上海冠显光电科技有限公司
Shanghai Top Display Optoelectronics Co., LTD

# AMOLED MODULE SPECIFICATION

**Customer:** _____

**Module No.:** TA066FHV01-V2049A

**Date:** 2026-03-26

**Version:** 1.0

■ **Pre-Specification for parameter checking**

□ **Final-Specification for sample approval**

**For Customer's Acceptance:**

| Approved by | Comment |
|---|---|
| | |

| Approved by | Checked by | Prepared by |
|---|---|---|
| Jian.Chen | Jin.Zhou | Ruipan.Zhao |

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# Record of Revision

| Rev. | Date | Description | Editor |
|---|---|---|---|
| 1.0 | 2026-03-26 | First release | Ruipan.Zhao |
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# 1 General Specifications

| Feature | | Spec | Remark |
|---|---|---|---|
| Display Spec | Screen Size (inch) | 6.67 | |
| | Display Mode | AMOLED | |
| | Resolution(dot) | 1080(W) x 2400(H)<br>actual display 1080(W) x 2240(H) | |
| | Active Area(mm) | Follow drawing | |
| | Pixel Pitch (um) | 66.46 | |
| | Pixel Configuration | \ | |
| | Color Depth | 8 bit | |
| | Interface | MIPI | |
| Mechanical Characteristics | Polarizer Surface Treatment | Hard Coating Polarizer | |
| | With TP/Without TP | Without TP | |
| | Module Outline Dimension(W x H x D) (mm) | 71.452(W) x 156.640(H) x 0.231（D） | Excluding Cover lens |
| Electronic | Driver IC(Type) | RM692E5 | |
| | Frame Rate | Normal 60Hz / AOD 30Hz | |

Note 1: Requirements on Environmental Protection: RoHS.

# 2 Pin Assignment

## 2.1 Main FPC Pin Assignment

FPC connector: BK13C06-40DP/2-0.35V(865) (HIROSE).

Main board recommended connector: BK13C06-40DS/2-0.35V(865) (HIROSE).

| PIN | Symbol | I/O | Description | Remark |
|---|---|---|---|---|
| Side | ELVDD | P | Positive power supply for EL | |
| 1 | ELVSS | P | Negative power supply for EL | |
| 3 | ELVSS | P | Negative power supply for EL | |
| 5 | burn in | I/O | for Amoled demura used NC if not used; | |
| 7 | AVDD | P | AMOLED Charge pumping Power for Driver IC | |
| 9 | burn in | I/O | for Amoled demura used NC if not used; | |
| 11 | burn in | I/O | for Amoled demura used NC if not used; | |
| 13 | burn in | I/O | for Amoled demura used NC if not used; | |
| 15 | RST | I/O | Display reset | |
| 17 | TE | I/O | Tearing effect signal | |
| 19 | ELVDD_EN | I/O | Enable Vpos(ELVDD) and Vneg(ELVSS) for DC/DC IC | |
| 21 | TP_RST | I/O | Touch reset | |
| 23 | TP_INT2 | I/O | Touch INT Signal for Fingerprint | |
| 25 | TP_MISO | I/O | Touch MISO for SPI I/F | |
| 27 | TP_MOSI | I/O | Touch MOSI for SPI I/F | |
| 29 | TP_CS | I/O | Touch chip select for SPI I/F | |
| 31 | TP_CLK | I/O | Touch CLK for SPI I/F | |
| 33 | TP_INT | I/O | Touch interrupt | |
| 35 | TP_VDD | I/O | Touch logic power | |
| 37 | VPP | P | OTP power supply; NC if not used; | |
| 39 | TP_VCI | P | Touch analog power | |
| Side | GND | P | Ground | |
| | | | | |
| Side | ELVDD | P | Positive power supply for EL | |
| 2 | AMOLED_VCI | P | AMOLED analog power for DDIC | |
| 4 | ID1 | I/O | ID1 | |
| 6 | AMOLED_VDD | P | AMOLED logic power for DDIC | |
| 8 | AVDD_EN | I/O | Enable AVDD(VLIN) for DC/DC IC | |
| 10 | AMOLED_VDDD | P | AMOLED VDDD power for DDIC | |
| 12 | ID2 | I/O | ID2 | |
| 14 | MIPI_2_P | I/O | MIPI Data | |
| 16 | MIPI_2_N | I/O | MIPI Data | |

| | | | | |
|---|---|---|---|---|
| 18 | GND | P | Ground | |
| 20 | MIPI_1_P | I/O | MIPI Data | |
| 22 | MIPI_1_N | I/O | MIPI Data | |
| 24 | GND | P | Ground | |
| 26 | MIPI_C_P | I/O | MIPI Clock | |
| 28 | MIPI_C_N | I/O | MIPI Clock | |
| 30 | GND | P | Ground | |
| 32 | MIPI_0_P | I/O | MIPI Data | |
| 34 | MIPI_0_N | I/O | MIPI Data | |
| 36 | GND | P | Ground | |
| 38 | MIPI_3_P | I/O | MIPI Data | |
| 40 | MIPI_3_N | I/O | MIPI Data | |
| Side | GND | P | Ground | |

I---Input, O---Output, P--- Power/Ground

## 3 Absolute Maximum Ratings

Ta = 25℃

| Item | Symbol | Min. | Max. | Unit | Remark |
|---|---|---|---|---|---|
| Power Voltage | DVDD | -0.30 | +5.5 | V | |
| | VCI | -0.30 | +5.5 | V | |
| | VDDIO | -0.30 | +5.5 | V | |
| Operating Temperature | Top | -20.0 | 70.0 | ℃ | |
| Storage Temperature | $T_{st}$ | -30.0 | 80.0 | ℃ | |
| Operating and Storage Humidity | $H_{stg}$ | 10% | 90% | %(RH) | |

## 4. Electrical Characteristics

### 4.1 Recommended Operating Condition

VCI=3.3V， GND=0V， Ta = 25℃

| Item | | Symbol | Min. | Typ. | Max. | Unit | Remark |
|---|---|---|---|---|---|---|---|
| PMIC Power Voltage | | DVDD | 1.1 | 1.2 | 1.25 | V | |
| Digital supply Voltage | | VDDIO | 1.65 | 1.8 | 1.95 | V | |
| Analog supply Voltage | | VCI | 2.6 | 3.0 | 3.6 | V | |
| Input Signal Voltage | Low Level | $V_{IL}$ | 0 | - | 0.3 x VDDIO | V | |
| | High Level | $V_{IH}$ | 0.7 x VDDIO | - | VDDIO | V | |

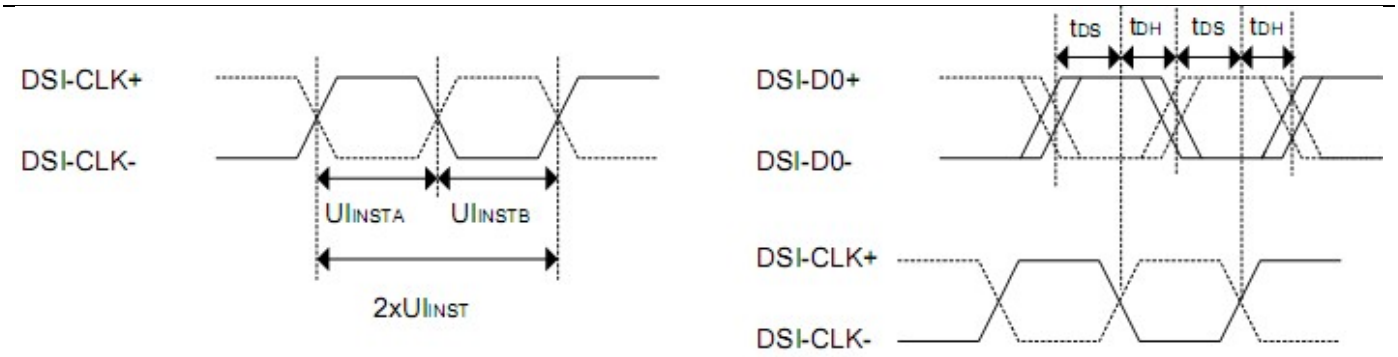
| | | | | | | |
|---|---|---|---|---|---|---|
| Current of Power Voltage | DVDD | - | TBD | | mA | 350 nits @Gray 255 |
| Current of digital supply voltage | $I_{VDDIO}$ | - | TBD | | mA | |
| Current of analog supply voltage | $I_{VCI}$ | - | TBD | | mA | VCI=3.3V, @Gray 255 |

Timing Chart

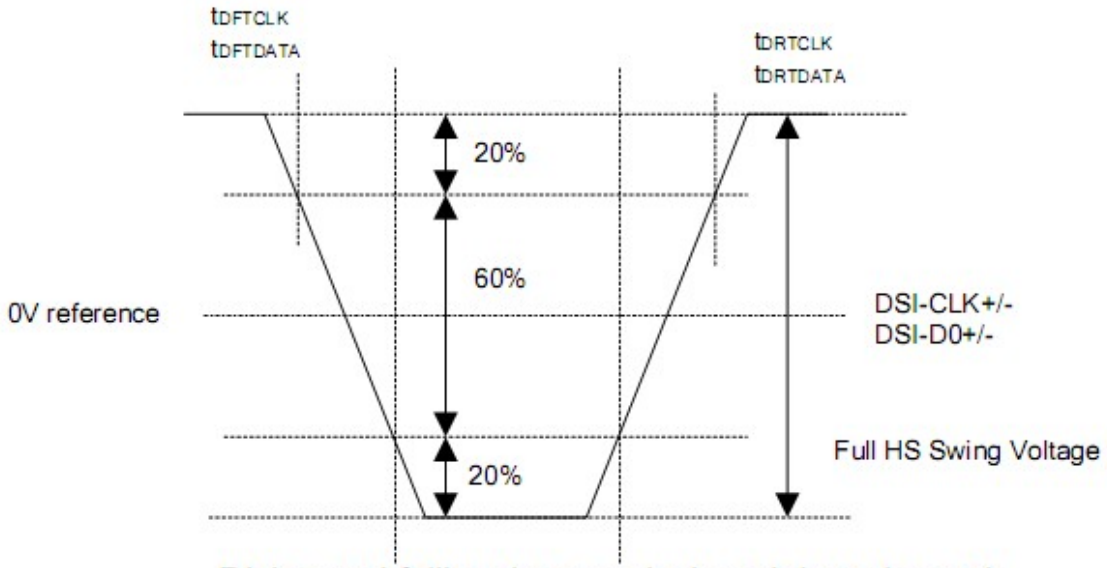
## 5.1 DSI Interface Timing Characteristics

High Speed Mode

| Signal | Symbol | Parameter | Min. | Typ. | Max. | Unit | Description |
|---|---|---|---|---|---|---|---|
| DSI-CLK+/- | $2\times UI_{INST}$ | Double UI instantaneous | 1.66 | - | TBD | ns | |
| DSI-CLK+/- | $UI_{INSTA}$ $UI_{INSTB}$ | UI instantaneous halves ($UI = UI_{INSTA} = UI_{INSTB}$) | 0.83 | - | TBD | ns | |
| DSI-Dn+/- | $t_{DS}$ | Data to clock setup time | 0.15×UI | - | - | ps | |
| DSI-Dn+/- | $t_{DH}$ | Data to clock hold time | 0.15×UI | - | - | ps | |
| DSI-CLK+/- | $t_{DRTCLK}$ | Differential rise time for clock | 150 | - | 0.3×UI | ps | |
| DSI-Dn+/- | $t_{DRTDATA}$ | Differential rise time for data | 150 | - | 0.3×UI | ps | |
| DSI-CLK+/- | $t_{DFTCLK}$ | Differential fall time for clock | 150 | - | 0.3×UI | ps | |
| DSI-Dn+/- | $t_{DFTDATA}$ | Differential fall time for data | 150 | - | 0.3×UI | ps | |



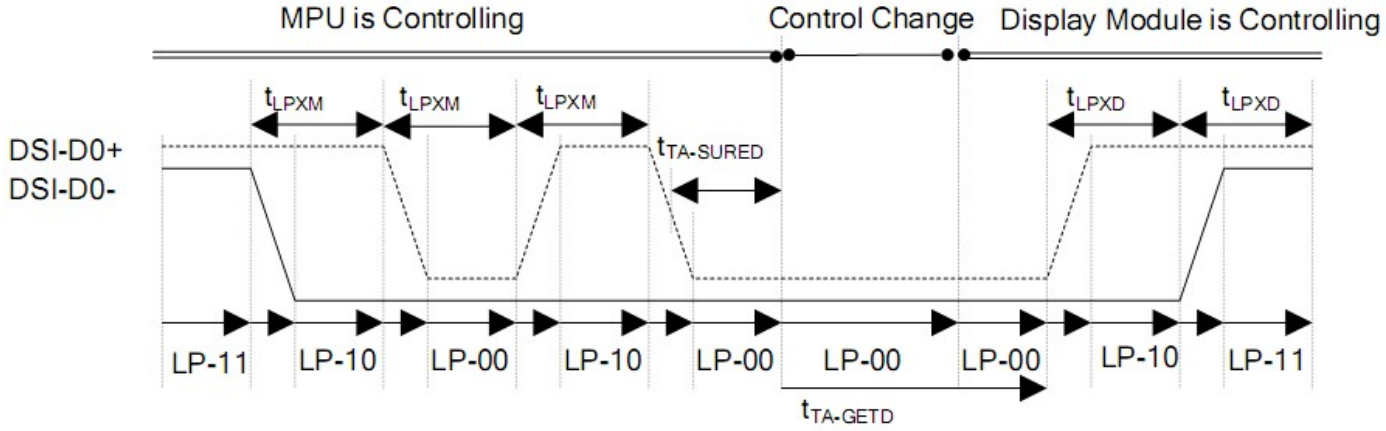

DSI clock channel timing



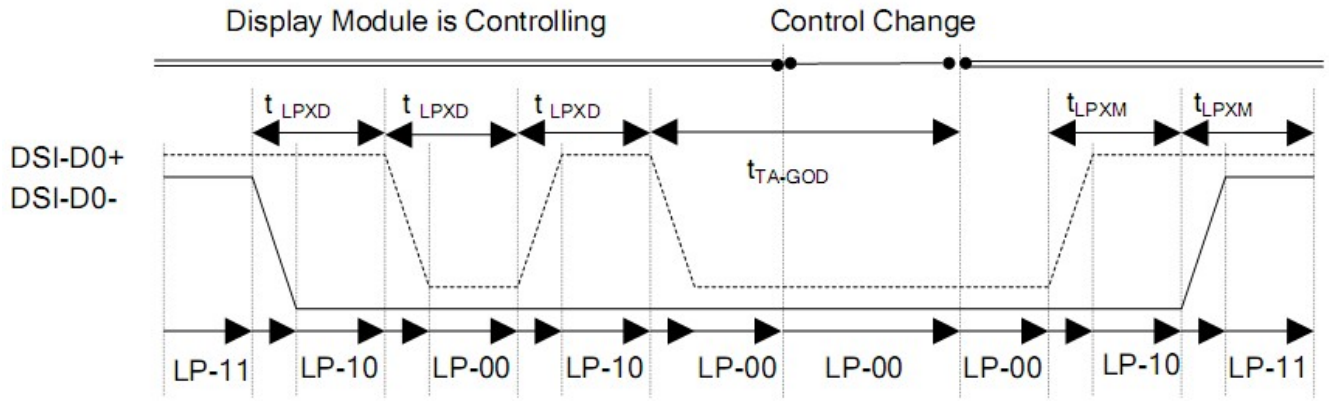

Rising and falling time on clock and data channel

Low Power Mode

| Signal | Symbol | Parameter | Min. | Typ. | Max. | Unit | Description |
|---|---|---|---|---|---|---|---|
| DSI-D0+/- | $t_{LPXM}$ | Length of LP-00, LP-01, LP-10 or LP-11 periodsMPU → Display Module | 50 | - | 75 | ns | Input |
| DSI-D0+/- | $t_{LPXD}$ | Length of LP-00, LP-01, LP-10 or LP-11periodsDisplay Module → MPU | 50 | - | 75 | ns | Output |
| DSI-D0+/- | $t_{TA-SURED}$ | Time-out before the MPU start driving | $t_{LPXD}$ | - | $2\times t_{LPXD}$ | ns | Output |
| DSI-D0+/- | $t_{TA-GETD}$ | Time to drive LP-00 by display module | $5\times t_{LPXD}$ | - | - | ns | Input |
| DSI-D0+/- | $t_{TA-GOD}$ | Time to drive LP-00 after turnaround request - MPU | $4\times t_{LPXD}$ | - | - | ns | Output |



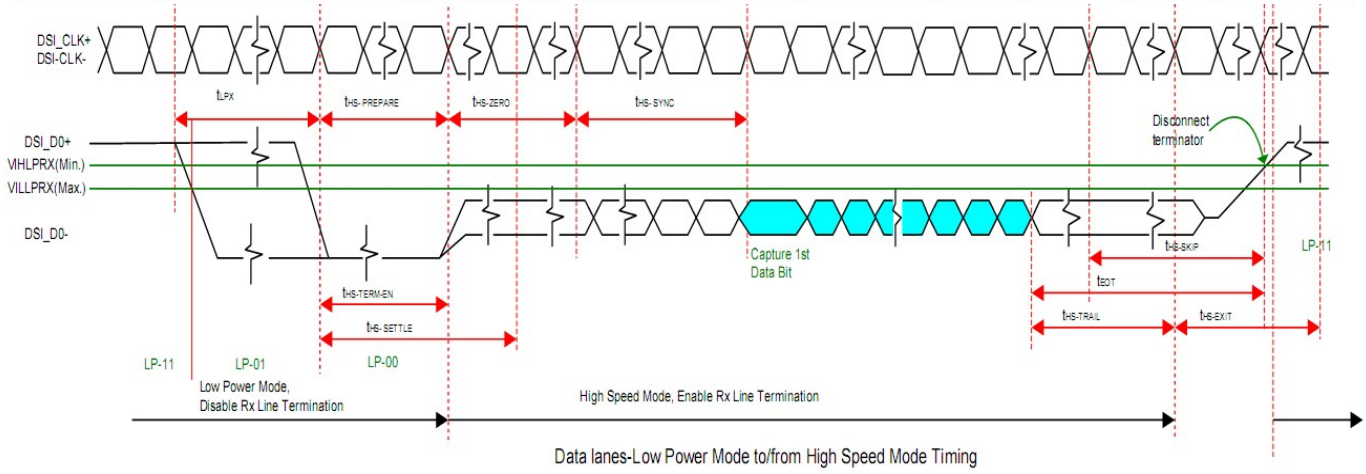

Bus Turnaround (BAT) from MPU to display module Timing



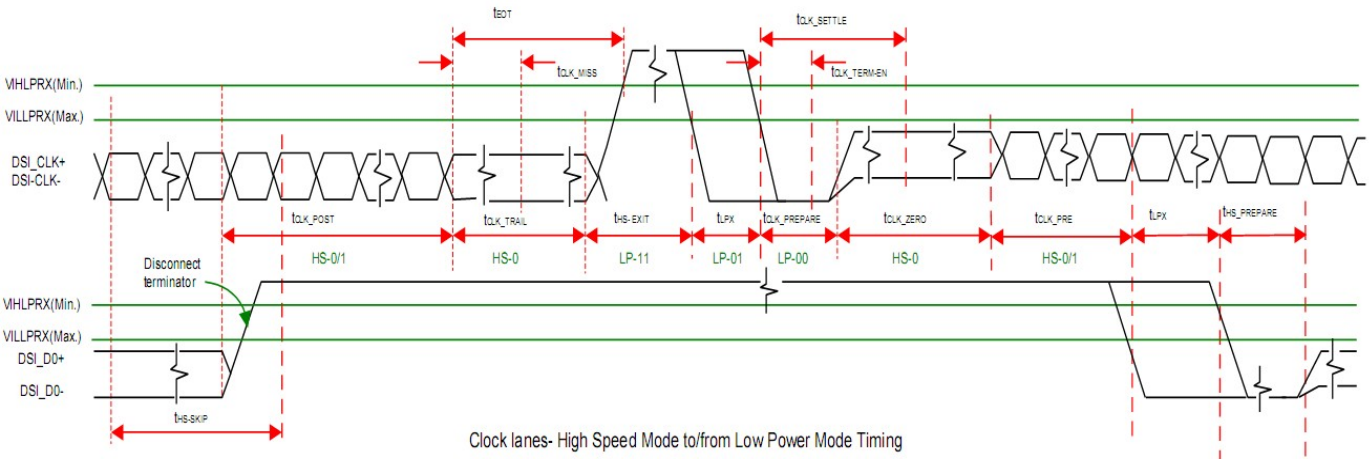

Bus Turnaround (BAT) from display module to MPU Timing

DSI Bursts

| Signal | Symbol | Parameter | Min. | Typ. | Max. | Unit | Description |
|---|---|---|---|---|---|---|---|
| Low Power Mode to High Speed Mode Timing | | | | | | | |
| DSI-Dn+/- | $t_{LPX}$ | Length of any low power state period | 50 | - | - | ns | Input |
| DSI-Dn+/- | $t_{HS-PREPARE}$ | Time to drive LP-00 to prepare for HS transmission | 40+4×UI | - | 85+6×UI | ns | Input |
| DSI-Dn+/- | $t_{HS-TERM-EN}$ | Time to enable data receiver line termination measured from when Dn crosses $V_{ILMAX}$ | - | - | 35+4×UI | ns | Input |
| High Speed Mode to Low Power Mode Timing | | | | | | | |
| DSI-Dn+/- | $t_{HS-SKIP}$ | Time-out at display module to ignore transition period of EoT | 40 | - | 55+4×UI | ns | Input |
| DSI-Dn+/- | $t_{HS-EXIT}$ | Time to drive LP-11 after HS burst | 100 | - | - | ns | Input |
| DSI-Dn+/- | $t_{HS-TRAIL}$ | Time to drive flipped differential state after last payload data bit of a HS transmission burst | 60+4×UI | - | - | ns | Input |
| High Speed Mode to/from Low Power Mode timing | | | | | | | |
| DSI-CLK+/- | $t_{CLK-POS}$ | Time that the MPU shall continue sending HS clock after the last associated data lane has transition to LP mode | 60+52×UI | - | - | ns | Input |
| DSI-CLK+/- | $t_{CLK-TRAIL}$ | Time to drive HS differential state after last payload clock bit of a HS transmission burst | 60 | - | - | ns | Input |
| DSI-CLK+/- | $t_{HS-EXIT}$ | Time to drive LP-11 after HS burst | 100 | - | - | ns | Input |
| DSI-CLK+/- | $t_{CLK-PREPARE}$ | Time to drive LP-00 to prepare for HS transmission | 38 | - | 95 | ns | Input |
| DSI-CLK+/- | $t_{CLK-TERM-EN}$ | Time-out at clock lane display module to enable HS transmission | - | - | 38 | ns | Input |
| DSI-CLK+/- | $t_{CLK-PREPARE}$ +$t_{CLK-ZERO}$ | Minimum lead HS-0 drive period before starting clock | 300 | - | - | ns | Input |
| DSI-CLK+/- | $t_{CLK-PRE}$ | Time that the HS clock shall be driven prior to any associated data lane beginning the transition from LP to HS mode | 8×UI | - | - | ns | Input |




Data lanes-Low Power Mode to/from High Speed Mode Timing




Clock lanes- High Speed Mode to/from Low Power Mode Timing

## 5.2 Recommended Timing Setting of TCON

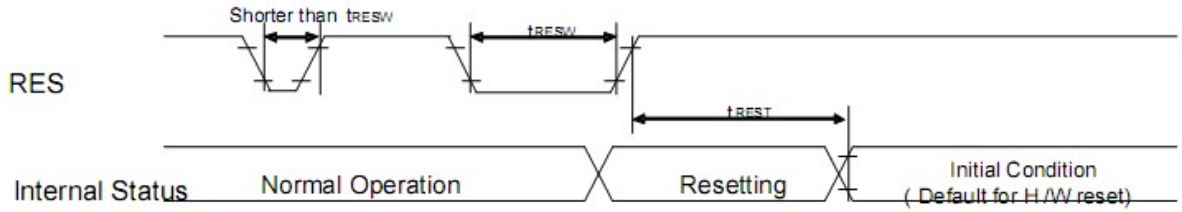
TCON (Embedded in Source IC) Input Timing (DCLK, HS, VS, DE)

VCI=3.0V, GND=0V, Ta=25℃

| | |
|---|---|
| VCLK Active Edge | Video data is fetched at rising edge |
| H Total | 1080 |
| HBP | 92 |
| HFP | 100 |
| HSW | 8 |
| HS polarity | Inverted (active low) |
| Vertical resolution | 2240 |
| VBP | 176 |
| VFP | 2608 |
| VSW | 4 |
| VS polarity | Inverted (active low) |
| VDEN polarity | Normal (active high) |
| MIPI mode | CMD mode |

Note: For reference only, it needs to be adjusted according to the actual display effect.

## 5.3 Reset Input timing

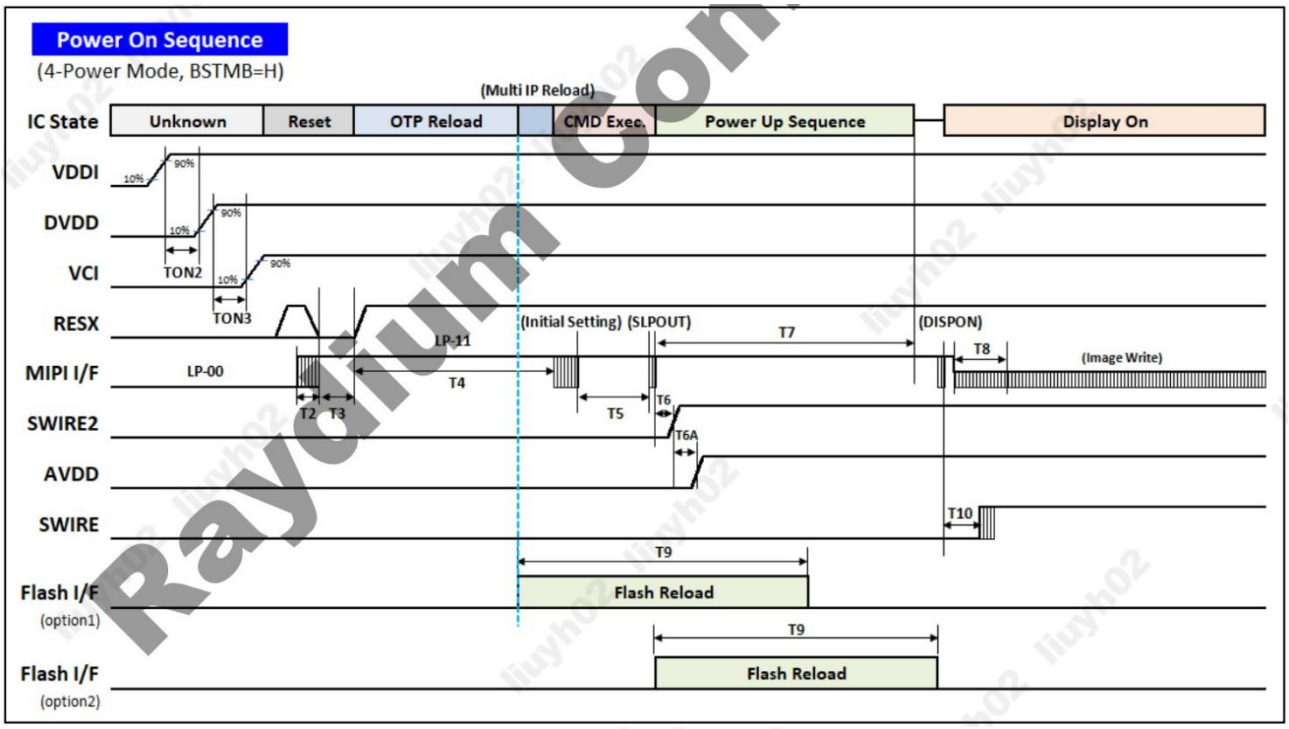


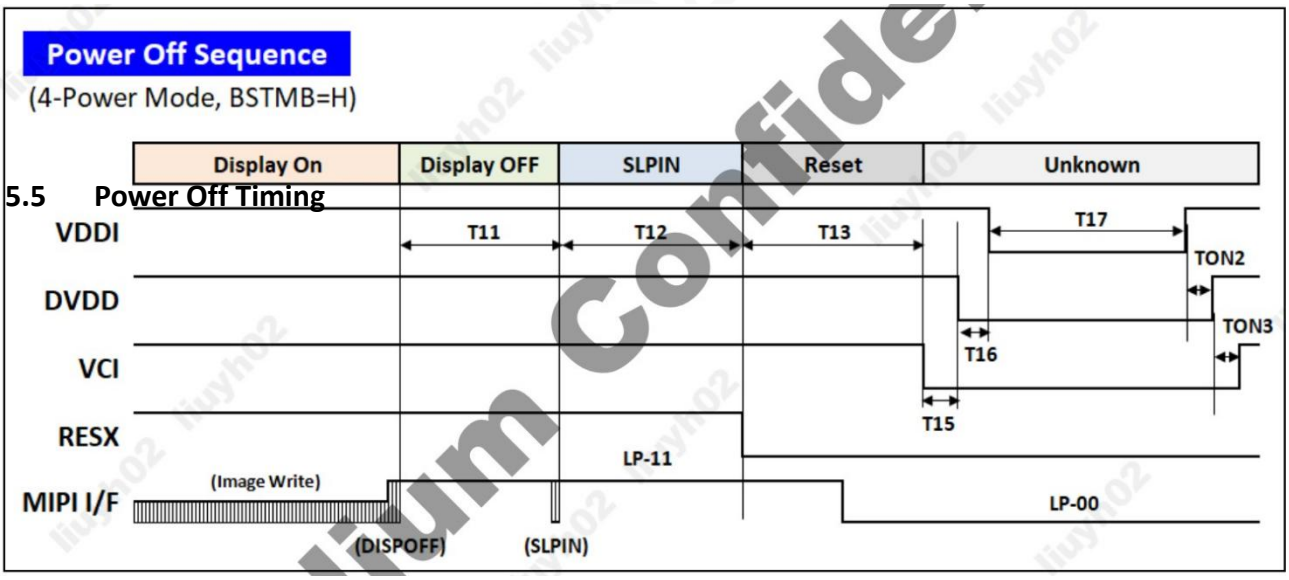

Reset input timing:

IOVCC=1.65 to 3.6V, VDD=2.5 to 3.6V, AGND=DGND=0V, Ta=-40 to 85℃

| Symbol | Parameter | Related Pins | MIN | TYP | MAX | Note | Unit |
|---|---|---|---|---|---|---|---|
| $t_{RESW}$ | *1) Reset low pulse width | RESX | 10 | - | - | - | μs |
| $t_{REST}$ | *2) Reset complete time | - | - | - | 5 | When reset applied during Sleep in mode | ms |
| | | - | | - | 120 | When reset applied during Sleep out mode | ms |

## 5.4 Power On/ OFF Timing




## 5.5 Power Off Timing

Raydium Confidential

## 6 Optical Characteristics

Ta=25℃

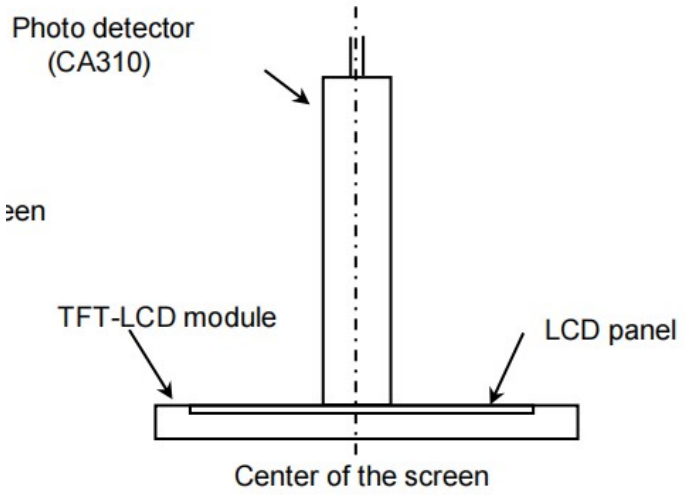
| Item | | Symbol | Condition | Min. | Typ. | Max. | Unit | Remark |
|---|---|---|---|---|---|---|---|---|
| View Angles | | θT | CR≧1000 | 80 | - | - | Degree | Note 2 |
| | | θB | | 80 | - | - | | |
| | | θL | | 80 | - | - | | |
| | | θR | | 80 | - | - | | |
| Contrast Ratio | | CR | θ=0° | 100000 | - | - | | Note1 Note3 |
| Response Time | | $T_{ON}$ | 25℃ | - | - | 2 | ms | Note1 Note4 |
| | | $T_{OFF}$ | | | | | | |
| Chromaticity | White | x | Backlight is on | (0.289) | (0.299) | (0.309) | | Note1 Note5 |
| | | y | | (0.305) | (0.315) | (0.325) | | |
| | Red | x | | (0.654) | (0.684) | (0.714) | | |
| | | y | | (0.286) | (0.316) | (0.346) | | |
| | Green | x | | (0.214) | (0.254) | (0.294) | | |
| | | y | | (0.663) | (0.703) | (0.743) | | |
| | Blue | x | | (0.110) | (0.140) | (0.170) | | |
| | | y | | (0.021) | (0.051) | (0.081) | | |
| Uniformity | | U | | 75 | - | - | % | Note1 Note6 |
| NTSC | | | | 99 | - | - | % | Note 5 |
| Luminance | | L | | 450 | 500 | 550 | $cd/m^2$ | Note1 Note7 |

Test Conditions:

1. The ambient temperature is 25±3℃.humidity is 65±20%RH, Dark Room.
2. The test systems refer to Note 1 and Note 2.

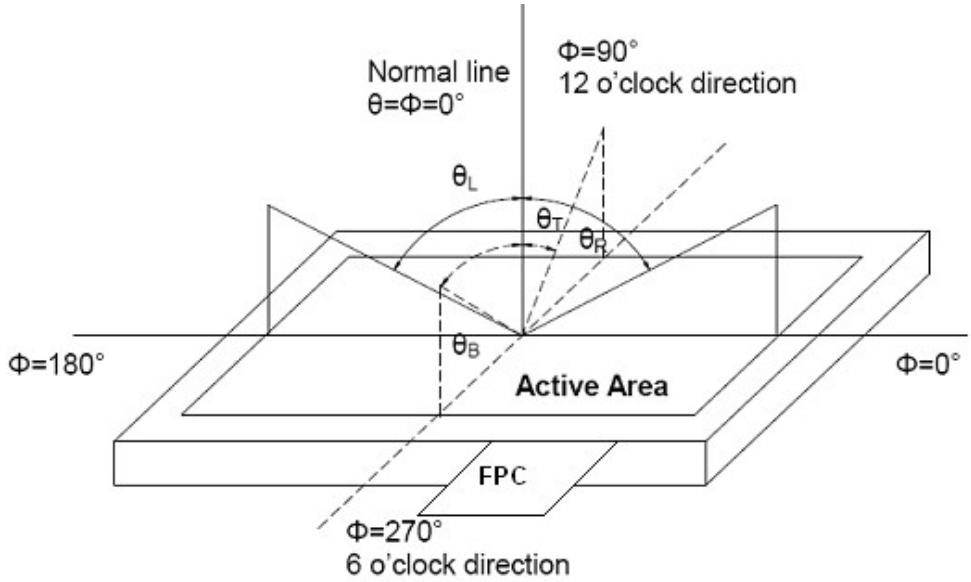
## Note 1: Definition of optical measurement system.

Properties are measured at the center point of the OLED screen. All input terminals OLED panel must be ground when measuring the center area of the panel.




## Note 2: Definition of viewing angle range and measurement system.

Viewing angle is measured at the center point of the OLED by CONOSCOPE(ergo-80)。




## Note 3: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when OLED is on the "White" state}}{\text{Luminance measured when OLED is on the "Black" state}}$$

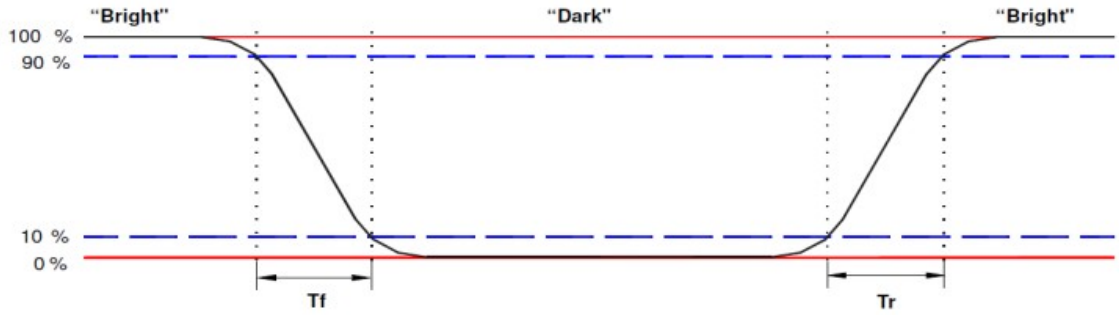
“White state “: The state is that the OLED should drive by Vwhite.

“Black state”: The state is that the OLED should drive by Vblack.

Vwhite: To be determined  Vblack: To be determined.

## Note 4: Definition of response time

The response time is defined as the OLED optical switching time interval between “White” state and “Black” state. Rise time ($T_{ON}$) is the time between photo detector output intensity changed from 90% to 10%. And fall time ($T_{OFF}$) is the time between photo detector output intensity changed from 10% to 90%.




## Note 5: Definition of color chromaticity (CIE1931)

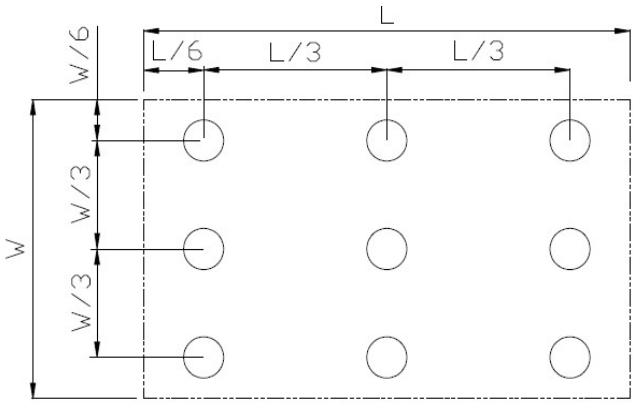
Color coordinates measured at center point of OLED.

## Note 6: Definition of luminance uniformity

Active area is divided into 9 measuring areas (Refer Fig. 2). Every measuring point is placed at the center of each measuring area.

Luminance Uniformity (U) = Lmin/ Lmax

L-------Active area length W----- Active area width




Lmax: The measured Maximum luminance of all measurement position.

Lmin: The measured Minimum luminance of all measurement position.

## Note 7: Definition of luminance:

Measure the luminance of white state at center point.

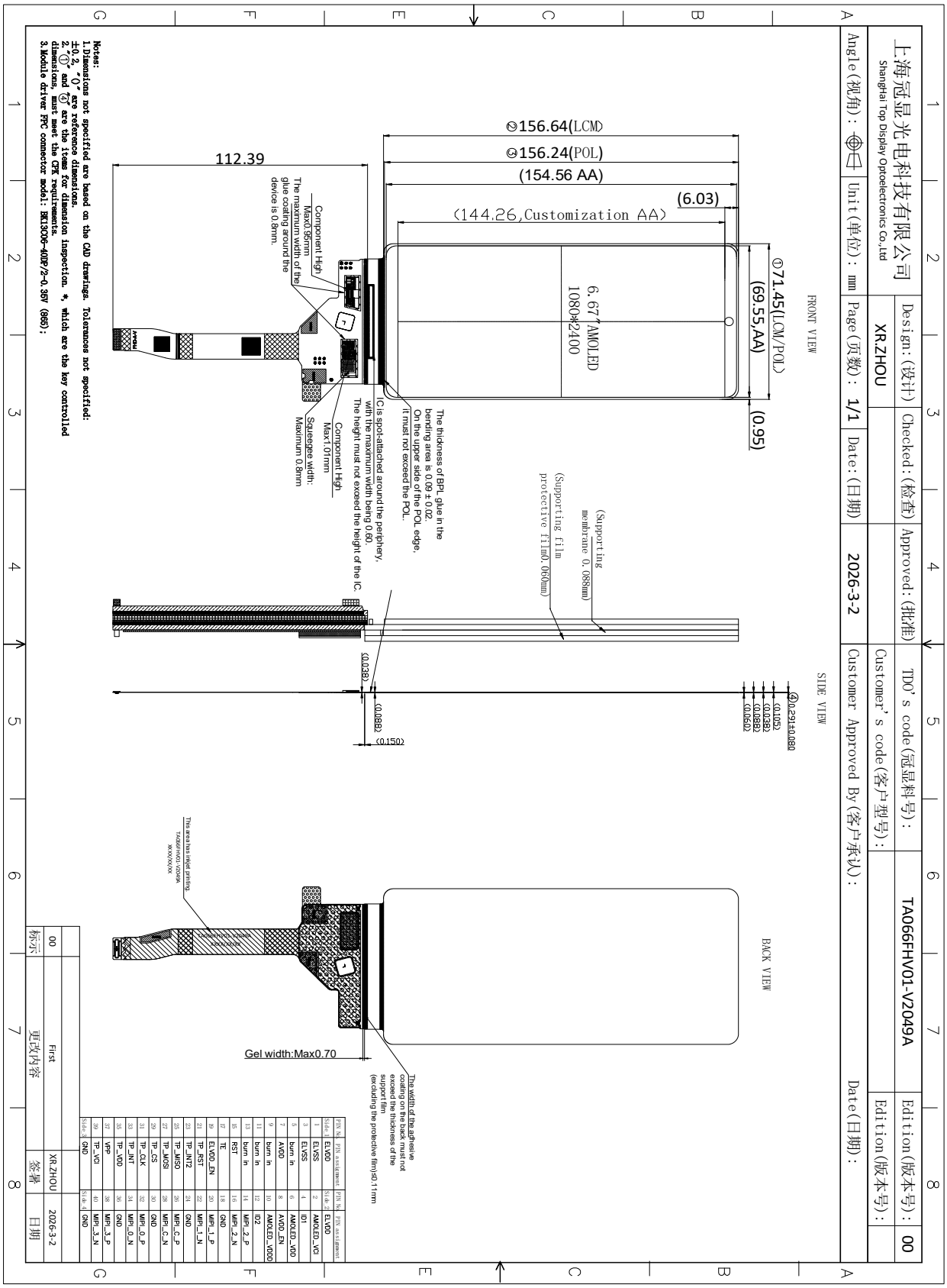
## Environmental / Reliability Test

| No | Test Item | Condition | Remarks |
|---|---|---|---|
| 1 | High Temperature Operation | Ts = +70℃, 120 hours | No abnormalities in functions |
| 2 | Low Temperature Operation | Ta = -20℃, 120 hours | No abnormalities in functions |
| 3 | High Temperature Storage | Ta = +80℃, 120 hours | No abnormalities in functions |
| 4 | Low Temperature Storage | Ta = -30℃, 120 hours | No abnormalities in functions |
| 5 | Storage at High Temperature and Humidity | Ta = +60℃, 90% RH max,120hours | No abnormalities in functions |
| 6 | Thermal Shock (non-operating) | -40℃ 30 min~ +80℃ 30 min,<br>Change time: 0.5 hour ← 5 min → 0.5 hour.32 Cycle | Start with cold temperature,<br>End with high temperature, |
| 7 | ESD | C=150pF, R=330Ω,5point/panel<br>Air: ±8Kv, 20times;<br>Contact:±4Kv,20times<br>(Environment:15℃~35℃,<br>30%~60%.86Kpa~106Kpa) | No abnormalities in functions |

Note1: Ts is the temperature of panel's surface.

Note2: Ta is the ambient temperature of samples.

# 8 Mechanical Drawing



# 9 Precautions for Use of OLED Modules

## Handling Precautions

9.1.1 The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

9.1.2 Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.

9.1.3 The polarizer covering the display surface of the OLED module is soft and easily scratched. Handle this polarizer carefully.

9.1.4 If the display surface is contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with one of the following solvents:

- Isopropyl alcohol
- Ethyl alcohol

Solvents other than those mentioned above may damage the polarizer. Especially, do not use the following:

- Water
- Ketone
- Aromatic solvents

9.1.6 Do not attempt to disassemble the OLED Module.

9.1.7 If the logic circuit power is off, do not apply the input signals.

9.1.8 To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.

9.1.8.1 Be sure to ground the body when handling the OLED Modules.

9.1.8.2 Tools required for assembly, such as soldering irons, must be properly ground.

9.1.8.3 To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.

9.1.8.4 The OLED Module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

## Storage Precautions

9.2.1 When storing the OLED modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.

9.2.2 The OLED modules should be stored under the storage temperature range. If the OLED modules will be stored for a long time, the recommend condition is: Temperature : 0℃ ～ 40℃ Relatively humidity: ≤80%

9.2.3 The OLED modules should be stored in the room without acid, alkali and harmful gas.

## Transportation Precautions

9.3.1 The OLED modules should be no falling and violent shocking during transportation, and also should avoid excessive press, water, damp and sunshine.