TFT LCD

multicomp PRO



RoHS Compliant

Description

MP010831 is a 7.0 (16:9) inch diagonally measured active display with high resolution WXGA 1024x600 display and high brightness. This model is composed of a TFT LCD panel, backlight system and HDMI. It is designed to make Raspberry Pi usage easy. You can simply use this TFT display with your Raspberry Pi, or also you can use this as computer display with any device which has HDMI output. This 7.0" TFT model comes in 1024x600 resolution that would be great for embedded computing usage too.

Features

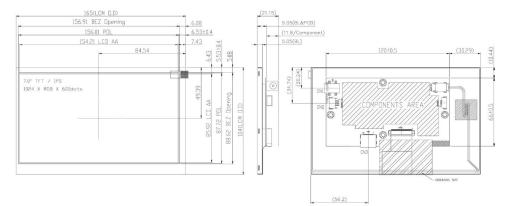
| No. | ltem | Specification | Unit |
|-----|-----------------------|-------------------------------------|--------|
| 1 | Panel Size | 7" | Inch |
| 2 | Number of Pixels | 1024 (W) × RGB × 600 (H) | Pixels |
| 3 | Active Area | 154.21 (W) ×85.92 (H) | mm |
| 4 | Pixel Pitch | 0.1506 (W) × 0.1432 (H) | mm |
| 5 | Outline Dimension | 165 (W) × 104 (H) × 21.15 (T) | mm |
| 6 | Number of Colours | 16.7M | |
| 7 | Display Mode | IPS / Normally Black / Transmissive | |
| 8 | View Direction | Free direction | |
| 9 | Display Format | RGB vertical stripe | |
| 10 | Surface Treatment | Anti-Glare | |
| 11 | Contrast Ratio | 600 (Тур.) | |
| 12 | Luminance (cd/m^2) | 1600 (Тур.) | cd/m2 |
| 13 | Video Input Interface | HDMI (Compliance HDMI V1.4) | |
| 14 | Backlight | White LED | |
| 15 | Operation Temperature | -20 to 70 | °C |
| 16 | Storage Temperature | -30 to 80 | °C |
| 17 | Weight | (160) | g |



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Mechanical Specification



Pin Description

Power Input(CN1) [DC JACK:SCD480CCS000B00GE or compatible]

| Pin No. | Symbol | I/O | Function | Note |
|---------|--------|-----|-------------------|--|
| 1 | 12V | Р | Power Supply +12V | 12V |
| 2 | GND | Р | Ground | $\bigcirc - \textcircled{\bullet} - \textcircled{\bullet}$ |

Back-light Control(CN2) [WAFER P2.0mm:2001S-03-RTE or compatible]

| Pin No. | Symbol | I/O | Function | Note |
|---------|--------|-----|---|------|
| 1 | GND | Р | Ground | |
| 2 | PWM | I | Back-light Dimming control (internal pull up to 3.3V) | *1 |
| 3 | N.C. | - | N.C. | |

*1: When PWM not connected, back-light default is typical brightness.

Absolute Maximum Ratings

Electrical Absolute Rating

HDMI TFT LCD Module

| ltom | Symbol | Val | ues | Unit |
|----------------------|--------|-----|------|------|
| Item | Symbol | Min | Max. | Unit |
| Power supply voltage | 12V | 10 | 14 | V |

Environment Absolute Rating

| ltem | Symbol | Val | ues | Unit | Note |
|-----------------------|--------|-----|------|------|-------------|
| item | Symbol | Min | Max. | Unit | Note |
| Operating Temperature | Тор | -20 | 70 | °C | Ambient |
| Storage Temperature | Tst | -30 | 80 | C | temperature |



TFT LCD

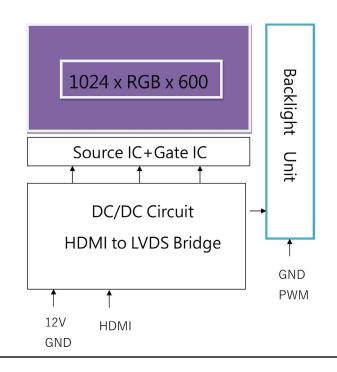
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HDMI (CN3) [HDMI A TYPE:PHD0911A2301E or compatible]

| Pin No. | Symbol | I/O | Function |
|---------|-----------|-----|---------------------|
| 1 | TMDS 2+ | I | TMDS Data2+ |
| 2 | GND | Р | TMDS Data2 Shield |
| 3 | TMDS 2- | I | TMDS Data2– |
| 4 | TMDS 1+ | I | TMDS Data1+ |
| 5 | GND | Р | TMDS Data1 Shield |
| 6 | TMDS 1- | I | TMDS Data1– |
| 7 | TMDS 0+ | I | TMDS Data0+ |
| 8 | GND | Р | TMDS Data0 Shield |
| 9 | TMDS 0- | I | TMDS Data0– |
| 10 | TMDS CLK+ | I | TMDS Clock+ |
| 11 | GND | Р | TMDS Clock Shield |
| 12 | TMDS CLK- | I | TMDS Clock- |
| 13 | N.C. | - | N.C. |
| 14 | N.C. | - | N.C. |
| 15 | DDC_SCL | Ι | IIC SCL to EDID ROM |
| 16 | DDC_SDA | I/O | IIC SDA to EDID ROM |
| 17 | GND | Р | DDC/CEC Ground |
| 18 | HD_5V | Р | +5V Power |
| 19 | HPD | 0 | Hot Plug Detect |

Block Diagram

TFT LCD Module





Electrical Characteristics

HDMI TFT LCD Module

| Item | Symbol | Values | | | Unit | Note |
|----------------|----------|--------|-------------|-----|------|----------|
| nem | Symbol | Min | n Typ. Max. | | Onit | NOLE |
| Supply Voltage | 12V | 11 | 12 | 13 | V | |
| PWM frequency | | 100 | - | 10K | Hz | |
| PWM Duty | | 17 | - | 100 | % | <17%=OFF |
| PWM Dimming | Vpwm-ih | 3.3 | - | 8 | V | |
| Voltage | Vpwm-il | - | 0.3 | - | V | |
| Supply Current | ICC(12V) | - | 590 | 610 | mA | |
| LED life time | | 70000 | - | - | Hr | (1) |

Note

The "LED life time" is defined as the module brightness decrease to 50% original brightness that the ambient temperature is 25°C 60% RH.

Optical Characteristics

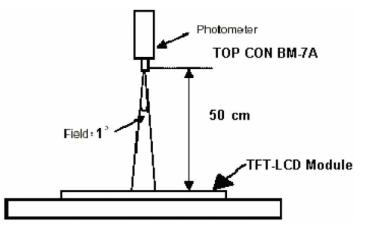
| Ite | m | Symbol | Condition | Min. | Тур. | Max. | Unit |
|--------------|---------------|--------|------------------------------|------|------|------|-------|
| Bright | ness | | | 1280 | 1600 | | cd/m2 |
| Unifor | mity | B-uni | Note1, | 70 | 75 | - | % |
| Contras | t Ratio | CR | Note 3, | 400 | 600 | | |
| Boopong | Response Time | | (θ= 0°, Normal Viewing | | 4 | 8 | ma |
| Respons | | | | | 12 | 24 | ms |
| Colour | White | Wx | Angle) | 0.26 | 0.31 | 0.36 | |
| Chromaticity | white | Wy | | 0.28 | 0.33 | 0.38 | |
| | Horizontal | θx+ | | | 85 | | |
| View angle | TIONZONIA | θx- | Center | 80 | | | |
| View angle | Vertical | θΥ+ | CR≥10 | | | | |
| | vertical | θΥ- | | | | | |

Note: The following optical specifications shall be measured in a darkroom or equivalent state (ambient luminance $\leq 1 \text{ lux}$, and at room temperature). The operation temperature is $25^{\circ}\text{C}\pm2^{\circ}\text{C}$. The measurement method is shown in Note1.





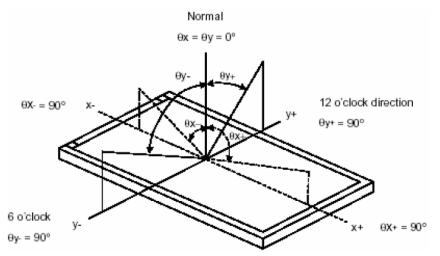
Note1: The method of optical measurement



Note2: Measured at the center area of the panel and at the viewing angle of the $\theta x=\theta y=0^{\circ}$ Note3: Definition of Contrast Ratio (CR):

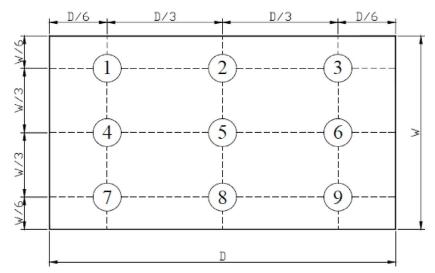
CR = Luminance with all pixels in white state ÷ Luminance with all pixels in Black state

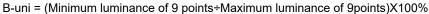
Definition of Viewing Angle





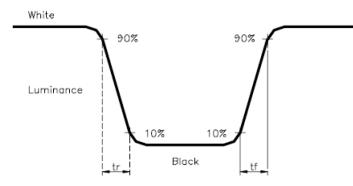
Definition of Brightness Uniformity (B-uni)





Note 6: Definition of Response Time:

The Response Time is set initially by defining the "Rising Time (Tr)" and the "Falling Time (Tf)" respectively. Tr and Tf are defined as following figure



Note 7: Definition of Chromaticity:

The color coordinates (Wx,Wy),(Rx,Ry),(Gx,Gy),and (Bx,By) are obtained with all pixels in the viewing field at white, red, green, and blue states, respectively.

Part Number Table

| Description | Part Number |
|---------------------------------|-------------|
| TFT LCD, 7.0", HDMI, 1024 × 600 | MP010831 |

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