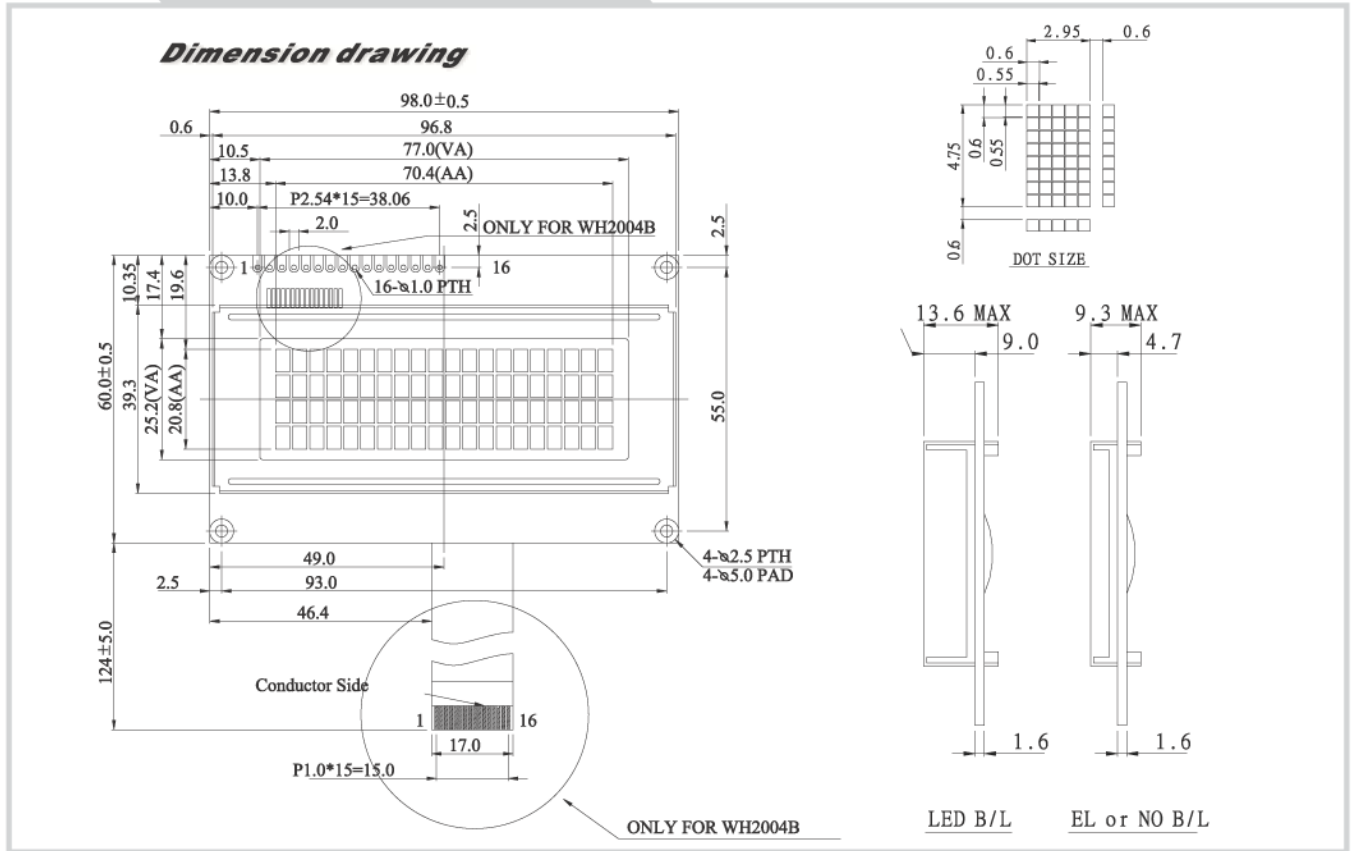


**WH2004A/B Character 20x4**



**Feature**

1. 5x8 dots includes cursor
2. Built-in controller (KS 0066 or Equivalent)
3. +5V power supply (Also available for +3V)
4. 1/16 duty cycle
5. LED can be driven by pin1, pin2, pin15, pin16 or A and K
6. N.V. optional for +3V power supply
7. FPC and FFC connector is for WH2004B only

| Pin NO. | Symbol | Function                                     |
|---------|--------|--|
| 1       | Vss    | GND  |
| 2       | Vdd    | +3V or +5V                                   |
| 3       | Vo     | Contrast Adjustment                          |
| 4       | RS     | H/L Register select signal                   |
| 5       | R/W    | H/L Read / write signal                      |
| 6       | E      | H→L Enable signal                            |
| 7       | DB0    | H/L Data bus line                            |
| 8       | DB1    | H/L Data bus line                            |
| 9       | DB2    | H/L Data bus line                            |
| 10      | DB3    | H/L Data bus line                            |
| 11      | DB4    | H/L Data bus line                            |
| 12      | DB5    | H/L Data bus line                            |
| 13      | DB6    | H/L Data bus line                            |
| 14      | DB7    | H/L Data bus line                            |
| 15      | A/Vee  | +4.2V for LED(RA=0Ω)/Negative Voltage output |
| 16      | K      | Power supply for B/L (0V)                    |

**Mechanical Data**

| Item             | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 98.0x60.0      | mm   |
| Viewing Area     | 77.0x25.2      | mm   |
| Mounting hole    | 93.0x 55.0     | mm   |
| Character Size   | 2.95x4.75      | mm   |

**Absolute Maximum Rating**

| Item          | Symbol  | Standard Value |      |      | Unit |
|---------------|---------|----------------|------|------|------|
|               |         | min.           | typ. | max. |      |
| Power Supply  | VDD-VSS | -0.3           | ---  | 7.0  | V    |
| Input Voltage | VI      | -0.3           | ---  | VDD  | V    |

Note : VSS=0 Volt, VDD=5.0 Volt.

**Electronical Characteristics**

| Item   | Symbol | Condition        | Standard Value |      |      | Unit |
|--|--------|------------------|----------------|------|------|------|
|  |        |                  | min.           | typ. | max. |      |
| Input Voltage  | VDD    | VDD=+5V          | 4.7            | 5.0  | 5.3  | V    |
|  |        | VDD=+3V          | 2.7            | 3.0  | 5.3  | V    |
| Supply Current   | IDD    | VDD=5V           | ---            | 1.0  | 1.2  | mA   |
| Recommended LC Driving Voltage for Normal Temp. Version module | VDD-V0 | -20°C            | 5.0            | 5.1  | 5.7  | V    |
|  |        | 0°C              | 4.6            | 4.8  | 5.2  |      |
|  |        | 25°C             | 4.1            | 4.5  | 4.7  |      |
|  |        | 50°C             | 3.9            | 4.2  | 4.5  |      |
| LED Forward Voltage  | VF     | 25°C             | ---            | 4.2  | 4.6  | V    |
|  |        | 25°C             | ---            | 280  | 560  | mA   |
| LED Power Supply Current                                       | IEL    | Vel=110VAC;400Hz | ---            | ---  | 5.0  | mA   |

**Display Character Address Code :**

| Display position | 1  | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | --- | 20 |
|------------------|----|----|---|---|---|---|---|---|---|----|----|----|----|-----|----|
| DD RAM Address   | 00 | 01 |   |   |   |   |   |   |   |    |    |    |    |     | 13 |
| DD RAM Address   | 40 | 41 |   |   |   |   |   |   |   |    |    |    |    |     | 53 |
| DD RAM Address   | 14 | 15 |   |   |   |   |   |   |   |    |    |    |    |     | 27 |
| DD RAM Address   | 54 | 55 |   |   |   |   |   |   |   |    |    |    |    |     | 67 |

Character type