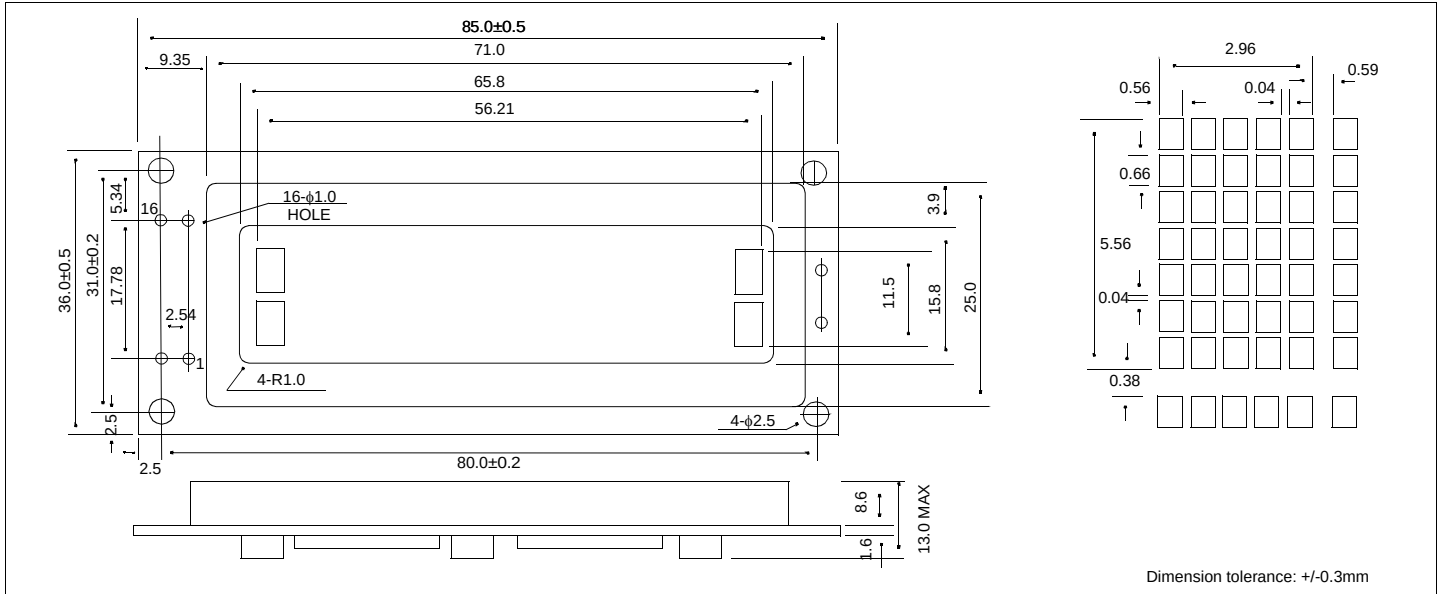


# HDM16216L-2

## Dimensional Drawing

16 Character x 2 Lines LED Backlight, 2 Row Connector



### Features

Character Format ..... 5x7 Dots with Cursor  
Backlight..... White or Yellow LED  
Options..... TN/Gray STN/Yellow STN  
12 o'Clock/6 o'Clock View  
Normal/Extended Temperature  
Normal/Negative Displays

### Physical Data

Module Size.....  $85.0 \text{ W} \times 36.0 \text{ H} \times 13.0 \text{ T mm}$   
Viewing Area Size.....  $65.8 \text{ W} \times 15.8 \text{ H mm}$   
Weight..... 35g

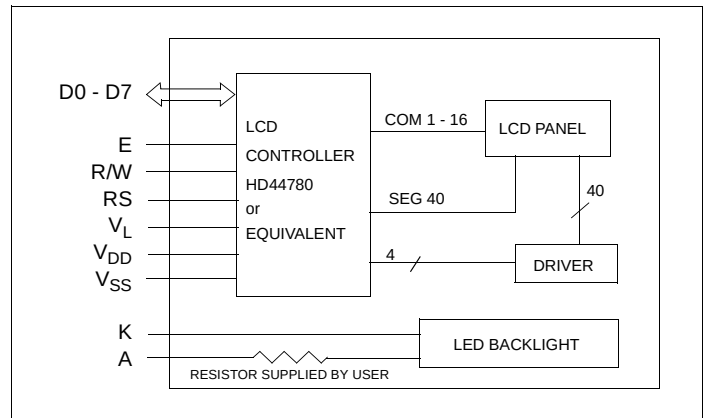
### Absolute Maximum Ratings

| PARAMETER                                 | SYMBOL          | MIN  | MAX       | UNIT |
|-------------------------------------------|-----------------|------|-----------|------|
| SUPPLY VOLTAGE                            | $V_{DD}-V_{SS}$ | -0.3 | 7.0       | V    |
| SUPPLY VOLTAGE FOR LCD                    | $V_{DD}-V_L$    | -0.3 | 12.0      | V    |
| OPERATING TEMPERATURE                     | $T_{OP}$        | 0    | 50        | °C   |
| STORAGE TEMPERATURE                       | $T_{STG}$       | -20  | 70        | °C   |
| LED FORWARD CURRENT (White)<br>(Yellow)   | $I_F$           | -    | 25<br>120 | mA   |
| LED REVERSE VOLTAGE (White)<br>(Yellow)   | $V_R$           | -    | 5<br>8    | V    |
| LED POWER CONSUMPTION (White)<br>(Yellow) | $P_D$           | -    | 80<br>540 | mW   |

### Electrical Characteristics ( $V_{DD}=5.0 \pm 0.25 \text{ V}$ $25^\circ\text{C}$ )

| PARAMETER                           | SYM          | CONDITION              | MIN | TYP | MAX | UNIT              |
|-------------------------------------|--------------|------------------------|-----|-----|-----|-------------------|
| POWER SUPPLY CURRENT                | $I_{DD}$     | $V_{DD}=5.0 \text{ V}$ | -   | 1.0 | 2.2 | mA                |
| POWER SUPPLY FOR LCD                | $V_{DD}-V_L$ | $T_A=25^\circ\text{C}$ | 4.3 | -   | 4.7 | V                 |
| LED FORWARD Vtg (White)<br>(Yellow) | $V_F$        | $I_F=20 \text{ mA}$    | 3.0 | 3.4 | 3.6 | V                 |
|                                     |              | $I_F=120 \text{ mA}$   | 3.9 | 4.1 | 4.5 | V                 |
| BRIGHTNESS (White)<br>(Yellow)      | L            | $I_F=20 \text{ mA}$    | 60  | 75  | -   | cd/m <sup>2</sup> |
|                                     |              | $I_F=120 \text{ mA}$   | 30  | 50  | -   | cd/m <sup>2</sup> |
| DRIVE METHOD                        | 1/16 Duty    |                        |     |     |     |                   |

### Block Diagram



### Pin Connections

| PIN NO. | SYMBOL   | LEVEL  | FUNCTION                                   |
|---------|----------|--------|--------------------------------------------|
| 1       | $V_{SS}$ | -      | 0V                                         |
| 2       | $V_{DD}$ | -      | 5V                                         |
| 3       | $V_L$    | -      | -                                          |
| 4       | RS       | H/L    | H: Data input<br>L: Instruction data input |
| 5       | R/W      | H/L    | H: Data read<br>L: Data write              |
| 6       | E        | H, H→L | Enable signal                              |
| 7       | D0       | H/L    | Data bus                                   |
| 8       | D1       | H/L    |                                            |
| 9       | D2       | H/L    |                                            |
| 10      | D3       | H/L    |                                            |
| 11      | D4       | H/L    |                                            |
| 12      | D5       | H/L    |                                            |
| 13      | D6       | H/L    |                                            |
| 14      | D7       | H/L    |                                            |
| 15      | A        | -      | Anode for LED backlighting                 |
| 16      | K        | -      | Cathode for led backlighting               |