



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



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## SPECIFICATION

**MODULE NO.:**

**WH1602BR**

### General Specification

| Item                 | Dimension                | Unit |
|----------------------|--------------------------|------|
| Number of Characters | 16 characters x 2Lines   | —    |
| Module dimension     | 80.0 x 36.0 x 13.5 (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   |
| Duty                 | 1/16                     |      |
| Backlight Type       | LED                      |      |
| Controller IC        | ST7066                   |      |
| Interface            | UART                     |      |

## Absolute Maximum Ratings

| Item                  | Symbol          | Min                  | Typ | Max                  | Unit |
|-----------------------|-----------------|----------------------|-----|----------------------|------|
| Operating Temperature | T <sub>OP</sub> | -20                  | —   | +70                  | °C   |
| Storage Temperature   | T <sub>ST</sub> | -30                  | —   | +80                  | °C   |
| Supply Voltage        | —               | V <sub>SS</sub> -0.3 | —   | 6.0                  | V    |
| EEPROM Cell Endurance | —               | 100K                 | —   | —                    | E/W  |
| Input Voltage         | —               | V <sub>SS</sub> -0.3 | —   | V <sub>DD</sub> +0.3 | V    |

## Electrical Characteristics

| Item                                | Symbol                           | Condition             | Min | Typ | Max | Unit |
|-------------------------------------|----------------------------------|-----------------------|-----|-----|-----|------|
| Supply Voltage For Logic            | V <sub>DD</sub> -V <sub>SS</sub> | —                     | 4.5 | 5.0 | 5.5 | V    |
| Supply Voltage For LCD              | V <sub>DD</sub> -V <sub>O</sub>  | T <sub>a</sub> =25°C  | 3.6 | 3.7 | 3.8 | V    |
| Input High Voltage                  | V <sub>IH</sub>                  | —                     | 3.5 | —   | 5.0 | V    |
| Input Low Voltage                   | V <sub>IL</sub>                  | —                     | 0   | —   | 1.5 | V    |
| Supply Current (Module + Backlight) | I <sub>DD</sub>                  | V <sub>DD</sub> =5.0V | —   | —   | 45  | mA   |

# Interface Pin Function

## CON1

| Pin No. | Symbol  | Description                                             |
|---------|---------|---------------------------------------------------------|
| 1       | RX      | UART: serial data input (full duplex communication)     |
| 2       | VSS     | Ground                                                  |
| 3       | VDD     | Supply Voltage                                          |
| 4       | TX      | UART: serial data output                                |
| 5       | CS      | SPI: chip select                                        |
| 6       | SDO     | SPI: serial data output                                 |
| 7       | SCK/SCL | SPI: serial clock<br>I2C: serial clock                  |
| 8       | SDI/SDA | SPI: serial data input<br>I2C: serial data input/output |
| 9       | VSS     | Ground                                                  |
| 10      | VDD     | Supply Voltage                                          |

