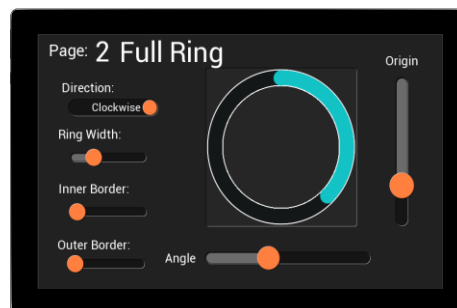


# DP-1011-02A Datasheet



## 1 Introduction

The DP-1011-02A is a 10.1-inch TFT-LCD module featuring a resolution of 1280 × 800 pixels. The module integrates a TFT-LCD panel, flexible printed circuit (FPC), backlight unit, and a capacitive touch panel (CTP).

Powered by EK79202 display driver, it supports 16.7 million colours over a single-channel LVDS interface, providing stable and high-speed image transmission. Touch input is handled by the ILI2132 controller with I<sup>2</sup>C interface support, enabling smooth and responsive operation with support for up to 5-finger multi-touch.

## 1.1 Features

- 10.1" TFT-LCD with 1280 × 800 resolution and CTP support
- 16.7M RGB colors for vivid display
- Single-channel LVDS interface for high-speed, reliable data transfer
- Integrated ILI2132 touch controller with I<sup>2</sup>C interface providing accurate and low-latency capacitive touch response
- Supports up to 5-finger multi-touch
- Meets RoHS requirements for environmental compliance

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## 2 Part Numbers/Ordering Information

| Part No.    | Description                                                                                      |
|-------------|--------------------------------------------------------------------------------------------------|
| DP-1011-02A | TFT Display 10.1 inch (1280 x 800 resolution) with Capacitive Touch Panel- Outline 248mm x 165mm |

**Table 1 - Part Number/Ordering Information**

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### 3 General Specifications

| Item                         | Specification                       | Unit              | Note          |
|------------------------------|-------------------------------------|-------------------|---------------|
| LCD Type                     | TFT                                 | -                 |               |
| LCD Size                     | 10.1                                | inch              |               |
| Number of Pixels             | 1280(H)x 800(V)                     | pixels            |               |
| Viewing Direction            | All                                 | o'clock           |               |
| Interface                    | Single-channel LVDS (6/8 bits LVDS) |                   |               |
| Display Colors               | 16.7M Colors (RGB 8 bit)            | colors            |               |
| Module Size                  | 248(H) x 165 (V) x 6.9 (D)          | mm                | D: Max 8.5mm  |
| Active Area                  | 216.96(H) x 135.60(V)               | mm                |               |
| Brightness                   | 1000                                | cd/m <sup>2</sup> | Typical value |
| Display Driver IC            | EK79202                             | -                 |               |
| Touch Panel                  | Capacitive Touch Panel              | -                 |               |
| Touch Driver IC              | ILI2132                             | -                 |               |
| CTP Connection Type          | FPC                                 |                   |               |
| TFT & CTP Bonding            | Optical Bonding (OCA)               | -                 |               |
| Surface Treatment            | Anti-glare                          | -                 |               |
| Nitrile Gloved Touch Sensing | Supported                           | -                 |               |
| Multi-touch Support          | Up to 5-finger multi-touch          | -                 |               |
| Operation Temperature        | -20~+70                             | °C                |               |
| Storage Temperature          | -30~+80                             | °C                |               |

**Table 2 - General Specifications**

**Note:** Meets environmental protection standards and is compliant with RoHS requirements.

## 4 Hardware Description

The DP-1011-02A is equipped with a 10.1-inch TFT-LCD offering 1280 × 800 resolution, featuring a capacitive touch panel directly bonded to the display.

### 4.1 Pin Assignment

The interface connector pin configurations are detailed in the following sections.

#### 4.1.1 TFT-LCD Interface Pin Assignment

| Pin no | Symbol | Type | Description                                                                                                                                                                                              |
|--------|--------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | NC     | -    | No Connection                                                                                                                                                                                            |
| 2      | VDD    | P    | Power supply                                                                                                                                                                                             |
| 3      | VDD    | P    | Power supply                                                                                                                                                                                             |
| 4      | NC     | -    | No Connection                                                                                                                                                                                            |
| 5      | RESET  | I    | Global reset pin. Normally pulled high (10 kΩ pull-up to VDD provided by default).                                                                                                                       |
| 6      | STBYB  | I    | Standby mode. Normally pulled high (10 kΩ pull-up to VDD provided by default).<br>STBYB=L, timing controller, source driver will turn off, all output is High-Z.<br>STBYB=H, normal operation (default). |
| 7      | GND    | P    | Ground                                                                                                                                                                                                   |
| 8      | RXIN0- | I    | -LVDS differential data input                                                                                                                                                                            |
| 9      | RXIN0+ | I    | +LVDS differential data input                                                                                                                                                                            |
| 10     | GND    | P    | Ground                                                                                                                                                                                                   |
| 11     | RXIN1- | I    | -LVDS differential data input                                                                                                                                                                            |
| 12     | RXIN1+ | I    | +LVDS differential data input                                                                                                                                                                            |
| 13     | GND    | P    | Ground                                                                                                                                                                                                   |
| 14     | RXIN2- | I    | -LVDS differential data input                                                                                                                                                                            |
| 15     | RXIN2+ | I    | +LVDS differential data input                                                                                                                                                                            |
| 16     | GND    | P    | Ground                                                                                                                                                                                                   |
| 17     | RXCLK- | I    | -LVDS differential clock input                                                                                                                                                                           |
| 18     | RXCLK+ | I    | +LVDS differential clock input                                                                                                                                                                           |
| 19     | GND    | P    | Ground                                                                                                                                                                                                   |
| 20     | RXIN3- | I    | -LVDS differential data input                                                                                                                                                                            |
| 21     | RXIN3+ | I    | +LVDS differential data input                                                                                                                                                                            |
| 22     | GND    | P    | Ground                                                                                                                                                                                                   |
| 23     | SDA    | I/O  | Serial data pin. For internal use only.<br>(10 kΩ pull-up to VDD provided by default)                                                                                                                    |
| 24     | SCL    | I    | Serial clock pin. For internal use only.<br>(10 kΩ pull-up to VDD provided by default)                                                                                                                   |
| 25     | GND    | P    | Ground                                                                                                                                                                                                   |
| 26     | CS     | I    | Chip select signal, active "L".<br>(10 kΩ pull-up to VDD provided by default)                                                                                                                            |
| 27     | NC     | -    | No Connection                                                                                                                                                                                            |
| 28     | LVBIT  | I    | LVBIT=H, 8 bit (default)-10 kΩ pull-up to VDD provided by default<br>LVBIT=L, 6 bit                                                                                                                      |

|    |      |   |               |
|----|------|---|---------------|
| 29 | NC   | - | No Connection |
| 30 | GND  | P | Ground        |
| 31 | LED- | P | LED Cathode   |
| 32 | LED- | P | LED Cathode   |
| 33 | NC   | - | No Connection |
| 34 | NC   | - | No Connection |
| 35 | NC   | - | No Connection |
| 36 | NC   | - | No Connection |
| 37 | NC   | - | No Connection |
| 38 | NC   | - | No Connection |
| 39 | LED+ | P | LED Anode     |
| 40 | LED+ | P | LED Anode     |

**Table 3 - TFT-LCD Interface Pin Definition**

### 4.1.2 CTP Interface Pin Assignment

**I2C Interface Pin Definition, connector: FPC 0.5mm pitch 10pin**

| Pin no | Name    | Type | Description                          |
|--------|---------|------|--------------------------------------|
| 1      | GND     | P    | Ground                               |
| 2      | GND     | P    | Ground                               |
| 3      | VDD_CTP | P    | 3.3V Input power supply              |
| 4      | VDD_CTP | P    | 3.3V Input power supply              |
| 5      | SCL     | I/O  | I2C clock line (3.3V)                |
| 6      | SDA     | I/O  | I2C data line (3.3V)                 |
| 7      | RES     | I    | Reset input, active "L" (3.3V)       |
| 8      | INT     | O    | Interrupt request to the host (3.3V) |
| 9      | GND     | P    | Ground                               |
| 10     | GND     | P    | Ground                               |

**Table 4 - CTP Interface Pin Definition**

## 5 Specifications

### 5.1 Absolute Maximum Ratings

#### 5.1.1 Electrical Absolute Maximum Ratings

Condition:  $V_{SS}=0V$ ,  $T_a=25^{\circ}C$

| Item                 | Symbol | MIN. | MAX. | Unit | Note      |
|----------------------|--------|------|------|------|-----------|
| Power Supply Voltage | VDD    | 2.3  | 3.6  | V    | Note 1, 2 |

**Table 5 - Electrical Absolute Maximum Ratings**

**Note:**

1. Permanent damage to the LCD module may result if it is operated beyond the specified limits. Operating outside the defined electrical characteristics may cause malfunction or decreased reliability.
2.  $V_{DD}$  must always be greater than  $V_{SS}$ .
3. Ensure proper grounding is maintained when handling the LCD module.

#### 5.1.2 Environmental Absolute Maximum Ratings

| Item                | Storage |      | Operating |      | Note      |
|---------------------|---------|------|-----------|------|-----------|
|                     | MIN.    | MAX. | MIN.      | MAX. |           |
| Ambient Temperature | -30°C   | 80°C | -20°C     | 70°C | Note 1, 2 |
| Humidity            | -       | -    | -         | -    | Note 3    |

**Table 6 - Environmental Absolute Maximum Ratings**

**Note:**

1. Response time may decrease under low operating temperature conditions.
2. Background color may vary slightly with changes in ambient temperature; this phenomenon is reversible.
3.  $T_a \leq 40^{\circ}C$ : 85%RH MAX  
 $T_a \geq 40^{\circ}C$ : Absolute humidity must not exceed the equivalent of 85% RH at 40°C.

## 5.2 Electrical Specifications

### 5.2.1 Electrical Characteristics

Condition:  $V_{SS}=0V$ ,  $T_a=25^{\circ}C$

| Item          | Symbol  | Min.     | Typ.    | Max. | Unit    | Note |
|---------------|---------|----------|---------|------|---------|------|
| Power Supply  | VDD     | 2.8      | 3.3     | 3.6  | V       |      |
|               | VDD_CTP | -        | 3.3     | -    | V       |      |
| Input Voltage | 'H'     | $V_{IH}$ | 0.8*VDD | -    | VDD     | V    |
|               | 'L'     | $V_{IL}$ | 0       | -    | 0.2*VDD | V    |

**Table 7 - Electrical Characteristics**



## 5.2.2 LED Backlight Specification

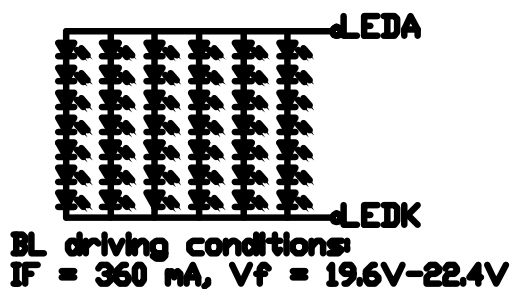


Figure 1 - LED Circuit Diagram

| Item              | Symbol   | Min.  | Typ. | Max. | Unit  | Note   |
|-------------------|----------|-------|------|------|-------|--------|
| Supply Voltage    | $V_f$    | 19.6  | 21   | 22.4 | V     | Note 1 |
| Supply Current    | $I_f$    | -     | 360  | -    | mA    | Note 2 |
| Power Dissipation | $P_{BL}$ | -     | 7.6  | -    | W     |        |
| Lifetime          | -        | 30000 | -    | -    | hours | Note 3 |
| Backlight Color   | White    |       |      |      |       |        |

Table 8 - LED Backlight Specification

**Note:**

1. The LED supply voltage is specified based on the number of LEDs at  $T_a = 25^\circ\text{C}$  and  $I_f = 360 \text{ mA}$ .
2. The LED current is measured with a high-frequency current meter, as shown below.

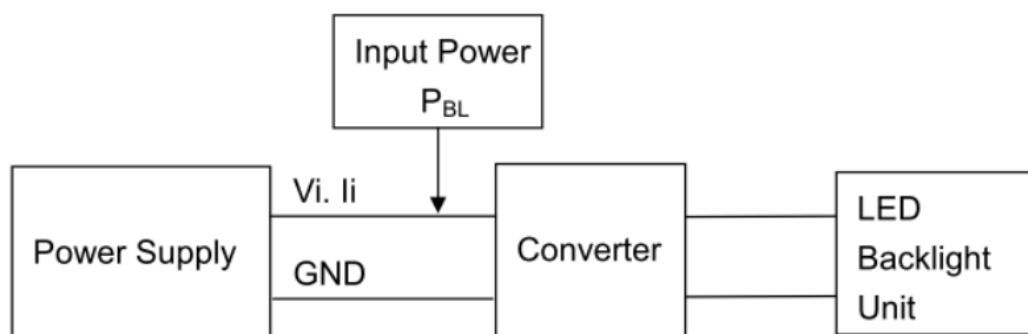


Figure 2 - LED Current Measurement Setup

3. LED lifetime is defined as the duration until the module brightness drops to 50% of its initial value at  $T_a = 25^\circ\text{C}$  and  $I_f = 360 \text{ mA}$ . Exceeding an operating current of 360 mA may shorten the lifetime.

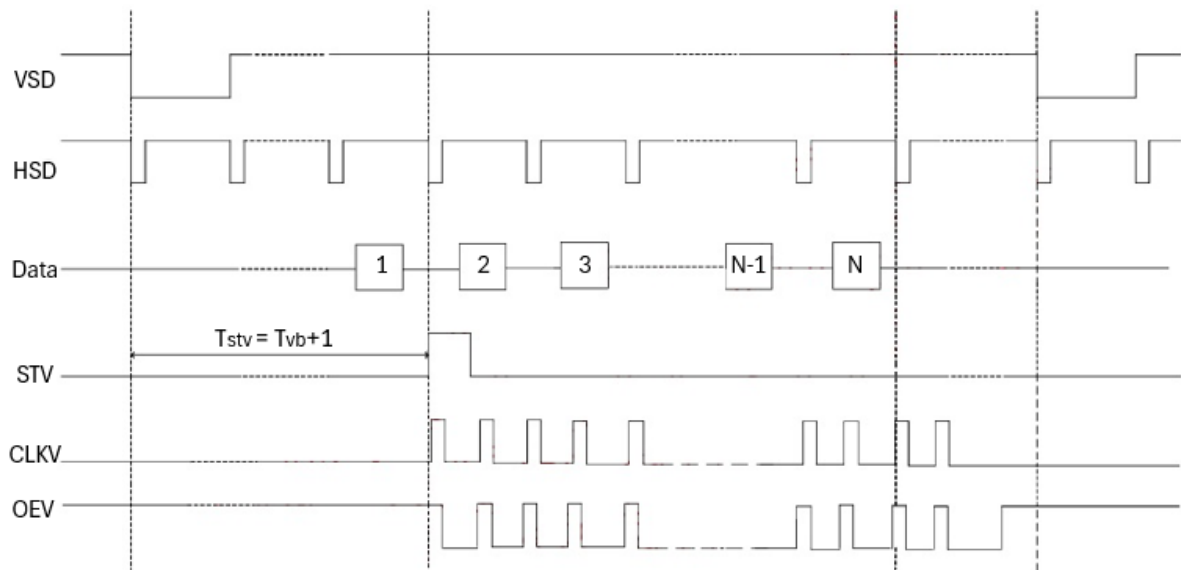
## 5.3 Timing Characteristics

### 5.3.1 LVDS Input Timing

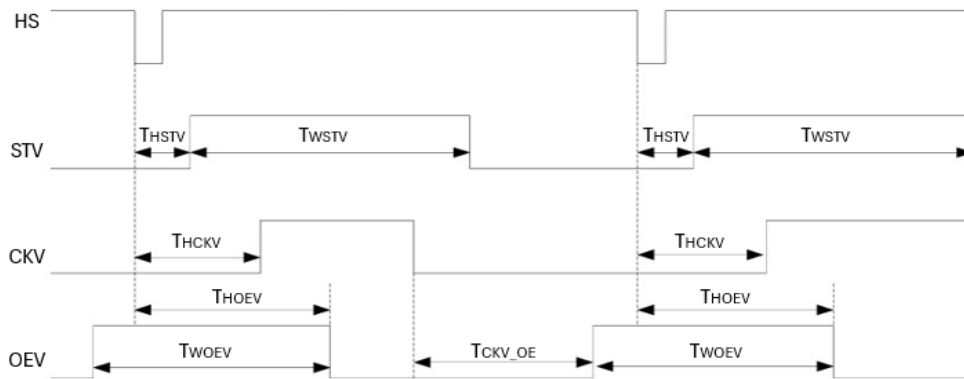
| Item                                | Symbol     | Values |      |      | Unit |
|-------------------------------------|------------|--------|------|------|------|
|                                     |            | Min.   | Typ. | Max. |      |
| DCLK Frequency (Frame rate=60Hz)    | $F_{DCLK}$ | 66.3   | 72.4 | 78.9 | MHz  |
| HSYNC Period Time                   | $T_H$      | 1380   | 1440 | 1500 | DCLK |
| Horizontal Display Area             | $T_{HD}$   | 1280   |      |      | DCLK |
| HSYNC Pulse Width                   | $T_{HPW}$  | 1      | -    | 40   | DCLK |
| HSYNC Back Porch (with pulse width) | $T_{HBP}$  | 88     | 88   | 88   | DCLK |
| HSYNC Front Porch                   | $T_{HFP}$  | 12     | 72   | 132  | DCLK |
| VSYNC Period Time                   | $T_V$      | 824    | 838  | 872  | H    |
| Vertical Display Area               | $T_{VD}$   | 800    |      |      | H    |
| VSYNC Pulse Width                   | $T_{VPW}$  | 1      | -    | 20   | H    |
| VSYNC Back Porch (with pulse width) | $T_{VBP}$  | 23     | 23   | 23   | H    |
| VSYNC Front Porch                   | $T_{VFP}$  | 1      | 15   | 49   | H    |

**Table 9 - LVDS Input Timing**

### 5.3.2 Gate Output Timing



**Figure 3 -Vertical Output Timing**

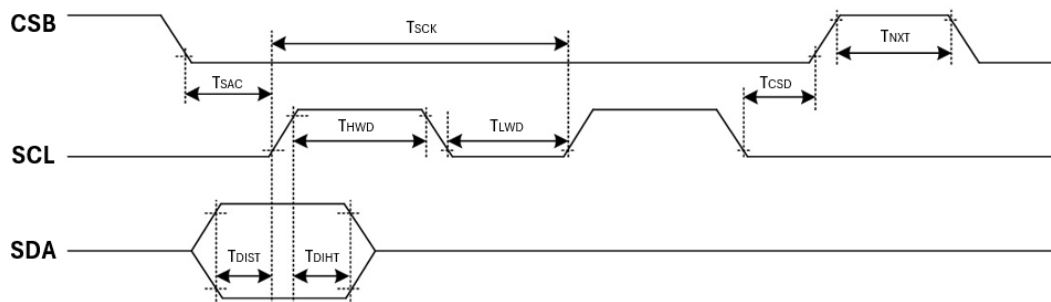

**Figure 4 - Gate Output Timing**

 Condition:  $V_{DD}=2.3$  to  $3.6V$ ,  $V_{SS}=V_{SSA}=V_{SS\_IF}=0V$ ,  $T_a=-20$  to  $85^{\circ}C$ 

| Item                 | Symbol        | Values |      |      | Unit |
|----------------------|---------------|--------|------|------|------|
|                      |               | Min.   | Typ. | Max. |      |
| STV Pulse Width      | $T_{WSTV}$    | -      | 1    | -    | H    |
| Time from HSD to STV | $T_{HSTV}$    | -      | 2    | -    | DCLK |
| Time from HSD to CKV | $T_{HCKV}$    | -      | 25   | -    | DCLK |
| Time from HSD to OEV | $T_{HOEV}$    | -      | 35   | -    | DCLK |
| Time from CKV to OEV | $T_{CKV\_OE}$ | -      | 168  | -    | DCLK |
| OEV Pulse Width      | $T_{WOEV}$    | -      | 188  | -    | DCLK |

**Table 10 - Gate Output Timing**

### 5.3.3 Serial Interface Characteristics


**Figure 5 - Serial Interface Characteristics**

| Item                                  | Symbol     | Values |      |      | Unit |
|---------------------------------------|------------|--------|------|------|------|
|                                       |            | Min.   | Typ. | Max. |      |
| CSB assertion to first clock edge     | $T_{SAC}$  | 120    | -    | -    | ns   |
| CSB de-assertion from last clock edge | $T_{CSD}$  | 120    | -    | -    | ns   |
| CSB next control enable               | $T_E$      | 200    | -    | -    | ns   |
| SCL period time                       | $T_{SCK}$  | 200    | -    | -    | ns   |
| SCL high period time                  | $T_{HWD}$  | 100    | -    | -    | ns   |
| SCL low period time                   | $T_{LWD}$  | 100    | -    | -    | ns   |
| SDA input data setup time             | $T_{DIST}$ | 50     | -    | -    | ns   |
| SDA input data hold time              | $T_{DIHT}$ | 50     | -    | -    | ns   |

**Table 11 - Serial Interface Characteristics**

### 5.3.4 RESETB Timing

When RESETB is held low, the device enters the reset state and reverts to its initial settings. An integral mechanism ensures that resets occur only when intended, preventing false triggers due to noise.

The minimum low pulse width required to trigger a reset is shown below.

Condition: VDDIO=2.3 to 3.6V, VSS=0V, T<sub>a</sub>=-20 to 85°C

| Item                  | Symbol | Values |      |      | Unit |
|-----------------------|--------|--------|------|------|------|
|                       |        | Min.   | Typ. | Max. |      |
| Reset Low Pulse Width | Trst   | 20     | -    | -    | us   |

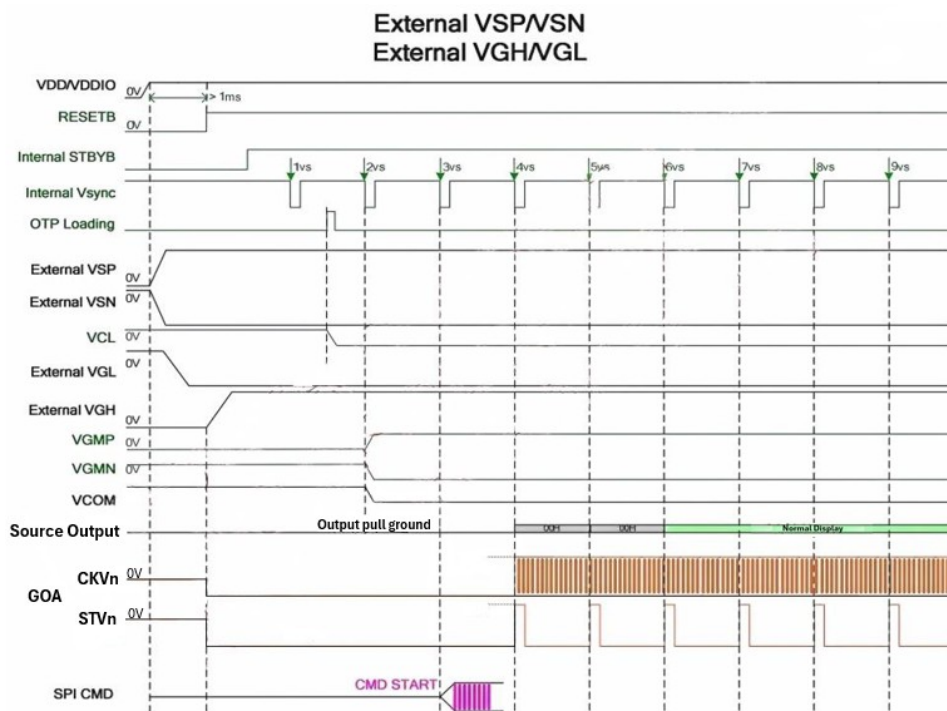
**Table 12 - RESETB Timing**



**Figure 6 - RESETB Timing**

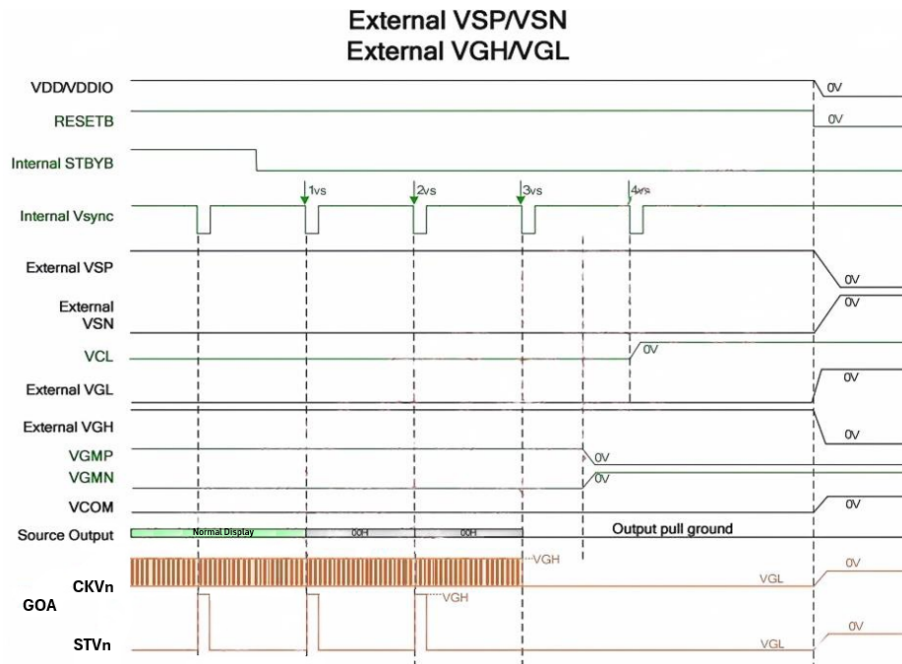
## 5.4 Power Sequence

### 5.4.1 Power ON Sequence



**Figure 7 - Power ON Sequence**

## 5.4.2 Power OFF Sequence



**Figure 8 - Power OFF Sequence**

## 5.5 Optical Specifications

| Item                    | Symbol                          | Condition | Min.         | Typ.  | Max.         | Unit              | Note      |
|-------------------------|---------------------------------|-----------|--------------|-------|--------------|-------------------|-----------|
| Brightness              | Bp                              | If=360mA  | -            | 1000  | -            | Cd/m <sup>2</sup> | Note 1    |
| Uniformity              | ΔBp                             |           | 70           | -     | -            | %                 | Note 1, 2 |
| Viewing Angle           | 3:00                            | Cr≥10     | -            | 85    | -            | Deg               | Note 1, 2 |
|                         | 6:00                            |           | -            | 85    | -            |                   |           |
|                         | 9:00                            |           | -            | 85    | -            |                   |           |
|                         | 12:00                           |           | -            | 85    | -            |                   |           |
| Contrast Ratio          | Cr                              | θ=0°      | 800          | 1000  | -            | -                 | Note 3, 4 |
| Response Time           | T <sub>r</sub> + T <sub>f</sub> | Φ=0°      | -            | 25    | 35           | ms                | Note 4, 5 |
| Color of CIE Coordinate | W                               | x         | Typ<br>-0.05 | 0.303 | Typ<br>+0.05 | -                 | Note 1    |
|                         |                                 | y         |              | 0.313 |              | -                 |           |
|                         | R                               | x         |              | 0.578 |              | -                 |           |
|                         |                                 | y         |              | 0.345 |              | -                 |           |
|                         | G                               | x         |              | 0.368 |              | -                 |           |
|                         |                                 | y         |              | 0.568 |              | -                 |           |
|                         | B                               | x         |              | 0.149 |              | -                 |           |
|                         |                                 | y         |              | 0.094 |              | -                 |           |
| NTSC Ratio              | S                               |           | -            | 50    | -            | %                 |           |

**Table 13 - Optical Specifications**

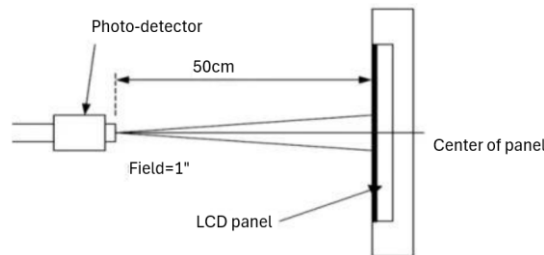
**Remark:** Parameters may vary slightly with changes in temperature, driving voltage, and material.

**Note:**

1. Data was measured after the LEDs were turned on for 5 minutes with the LCM displaying full white. Brightness represents the average of 9 measured points. Measurement equipment: CA310

Measuring Conditions:

- Environment: Dark room
- Temperature:  $T_a = 25^\circ\text{C}$
- Operating voltage adjusted to achieve optimal contrast at the center of the display
- Values measured at the center point of the LCD panel after the backlight has been ON for more than 5 minutes
- Measurement taken with the touch panel assembled



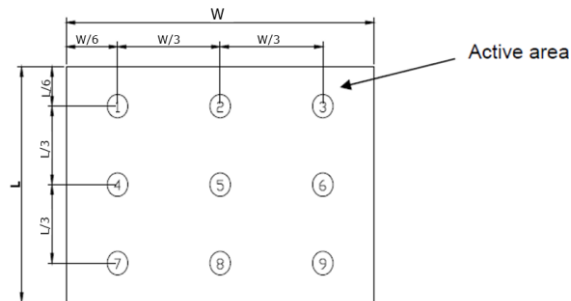
**Figure 9 - Measurement Setup**

2. Luminance uniformity is calculated using the following formula:

$$\Delta Bp = \frac{Bp(\text{Min.})}{Bp(\text{Max.})} \times 100\%$$

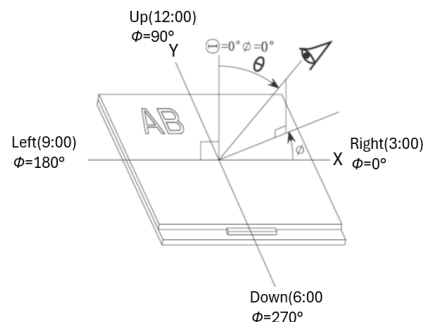
$Bp(\text{Max.})$  = Maximum brightness in 9 measured spots

$Bp(\text{Min.})$  = Minimum brightness in 9 measured spots



**Figure 10 - Measurement Point**

3. Definition of viewing angle: As shown in the figure below, represented by  $\theta$  and  $\Phi$ .



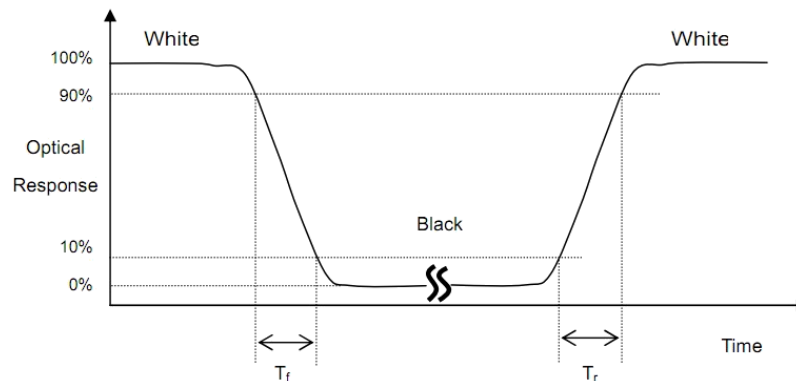
**Figure 11 - Viewing Angle**

4. Definition of contrast ratio: The contrast ratio is measured at a viewing angle of  $\Theta = 0^\circ$  and at the center of the LCD surface. Luminance is recorded with all pixels set first to the white state and then to the black (dark) state.

$$\text{Contrast ratio, Cr} = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$$

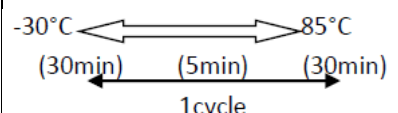
5. Definition of response time.

The output signals of the photo detector are measured when the input signal transitions from "black" to "white" (falling time) and from "white" to "black" (rising time). The response time is defined as the time interval between 10% and 90% of the signal amplitude. Refer to the figure below for illustration.



**Figure 12 - Definition of Response Time**

## 6 Reliability Test Items

| Test Item                   | Test Conditions                                                                                                                   | Inspection After Test                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High Temperature Storage    | +80°C±2°C 240hrs                                                                                                                  | Inspection after 2~4hours of storage at room temperature, the samples shall be free from defects.:<br>1. Air bubble in the LCD<br>2. Seal leak<br>3. Non-display<br>4. Missing segments<br>5. Glass crack<br>6. Current IDD is more than twice the initial value<br>7. The surface shall be free from damage<br>8. The electrical characteristic requirements shall be met<br>9. Brightness reduction exceeding 50% shall not occur |
| Low Temperature Storage     | -30°C±2°C 240hrs                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| High Temperature Operation  | +70°C±2°C 240hrs                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Low Temperature Operation   | -20°C±2°C 240hrs                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Temperature Cycle (Storage) | -30°C /30 min ~ +80°C /30 min for 10 cycles<br> |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Damp Proof Test (storage)   | +60°C±5°C 96hrs<br>90% RH                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                     |

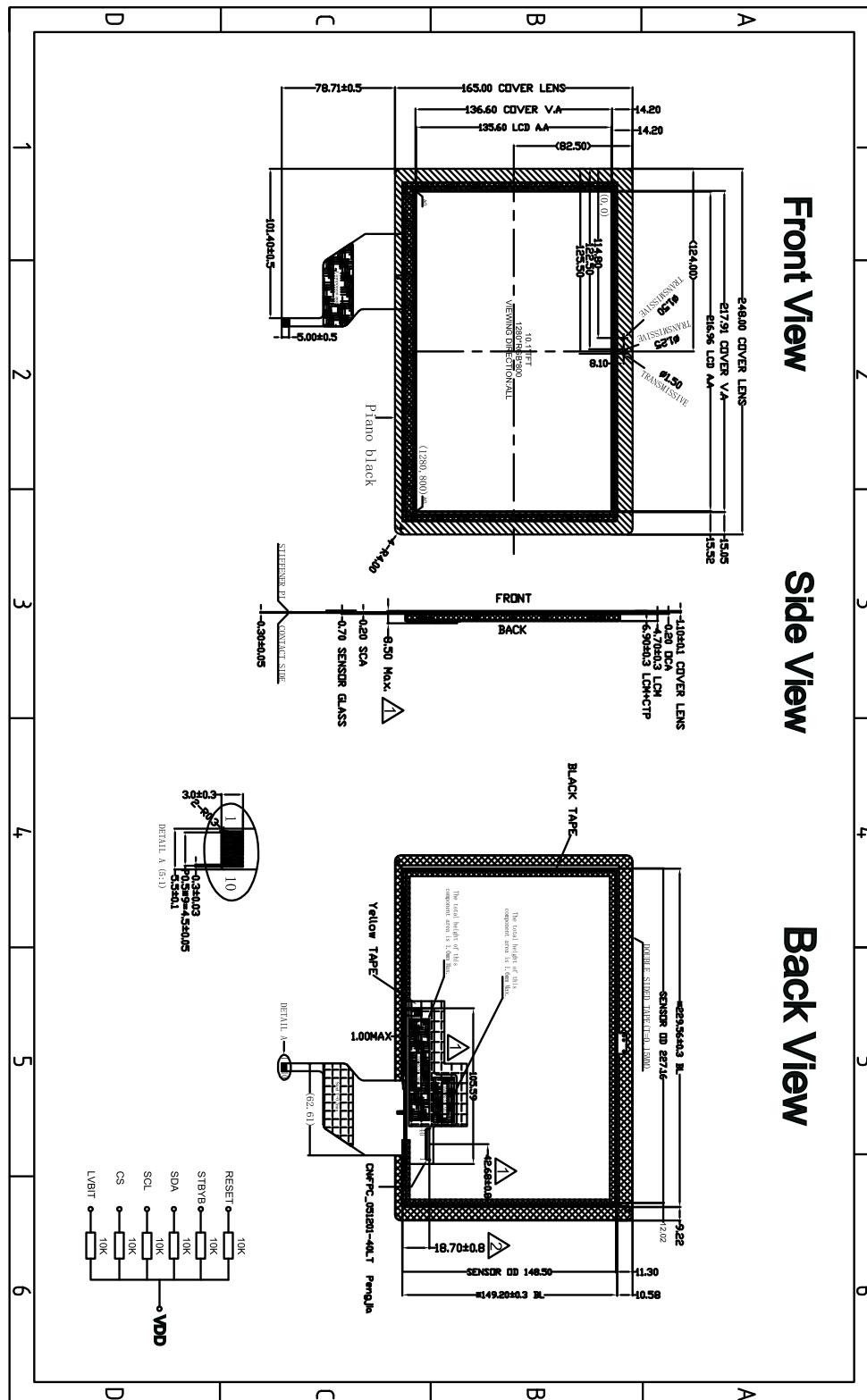
**Table 14 - Reliability Test Items**

### **Note:**

1. Test samples shall be used for only one test item.
2. The sample quantity for each test item shall be 5~10 pcs.
3. For the Damp Proof Test, use pure water with a resistance >10 MΩ.
4. If a malfunction caused by ESD damage is resolved and the device returns to normal operation after resetting, it shall be considered acceptable.
5. EL evaluation shall be considered acceptable during reliability testing under humidity and temperature conditions. Minor defects, such as black spots or blemishes, may appear due to natural chemical reactions with humidity or the inherent properties of fluorescent EL material.
6. Failure Judgment Criteria: Based on the basic specifications, including Electrical, Mechanical, and Optical Characteristics.



## 7 Dimensions



### Figure 13 - LCM Dimensions

## **8 Disclaimer Notice: Use of Third-Party Software or Websites**

We may recommend use of software or web sites that are owned or operated by other companies. We offer or facilitate this recommendation by hyperlinks or other methods to aid your access to the third-party resource. While we endeavour to direct you to helpful, trustworthy resources, we cannot endorse, approve, or guarantee software, information, products, or services provided by or at a third-party resource or track changes in the resource. Thus, we are not responsible for the content or accuracy of any third-party resource or for any loss or damage of any sort resulting from the use of, or for any failure of, products or services provided at or from a third-party resource.

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## 9 Warranty Statement

According to our after-sales policy, the warranty (if applicable) will be void under the following circumstances:

- The device has been damaged due to human factors, such as dropping, impact, water exposure, or unauthorized disassembly/modification.
- The device has malfunctioned due to improper use, mishandling, or usage beyond its intended design.
- The device has been disassembled, repaired, or modified by unauthorized personnel.
- Any other conditions that do not comply with our warranty policy. For details, please [contact our sales team](#).

## 10 Contact Information

Refer to <https://brtchip.com/contact-us/> for contact information.

### Distributor and Sales Representatives

Please visit the [Distribution Network – IC & Module](https://brtchip.com/distribution-network/) (brtchip.com) page for the contact details of our distributor(s) and sales representative(s) in your country.

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## Appendix A – References

### Document References

NA

### Acronyms and Abbreviations

| Terms | Description                        |
|-------|------------------------------------|
| CTP   | Capacitive Touch Panel             |
| DC    | Direct Current                     |
| FPC   | Flexible Printed Circuit           |
| IC    | Integrated Circuit                 |
| I2C   | Inter-Integrated Circuit           |
| LCD   | Liquid Crystal Display             |
| LCM   | Liquid Crystal Module              |
| LED   | Light Emitting Diode               |
| LEDA  | Light Emitting Diode Anode         |
| LEDK  | Light Emitting Diode Cathode       |
| LVDS  | Low-Voltage Differential Signaling |
| TFT   | Thin Film Transistor               |

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## Appendix C – Revision History

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Document Feedback: [Send Feedback](#)

| Revision    | Changes                        | Date       |
|-------------|--------------------------------|------------|
| Version 1.0 | Initial Release                | 29-09-2025 |
| Version 1.1 | Revised optical specifications | 26-02-2026 |