

Description

The specification is model MP015132 is a colour active matrix thin film transistor (TFT) liquid crystal display (LCD) that uses amorphous silicon TFT as a switching device. This model is composed of a TFT LCD panel, a driving circuit, a backlight system and projected capacitive touch panel. This TFT LCD has a 10.1 inch diagonally measured active display area with WSVGA (1024 horizontal by 600 vertical pixels) resolution.

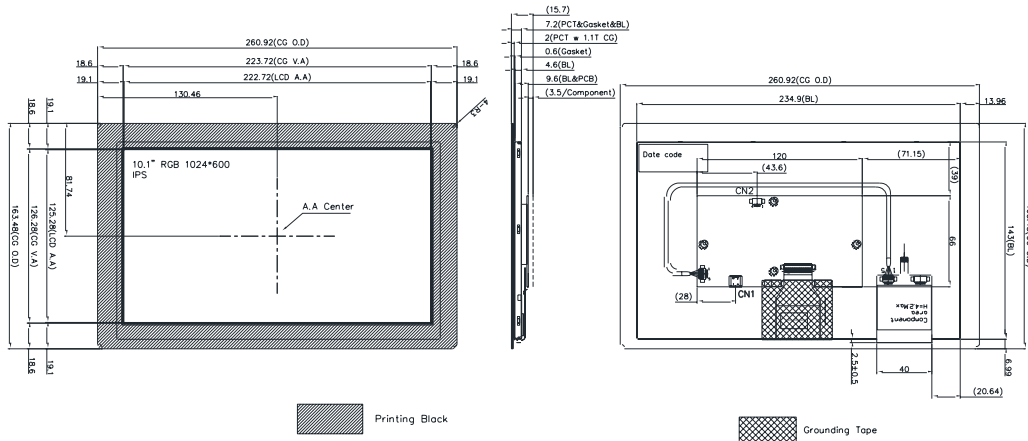
Features

- Supports VESA DisplayPort Alt. Mode 1a
- DisplayPort 1.3
- Build-in OSD function.

Specification

| No. | Item | Specification | Unit |
|-----|--------------------------------|-------------------------------------|-------------------|
| 1 | Panel Size | 10.1" | Inch |
| 2 | Number of Pixels | 1024 (W) × RGB × 600 (H) | Pixels |
| 3 | Active Area | 222.72 (W) × 125.28 (H) | mm |
| 4 | Pixel Pitch | 0.2175 (W) × 0.2088 (H) | mm |
| 5 | Outline Dimension | 260.92 (W) × 163.48 (H) × 15.7 (T) | mm |
| 6 | Number of Colours | 16.7M | -- |
| 7 | Display Mode | IPS / Normally Black / Transmissive | -- |
| 8 | Viewing Direction | Free direction | -- |
| 9 | Display Format | RGB vertical stripe | -- |
| 10 | Surface Treatment | Clear (7H) | -- |
| 11 | Contrast Ratio | 1000 (Typ.) | -- |
| 12 | Luminance (cd/m ²) | 550 (Typ.) | cd/m ² |
| 13 | Interface | Type-C (5V/3A) | -- |
| 14 | Backlight | White LED | -- |
| 15 | Operation Temperature | 0 to 70 | °C |
| 16 | Storage Temperature | -30 to 80 | °C |
| 17 | Weight | TBD | g |

Mechanical Specification



| No. | Pin Name | No. | Pin Name |
|-----|----------|-----|----------|
| A1 | GND | B12 | GND |
| A2 | Tx1+ | B11 | Rx1+ |
| A3 | Tx1- | B10 | Rx1- |
| A4 | VBUS | B9 | VBUS |
| A5 | CC1 | B8 | SBU2 |
| A6 | D+ | B7 | D- |
| A7 | D- | B6 | D+ |
| A8 | SBU1 | B5 | CC2 |
| A9 | VBUS | B4 | VBUS |
| A10 | Rx2- | B3 | Tx2- |
| A11 | Rx2+ | B2 | Tx2+ |
| A12 | GND | B1 | GND |

Pin Description

| Pin No. | Symbol | I/O | Function |
|---------|--------|-----|--|
| A1 | GND | P | Ground |
| A2 | TX1+ | I/O | High speed data path TX for DP Alt Mode. |
| A3 | TX1- | I/O | |
| A4 | VBUS | P | Cable bus power +5V only. |
| A5 | CC1 | I/O | Type-C Port Configuration Channel |
| A6 | D+ | I/O | USB 2.0 Interface. |
| A7 | D- | I/O | |
| A8 | SBU1 | I/O | USB Type-C Sideband Use 1 |
| A9 | VBUS | P | Cable bus power +5V only. |
| A10 | RX2- | I/O | High speed data path RX for DP Alt Mode. |
| A11 | RX2+ | I/O | |

| | | | |
|-----|------|-----|--|
| A12 | GND | P | Ground |
| B1 | GND | P | Ground |
| B2 | TX2+ | I/O | High speed data path TX for DP Alt Mode. |
| B3 | TX2- | I/O | |
| B4 | VBUS | P | Cable bus power +5V only. |
| B5 | CC2 | I/O | Type-C Port Configuration Channel |
| B6 | D+ | I/O | USB 2.0 Interface. |
| B7 | D- | I/O | |
| B8 | SBU2 | I/O | USB Type-C Sideband Use 2 |
| B9 | VBUS | P | Cable bus power +5V only. |
| B10 | RX1- | I/O | High speed data path RX for DP Alt Mode. |
| B11 | RX1+ | I/O | |
| B12 | GND | P | Ground |

3.2 key Pad CN2 (50271-0040L-002 or compatible)

| Pin | Symbol | I/O | Function |
|-----|----------------------|-----|-----------------------|
| 1 | Power on/off | I | Power On/Off control. |
| 2 | Brightness increased | I | Brightness Increase. |
| 3 | Brightness decrease | I | Brightness decrease. |
| 4 | GND | P | Ground |

4. Absolute Maximum Ratings

4.1 Electrical Absolute Rating

4.1.1 TFT LCD Module

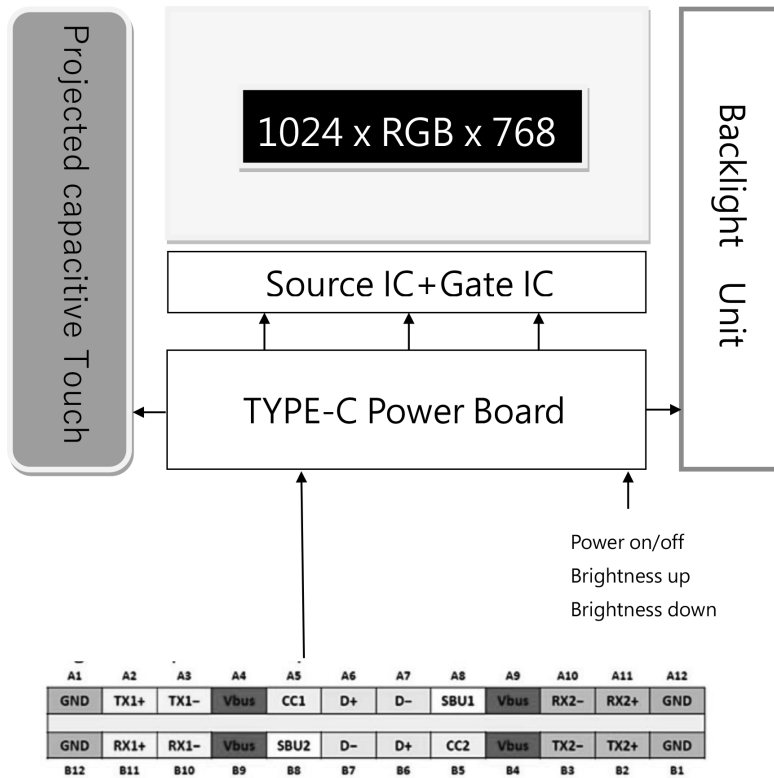
| Item | Symbol | Values | | Unit |
|----------------------|--------|--------|------|------|
| | | Min | Max. | |
| Power supply voltage | VBUS | -0.3 | 6 | V |

4.1.2 Environment Absolute Rating

| Item | Symbol | Values | | | Unit | Note |
|-----------------------|--------|--------|-----|------|------|---------------------|
| | | Min | Typ | Max. | | |
| Operating Temperature | Topa | 0 | | 70 | °C | Ambient temperature |
| Storage Temperature | Tstg | -30 | | 80 | °C | |

5. Block Diagram

5.1 TFT LCD Module



6. Electrical Characteristics

6.1 TFT LCD Module

| Item | Symbol | Values | | | Unit | Note |
|------------------|--------|--------|-------|------|------|------|
| | | Min. | Typ. | Max. | | |
| Supply Voltage | VBUS | - | 5 | 5.5 | V | |
| Required current | IBUS | - | 970 | 1070 | mA | (1) |
| LED life time | - | - | 50000 | - | Hr | (2) |

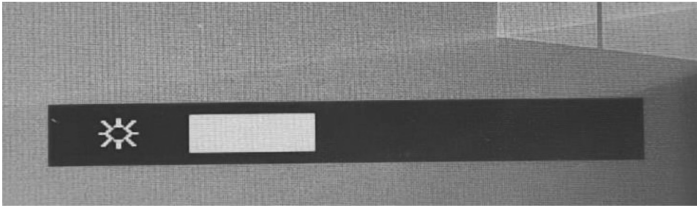
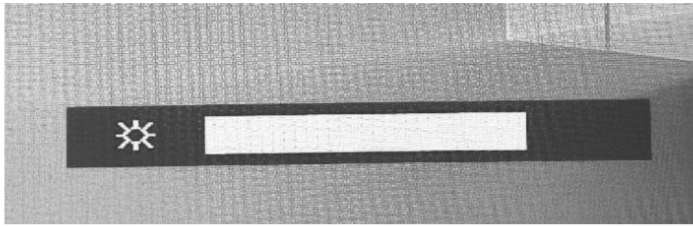
Note 1: condition: projected capacitive touch panel active, and under brightness 100%

Note 2: The "LED life time" is defined as the module brightness decrease to 50% original brightness that the ambient temperature is 25°C 60% RH.

6.2 OSD Function

Built-in OSD function, connected to the external key pad to CN2, can control the screen switch On/Off and backlight brightness control.

The adjusted brightness level will be automatically memorized.



Projected Capacitive Touch Panel

Main Feature

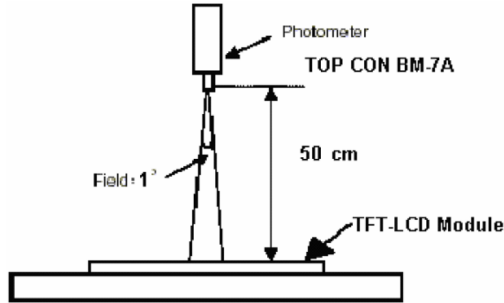
| Item | Specification | Unit |
|-----------------------------|---------------------------------------|----------|
| Screen Size | 10.1 inch | Diagonal |
| Type | Transparent Type Projected Capacitive | -- |
| Input Mode | Human's Finger | -- |
| Finger | 10 | -- |
| Interface | USB | -- |
| Cover glass pencil-hardness | 7H | -- |
| Response time | 25 | ms |
| Driver IC | ILI2511 | |

Optical Characteristics

| Item | | Symbol | Condition | Min. | Typ. | Max. | Unit |
|---------------------|------------|---------------|--|------|------|------|-------------------|
| Brightness | | -- | Note1, Note 3, ($\theta = 0^\circ$, Normal Viewing Angle) | 440 | 550 | -- | cd/m ² |
| Uniformity | | B-uni | | 70 | 75 | -- | % |
| Contrast Ratio | | CR | | 800 | 1000 | -- | -- |
| Response Time | | Tr+Tf | | -- | 25 | 35 | ms |
| Colour Chromaticity | White | Wx | Center CR \geq 10 | 0.26 | 0.31 | 0.36 | -- |
| | | Wy | | 0.28 | 0.33 | 0.38 | |
| View angle | Horizontal | θ_{x+} | Center CR \geq 10 | 80 | 85 | -- | |
| | | θ_{x-} | | | | | |
| | Vertical | θ_{Y+} | | | | | |
| | | θ_{Y-} | | | | | |

Note: The following optical specifications shall be measured in a darkroom or equivalent state (ambient luminance ≤ 1 lux, and at room temperature). The operation temperature is $25^\circ\text{C} \pm 2^\circ\text{C}$. The measurement method is shown in Note1.

Note 1: The method of optical measurement:

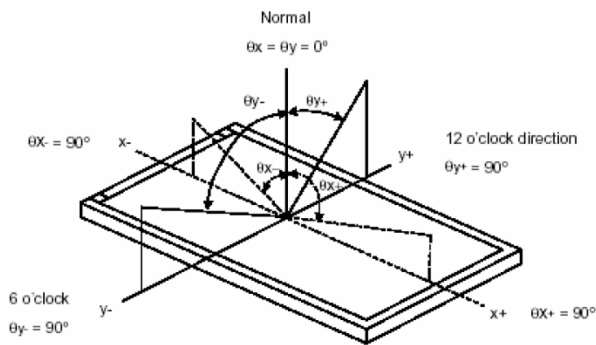


Note2: Measured at the center area of the panel and at the viewing angle of the $\theta_x = \theta_y = 0^\circ$

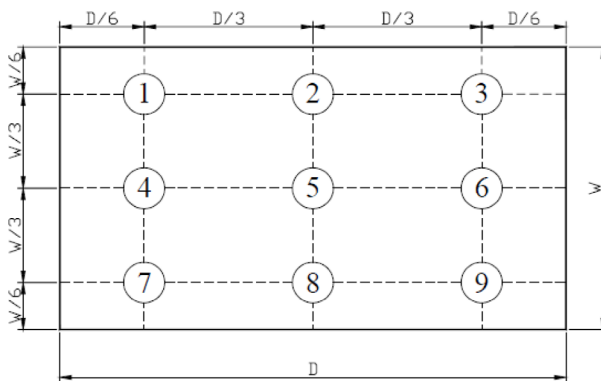
Note3: Definition of Contrast Ratio (CR):

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

Definition of Viewing Angle



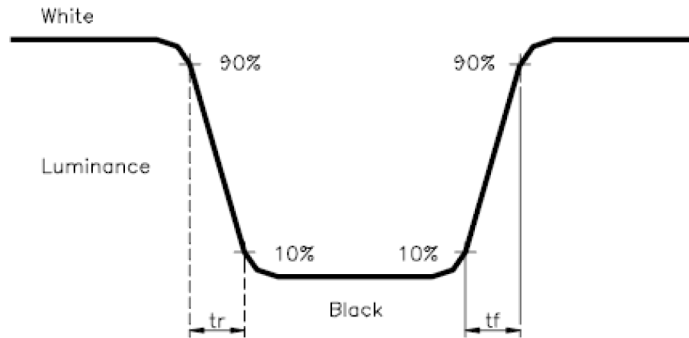
Definition of Brightness Uniformity (B-uni)



B-uni = (Minimum luminance of 9 points ÷ Maximum luminance of 9 points) X 100%

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 colour 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 Display, USB C, 10", 1280 × 800, PCAP | MP015132 |

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