

|                  |      |                                                                                         |  |  |
|------------------|------|-----------------------------------------------------------------------------------------|--|--|
| <b>VICTRONIX</b> | Add: | Room Room 1405A, Building 1B, Hua qiang Idea Park,<br>GuangMing District,Shenzhen,China |  |  |
|                  | Tel: | +86-755-33265935                                                                        |  |  |

# SPECIFICATION

VX69868-CN036MZ

☒ Preliminary Specification

☐ Final Specification



**CUSTOMER:**

**Made By:**

**Checked By:**

**Approved By:**

**Quality:**

**Date:**

**Note:**

**Approved By:**

**Date:**

**Note:**

|            |                 |     |   |
|------------|-----------------|-----|---|
| MODULE NO. | VX69868-CN036MZ | Ver | B |
|------------|-----------------|-----|---|

RECORDS OF REVISION

| DATE       | REVISED NO. | REVISED DESCRIPTIONS          | PREPARED | CHECKED | APPROVED |
|------------|-------------|-------------------------------|----------|---------|----------|
| 2024-04-17 | V01         | 新版发行(在 V00 基础上改触盘和触盘之间增加 PIN) | SYM      | /       | LS       |
| 2024-04-18 | V02         | 改六个触盘和走线,调整显示图案尺寸             | SYM      | /       | LS       |
|            |             |                               |          |         |          |
|            |             |                               |          |         |          |
|            |             |                               |          |         |          |
|            |             |                               |          |         |          |
|            |             |                               |          |         |          |
|            |             |                               |          |         |          |
|            |             |                               |          |         |          |
|            |             |                               |          |         |          |

|                   |                 |            |          |
|-------------------|-----------------|------------|----------|
| <b>MODULE NO.</b> | VX69868-CN036MZ | <b>Ver</b> | <b>B</b> |
|-------------------|-----------------|------------|----------|

## **CONTENTS**

|                                                 |    |
|-------------------------------------------------|----|
| 1. GENERAL SPECIFICATIONS .....                 | 3  |
| 2. BLOCK DIAGRAM .....                          | 4  |
| 3. ABSOLUTE MAXIMUM RATING .....                | 6  |
| 4.ELECTRICAL CHARACTERISTICS .....              | 6  |
| 5. LED BACKLIGHT .....                          | 7  |
| 6. OPTICAL CHARACTERISTICS .....                | 8  |
| 7. ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS ..... | 10 |
| 8. RELIABILITY TEST .....                       | 10 |

|                   |                        |            |          |
|-------------------|------------------------|------------|----------|
| <b>MODULE NO.</b> | <b>VX69868-CN036MZ</b> | <b>Ver</b> | <b>B</b> |
|-------------------|------------------------|------------|----------|

## 1. GENERAL SPECIFICATIONS

### 1-1.DESRIPTION:

The VX69868-CN036MZ is a dot matrix mono Liquid Crystal Display Module(LCM).

This specification covers the delivery requirements for the liquid crystal display delivered by Victronix to customer.

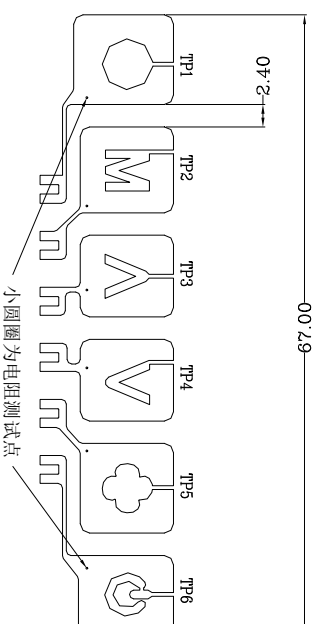
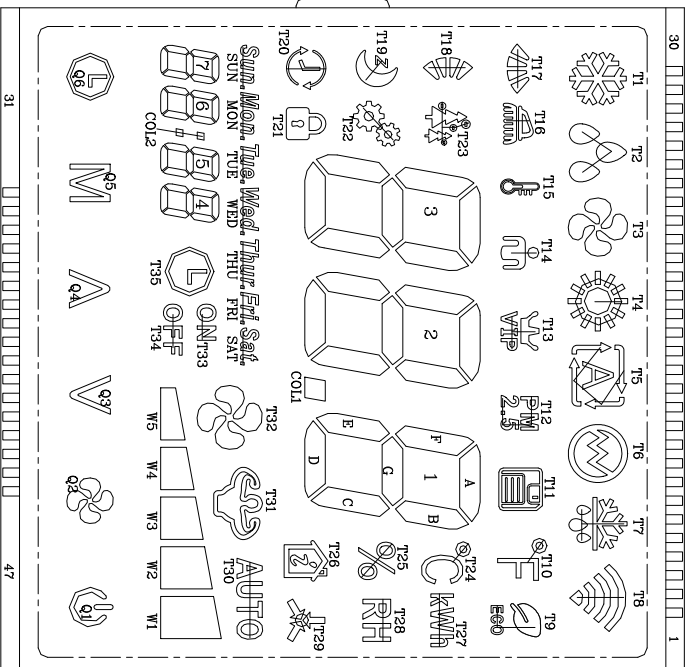
### 1-2. FEATURES

- (1) Display Type: HTN, Positive, Transflective, 6 O'clock
- (2) Driving Method: 1/4D,1/3B
- (3) Built-in controller:TBD
- (4) With Backlight: White IF=100mA,VF=3.0(TYP)

### 1-3.GENERAL SPECIFICATION

| ITEM               | SPECIFICATIONS                                 | UNIT |
|--------------------|------------------------------------------------|------|
| DISP.CONSTRUCTION  | TBD                                            | --   |
| OUTLINE DIMENSIONS | 74.54(W) x 73.26(H) x 4.8(T)(Not Included FPC) | mm   |
| VIEWING AREA       | 67.54(W)*65.26(H)                              | mm   |
| ACTIVE AREA        | TBD                                            | mm   |
| DOT SIZE           | TBD                                            | mm   |
| DOT PITCH          | TBD                                            | mm   |
| ASSY.TYPE          | PIN+BL                                         | --   |
| INTERFACE          | TBD                                            | --   |
| BACKLIGHT          | White IF=100mA,VF=3.0(TYP)                     | --   |





用80欧电阻测

小圆圈为电阻测试点

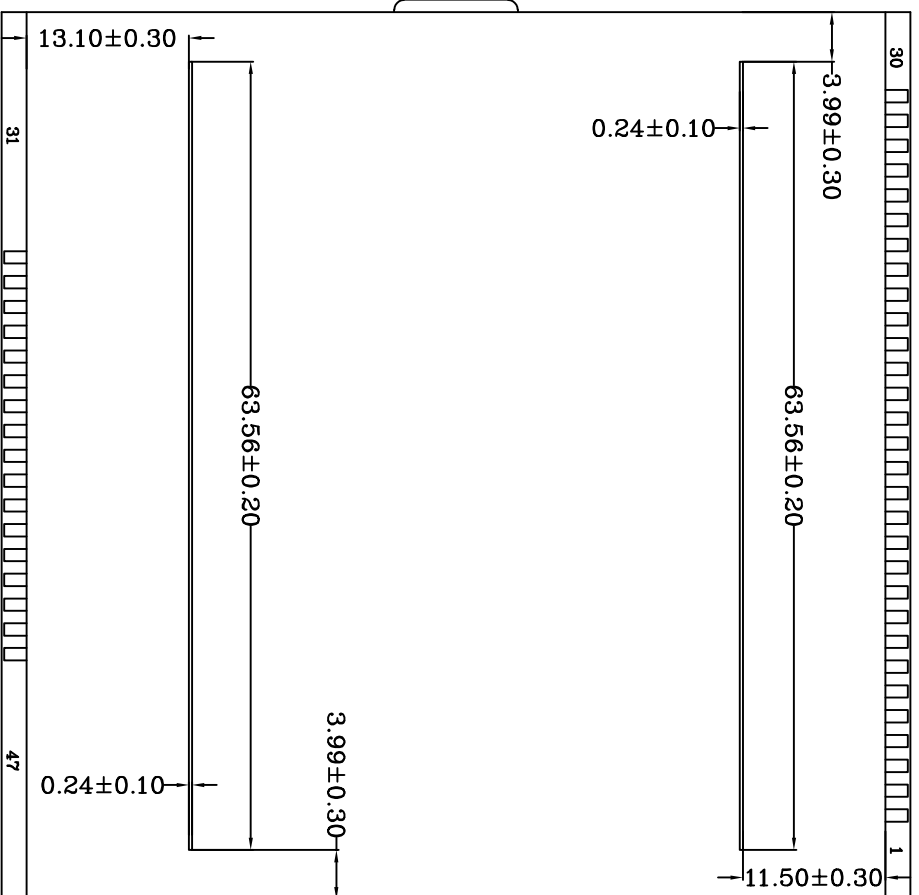
|         |        |    |    |       |    |       |    |    |    |       |    |       |    |        |     |        |    |
|---------|--------|----|----|-------|----|-------|----|----|----|-------|----|-------|----|--------|-----|--------|----|
| PIN     | 31     | 32 | 33 | 34    | 35 | 36    | 37 | 38 | 39 | 40    | 41 | 42    | 43 | 44     | 45  | 46     | 47 |
| 触摸按键    | TP1    | NC |    | TP2   | NC | TP3   | NC |    |    | TP4   | NC | TP5   | NC |        | TP6 |        |    |
| 阻值? MIN | 2032.3 |    |    | 809.8 |    | 435.6 |    |    |    | 332.8 |    | 622.1 |    | 2017.1 |     |        |    |
| 阻值? TP  | 1893.3 |    |    | 763.0 |    | 413.8 |    |    |    | 320.4 |    | 600.4 |    | 1882.2 |     | 1763.0 |    |
| 阻值? MAX | 1775.8 |    |    | 717.3 |    | 394.7 |    |    |    | 311.2 |    | 570.3 |    | 1763.0 |     |        |    |

TP1和TP6阻值相对大

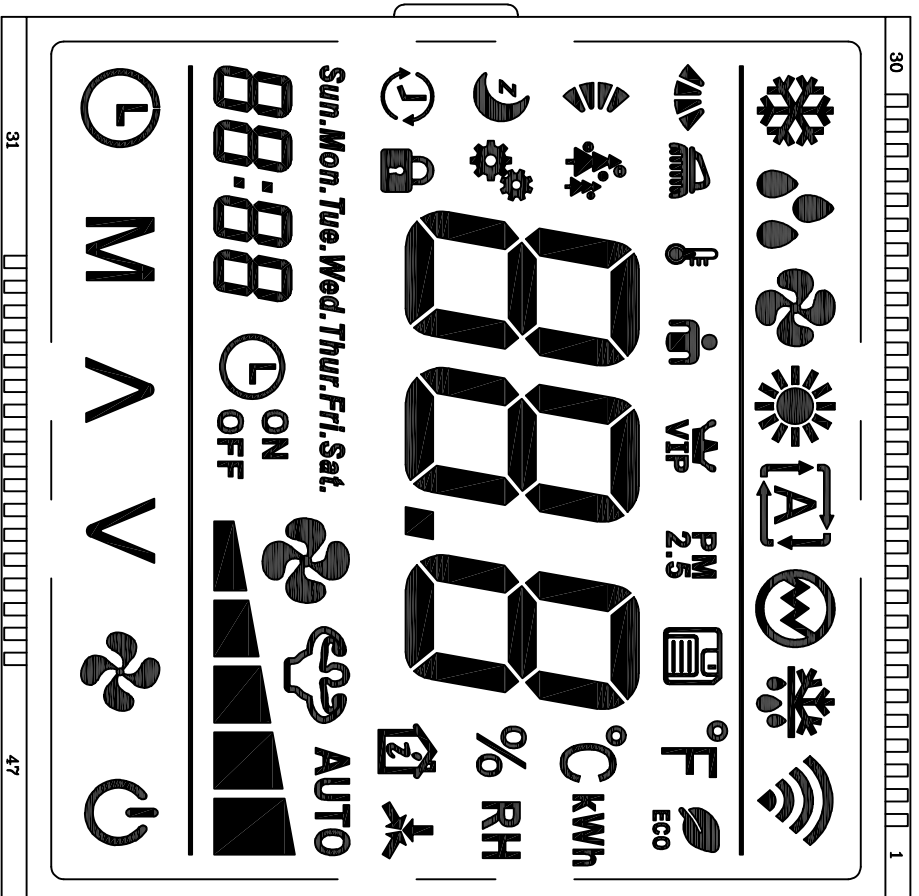
|      |      |      |      |      |     |     |     |     |    |    |     |     |     |    |      |    |     |    |     |     |     |     |    |    |    |    |      |    |    |    |
|------|------|------|------|------|-----|-----|-----|-----|----|----|-----|-----|-----|----|------|----|-----|----|-----|-----|-----|-----|----|----|----|----|------|----|----|----|
| PIN  | 1    | 2    | 3    | 4    | 5   | 6   | 7   | 8   | 9  | 10 | 11  | 12  | 13  | 14 | 15   | 16 | 17  | 18 | 19  | 20  | 21  | 22  | 23 | 24 | 25 | 26 | 27   | 28 | 29 | 30 |
| COM1 | COM1 | --   | --   | --   | W1  | Q1  | Q2  | T5  | T5 | T4 | T14 | T13 | T24 | 1D | COL1 | 2D | STA | 3D | T18 | T23 | FRI | Q3  | Q4 | 4D | Q5 | 5D | COL2 | 6D | Q6 | 7D |
| COM2 | --   | COM2 | --   | --   | W2  | W4  | W5  | T58 | T6 | T3 | T15 | T12 | 1C  | 1E | 2C   | 2E | 3C  | 3E | T19 | T22 | THU | T34 | 4C | 4E | 5C | 5E | 6C   | 6E | 7C | 7E |
| COM3 | --   | --   | COM3 | --   | W3  | T31 | T32 | T27 | T7 | T2 | T16 | T11 | 1G  | 1F | 2G   | 2F | 3C  | 3F | T20 | T21 | WED | T33 | 4G | 4F | 5G | 5F | 6G   | 6F | 7G | 7F |
| COM4 | --   | --   | --   | COM4 | T30 | T29 | T26 | T9  | T8 | T1 | T17 | T10 | 1B  | 1A | 2B   | 2A | 3B  | 3A | SUN | MON | TUE | T35 | 4B | 4A | 5B | 5A | 6B   | 6A | 7B | 7A |

VICTRONIX COMPANY LIMITED

|    |     |          |                 |                               |
|----|-----|----------|-----------------|-------------------------------|
| 设计 | SYN | BOM NO.: | MODEL NO.:      |                               |
| 审核 |     | VER. 3.0 | VX69868-CN036MZ |                               |
| 批准 |     | UNMARK   | TOL. $\pm 0.2$  | SCALE: 1:1 UNIT: mm PAGE: 2/3 |



黑色丝印在底玻璃片上



### 显示效果图

|                           |                                                                                         |                 |                 |           |
|---------------------------|-----------------------------------------------------------------------------------------|-----------------|-----------------|-----------|
| VICTRONIX COMPANY LIMITED |                                                                                         |                 |                 |           |
| 設計                        | SYN                                                                                     | BOM NO.:        | MODEL NO.:      |           |
| 审核                        | II,  | VER.3.0         | VX69868-CN036MZ |           |
| 批准                        | II,  | UNMARK TOL.±0.2 | SCALE: 1:1      | UNIT: mm  |
|                           |                                                                                         |                 |                 | PAGE: 3/3 |

|                   |                        |            |          |
|-------------------|------------------------|------------|----------|
| <b>MODULE NO.</b> | <b>VX69868-CN036MZ</b> | <b>Ver</b> | <b>B</b> |
|-------------------|------------------------|------------|----------|

### 3.ABSOLUTE MAXIMUM RATING

| ITEM                     | SYMBOL           | STANDARD VALUE |     |     | UNIT |
|--------------------------|------------------|----------------|-----|-----|------|
|                          |                  | MIN            | TYP | MAX |      |
| SUPPLY VOLTAGE FOR LOGIC | VDD              | --             | --  | --  | V    |
| INPUT VOLTAGE            | VIN              | --             | --  | --  | V    |
| OPERATING TEMPERATURE    | T <sub>OP</sub>  | -20            | --  | 70  | °C   |
| STORAGE TEMPERATURE      | T <sub>STG</sub> | -30            | --  | 80  | °C   |

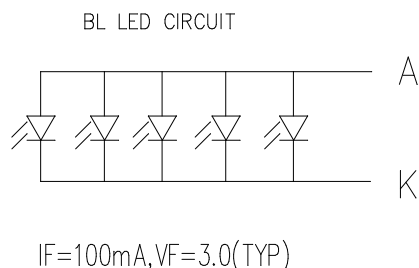
### 4.ELECTRICAL CHARACTERISTICS

| ITEM                          | SYMBOL | CONDITIONS | STANDARD VALUE |     |        | UNIT |
|-------------------------------|--------|------------|----------------|-----|--------|------|
|                               |        |            | MIN            | TYP | MAX    |      |
| SUPPLY VOLTAGE FOR LOGIC      | VDD    | Ta= 25°C   | --             | --  | --     | V    |
| SUPPLY VOLTAGE FOR LCD        | V0-XV0 |            | --             | 5.0 | --     | V    |
| INPUT VOLTAGE “H” LEVEL       | VIH    |            | 0.8VDD         | --  | VDD    | V    |
| INPUT VOLTAGE “L” LEVEL       | VIL    |            | VSS            | --  | 0.2VDD | V    |
| OUTPUT VOLTAGE “H” LEVEL      | VOH    |            | 0.8VDD         | --  | VDD    | V    |
| OUTPUT VOLTAGE “L” LEVEL      | VOL    |            | VSS            | --  | 0.2VDD | V    |
| CURRENT CONSUMPTION (CHECKER) | IDD    |            | --             | --  | --     | mA   |

|            |                 |     |   |
|------------|-----------------|-----|---|
| MODULE NO. | VX69868-CN036MZ | Ver | B |
|------------|-----------------|-----|---|

## 5. LED BACKLIGHT

### 5-1 LED CIRCUIT:



### 5-2.ABSOLUTE MAXIMUN RATING

| PARAMETER             | SYMBOL | SPECIFICATIONS | UNIT |
|-----------------------|--------|----------------|------|
| POWER DISSIPATION     | PD     | --             | mW   |
| FORWARD CURRENT       | Ifm    | 100            | mA   |
| REVERSE VOLTAGE       | Vr     | 5.0            | V    |
| OPERATION TEMPERATURE | TOPR   | -20~70         | °C   |
| STORAGE TEMPERATURE   | TSTG   | -30~80         | °C   |

### 5-3. ELECTRICAL CHARACTERISTICS (Ta=25°C)

| PARAMETER                            | SYMBOL | LIGHT SOURCE | CONDITIONS   | STANDARD VALUE |      |      | UNIT              |
|--------------------------------------|--------|--------------|--------------|----------------|------|------|-------------------|
|                                      |        |              |              | MIN            | TYP  | MAX  |                   |
| FORWARD VOLTAGE                      | VF     | WHITE        | IF=100mA     |                | 3.0  | -    | V                 |
| REVERSE CURRENT                      | IR     |              | Vr= 5.0V/LED | -              | -    | 10   | uA                |
| BL BRIGHTNESS                        | Lv     |              | IF=100mA     | 900            | 1400 | -    | cd/m <sup>2</sup> |
| CIE Color<br>Coordinate(without LCD) | X      |              | IF=100mA     | 0.25           | 0.28 | 0.31 | --                |
|                                      | Y      |              | IF=100mA     | 0.24           | 0.27 | 0.30 |                   |
| LUMINOUS UNIFORMITY                  | Δ      |              | IF=100mA     | 75             | -    | -    | --                |

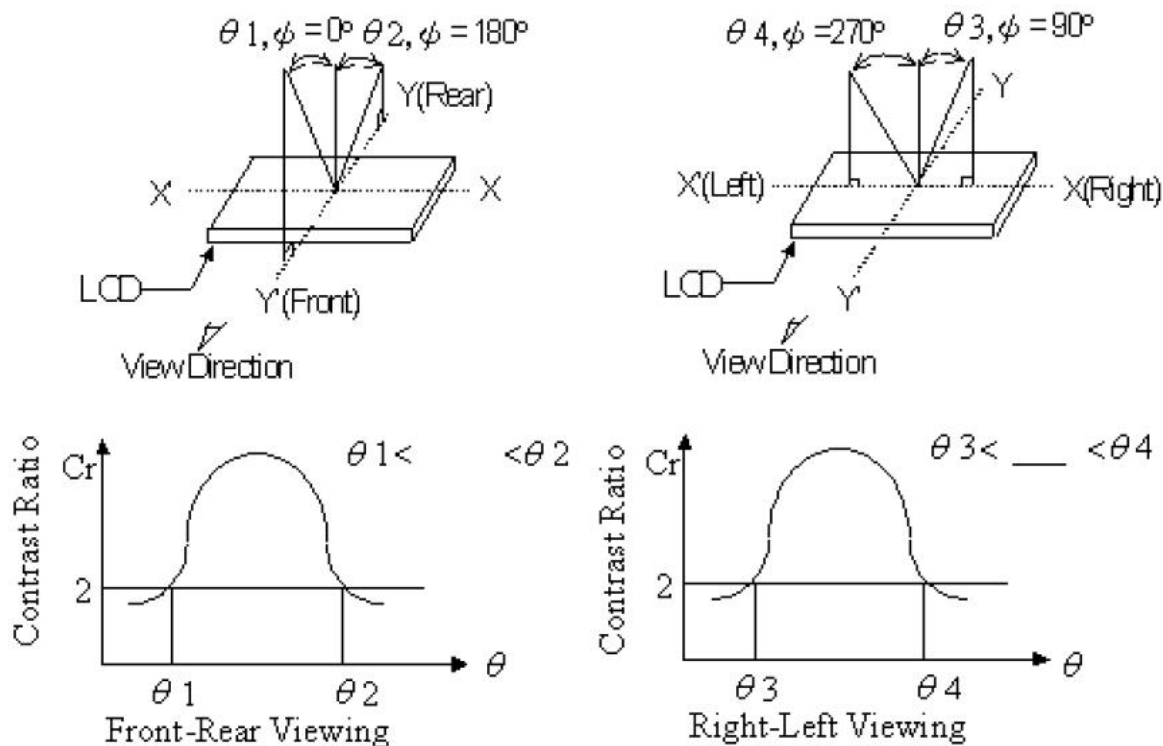
Note: Uniformity  $\Delta=(\text{minum LV}/\text{maximum LV})*100\%$ .

|            |                 |     |   |
|------------|-----------------|-----|---|
| MODULE NO. | VX69868-CN036MZ | Ver | B |
|------------|-----------------|-----|---|

## 6.OPTICAL CHARACTERISTICS

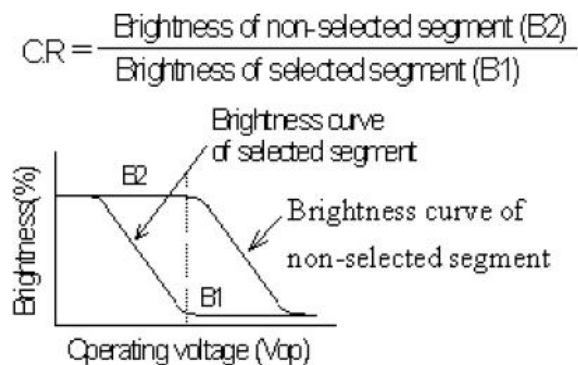
| Item                     | Symbol                      | Condition                                             | Min   | Typ   | Max   | Unit              | Remark | Note |
|--------------------------|-----------------------------|-------------------------------------------------------|-------|-------|-------|-------------------|--------|------|
| Viewing angle range      | $\theta$<br>( $Cr \geq 2$ ) | $\Phi = 90^\circ$                                     | --    | 15    | ---   | deg               | FIG 5. | 6    |
|                          |                             | $\Phi = 270^\circ$                                    | --    | 40    | ---   | deg               | FIG 5. | 6    |
|                          |                             | $\Phi = 0^\circ$                                      | --    | 45    | ---   | deg               | FIG 5. | 6    |
|                          |                             | $\Phi = 180^\circ$                                    | --    | 45    | ---   | deg               | FIG 5. | 6    |
| Response time            | Tr                          | $\theta=0^\circ$<br>$\Phi=0^\circ$<br>$Ta=25^\circ C$ | ---   | 70    | ---   | ms                | FIG.3  | 4    |
|                          | Tf                          |                                                       | ---   | 70    | ---   | ms                | FIG.3  | 4    |
| Contrast ratio           | Cr                          |                                                       | ---   | 3     | ---   | ---               | FIG 4. | 1    |
| Luminance uniformity     | $\delta$<br>--              |                                                       | 70    | 80    | ---   | %                 | FIG 4. | 3    |
| Surface Luminance        | Lv                          |                                                       | --    | --    | ---   | cd/m <sup>2</sup> | FIG 4. | 2    |
| CIE(x,y)<br>chromaticity | --                          | x                                                     | 0.232 | 0.292 | 0.352 | ---               | FIG 4. | 5    |
|                          |                             | y                                                     | 0.273 | 0.333 | 0.393 | ---               |        |      |

### (1) DEFINITION OF VIEWING ANGLE

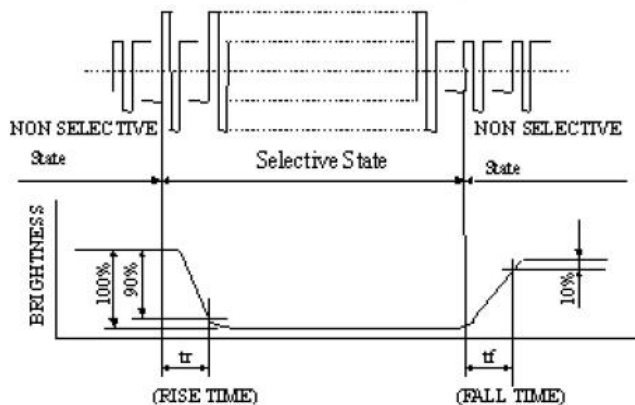


| MODULE NO. | VX69868-CN036MZ | Ver | B |
|------------|-----------------|-----|---|
|------------|-----------------|-----|---|

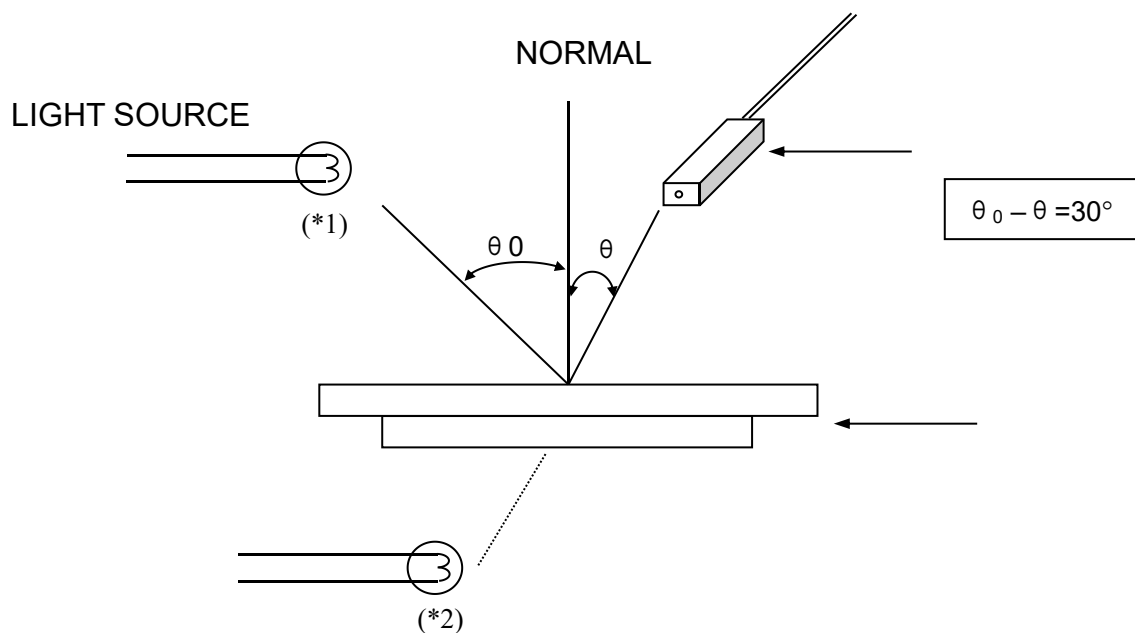
## (2) DEFINITION OF CONTRAST



## (3) DEFINITION OF RESPONSE



## (4) MEASURING INSTRUMENTS FOR ELECTRO-OPTICAL CHARACTERISTICS



\*1.Light source position for measuring the reflective type of LCD panel

\*2.Light source position for measuring the transfective / transmissive types of LCD panel

|                   |                        |            |          |
|-------------------|------------------------|------------|----------|
| <b>MODULE NO.</b> | <b>VX69868-CN036MZ</b> | <b>Ver</b> | <b>B</b> |
|-------------------|------------------------|------------|----------|

## 7. ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

| ITEM                  | SYMBOL | CONDITIONS | CRITERION                                        |
|-----------------------|--------|------------|--------------------------------------------------|
| OPERATING TEMPERATURE | TOPR   | -20℃～+70℃  | NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION |
| STORAGE TEMPERATURE   | TSTG   | -30℃～+80℃  | NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION |
| HUMIDITY              | —      | See Note   | WITHOUT CONDENSATION                             |

Note: Test condition:

1) Temperature and humidity: if no specification, temperature set at 25+/-2℃, and humidity set at 60+/-5% RH.

2)Operating state:all the tests to which the samples subject should be in operating condition.

## 8. RELIABILITY TEST

| ITEM                      | CONDITIONS                                                                                                                                                                           | CRITERION                                        |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Operating Temperature     | HIGH TEMPERTURE 70℃ 96HRS                                                                                                                                                            | No defect in displaying and operational function |
|                           | LOW TEMPERTURE -20℃ 96HRS                                                                                                                                                            |                                                  |
| Storage Temperature       | HIGH TEMPERTURE +80℃ 96HRS                                                                                                                                                           | No defect in displaying and operational function |
|                           | LOW TEMPERTURE -30℃ 96HRS                                                                                                                                                            |                                                  |
| High Humidity & high Temp | 60℃* 90%RH 96HRS                                                                                                                                                                     | No defect in displaying and operational function |
| Vibration                 | <ul style="list-style-type: none"> <li>Operating Time: 30 minutes exposure for each direction (X,Y,Z)</li> <li>Sweep Frequency: 10～55Hz (1 min)</li> <li>Amplitude: 1.5mm</li> </ul> | No defect in displaying and operational function |
| Thermal Shock             | -40℃(30mins) ↔ +85℃(30mins) 10 cycles                                                                                                                                                | No defect in displaying and operational function |

NOTE:1. The samples must be free from defect before test, must be restore at room condition at least for 2 hours after reliability test before any inspection.

2. In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judge as a good part.