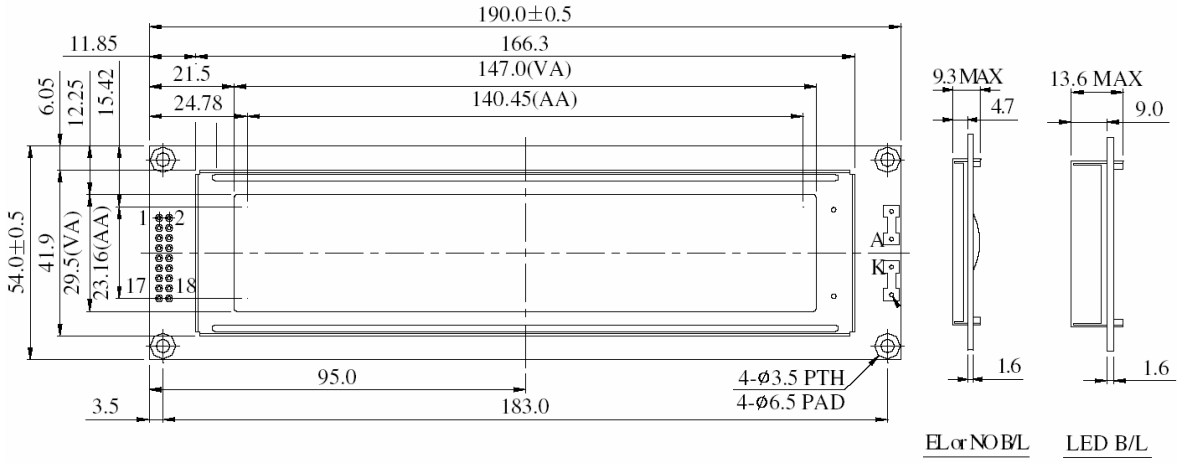
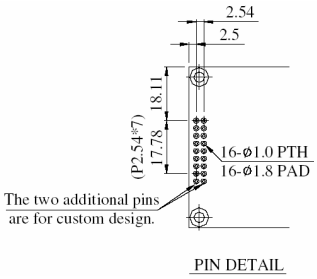
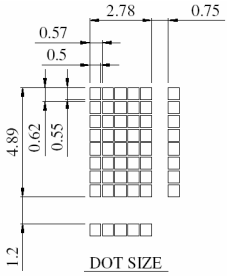
# MSH4004A

GMS. DISPLAY SYSTEMS




**Feature**

1. 5x8 dots includes cursor
2. Built-in controller (KS0066 or Equivalent)
3. +5V power supply (also available for +3V)
4. 1/16 duty cycle
5. LED can be driven by Pin1, 2, 15 & 16 or A and K
6. N.V. optional for +3V power supply

| Pin | Symbol | Function |
|---|---|---|
| 1 | DB7 | Data bus line |
| 2 | DB6 | Data bus line |
| 3 | DB5 | Data bus line |
| 4 | DB4 | Data bus line |
| 5 | DB3 | Data bus line |
| 6 | DB2 | Data bus line |
| 7 | DB1 | Data bus line |
| 8 | DB0 | Data bus line |
| 9 | E1 | H-->L Enable signal IC1 |
| 10 | R/**W** | H/L Read / write signal |
| 11 | RS | Register select |
| 12 | Vo | Contrast Adjustment |
| 13 | Vss | GND |
| 14 | Vdd | +3V or +5V |
| 15 | E2 | H-->L Enable signal IC2 |
| 16 | NC / Vee | NC / Negative Voltage output |
| 17 | A | +4.2V for LED (RA=0 Ohm) |
| 18 | K | GND |

**Display Character Address Code**

| Display position | 1 | 2 | 3 | 4 | 5 | ~ | 37 | 38 | 39 | 40 |
|---|---|---|---|---|---|---|---|---|---|---|
| **DD RAM Address** | 00 | 01 | | | | | | | | 27 |
| **DD RAM Address** | 40 | 41 | | | | | | | | 67 |
| **DD RAM Address** | 00 | 01 | | | | | | | | 27 |
| **DD RAM Address** | 40 | 41 | | | | | | | | 67 |

**Mechanical Data**

| Item | Standard Value | Unit |
|---|---|---|
| Module Dimension | 190.0 x 54.0 | mm |
| Viewing Area | 147.0 x 29.5 | mm |
| Mounting Hole | 183.0 x 47.0 | mm |
| Character Size | 2.78 x 4.89 | 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 V, Vdd= 5.0 V

**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 | |
| Supply Current | Idd | Vdd=5V | --- | 2.4 | 3.0 | mA |
| Recommended LC Driving Voltage for normal Temperature Version module | Vdd-Vo | -20℃ | 4.9 | 5.1 | 5.5 | V |
| | | 0℃ | 4.5 | 4.8 | 5.1 | |
| | | 25℃ | 4.1 | 4.5 | 4.7 | |
| | | 50℃ | 3.8 | 4.2 | 4.4 | |
| | | 70℃ | 3.5 | 3.9 | 4.1 | |
| **Y/G** LED Forward Voltage | Vf | 25℃ | --- | 4.2 | --- | V |
| **Y/G** LED Forward Current | If | 25℃ | --- | 600 | --- | mA |
| **White** LED Forward Voltage | Vf | 25℃ | --- | 3.5 | --- | V |
| **White** LED Forward Current | If | 25℃ | --- | 80 | --- | mA |

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