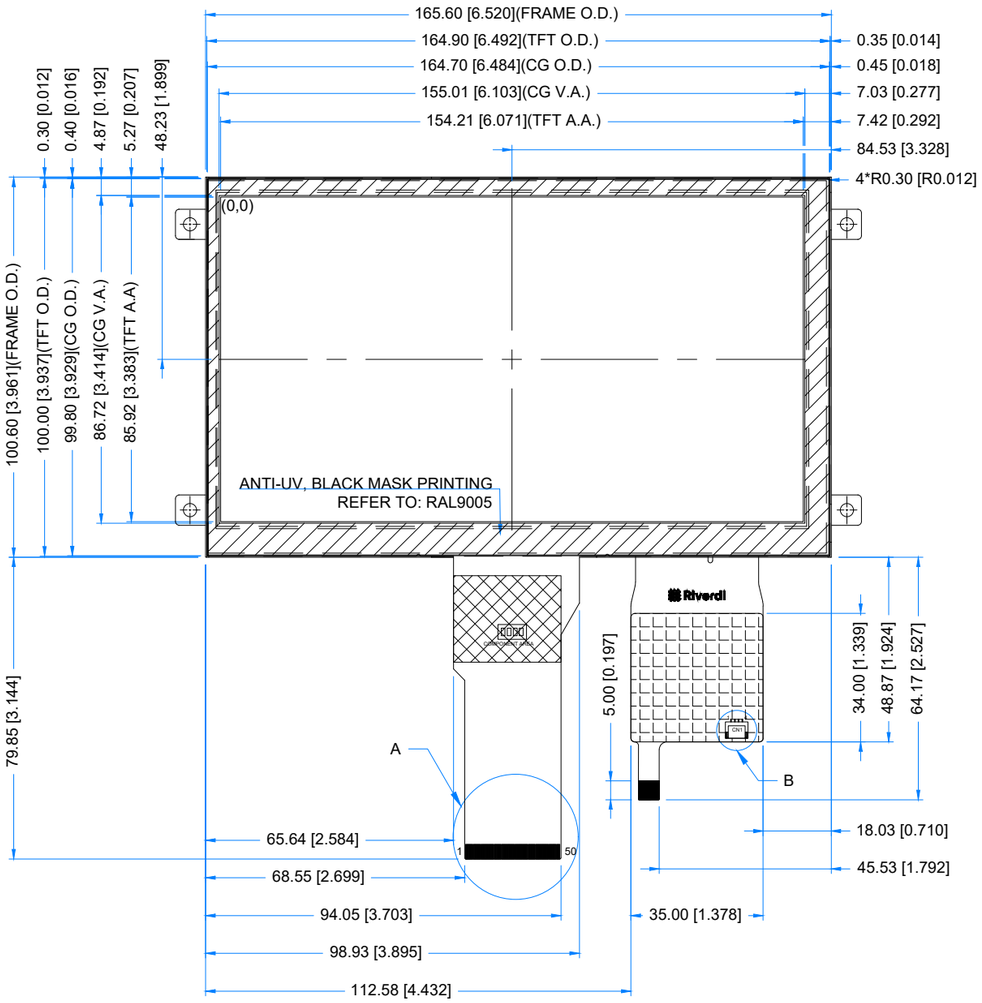
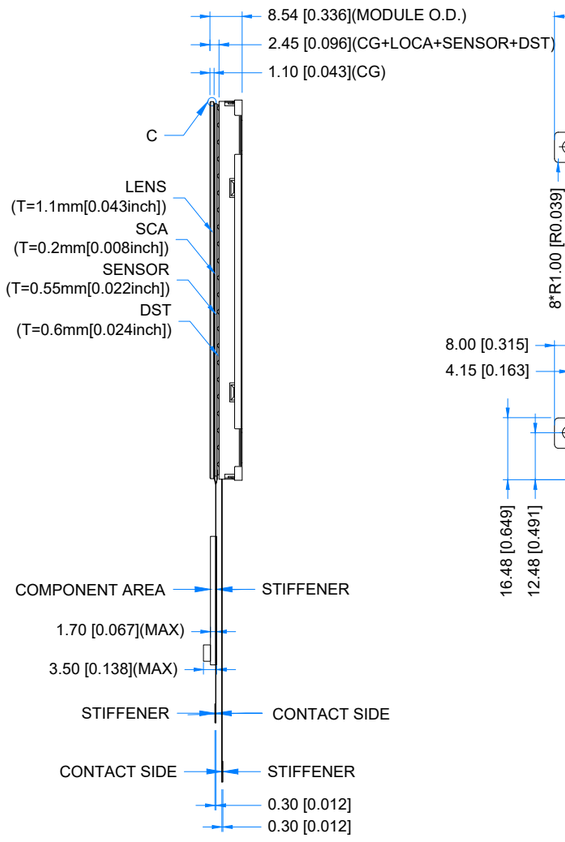
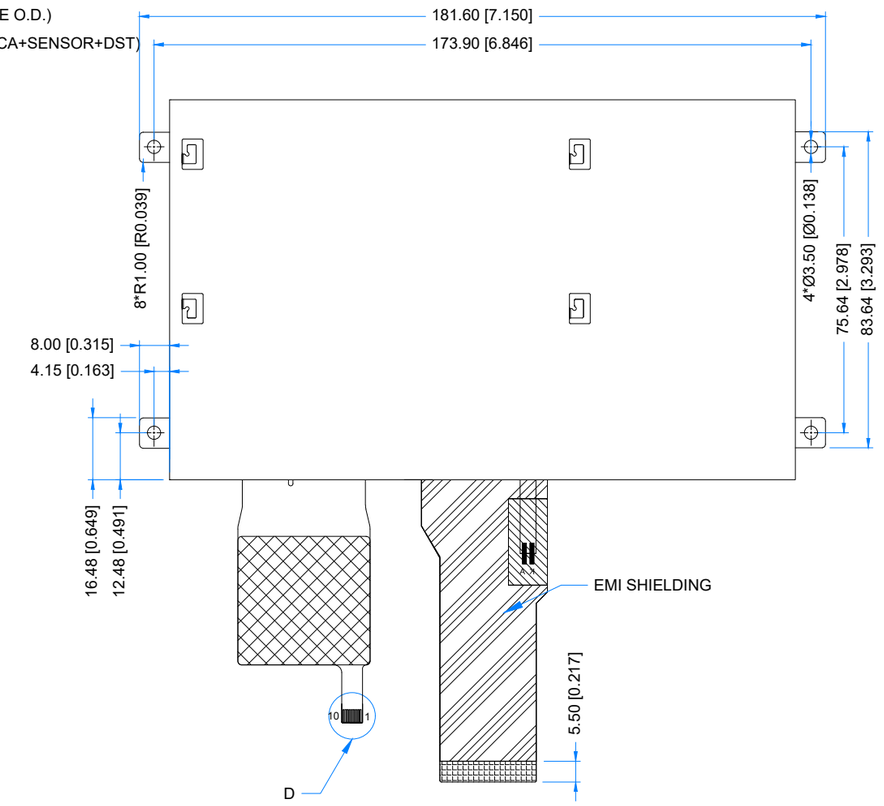


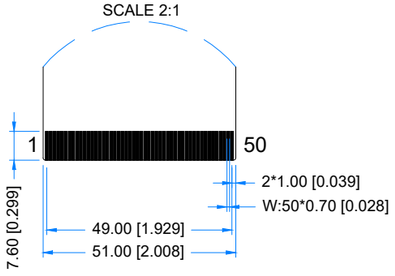
*Figure 1. Mounting Frame*

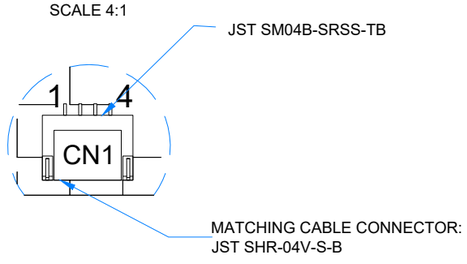
| Revision: | Changes: | Date: |
|---|---|---|
| 1.0 | Initial Case | 2026.03.20 |

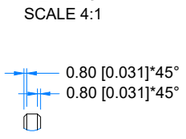


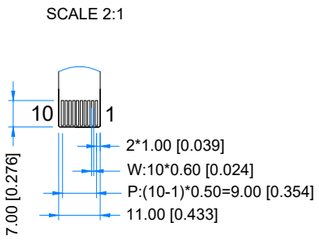



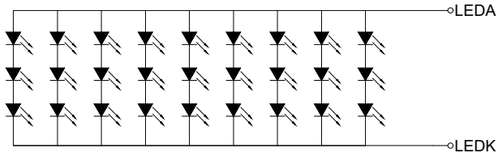




LED Diagram Circuit

**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

**TP NOTES:**
1. TP STRUCTURE: G+G
2. CG THICKNESS: 1.10 mm
3. DRIVER IC: ILI2132A
4. INTERFACE: USB /I2C
5. OPERATING VOLTAGE: 3.3V(CTP I2C); 5.0V(CTP USB)

**GENERAL NOTES:**
1. MODULE SURFACE LUMINANCE: 800cd/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: RVT70HSTFWCA0 V1.1A | | | | Riverdi |
| SN: | | | | |
| DRAWN: | M.Stabinski | 2026.03.20 | 1:1.62 | |
| CHECKED: | M.Wierzbowski | 2026.03.20 | [mm] | |
| APPR: | M.Wierzbowski | 2026.03.20 | 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 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Touch Panel Supply Current | $I_{CTP}$ | - | 117 | - | mA | Measured average current, touch panel active |

# 8. TOUCH PANEL CHARACTERISTICS

| PARAMETER | SYMBOL | VALUE | REMARK |
|---|---|---|---|
| Touch panel interface | - | $I^2C$ | |
| $I^2C$ 7-bit slave address | $ADDR_{7\text{-}bit}$ | 0x41 | Standard $I^2C$ address format |
| $I^2C$ write address | $ADDR_W$ | 0x82 | 8-bit address format |
| $I^2C$ read address | $ADDR_R$ | 0x83 | 8-bit address format |

# 9. 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.

# 10. 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 | | - | 800 | - | 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.

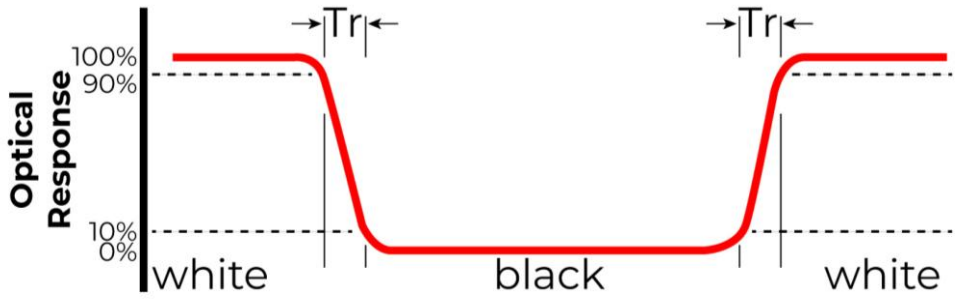
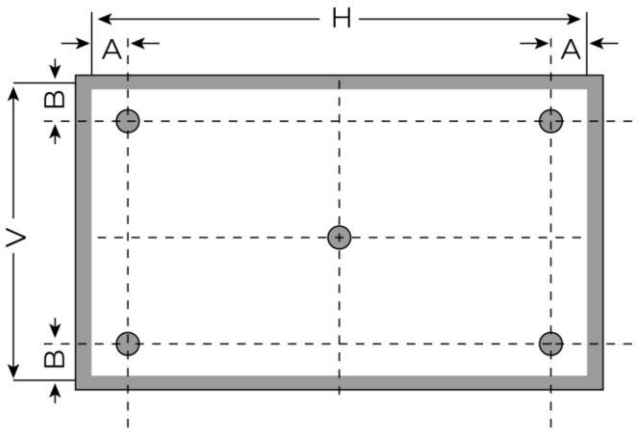



*Figure 2. The definition of response time*




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*

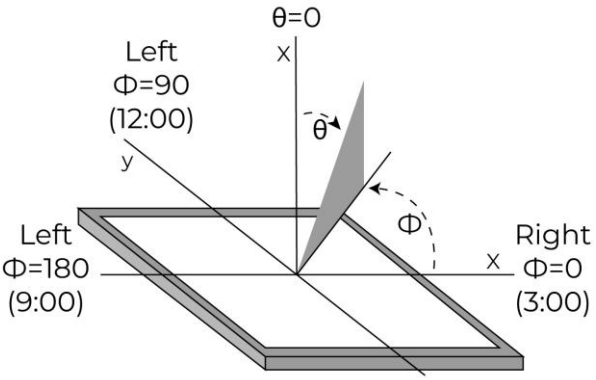



*Figure 4. The definition of viewing angle*

# 11. INTERFACES DESCRIPTION

## 11.1 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 |

## 11.2 Touch Panel Connector

| PIN | SYMBOL | DESCRIPTION |
|---|---|---|
| **1** | USB_GND | USB Ground |
| **2** | USB_VDD | USB Power for CTP, 5.0V |
| **3** | USB_D- | USB Data signal- |
| **4** | USB_D+ | USB Data signal+ |
| **5** | I2C_GND | I2C Ground |
| **6** | I2C_VDD | I2C Power for CTP 3.3V |
| **7** | I2C_RST | I2C Reset pin, active low |
| **8** | I2C_SCL | I2C Clock input |
| **9** | I2C_INT | I2C Interrupt signal from CTP, active low |
| **10** | I2C_SDA | I2C Data signal |

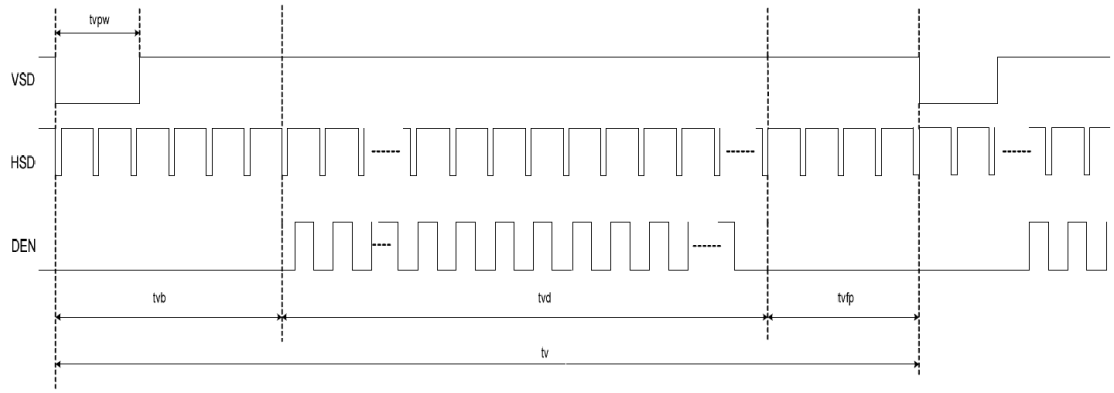
## 11.3 CN1 assignment

| PIN | SYMBOL | DESCRIPTION |
|---|---|---|
| **1** | USB_VDD | USB_Power for CTP, DC 5.0V |
| **2** | USB_D- | USB_Data signal - |

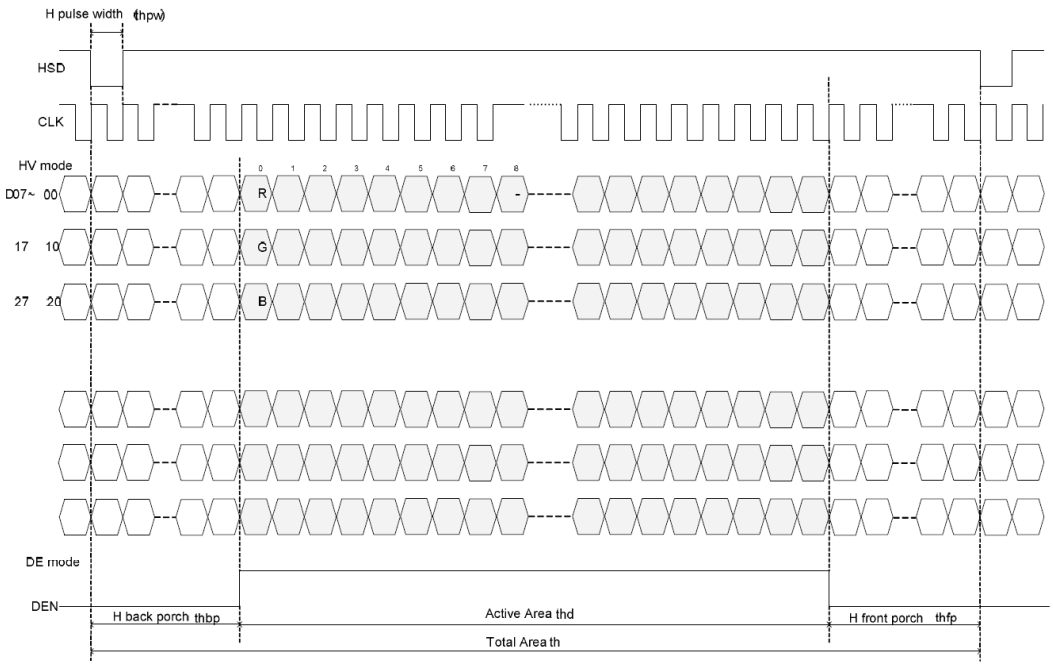
| | | |
|---|---|---|
| 3 | USB_D+ | USB_Data signal + |
| 4 | USB_GND | USB_Ground |

# 12. TIMING CHART

## 12.1 Vertical Input Timing




## 12.2 Horizontal Input Timing



# 12.3 Parallel RGB Timing Characteristic

## 12.3.1 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 |

## 12.3.2 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 |

### 12.3.3 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 |

# 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 | 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<br>2 hours for each direction of X. Y. Z.<br>(6 hours for total) | A,B,C,D,E |
| 8 | Package Vibration Test | Random Vibration :<br>0.015G*G/Hz from 5-200HZ, -6dB/Octave from 200-500HZ<br>2 hours for each direction of X. Y. Z.<br>(6 hours for total) | A,B,C,D,E |
| 8 | Package Drop Test | Height: 60 cm<br>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.

# 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 us at
**contact@riverdi.com**

We're here to ensure your project's success, every step of the way!