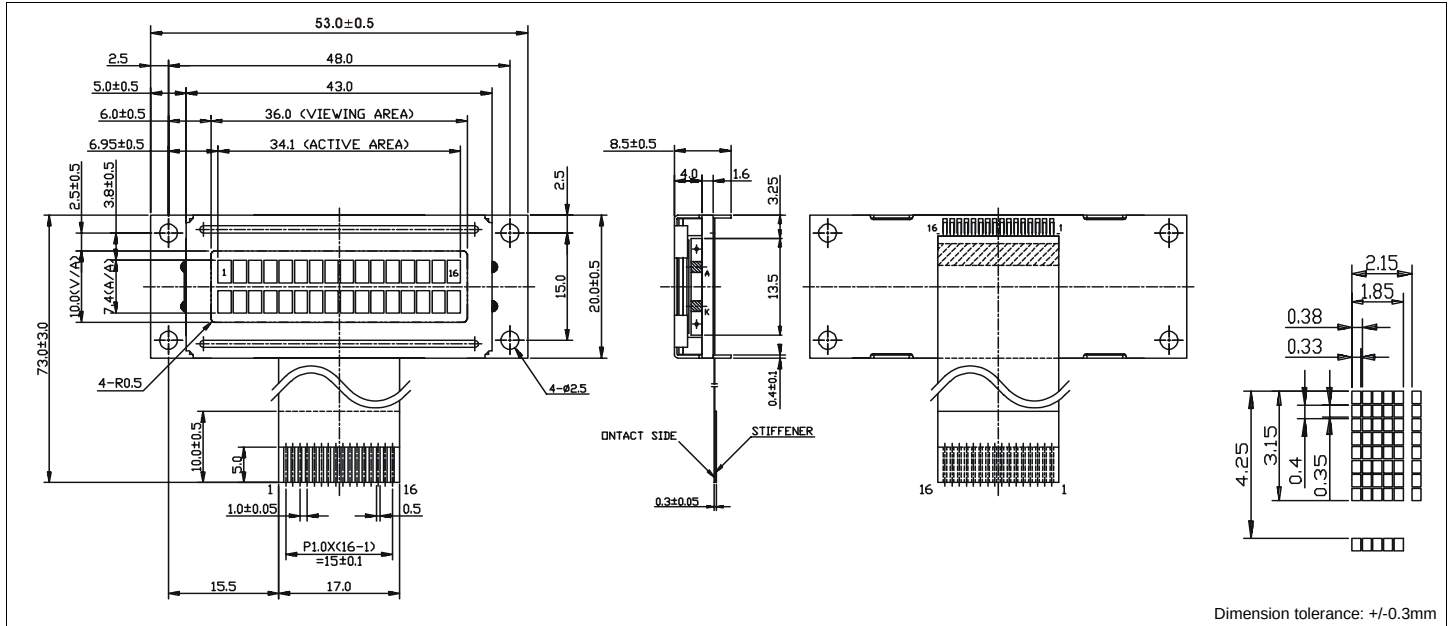


# HDM16216L-S

## Dimensional Drawing

16 Character x 2 Lines, Very Small Size, LED Backlight



### Features

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

### Physical Data

Module Size.....53.0W x 20.0H x 8.5T mm  
Viewing Area Size.....36.0W x 10.0H mm  
Weight.....10g

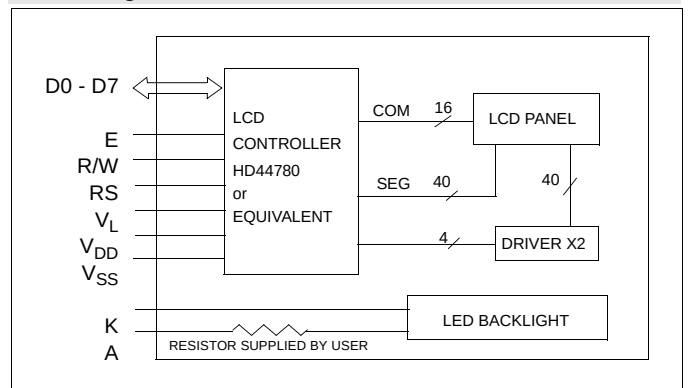
### Absolute Maximum Ratings

| PARAMETER              | SYMBOL          | MIN | MAX            | UNIT |
|------------------------|-----------------|-----|----------------|------|
| SUPPLY VOLTAGE         | $V_{DD}-V_{SS}$ | 0   | 7.0            | V    |
| SUPPLY VOLTAGE FOR LCD | $V_{DD}-V_L$    | 0   | 13.5           | V    |
| INPUT VOLTAGE          | $V_{IN}$        | 0   | $V_{DD} + 0.3$ | V    |
| OPERATING TEMPERATURE  | $T_{OP}$        | 0   | 50             | °C   |
| STORAGE TEMPERATURE    | $T_{STG}$       | -20 | 70             | °C   |
| LED FORWARD CURRENT    | $I_F$           | -   | 40             | mA   |
| LED REVERSE VOLTAGE    | $V_R$           | -   | 8              | V    |
| LED POWER CONSUMPTION  | $P_D$           | -   | 220            | mW   |

### Electrical Characteristics (VDD=5.0±0.25V 25°C)

| PARAMETER            | SYM          | CONDITION               | MIN      | TYP | MAX      | UNIT |
|----------------------|--------------|-------------------------|----------|-----|----------|------|
| INPUT HIGH VOLTAGE   | $V_{IH}$     | -                       | 2.2      |     | $V_{DD}$ | V    |
| INPUT LOW VOLTAGE    | $V_{IL}$     | -                       | $V_{SS}$ | -   | 0.6      | V    |
| OUTPUT HIGH VOLTAGE  | $V_{OH}$     | $I_{OH}=0.2mA$          | 2.4      | -   | $V_{DD}$ | V    |
| OUTPUT LOW VOLTAGE   | $V_{OL}$     | $I_{OL}=1.2mA$          | $V_{SS}$ | -   | 0.4      | V    |
| POWER SUPPLY CURRENT | $I_{DD}$     | $V_{DD}=5.0V, V_L=4.4V$ | -        | 1.0 | 2.0      | mA   |
| POWER SUPPLY FOR LCD | $V_{DD}-V_L$ | $T_A=25^{\circ}C$       |          | 4.4 |          | V    |
| LED FORWARD VOLTAGE  | $V_F$        | $I_F=20mA$              |          | 4.2 |          | V    |
| BRIGHTNESS           | L            | $V_F=4.2V, I_F=20mA$    | 7        | 10  | -        | NIT  |
| DRIVE METHOD         |              | 1/16 Duty               |          |     |          |      |

### Block Diagram



### Pin Connections

| PIN NO. | SYMBOL          | LEVEL | FUNCTION                                   |              |
|---------|-----------------|-------|--------------------------------------------|--------------|
| 1       | V <sub>SS</sub> | -     | 0V                                         | Power supply |
| 2       | V <sub>DD</sub> | -     | 5V                                         |              |
| 3       | V <sub>L</sub>  | -     | -                                          |              |
| 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 back light                   |              |
| 16      | K               |       | Cathode for LED back light                 |              |