



**WINSTAR Display Co.,Ltd.**  
**華凌光電股份有限公司**



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## SPECIFICATION

**MODULE NO.:**

**WG12864D**

### General Specification

| Item             | Dimension                | Unit |
|------------------|--------------------------|------|
| Number of dots   | 128x64                   | —    |
| Module dimension | 78.0 x 70.0 x 14.3 (MAX) | mm   |
| View area        | 62.0 x 44.0              | mm   |
| Active area      | 56.28 x 38.36            | mm   |
| Dot size         | 0.40 x 0.56              | mm   |
| Dot pitch        | 0.44 x 0.60              | mm   |
| Duty             | 1/64                     |      |
| Backlight Type   | LED                      |      |
| IC               | RA6963                   |      |
| Interface        | 8080                     |      |

# Absolute Maximum Ratings

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

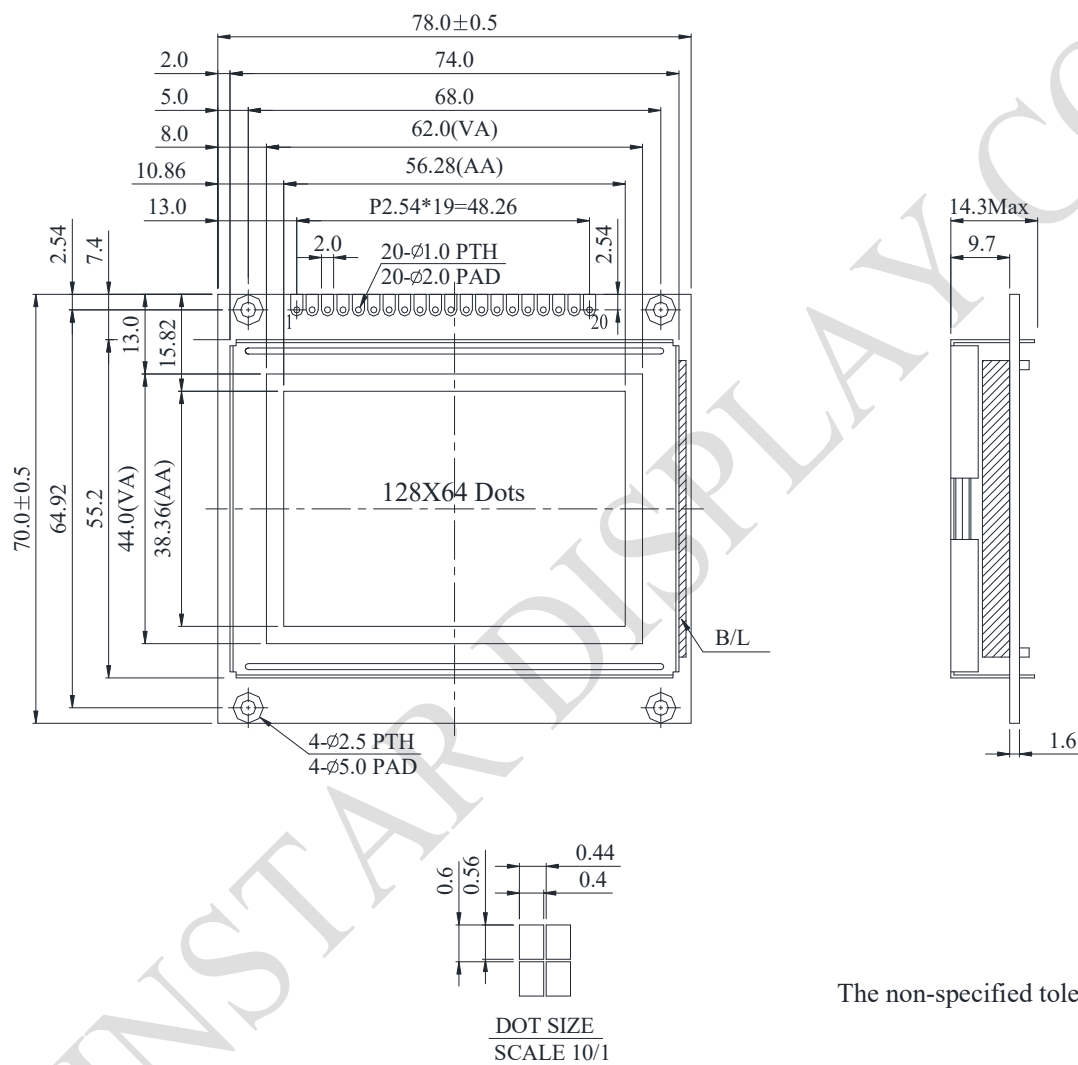
# Electrical Characteristics

| 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   | $V_{DD}-V_0$    | $T_a=-20^{\circ}\text{C}$ | —            | —   | 9.8           | V    |
|                          |                 | $T_a=25^{\circ}\text{C}$  | 8.2          | 8.5 | 8.8           | V    |
|                          |                 | $T_a=70^{\circ}\text{C}$  | 7.6          | —   | —             | V    |
| Input High Volt.         | $V_{IH}$        | —                         | $0.8V_{DD}$  | —   | $V_{DD}$      | V    |
| Input Low Volt.          | $V_{IL}$        | —                         | 0            | —   | $0.15 V_{DD}$ | V    |
| Output High Volt.        | $V_{OH}$        | —                         | $V_{DD}-0.3$ | —   | $V_{DD}$      | V    |
| Output Low Volt.         | $V_{OL}$        | —                         | 0            | —   | 0.3           | V    |
| Supply Current           | $I_{DD}$        | —                         | 11           | 12  | 13            | mA   |

# Interface Pin Function

| Pin No. | Symbol | Level | Description                                                                                   |
|---------|--------|-------|-----------------------------------------------------------------------------------------------|
| 1       | VEE    | —     | Negative Voltage Output                                                                       |
| 2       | Vss    | —     | GND                                                                                           |
| 3       | Vdd    | —     | Power supply                                                                                  |
| 4       | Vo     | —     | Power supply for LCD driver                                                                   |
| 5       | /WR    | L     | Data write. Write data into RA6963WR = L                                                      |
| 6       | /RD    | L     | Data read. Read data from RA6963RD = L                                                        |
| 7       | /CE    | L     | L : Chip enable                                                                               |
| 8       | /CD    | H / L | WR=L , C/D=H : Command Write C/D=L: Data write<br>RD=L , C/D=H : Status Read C/D=L: Data read |
| 9       | /RESET | H / L | H : Normal ; L : Initialize RA6963                                                            |
| 10      | DB0    | H / L | Data bus line                                                                                 |
| 11      | DB1    | H / L | Data bus line                                                                                 |
| 12      | DB2    | H / L | Data bus line                                                                                 |
| 13      | DB3    | H / L | Data bus line                                                                                 |
| 14      | DB4    | H / L | Data bus line                                                                                 |
| 15      | DB5    | H / L | Data bus line                                                                                 |
| 16      | DB6    | H / L | Data bus line                                                                                 |
| 17      | DB7    | H / L | Data bus line                                                                                 |
| 18      | FS     | H / L | Pins for selection of font ; H : 6 * 8 , L : 8 * 8                                            |
| 19      | K      | —     | Power supply for LED B/L -                                                                    |
| 20      | A      | —     | Power supply for LED B/L +                                                                    |

# Contour Drawing



| PIN NO. | SYMBOL |
|---------|--------|
| 1       | Vee    |
| 2       | Vss    |
| 3       | Vdd    |
| 4       | Vo     |
| 5       | WR     |
| 6       | RD     |
| 7       | CE     |
| 8       | CD     |
| 9       | RESET  |
| 10      | DB0    |
| 11      | DB1    |
| 12      | DB2    |
| 13      | DB3    |
| 14      | DB4    |
| 15      | DB5    |
| 16      | DB6    |
| 17      | DB7    |
| 18      | FS     |
| 19      | K      |
| 20      | A      |

The non-specified tolerance of dimension is  $\pm 0.3$  mm .