**Winstar Display Co., LTD**
**華凌光電股份有限公司**

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# SPECIFICATION

**CUSTOMER ：** _____

**MODULE NO.: WH1602B1-YYH-JW#**

## General Specification

| Item | Dimension | Unit |
|---|---|---|
| Number of Characters | 16 characters x 2 Lines | — |
| Module dimension | 80.0 x 36.0 x 13.2(MAX) | mm |
| View area | 66.0 x 16.0 | mm |
| Active area | 56.20 x 11.5 | mm |
| Dot size | 0.55 x 0.65 | mm |
| Dot pitch | 0.60 x 0.70 | mm |
| Character size | 2.95 x 5.55 | mm |
| Character pitch | 3.55 x 5.95 | mm |
| LCD type | STN, Positive, Transflective, Yellow Green<br>(In LCD production, It will occur slightly color difference. We can only guarantee the same color in the same batch.) | |
| Duty | 1/16 | |
| View direction | 6 o'clock | |
| Backlight Type | LED Yellow Green | |

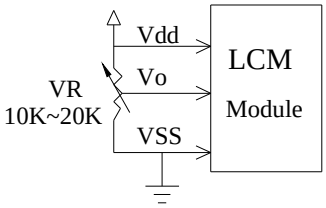
# Absolute Maximum Ratings

| Item | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Operating Temperature | $T_{OP}$ | -20 | — | +70 | ℃ |
| Storage Temperature | $T_{ST}$ | -30 | — | +80 | ℃ |
| Input Voltage | $V_I$ | -0.3 | — | $V_{DD}$+0.3 | V |
| Supply Voltage For Logic | $V_{DD}$-$V_{SS}$ | -0.3 | — | 5.5 | V |
| Supply Voltage For LCD | $V_{DD}$-$V_0$ | $V_{SS}$ -0.3 | — | $V_{SS}$ +7.0 | V |

# Electrical Characteristics

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Supply Voltage For Logic | $V_{DD}$-$V_{SS}$ | — | 4.5 | 5.0 | 5.5 | V |
| Supply Voltage For LCD *Note | $V_{DD}$-$V_0$ | Ta=-20℃ | — | — | 5.2 | V |
| | | Ta=25℃ | — | 3.7 | — | V |
| | | Ta=70℃ | 3.2 | — | — | V |
| Input High Volt. | $V_{IH}$ | — | 2.5 | — | $V_{DD}$ | V |
| Input Low Volt. | $V_{IL}$ | — | -0.3 | — | 0.6 | V |
| Output High Volt. | $V_{OH}$ | — | 3.9 | — | $V_{DD}$ | V |
| Output Low Volt. | $V_{OL}$ | — | — | — | 0.4 | V |
| Supply Current | $I_{DD}$ | $V_{DD}$=5.0V | 1.0 | 1.2 | 1.5 | mA |

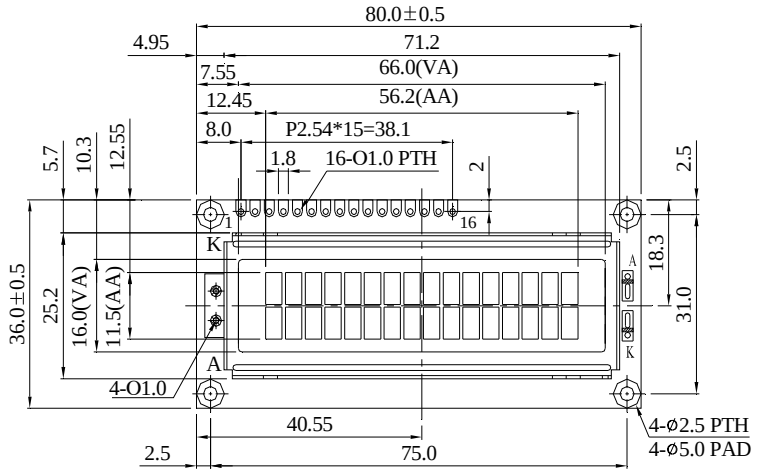
* Note: Please design the VOP adjustment circuit on customer's main board

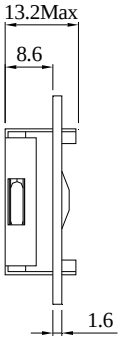


# Interface Pin Function

| Pin No. | Symbol | Level | Description |
|---|---|---|---|
| 1 | $V_{SS}$ | 0V | Ground |
| 2 | $V_{DD}$ | 5.0V | Supply Voltage for logic |
| 3 | VO | (Variable) | Operating voltage for LCD |
| 4 | NC | — | No connection |
| 5 | NC | — | No connection |
| 6 | NC | — | No connection |
| 7 | NC | — | No connection |
| 8 | NC | — | No connection |
| 9 | NC | — | No connection |
| 10 | NC | — | No connection |
| 11 | NC | — | No connection |
| 12 | CSB | H/L | In 4-SPI serial mode, used as chip selection input.<br>When CSB = “Low”, selected<br>When CSB = “High”, not selected.<br>( Low access enable ) |
| 13 | SCLK | H/L | Serial clock input |
| 14 | SID | H/L | Serial data input |
| 15 | A | — | LED + |
| 16 | K | — | LED— |

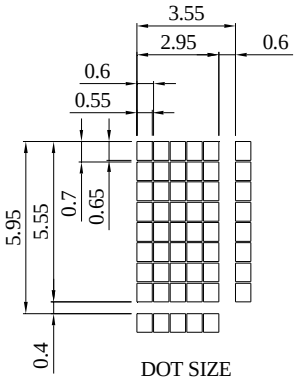
# 8.Contour Drawing &Block Diagram




LED B/L

| PIN NO. | SYMBOL |
|---|---|
| 1 | Vss |
| 2 | Vdd |
| 3 | Vo |
| 4 | RS |
| 5 | NC |
| 6 | NC |
| 7 | NC |
| 8 | NC |
| 9 | NC |
| 10 | NC |
| 11 | NC |
| 12 | CSB |
| 13 | SCLK |
| 14 | SID |
| 15 | A |
| 16 | K |




DOT SIZE
SCALE 5/1

The non-specified tolerance of dimension is ±0.3mm.