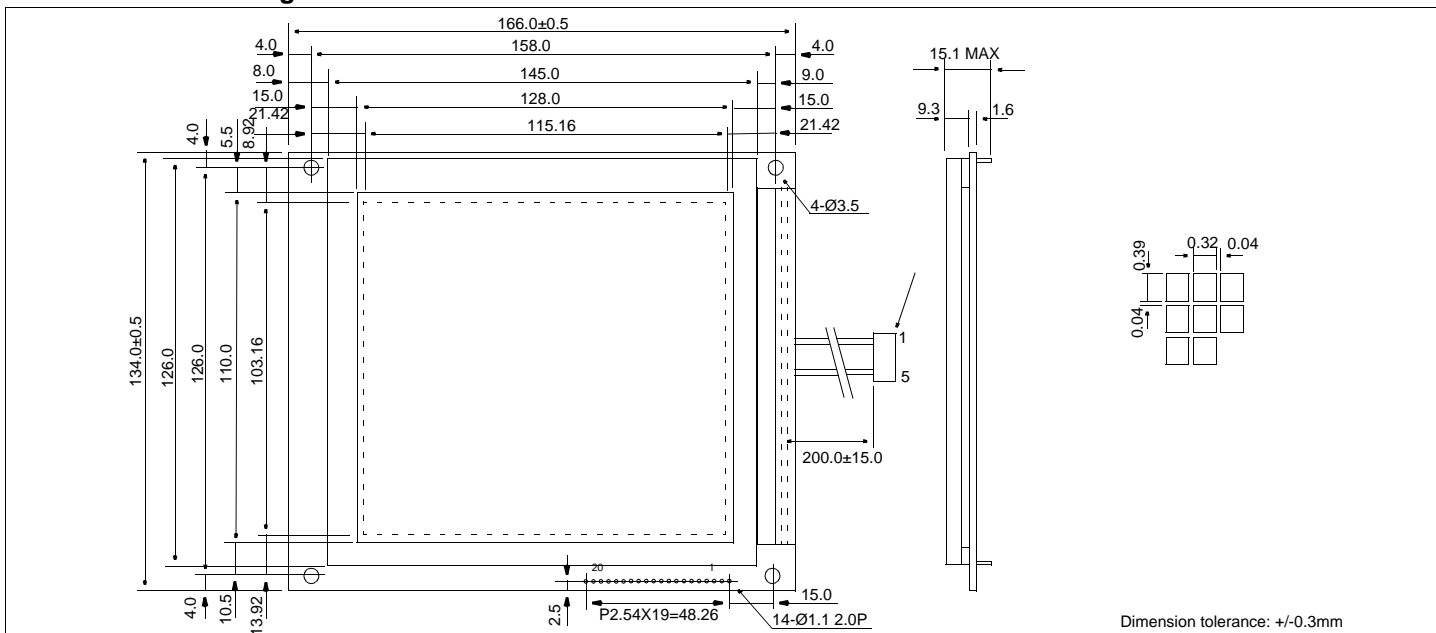


# HDM3224-7

## Dimensional Drawing

320 X 240 Dots Graphics Large Size CCFL Backlight



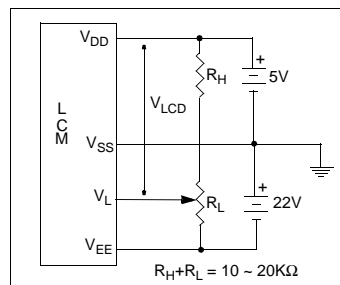
### Features

- Backlight.....CCFL
- Options.....Gray STN / Yellow STN / FSTN  
Normal/Extended Temperature  
Bottom / Top Viewing
- Built-in Controller.....None

### Physical Data

- Module Size.....166.0W x 134.0H x 15.1T mm
- Viewing Area Size.....128.0W x 110.0H mm
- Dot Pitch.....0.36W x 0.43H mm
- Dot Size.....0.32W x 0.39H mm
- Weight.....350g

### Power Supply



### Absolute Maximum Ratings

| PARAMETER              | SYMBOL          | MIN | MAX  | UNIT |
|------------------------|-----------------|-----|------|------|
| SUPPLY VOLTAGE         | $V_{DD}-V_{SS}$ | 0   | 7.0  | V    |
| SUPPLY VOLTAGE FOR LCD | $V_{DD}-V_{EE}$ | 0   | 30.0 | V    |
| INPUT VOLTAGE          | $V_{IN}$        | -   | 7.0  | V    |
| OPERATING TEMPERATURE  | $T_{OP}$        | 0   | 50   | °C   |
| STORAGE TEMPERATURE    | $T_{STG}$       | -20 | 70   | °C   |

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

| PARAMETER            | SYM        | CONDITION       | MIN          | TYP  | MAX          | UNIT |
|----------------------|------------|-----------------|--------------|------|--------------|------|
| INPUT HIGH VOLTAGE   | $V_{IH}$   | -               | 0.7 $V_{DD}$ | -    | -            | V    |
| INPUT LOW VOLTAGE    | $V_{IL}$   | -               | -            | -    | 0.3 $V_{DD}$ | V    |
| OUTPUT HIGH VOLTAGE  | $V_{OH}$   | $I_{OH}=0.4mA$  | $V_{DD}-0.4$ | -    | -            | V    |
| OUTPUT LOW VOLTAGE   | $V_{OL}$   | $I_{OL}=0.4mA$  | -            | -    | 0.4          | V    |
| SUPPLY VOLTAGE       | $V_{DD}$   | -               | 4.75         | 5.0  | 5.25         | V    |
|                      | $-V_{EE}$  | -               | -            | 22.2 | -            | V    |
| POWER SUPPLY CURRENT | $I_{DD}$   | $V_{DD}=5.0V$   | -            | 4.4  | -            | mA   |
|                      | $-I_{EE}$  | $V_{EE}=-22.7V$ | -            | 4.1  | -            | mA   |
| FRAME FREQUENCY      | $f_{FP}$   | -               | 65           | 72   | 80           | Hz   |
| DRIVE METHOD         | 1/240 DUTY |                 |              |      |              |      |

### Pin Connections

| PIN NO.               | SYMBOL   | FUNCTION |                                 |
|-----------------------|----------|----------|---------------------------------|
| 1                     | NC       | -        | No Connection                   |
| 2                     | NC       | -        |                                 |
| 3                     | NC       | -        |                                 |
| 4                     | NC       | -        |                                 |
| 5                     | NC       | -        |                                 |
| 6                     | NC       | -        |                                 |
| 7                     | INHx     | H/L      | 1 = Display ON, 0 = Display OFF |
| 8                     | DB0      | H/L      | Data bus                        |
| 9                     | DB1      | H/L      |                                 |
| 10                    | DB2      | H/L      |                                 |
| 11                    | DB3      | H/L      |                                 |
| 12                    | FLM      | H/L      | Frame Pulse                     |
| 13                    | M        | H/L      | Liquid Crystal AC drive signal  |
| 14                    | CL2      | H/H→L    | Data Shift                      |
| 15                    | CL1      | H/H→L    | Data latch signal               |
| 16                    | $V_{DD}$ | +5v      | Logic Power Supply              |
| 17                    | $V_{SS}$ | -        | Ground                          |
| 18                    | $V_L$    | -        | Operating voltage for LC        |
| 1'9                   | $V_{EE}$ | -        | Power supply voltage for LC     |
| 20                    | FGND     | -        | Frame ground                    |
| <b>CCFL CONNECTOR</b> |          |          |                                 |
| 1                     | AC IN    | -        | AC Input power                  |
| 5                     | AC IN    | -        | AC Input power                  |