

# **PRODUCT SPECIFICATION** **FOR LCD MODULE**

**Revision:** 1.0

**Model No:** LSC1051I01-MP-V1

**APPROVED SIGNATURE**

- ☒ Approved Product Specification only
- ☐ Approved Product Specification and Samples

| <b><u>Prepared By</u></b> | <b><u>Checked By</u></b> | <b><u>Approved By</u></b> |
|---------------------------|--------------------------|---------------------------|
|                           |                          |                           |

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## REVISION STATUS

| Version | Revise Date | Page | Content             | Modified by |
|---------|-------------|------|---------------------|-------------|
| V1.0    | 2021.08.14  | -    | First Issued.       | HJ          |
| V1.1    | 2021.09.17  |      |                     | HJ          |
| V1.2    | 2021.11.27  |      | Update drawing      | LWJ         |
| V1.3    | 2021.11.30  |      | Amend Thermal shock | HJ          |
| V1.4    | 2021.12.06  |      | Update drawing      | HJ          |

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## 1. GENERAL DESCRIPTION

### 1.1 DESCRIPTION

This TLMC is a color active matrix TFT LCD module using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. This product is composed of a TFT LCD panel, driver IC , a backlight unit and CG.

### 1.2 FEATURES:

| No. | Item                | Specification                              | Unit   |
|-----|---------------------|--------------------------------------------|--------|
| 1   | Panel Size          | 10.51"                                     | inch   |
| 2   | Number of Pixels    | 1200(H) × 3 (RGB) ×1920(V)                 | pixels |
| 3   | Active Area         | 141.48(W) × 226.37(H)                      | mm     |
| 4   | Pixel Pitch         | 0.1179(W) × 0.1179(H)                      | mm     |
| 5   | Outline Dimension   | 158.48(W) x243.368(H) x 2.825 (+0.1/-0.15) | mm     |
| 6   | Number of Colors    | 16.7M                                      | -      |
| 7   | Display Mode        | Normally Black                             | -      |
| 8   | Viewing Direction   | Full Viewing                               | -      |
| 9   | Pixel Arrangement   | RGB-Stripe                                 | -      |
| 10  | Sensor Pattern Type | In-Cell                                    |        |
| 11  | Touch Channel (T*R) | 32 x 48                                    |        |
| 12  | Surface Treatment   | Glare                                      | -      |
| 13  | Interface           | MIPI                                       | -      |
| 14  | Backlight           | White LED                                  | -      |
| 15  | Sensor Type         | Touch in-Cell                              |        |

## 2021.12.06

5/21

### 3. PIN DESCRIPTION .

| Pin No. | Symbol      | Function                              |
|---------|-------------|---------------------------------------|
| 1       | LED+        | Power for LED backlight (Anode)       |
| 2       | LED+        | Power for LED backlight (Anode)       |
| 3       | NC          | No connection                         |
| 4       | LED1-       | Power for LED backlight (Cathode)     |
| 5       | LED2-       | Power for LED backlight (Cathode)     |
| 6       | LED3-       | Power for LED backlight (Cathode)     |
| 7       | LED4-       | Power for LED backlight (Cathode)     |
| 8       | NC          | No connection                         |
| 9       | AVDD        | Positive input power(6V)              |
| 10      | NC          | No connection                         |
| 11      | AVEE        | Negative input power(-6V)             |
| 12      | NC          | No connection                         |
| 13      | IOVCC       | Logic power input(1.8V)               |
| 14      | LED_PWM     | LED PWM Signal                        |
| 15      | TP_SPI_MOSI | TP SPI MOSI PIN                       |
| 16      | TP_SPI_MISO | TP SPI MISO PIN                       |
| 17      | TP_SPI_SCL  | TP SPI SCL PIN                        |
| 18      | TP_SPI_SS   | TP SPI SS PIN                         |
| 19      | GND         | Ground                                |
| 20      | D2P         | Positive MIPI differential data input |
| 21      | D2N         | Negative MIPI differential data input |
| 22      | GND         | Ground                                |
| 23      | D1P         | Positive MIPI differential data input |
| 24      | D1N         | Negative MIPI differential data input |
| 25      | GND         | Ground                                |
| 26      | CLKP        | Positive MIPI differential data input |
| 27      | CLKN        | Negative MIPI differential data input |
| 28      | GND         | Ground                                |
| 29      | D0P         | Positive MIPI differential data input |
| 30      | D0N         | Negative MIPI differential data input |
| 31      | GND         | Ground                                |
| 32      | D3P         | Positive MIPI differential data input |
| 33      | D3N         | Negative MIPI differential data input |
| 34      | GND         | Ground                                |

|    |         |                     |
|----|---------|---------------------|
| 35 | TP_INT  | TP INT PIN          |
| 36 | TP_RST  | TP RESET PIN(1.8V)  |
| 37 | LCD_RST | LCD RESET PIN(1.8V) |
| 38 | LCD_ID1 | ID1 10K to GND      |
| 39 | LCD_ID2 | ID2 10K to IOVCC    |
| 40 | GND     | Ground              |
| 41 | GND     | Ground              |

Starry Elec

## 4. ELECTRICAL CHARACTERISTICS

### 4.1 ABSOLUTE MAXIMUM RATINGS

| Item                   | Symbol | Min.    | Max.    | Unit |
|------------------------|--------|---------|---------|------|
| Digital Supply Voltage | VDDI   | VSS-0.3 | 1.95    | V    |
| Negative input power   | AVEE   | -6.5    | VSS-0.3 | V    |
| Positive input power   | AVDD   | VSS-0.3 | 6.5     | V    |

### 4.2 TFT LCD MODULE

#### 4.2.1 OPERATING CONDITIONS

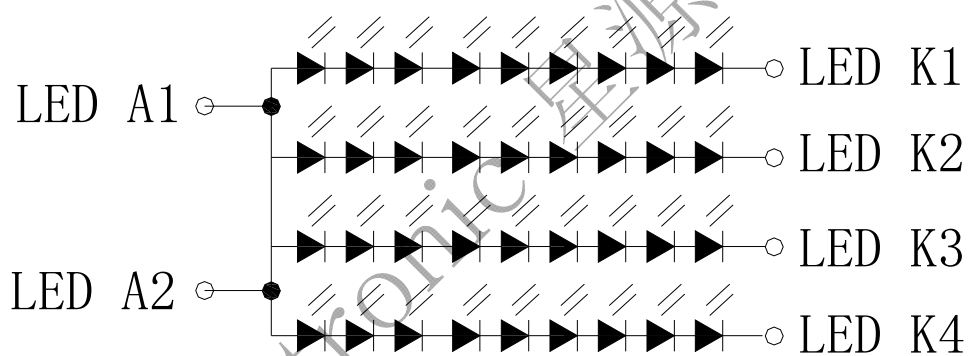
| Parameter                    | Symbol | Min. | Typ. | Max. | Unit |
|------------------------------|--------|------|------|------|------|
| Digital Power Supply Voltage | IOVDD  | 1.7  | 1.8  | 1.9  | V    |
| Negative input power         | AVEE   | -6.1 | -6   | -5.9 | V    |
| Positive input power         | AVDD   | 5.9  | 6    | 6.1  | V    |

### 4.3 CURRENT CONSUMPTION(MODE:LCD ON + TP MONITOR)

| Item                         | Symbol | Condition                 | Values |      |      | Unit |
|------------------------------|--------|---------------------------|--------|------|------|------|
|                              |        |                           | Min.   | Typ. | Max. |      |
| Digital Power Current        | IVDD   | IOVDD = 1.8V @RGB pattern | 30     | 60   | 80   | mA   |
| Negative input power Current | IAVEE  | AVEE=-6@RGB pattern       | 15     | 25   | 45   | mA   |
| Positive input power Current | IAVDD  | AVDD=6@RGB pattern        | 10     | 22   | 40   | mA   |

#### 4.4 BACK LIGHT

| Item                 | Symbol           | Values |      |      | Unit | Remark                   |
|----------------------|------------------|--------|------|------|------|--------------------------|
|                      |                  | Min.   | Typ. | Max. |      |                          |
| LED Current          | I <sub>LED</sub> |        | 90   |      | mA   | Total LED                |
| Forward Voltage      | V <sub>F</sub>   | 24.3   | 26.1 | 27   | V    | I <sub>F</sub> =90mA     |
| Reverse Current      | I <sub>r</sub>   | 2187   | 2349 | 2430 | uA   | V <sub>R</sub> =5V, 1LED |
| Power dissipation    | P <sub>d</sub>   |        |      |      | mW   | Total LED                |
| Peak forward current | I <sub>fp</sub>  | 100    |      |      | mA   | 1LED                     |
| Reverse voltage      | V <sub>R</sub>   | 5      |      |      | V    | 1LED                     |

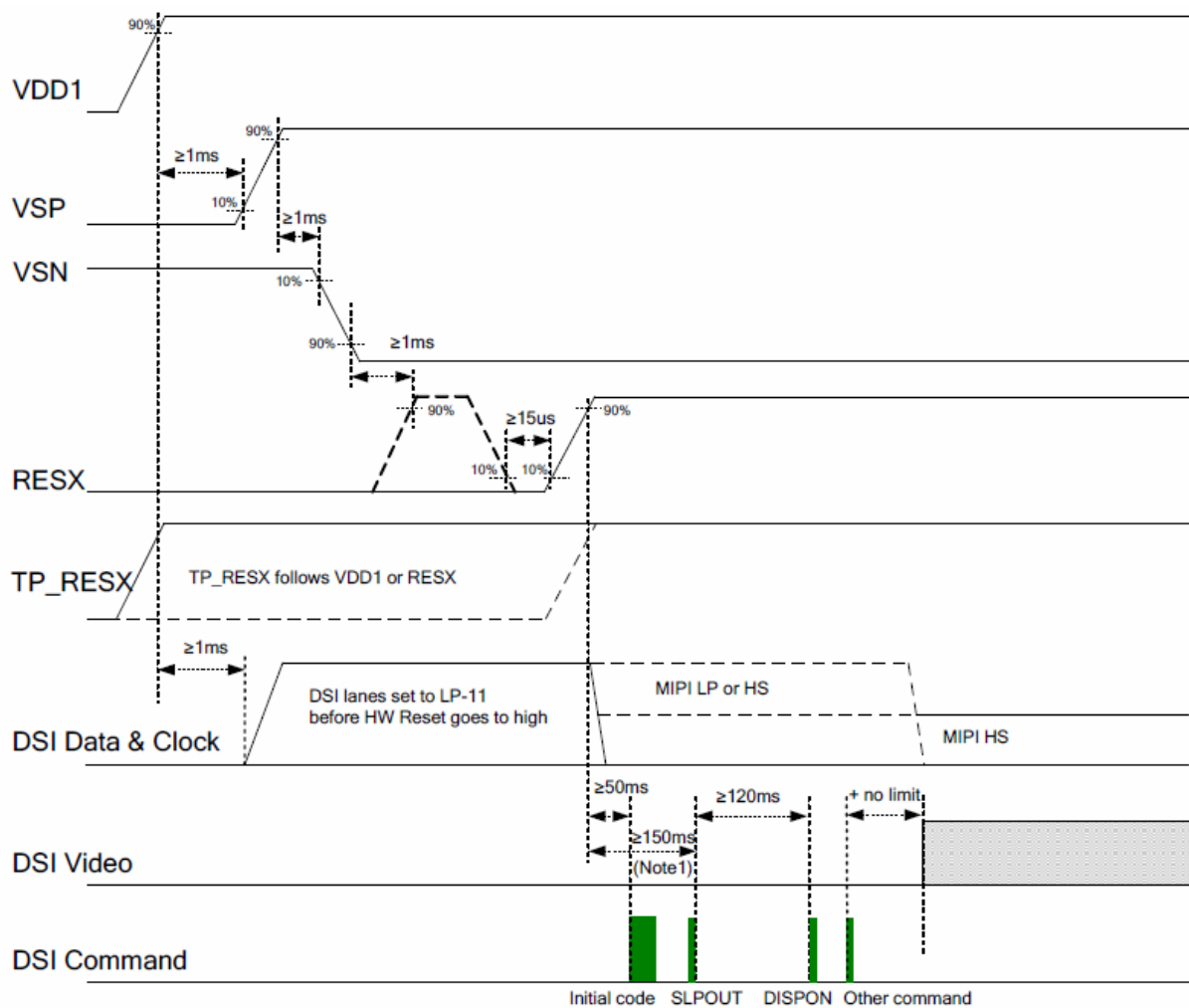


LED CIRCUIT DIAGRAM

LB:9S4P VF=(2.7~3.0)\*9V IF=(22.5)\*4mA

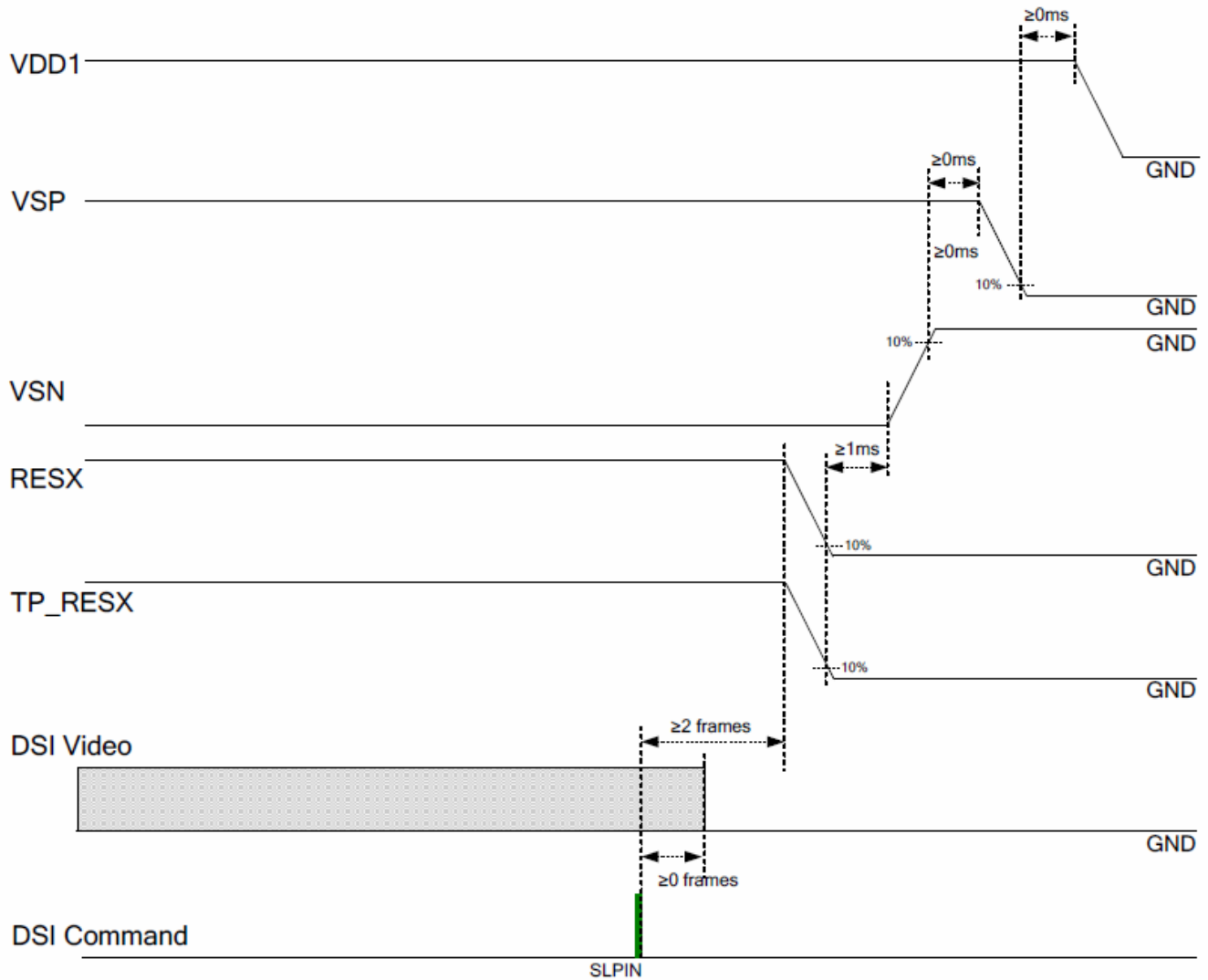
## 4.4 POWER ON/OFF SEQUENCE

### 4.4.1 POWER ON AND DSI SIGNAL SEQUENCE



Note1: If initial code upload by external flash

#### 4.4.2 POWER OFF AND DSI SIGNAL SEQUENCE

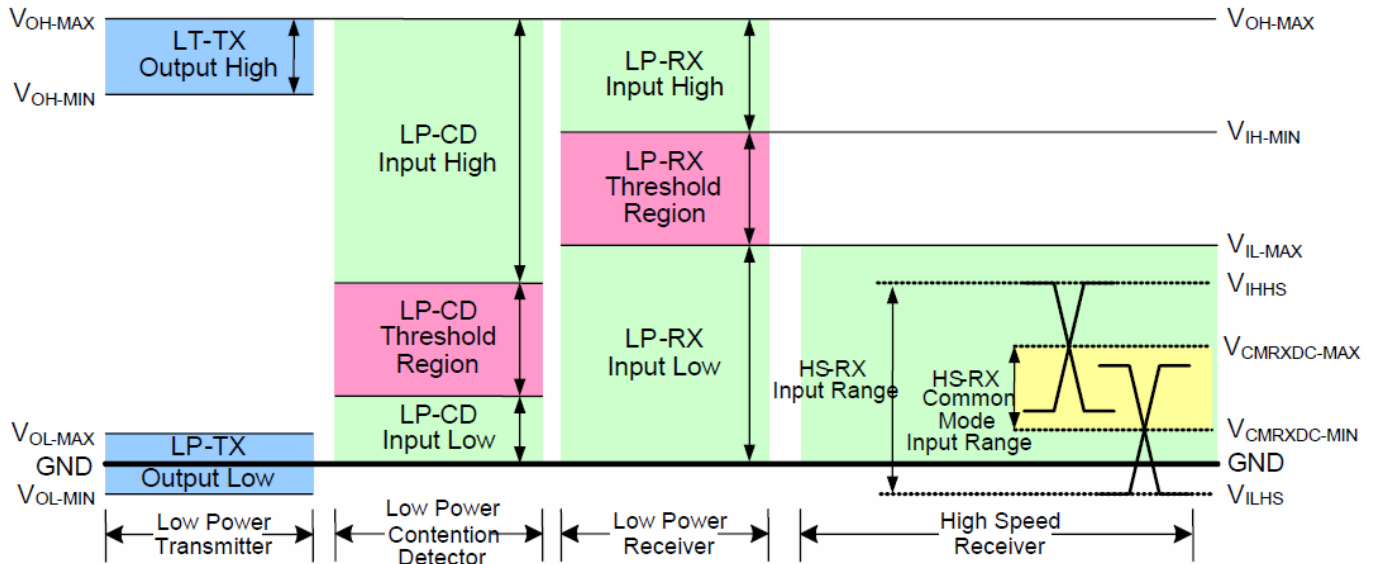


## 5.INPUT SIGNAL TIMING

### 5.1 DC Characteristics

| Item                           | Symbol   | Test Condition                                           | Min.          | Typ. | Max.          | Unit    |
|--------------------------------|----------|----------------------------------------------------------|---------------|------|---------------|---------|
| Input high voltage             | $V_{IH}$ | $V_{DD1} = 1.65 \sim 1.95V$                              | $0.7 V_{DD1}$ | -    | $V_{DD1}$     | V       |
| Input low voltage              | $V_{IL}$ |                                                          | 0             | -    | $0.3 V_{DD1}$ | V       |
| Output high voltage            | $V_{OH}$ | $I_{OH} = -1.0 \text{ mA}$                               | $0.8 V_{DD1}$ | -    | $V_{DD1}$     | V       |
| Output low voltage             | $V_{OL}$ | $V_{DD1} = 1.65 \sim 1.95V$<br>$I_{OL} = 1.0 \text{ mA}$ | 0             | -    | $0.2 V_{DD1}$ | V       |
| Logic High level input current | $I_{IH}$ | All logic input pins                                     | -             | -    | 1             | $\mu A$ |
| Logic Low level input current  | $I_{IL}$ | All logic input pins                                     | -1            | -    | -             | $\mu A$ |

### 5.2 MIPI DC Characteristics



MIPI signaling and contention voltage levels

#### DC characteristics for MIPI LP mode

| Parameter              | Symbol   | Spec. |      |      | Unit |
|------------------------|----------|-------|------|------|------|
|                        |          | Min.  | Typ. | Max. |      |
| Logic 1 input voltage  | $V_{IH}$ | 880   | -    | -    | mV   |
| Logic 0 input voltage  | $V_{IL}$ | 0     | -    | 550  | mV   |
| Logic 1 output voltage | $V_{OH}$ | 1.1   | 1.2  | 1.3  | V    |
| Logic 0 output voltage | $V_{OL}$ | -50   | -    | 50   | mV   |

DC characteristics for MIPI LP mode

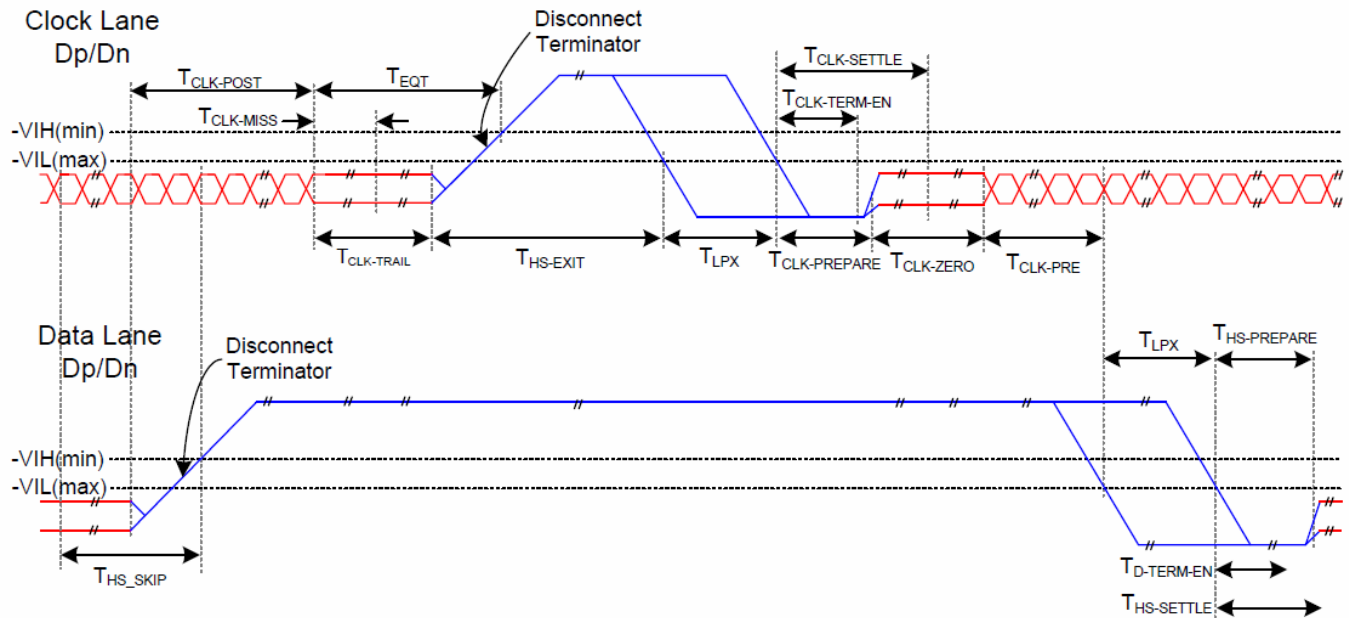
## DC characteristics for MIPI HS mode

| Parameter                                        | Symbol       | Spec. |      |      | Unit     |
|--------------------------------------------------|--------------|-------|------|------|----------|
|                                                  |              | Min.  | Typ. | Max. |          |
| Common-mode voltage HS Receive mode              | $V_{CMRXDC}$ | 70    | -    | 330  | mV       |
| Differential input high threshold <sup>(1)</sup> | $V_{IDTH}$   | -     | -    | 70   | mV       |
| Differential input low threshold <sup>(1)</sup>  | $V_{IDTL}$   | -70   | -    | -    | mV       |
| Single-ended input high voltage                  | $V_{IHHS}$   | -     | -    | 460  | mV       |
| Single-ended input low voltage                   | $V_{ILHS}$   | -40   | -    | -    | mV       |
| Differential input impedance                     | $Z_{ID}$     | 80    | 100  | 125  | $\Omega$ |
| HS transmit differential voltage (VDP-VDN)       | $ VOD $      | 140   | 200  | 270  | mV       |

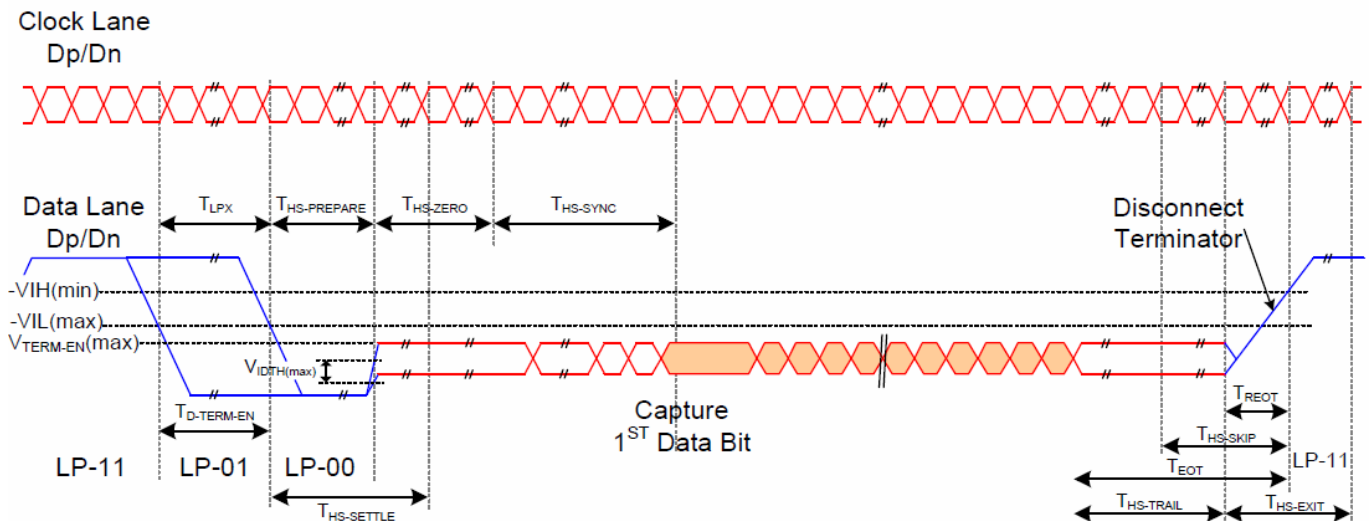
**Note:** (1)  $V_{IDTH}$  and  $V_{IDTL}$  only for reference, related to power and ground noise, this spec need to check on panel performance to fine tune

## DC characteristics for MIPI HS mode

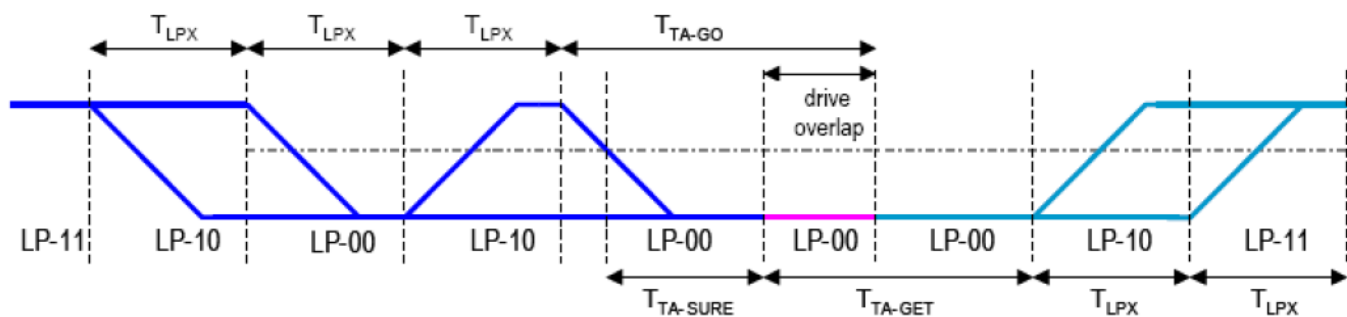
### 5.3 MIPI AC Characteristics



### Switching the clock lane between clock transmission and low-power mode



### Timing of high-speed data transmission in bursts



Turnaround Procedure

## MIPI AC Characteristics

| Parameter                     | Description                                                                                                                                                                                                                | Spec.                              |      |              | Unit |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------|--------------|------|
|                               |                                                                                                                                                                                                                            | Min.                               | Typ. | Max.         |      |
| $T_{REOT}$                    | 30%-85% rise time and fall time                                                                                                                                                                                            | -                                  | -    | 35           | ns   |
| $T_{CLK-MISS}$                | Timeout for receiver to detect absence of Clock transitions and disable the Clock Lane HS-RX.                                                                                                                              | -                                  | -    | 60           | ns   |
| $T_{CLK-POST}^{(1)}$          | Time that the transmitter continues to send HS clock after the last associated Data Lane has transitioned to LP Mode.<br>Interval is defined as the period from the end of THS-TRAIL to the beginning of $T_{CLK-TRAIL}$ . | 60 ns + 52*UI<br>(For DCS)         |      |              | ns   |
| $T_{CLK-PRE}$                 | Time that the HS clock shall be driven by the transmitter prior to any associated Data Lane beginning the transition from LP to HS mode.                                                                                   | 8                                  | -    | -            | UI   |
| $T_{CLK-SETTLE}$              | Time interval during which the HS receiver shall ignore any Clock Lane HS transitions, starting from the beginning of $T_{CLK-PRE}$ .                                                                                      | 95                                 | -    | 300          | ns   |
| $T_{CLK-TERM-EN}$             | Time for the Clock Lane receiver to enable the HS line termination, starting from the time point when Dn crosses $V_{IL,MAX}$ .                                                                                            | Time for Dn to reach $V_{TERM-EN}$ |      |              | ns   |
| $T_{HS-SETTLE}$               | Time interval during which the HS receiver shall ignore any Data Lane HS transitions, starting from the beginning of $T_{HSPREPRE}$ .                                                                                      | 85 ns + 6*UI                       |      |              | ns   |
| $T_{EOT}$                     | Time from start of $T_{HS-TRAIL}$ or $T_{CLK-TRAIL}$ period to start of LP-11 state                                                                                                                                        | -                                  | -    | 105ns+48*UI  | -    |
| $T_{HS-EXIT}^{(1)}$           | time to drive LP-11 after HS burst                                                                                                                                                                                         | 100                                | -    | -            | ns   |
| $T_{HS-PREPRE}$               | Time to drive LP-00 to prepare for HS transmission                                                                                                                                                                         | 40ns + 4*UI                        | -    | 85ns+6*UI    | ns   |
| $T_{HS-PREPRE} + T_{HS-ZERO}$ | $T_{HS-PREPRE}$ + Time to drive HS-0 before the Sync sequence                                                                                                                                                              | 145ns + 10*UI                      | -    | -            | ns   |
| $T_{HS-SKIP}$                 | Time-out at RX to ignore transition period of EoT                                                                                                                                                                          | 40                                 | -    | 55ns+4*UI    | ns   |
| $T_{HS-TRAIL}$                | Time to drive flipped differential state after last payload data bit of a HS transmission burst                                                                                                                            | 60 + 4*UI                          | -    | -            | ns   |
| $T_{LPX}$                     | Length of any Low-Power state period                                                                                                                                                                                       | 50                                 | -    | -            | ns   |
| Ratio $T_{LPX}$               | Ratio of $T_{LPX(MASTER)}/T_{LPX(SLAVE)}$ between Master and Slave side                                                                                                                                                    | 2/3                                | -    | 3/2          | -    |
| $T_{TA-GET}$                  | Time to drive LP-00 by new TX                                                                                                                                                                                              | 5* $T_{LPX}$                       |      |              | ns   |
| $T_{TA-GO}$                   | Time to drive LP-00 after Turnaround Request                                                                                                                                                                               | 4* $T_{LPX}$                       |      |              | ns   |
| $T_{TA-SURE}$                 | Time-out before new TX side starts driving                                                                                                                                                                                 | $T_{LPX}$                          | -    | 2* $T_{LPX}$ | ns   |

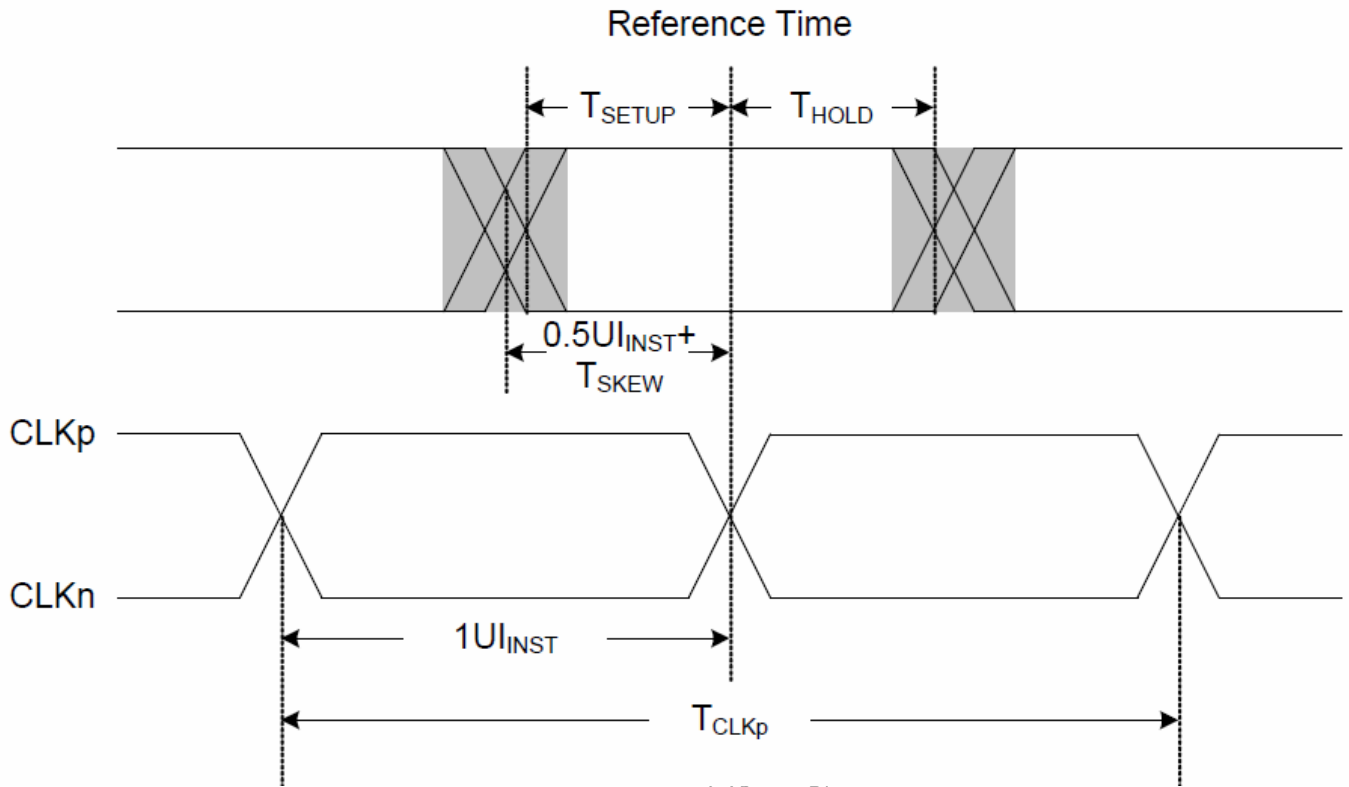
Note: (1) For image transmission:

$T_{CLK-POST}$  min value =164 when MIPI max frequency per lane = 0.53Gbps.

$T_{CLK-POST}$  min value =112 when MIPI max frequency per lane = 1Gbps

## MIPI AC characteristics

## MIPI data-clock timing specification



Data to clock timing

| Parameter                | Symbol             | Spec.               |      |                     | Unit              |
|--------------------------|--------------------|---------------------|------|---------------------|-------------------|
|                          |                    | Min.                | Typ. | Max.                |                   |
| UI instantaneous         | $U_{\text{INST}}$  | 1.0                 | -    | 12.5 <sup>(1)</sup> | ns                |
| Data to clock setup time | $T_{\text{SETUP}}$ | 0.15 <sup>(2)</sup> | -    | -                   | $U_{\text{INST}}$ |
| Data to clock hold time  | $T_{\text{HOLD}}$  | 0.15 <sup>(2)</sup> | -    | -                   | $U_{\text{INST}}$ |

**Note:** (1) This value corresponds to a minimum 80 Mbps data rate.

(2) Total SETUP and HOLD window for receiver of  $0.3 * U_{\text{INST}}$

## 5.4 PARALLEL RGB INPUT TIMING TABLE

### Horizontal Timing

| Parameter               | Symbol | Spec. |      |      | Unit |
|-------------------------|--------|-------|------|------|------|
|                         |        | Min.  | Typ. | Max. |      |
| Horizontal Display Area | thd    |       | 1200 |      | DCLK |
| HS Period               | th     |       | 1272 | -    | DCLK |
| HS Pulse Width          | thpw   | -     | 16   | -    | DCLK |
| HS Back Porch           | thbp   | -     | 16   | -    | DCLK |
| HS Front Porch          | thfp   | -     | 40   | -    | DCLK |

### Vertical Timing

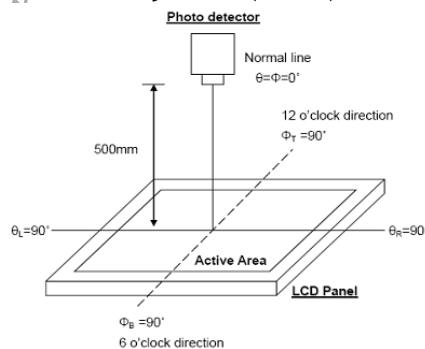
| Parameter             | Symbol | Spec. |      |      | Unit |
|-----------------------|--------|-------|------|------|------|
|                       |        | Min.  | Typ. | Max. |      |
| Vertical Display Area | tvd    |       | 1920 |      | TH   |
| VS Period             | tv     | -     | 2174 | -    | TH   |
| VS Pulse Width        | tvpw   | -     | 12   | -    | TH   |
| VS Back Porch         | tvbp   | -     | 18   | -    | TH   |
| VS Front Porch        | tvfp   | -     | 224  | -    | TH   |

## 6. OPTICAL CHARACTERISTICS

Ta =25±2 °C

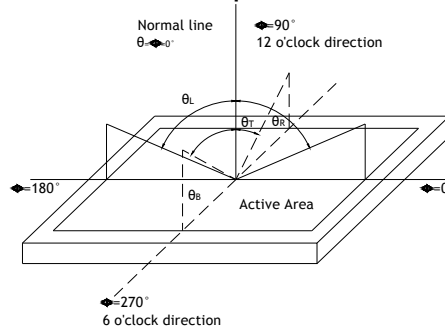
| Item                      |            | Symb<br>ol     | Min.     | Typ.   | Max.     | Unit  | Remark                     |
|---------------------------|------------|----------------|----------|--------|----------|-------|----------------------------|
| Contrast Ratio            |            | CR             | 1000     | 1500   | -        |       | Note 1<br>Note 4           |
| Luminance(center)         |            | L              | 300      | 360    |          | cd/m2 | Note 1<br>Note 6<br>Note 7 |
| Luminance Uniformity(13P) |            | LU             | 80       | 85     | -        | %     |                            |
| Response Time             |            | TRT            | -        | -      | 26       | ms    | Note 3                     |
| Color<br>Chromaticity     | White      | x              | Typ-0.02 | 0.2950 | Typ+0.02 |       | Note5                      |
|                           |            | y              |          | 0.3150 |          |       |                            |
|                           | Red        | x              | Typ-0.03 | 0.628  | Typ+0.03 |       |                            |
|                           |            | y              |          | 0.344  |          |       |                            |
|                           | Green      | x              |          | 0.324  |          |       |                            |
|                           |            | y              |          | 0.621  |          |       |                            |
|                           | Blue       | x              |          | 0.152  |          |       |                            |
|                           |            | y              |          | 0.048  |          |       |                            |
| Viewing Angle range       | Horizontal | Θ <sub>R</sub> | 80       | 85     | -        | Deg.  | Note 2                     |
|                           |            | Θ <sub>L</sub> | 80       | 85     | -        | Deg.  |                            |
|                           | Vertical   | Θ <sub>T</sub> | 80       | 85     | -        | Deg.  |                            |
|                           |            | Θ <sub>B</sub> | 80       | 85     | -        | Deg.  |                            |
| NTSC                      |            |                | 65       | 70     |          | %     |                            |

Note1: Definition of optical measurement system (BM-7)



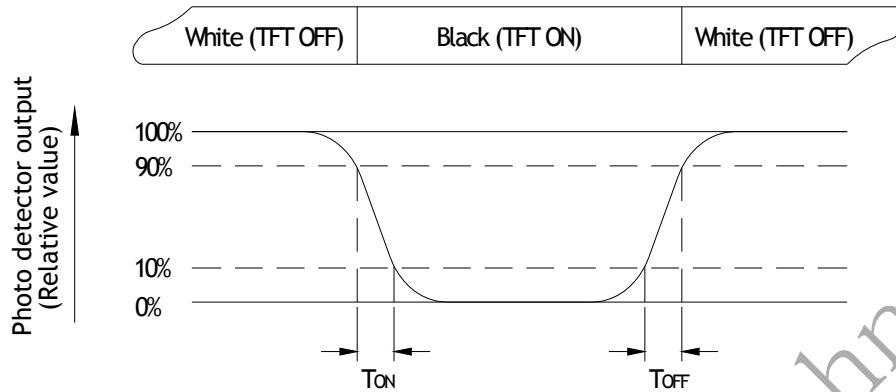
Note2: Definition of viewing angle range and measurement system

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



### Note3: Definition of Response time

The response time is defined as the LCD optical switching time interval between “White” state and “Black” state. Rise time (TON) is the time between photo detector output intensity changed from 90% to 10%. And fall time (TOFF) is the time between photo detector output intensity changed from 10% to 90%.



Definition of response time

### Note4: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD on the Whitestate}}{\text{Luminance measured when LCD on the Blackstate}}$$

“White state”: The state is that the LCD should drive by  $V_{\text{white}}$ .

“Black state”: The state is that the LCD should drive by  $V_{\text{black}}$ .

$V_{\text{white}}$ : To be determined     $V_{\text{black}}$ : To be determined.

### Note5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note6: All input terminals LCD panel must be ground while measuring the center area of the panel. The LED driving condition is  $I_L=90\text{mA}$

### Note7: Definition of Luminance Uniformity

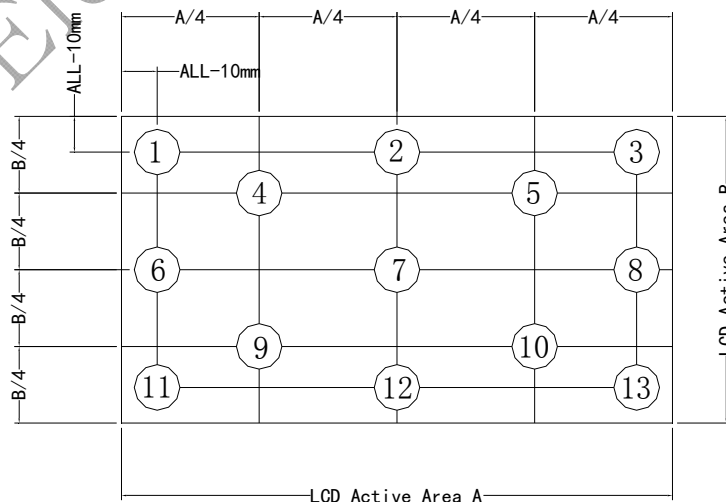
Active area is divided into 13 measuring areas. Every measuring point is placed at the center of each measuring area.

$$\text{Luminance Uniformity (U)} = L_{\text{min}} / L_{\text{max}}$$

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

$B_{\text{max}}$ : The measured maximum luminance of all measurement position.

$B_{\text{min}}$ : The measured minimum luminance of all measurement position.



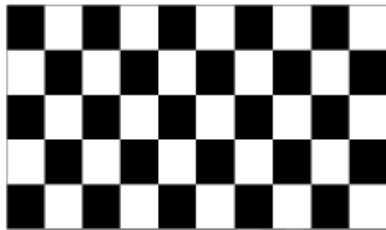
## 7.QUALITY ASSURANCE SYSTEM

### 7.1 TEMPERATURE AND HUMIDITY

| Test items                                   | Conditions                             | Remark                                                                                            |
|----------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------|
| High temperature storage                     | Ta=70℃ ; 240hrs                        | IEC60068-2-1 : 2007<br>GB2423.2-2008                                                              |
| Low temperature storage                      | Ta=-30℃ ; 240hrs                       | IEC60068-2-1 : 2007<br>GB2423.1-2008                                                              |
| High temperature operation                   | Ta=60℃ , 240Hrs                        | IEC60068-2-1 : 2007<br>GB2423.2-2008                                                              |
| Low temperature operation                    | Ta=-20℃ ; 240hrs                       | IEC60068-2-1 : 2007<br>GB2423.1-2008                                                              |
| High temperature and High humidity operation | Ta=60℃ ,90%RH ,240Hrs(no condensation) | IEC60068-2-78 : 2001<br>GB/T2423.3-2006                                                           |
| Thermal shock                                | -30℃ (0.5h) ~ 70℃ (0.5h) / 100 cycles  | Start with cold temperature ,<br>End with high temperature ,<br>IEC60068-2-14:1984,GB2423.22-2002 |
| Image Sticking                               | 25℃ ; 1hrs                             | Note1                                                                                             |

Note1:Condition of image sticking test :25℃±2℃

Operation with test pattern sustained for 1hrs,then change to 50%gray pattern immediately. after 5 mins, the mura must be disappeared completely



(a) Test Pattern (chess board Pattern )



(b) Gray Pattern

### 7.2 VIBRATION&SHOCK

| Test item                         | Conditions                                                                                       | Remark                                  |
|-----------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------|
| Packing Shock (non-operation)     | 980m/s <sup>2</sup> ,6ms, ±x,y,z 3times for direction                                            | IEC60068-2-27 : 1987<br>GB/T2423.5-1995 |
| Packing Vibration (non-operation) | Frequency range:10 HZ~50HZ<br>Stroke:1.0mm,sweep:10 HZ ~50HZ<br>x,y,z 1 hours for each direction | IEC60068-2-32 : 1990<br>GB/T2423.8-1995 |

### 7.3ESD

| Test item                                     | Conditions                              | Remark |         |
|-----------------------------------------------|-----------------------------------------|--------|---------|
| Electro Static Discharge Test (non-operation) | 150pF , 330Ω ,<br>Contact:±4KV,Air:±8KV | 1      | Class B |
|                                               | 200pF , 0Ω , ±200V contact test         | 2      |         |

Note: Measure point :

1. LCD glass and metal bezel
2. IF connector pins

---

## 8. PRECAUTION RELATING PRODUCT HANDLING

### 8.1 SAFETY

- 1 Do not swallow any liquid crystal, even if there is no proof that liquid crystal is poisonous.
- 2 If the LCD panel breaks, be careful not to get liquid crystal to touch your skin.
- 3 If skin is exposed to liquid crystal, wash the area thoroughly with alcohol or soap.

### 8.2 Storage Conditions

- 1 Store the panel or module in a dark place where the temperature is  $23\pm5^{\circ}\text{C}$  and the humidity is below  $50\pm 20\%\text{RH}$ .
- 2 Store in anti-static electricity container.
- 3 Store in clean environment, free from dust, active gas, and solvent.
- 4 Do not place the module near organics solvents or corrosive gases.
- 5 Do not crush, shake, or jolt the module.

### 8.3 Handling Precautions

- 1 Avoid static electricity which can damage the CMOS LSI.
- 2 The polarizing plate of the display is very fragile. So, please handle it very carefully.
- 3 Do not give external shock.
- 4 Do not apply excessive force on the surface.
- 5 Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of plate.
- 6 Do not use ketonic solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.
- 7 Do not operate it above the absolute maximum rating.
- 8 Do not remove the panel or frame from the module.
- 9 When the module is assembled, it should be attached to the system firmly, Be careful not to twist and bend the module.
- 10 Wipe off water droplets or oil immediately. If you leave the droplets for a long time, staining and discoloration may occur.
- 11 If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, legs or clothes, it must be washed away thoroughly with soap.

### 8.4 Warranty

- 1 The period is within twelve months since the date of shipping out under normal using and storage conditions.
- 2 Do not repaired or modified the LCM. It may cause function to lose efficacy, Starry does not warrant the LCM.
- 3 All process and material comply ROHS.

Starkey Electronic Source Technology

2 3 4 5 6 7 8

流程步骤图:

CM成品CG面朝下放入Tray盘, 2PCS/Tray盘.

4. 产品装入纸箱 (纸箱内2个上下面放珍珠棉)

5. Tray产品装入纸箱后封箱, 外箱贴唛头与月份ROHS标签

6. 纸箱封箱后, 使用栈板进行堆码出货.

唛头1图 案说明:

内容格式由系统自动生成, 具体以营销确认

模组型号: LSC1051101-MP-V1 客户

料号: 由营销提供

数量: 按实际卖包装数量打印

YYYY-MM-DD: 按照实际生产日期进行打印

唛头2图 案说明:

内容格式由系统自动生成, 具体以营销确认

模组型号: LSC1051101-MP-V1 客户

料号: 由营销提供

数量: 按实际卖包装数量打印

YYYY-MM-DD: 按照实际生产日期进行打印

示意图

10个Tray盘产品

包装袋

产品放入包装袋后

月份/ROHS/唛头标签

封箱胶纸

纸箱内上下2个面都要放珍珠棉

纸箱胶纸

标签

缠绕膜

栈板

纸护角

MARK REV/USER DATE REVISED DESCRIPTIONS

1.0 唛头

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流程步骤图:

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6. 纸箱封箱后, 使用栈板进行堆码出货.

唛头1图 案说明:

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唛头2图 案说明:

内容格式由系统自动生成, 具体以营销确认

模组型号: LSC1051101-MP-V1 客户

料号: 由营销提供

数量: 按实际卖包装数量打印

YYYY-MM-DD: 按照实际生产日期进行打印

示意图

10个Tray盘产品

包装袋

产品放入包装袋后

月份/ROHS/唛头标签

封箱胶纸

纸箱内上下2个面都要放珍珠棉

纸箱胶纸

标签

缠绕膜

栈板

纸护角

MARK REV/USER DATE REVISED DESCRIPTIONS

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