TFT MODULE SPECIFICATION

# RVT4.3B480272CNWN00 V3

4.3" EVE 1 LCD TFT DATASHEET
Rev. 1.0
2026-07-31

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

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**riverdi.com**

| ITEM | CONTENTS | UNIT |
|---|---|---|
| Display Type | TFT/Transmissive/Normally white | / |
| Size | 4.3 | Inch |
| Viewing Direction | 12:00 (without image inversion) | O' Clock |
| Gray Scale Inversion Direction | 6:00 | O' Clock |
| Outside Dimensions (W x H x D) | 105.50 x 67.20 x 6.59 | mm |
| Active Area (W x H) | 95.04 x 53.86 | mm |
| Pixel Pitch (W x H) | 0.198 x 0.198 | mm |
| Resolution | 480 (RGB) x 272 | / |
| Driver IC | FT800 | / |
| Brightness | 550 | cd/m2 |
| Backlight Type | White LEDs | / |
| Interface Type | SPI / I2C | / |
| Color Depth | 16.7M | / |
| Pixel Configuration | R.G.B Vertical Stripe | / |
| LCD Input Voltage | 3.3 | V |
| With / Without TP | Without Touch Panel | / |
| Weight | TBD | g |

**Note 1.** RoHS compliant

**Note 2.** LCM weight tolerance: ± 5%.

# 1. REVISION RECORD

| REV NO. | REV DATE | CONTENTS | REMARKS |
|---|---|---|---|
| 1.0 | 2026-07-31 | Initial Release | |

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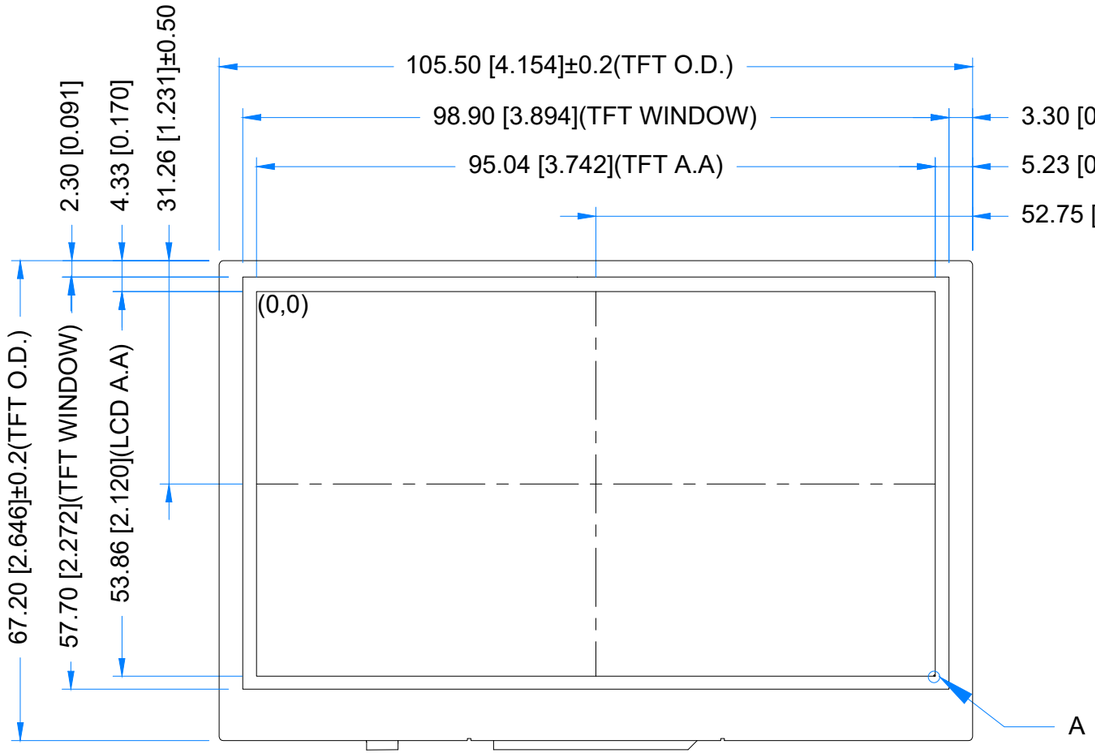
# 3. MODULE CLASSIFICATION INFORMATION

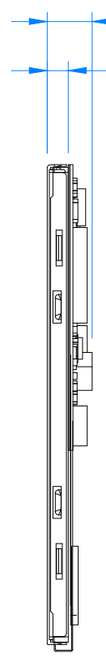
| RV | T | 4.3 | B | 480272 | C | N | W | N | 00 | V3 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. |

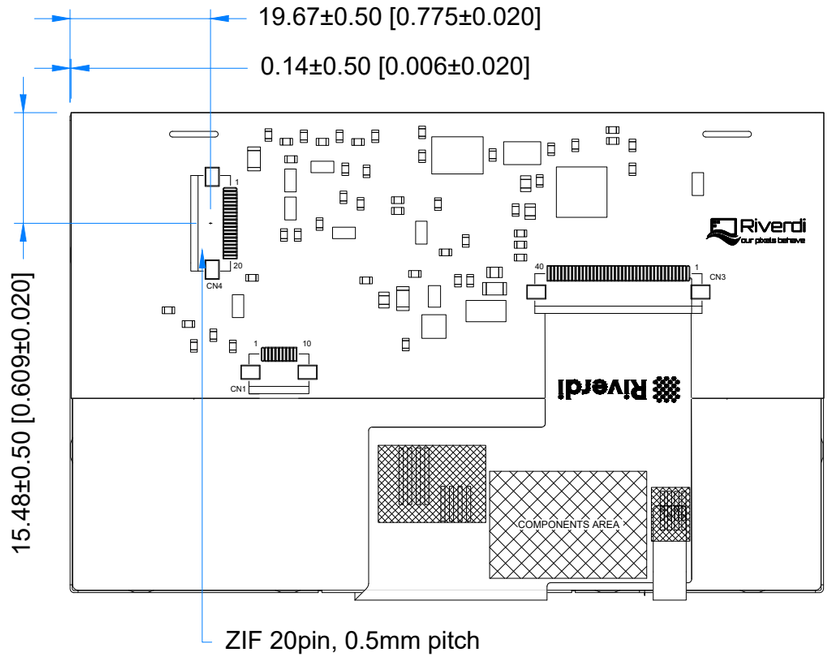
| NO. | PARAMETER | SYMBOL |
|---|---|---|
| 1. | BRAND | RV – Riverdi |
| 2. | PRODUCT TYPE | T – TFT Standard |
| 3. | DISPLAY SIZE | 4.3 – 4.3” |
| 4. | MODEL SERIAL NO. | B (A-Z) |
| 5. | RESOLUTION | 480272 – 480x272 px |
| 6. | INTERFACE | C – TFT + Controller |
| 7. | FRAME | N – Without Mounting Metal Frame |
| 8. | BACKLIGHT TYPE | W – LED White |
| 9. | TOUCH PANEL | N – Without Touch Panel |
| 10. | VERSION | 00 (00-99) |
| 11. | MODULE REVISION | V3 |

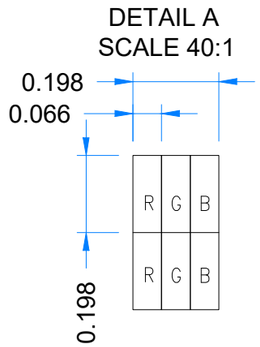
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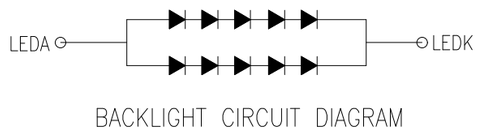
| Revision: | Changes: | Date: |
|---|---|---|
| 1.0 | Initial Case | 2026.04.07 |




BACKLIGHT CIRCUIT DIAGRAM

**TFT NOTES:**
1. DISPLAY TYPE: TRANSMISSIVE, NORMALLY WHITE
2. RESOLUTION: 480x272
3. VIEWING ANGLE: 12 O'CLOCK
4. INTERFACE: SPI/I2C
5. DRIVER IC ON THE BOARD: FT800
6. SUPPLY VOLTAGE FOR MODULE: 3.3V

**GENERAL NOTES:**
1. SURFACE LUMINANCE: 550cd/m$^2$
2. OPERATING TEMPERATURE: -20°C ~ 70°C
3. STORAGE TEMPERATURE: -30°C ~ 80°C
4. WITHOUT INDIVIDUAL TOLERANCE: ±0.3mm
5. RoHS COMPLIANT

| | | | | |
|---|---|---|---|---|
| PN: RVT4.3B480272CNWN00 V3 | | | | Riverdi |
| SN: | | | | |
| DRAWN: | M.Stabinski | 2026.04.07 | 1:0.86 | |
| CHECKED: | M.Wierzbowski | 2026.04.07 | [mm] | |
| APPR: | M.Wierzbowski | 2026.04.07 | ISO A3 | P. 1 of 1 |

# 5. ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | MIN | MAX | UNIT |
|---|---|---|---|---|
| Supply Voltage for Module | VDD | -0.3 | 3.6 | V |
| Digital I/O signals (SPI/QSPI/GPIO) Voltage | VIN | -0.3 | VDD | V |
| Supply voltage for Backlight | BLVDD | -0.3 | 7.0 | V |
| 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.

# 6. ELECTRICAL CHARACTERISTICS

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT | NOTE |
|---|---|---|---|---|---|---|
| Supply Voltage for Module | VDD | 3.0 | 3.3 | 3.6 | V | |
| Input Voltage for LED Inverter | BLVDD | 2.8 | 3.3 | 5.5 | V | |
| LED Backlight Current | $IDD_{backlight}$ | - | 260 | 325 | mA | BLVDD=3.3V |
| LED Backlight Current | $IDD_{backlight}$ | - | 150 | 187 | mA | BLVDD=5V |
| Input Voltage “H” Level | $V_{IH}$ | 0.7VDD | - | VDD | V | |
| Input Voltage “L” Level | $V_{IL}$ | 0 | - | 0.2VDD | V | |
| LED Life Time | - | 30000 | 50000 | - | Hrs | Note 1 |

**Note 1:** The LED life time is defined as the module brightness decrease to 50% original brightness at Ta=25°C.

# 7. ELECTRO-OPTICAL CHARACTERISTICS

| ITEM | SYMBOL | CONDITION | MIN | TYP | MAX | UNIT | RMK | NOTE |
|---|---|---|---|---|---|---|---|---|
| Response Time | Tr+Tf | θ=0° ø=0° Ta=25 °C | - | 25 | 50 | ms | FIG 1. | 4, 7 |
| Contrast Ratio | Cr | | 400 | 500 | - | --- | FIG 2. | 1, 7 |
| Surface Luminance | Lv | | - | 550 | - | cd/m2 | | 2, 7 |
| Luminance Uniformity | δ WHITE | | 80 | - | - | % | | 3 |
| Viewing Angle Range | θ | ø = 90° | 40 | 50 | - | deg | FIG 3. | 6 |
| | | ø = 270° | 60 | 70 | - | deg | | |
| | | ø = 0° | 60 | 70 | - | deg | | |
| | | ø = 180° | 60 | 70 | - | deg | | |
| CIE (x, y) Chromaticity | Rx | θ=0° ø=0° Ta=25 °C | 0.546 | 0.596 | 0.646 | - | FIG 2. | 5,7 |
| | Ry | | 0.312 | 0.362 | 0.412 | - | | |
| | Gx | | 0.277 | 0.327 | 0.377 | - | | |
| | Gy | | 0.524 | 0.574 | 0.624 | - | | |
| | Bx | | 0.097 | 0.147 | 0.197 | - | | |
| | By | | 0.016 | 0.066 | 0.116 | - | | |
| | Wx | | 0.236 | 0.286 | 0.336 | - | | |
| | Wy | | 0.256 | 0.306 | 0.356 | - | | |
| NTSC ratio | - | - | | 55.2 | - | % | | |

**Note 1.** Contrast Ratio (CR) is defined mathematically as below, for more information see Figure 1.

$$\text{Contrast Ratio} = \frac{\text{Average Surface Luminance with all white pixels (P1, P2, P3, P4, P5)}}{\text{Average Surface Luminance with all black pixels (P1, P2, P3, P4, P5)}}$$

**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.

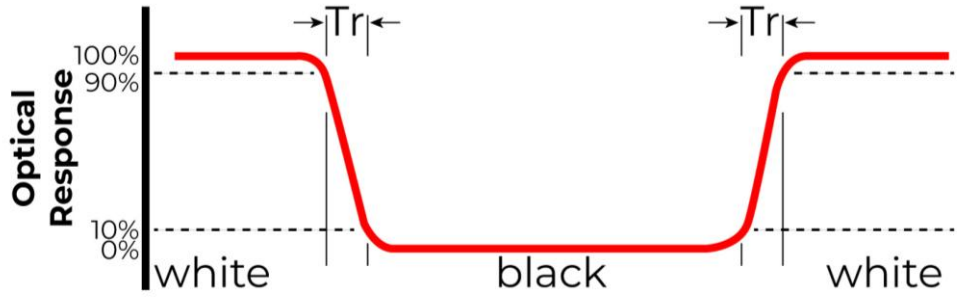
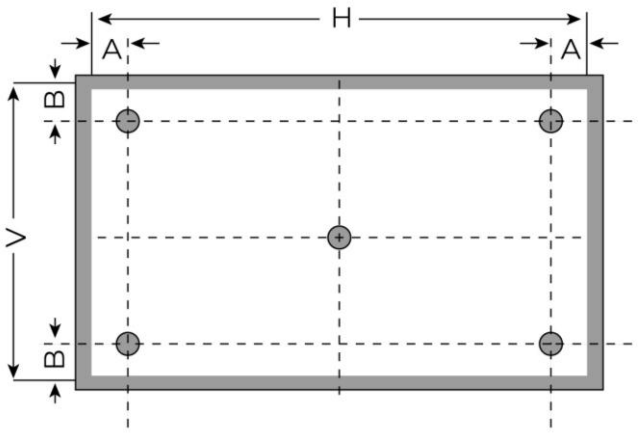



*Figure 1. The definition of response time*




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*

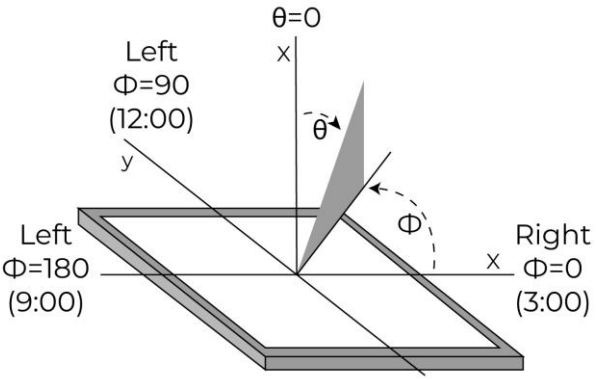



*Figure 3. The definition of viewing angle*

# 8. INTERFACES DESCRIPTION

| PIN | SYMBOL | DESCRIPTION |
|---|---|---|
| 1 | VDD | Power supply |
| 2 | GND | Ground |
| 3 | SPI_SCLK/I2C_SCL | SPI clock / I2C clock |
| 4 | MISO/I2C_SDA | SPI data output (MISO) / I2C data (SDA) |
| 5 | MOSI/I2C_SA0 | SPI data input (MOSI) / I2C address select (SA0) |
| 6 | CS/I2C_SA1 | SPI chip select / I2C address select (SA1) |
| 7 | INT | Interrupt output |
| 8 | PD | Power down |
| 9 | MODE | Interface mode selection (SPI/I2C) |
| 10 | AUDIO_OUT | Audio output |
| 11 | NC | No connection |
| 12 | NC | No connection |
| 13 | NC | No connection |
| 14 | NC | No connection |
| 15 | NC | No connection |
| 16 | NC | No connection |
| 17 | BLVDD | Backlight power supply |
| 18 | BLVDD | Backlight power supply |
| 19 | BLGND | Backlight ground |
| 20 | BLGND | Backlight ground |

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# 9. FT800 CONTROLLER SPECIFICATIONS

FT800 or EVE (Embedded Video Engine) simplifies the system architecture for advanced human machine interfaces (HMIs) by providing functionality for display, audio, and touch as well as an object-oriented architecture approach that extends from display creation to the rendering of the graphics.

## 9.1 Serial host interface

*Figure 1.SPI interface connection*

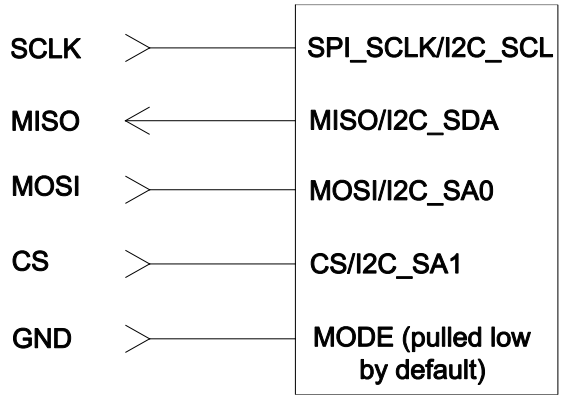
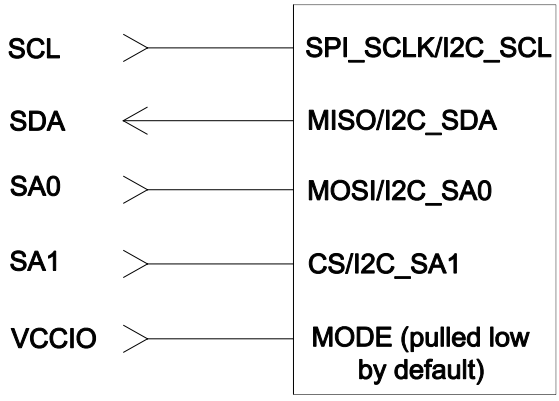



*Figure 2.I2C interface connection*




**SPI Interface** – the SPI slave interface operates up to 30MHz.

Only SPI mode 0 is supported. The SPI interface is selected by default (MODE pin is internally pulled low by 47k resistor).

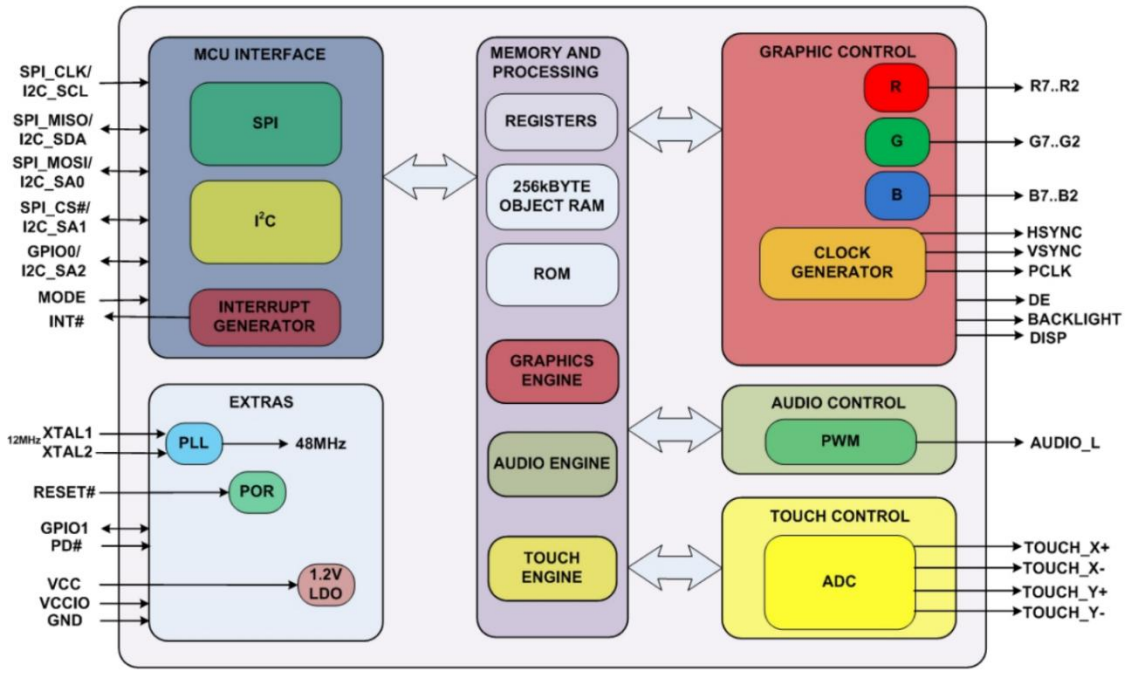
**I²C Interface** – the I²C slave interface operates up to 3.4MHz, supporting standard-mode, fast-mode, fast-mode plus and high-speed mode.

The I²C device address is configurable between 20h to 23h depending on the I²C_SA[1:0] pin setting, i.e. the 7-bit I²C slave address is 0b'01000A1A0.

The I²C interface is selected when the MODE pin is tied to VDDIO.

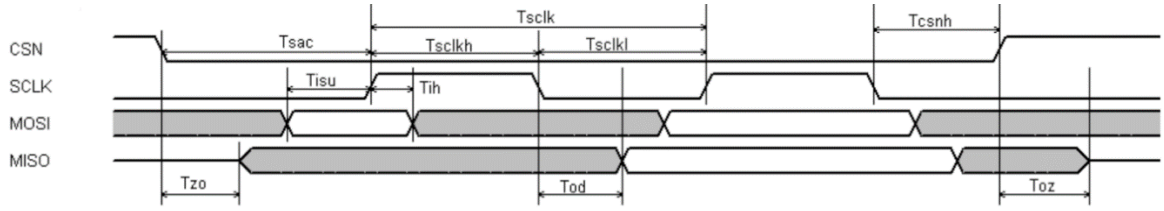
## 9.2 Block Diagram

*Figure 3. FT800 Block diagram*




## 9.3 Host interface SPI mode 0

*Figure 4. SPI timing diagram*

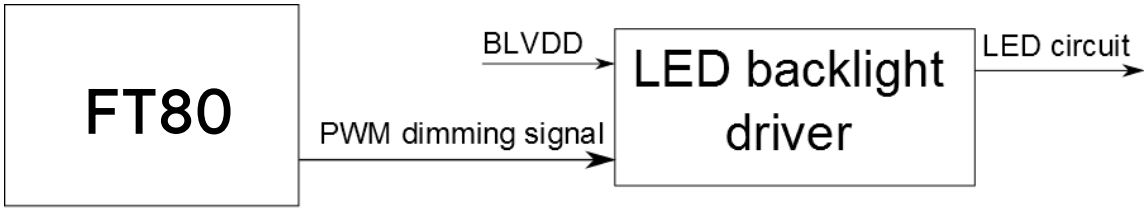



*For more information about FT801 controller please go to official FT800 Datasheet.*
*http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS_FT800.pdf*

## 9.4 Backlight driver block diagram

Backlight enable signal is internally connected to FT800 Backlight control pin. This pin is controlled by two FT800's registers. One of them specifies the PWM output frequency, second one specifies the duty cycle. Refer to FT800 datasheet for more information.

*Figure 5. Backlight driver block diagram*

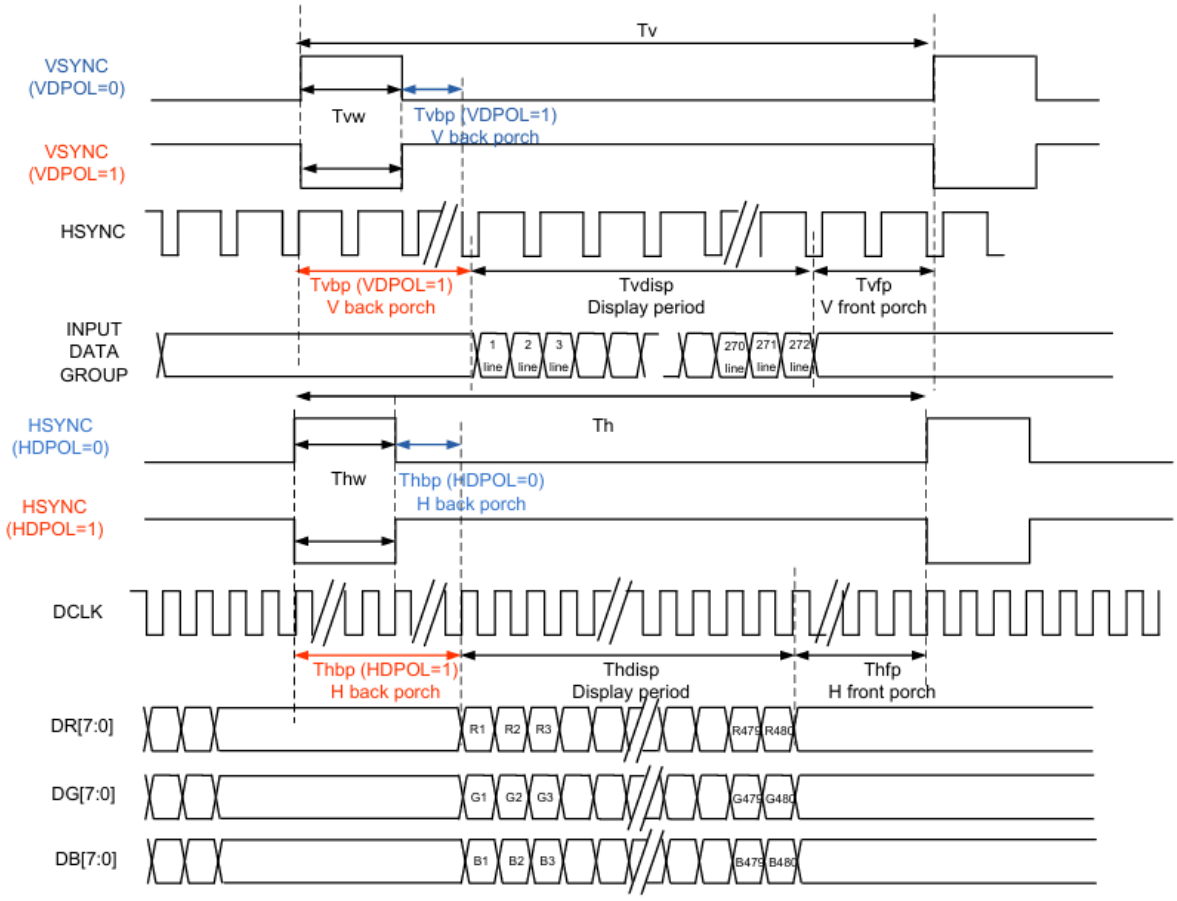


# 10. TIMING CHARACTERISTICS

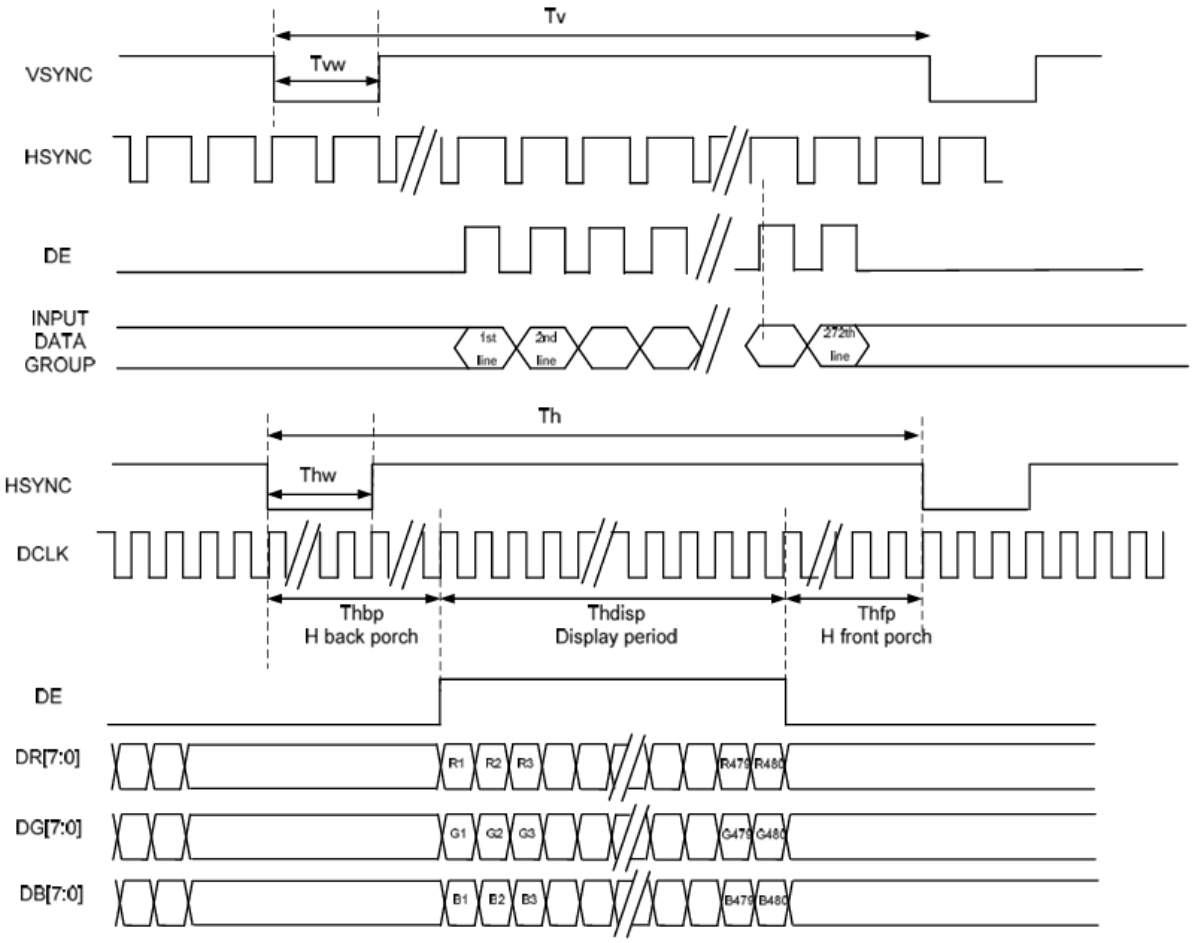
## 10.1 Timing table

| PARAMETER | | SYMBOL | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| DCLK frequency | | Fclk | 8 | 9 | 12 | MHz |
| DCLK Period | | Tclk | 83 | 111 | 125 | ns |
| HSYNC | Period Time | Th | 485 | 531 | 598 | DCLK |
| | Display Period | Thdisp | | 480 | | |
| | $H_{sync}$ Back Porch | Thbp | 3 | 43 | 43 | |
| | $H_{sync}$ Front Porch | Thfp | 2 | 8 | 75 | |
| | $H_{sync}$ Pulse Width | Thw | 2 | 4 | 75 | |
| VSYNC | Period Time | Tv | 276 | 292 | 321 | HSYNC |
| | Display Period | Tvdisp | 272 | | | |
| | $V_{sync}$ Back Porch | Tvbp | 2 | 12 | 12 | |
| | $V_{sync}$ Front Porch | Tvfp | 2 | 8 | 37 | |
| | $V_{sync}$ Pulse Width | Tvw | 2 | 4 | 37 | |

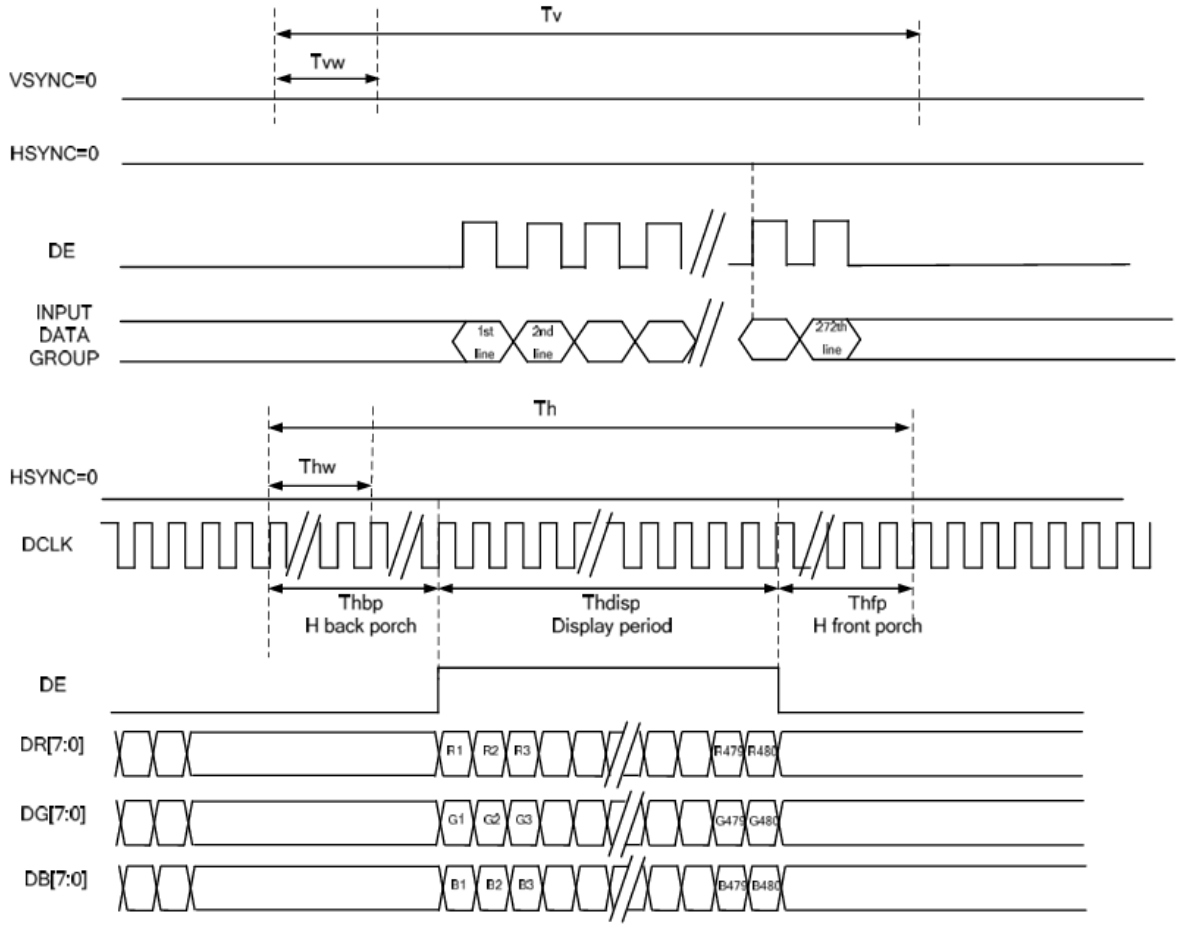
## 10.2 SYNC Mode Timing Diagram



## 10.3 SYNC-DE Mode Timing Diagram



## 10.4 DE Mode Timing Diagram




# 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℃ ± 2℃ / 240Hrs. | IEC60068-2-2<br>GB2423.2 |
| 2 | Low Temperature Storage | -30℃ ± 2℃ / 240Hrs. | IEC60068-2-1<br>GB2423.1 |
| 3 | High Temperature Operating | 70℃ ± 2℃ / 240Hrs. | IEC60068-2-2<br>GB2423.2 |
| 4 | Low Temperature Operating | -20℃ ± 2℃ / 240Hrs. | IEC60068-2-1<br>GB2423.1 |
| 5 | High Temperature and High Humidity Operation Test | 60 ± 5℃, 90%RH 240Hrs. | IEC60068-2-3<br>GB/T2423.3 |
| 6 | Thermal Shock Test (Non-operating) | -20±2℃(30Min.)~25±2℃(5Min.)~60±2℃(30Min.) 10Cycles | IEC60068-2-14<br>GB2423.22 |
| 7 | Vibration Test (Non-operating) | Frequency: 10~55Hz<br>Amplitude: 1.5mm<br>Sweep Time: 11Mins<br>Test Period: 6 Cycles For Each Direction of X, Y, Z (Packing Condition) | IEC60068-2-6<br>GB2423.10 |
| 8 | Electro Static Discharge Test | R: 330Ω, C:150pF, 5points/panel<br>Air: ±8KV, 10times; Contact: ±4KV, 10times; (Environment: 15℃~35℃, 30%~60%, 86Kpa~106Kpa) | IEC61000-4-2<br>GB/T17626.2 |

Note 1: Without water condensation.

Note 2: The function test shall be conducted after 2 hours storage at the room temperature (25℃±2℃) and room humidity (65%±5%) after removed from the test chamber. In the standard conditions, there shall be no functional defects occurred.

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# 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.

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