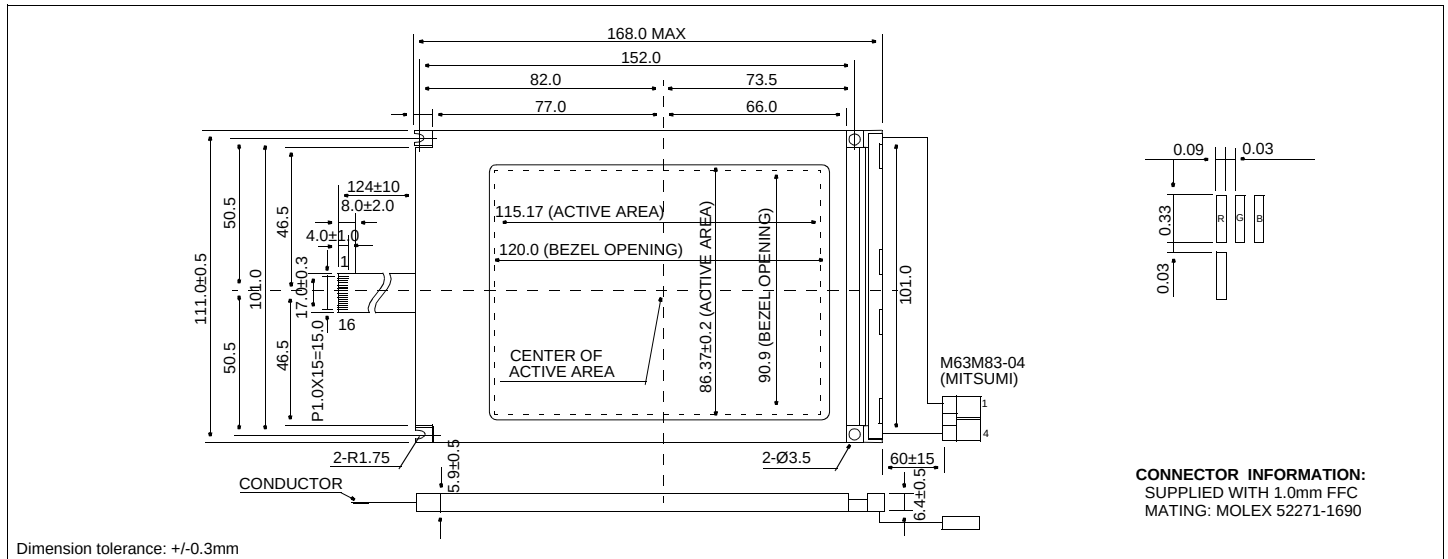


# HDM3224-C

## Dimensional Drawing

320 X 240 Dots Color Graphic CCFL Backlight



### Features

Backlight.....CCFL  
Options.....Color RGB  
Normal Temperature  
Top/ Bottom Viewing  
Built-in Controller.....None

### Physical Data

Module Size.....168.0W x 111.0H x 6.4T mm  
Viewing Area Size.....120.0W x 90.0H mm  
Dot Pitch.....0.36W x 0.36H mm  
Dot Size.....0.09W x 0.33H mm  
Weight.....280g

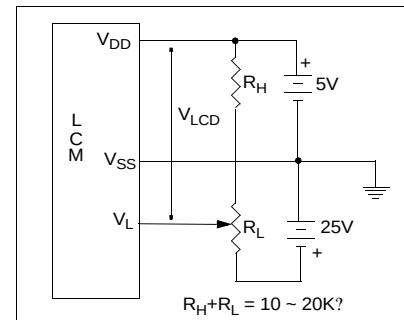
### Absolute Maximum Ratings

| PARAMETER              | SYMBOL          | MIN  | MAX            | UNIT |
|------------------------|-----------------|------|----------------|------|
| SUPPLY VOLTAGE         | $V_{DD}-V_{SS}$ | -0.3 | 7.0            | V    |
| SUPPLY VOLTAGE FOR LCD | $V_{EE}$        | 0    | 42.0           | V    |
| INPUT VOLTAGE          | $V_{IN}$        | -0.3 | $V_{DD} + 0.3$ | V    |
| OPERATING TEMPERATURE  | $T_{OP}$        | 0    | 50             | °C   |
| STORAGE TEMPERATURE    | $T_{STG}$       | -20  | 60             | °C   |

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

| PARAMETER              | SYM        | CONDITION         | MIN  | TYP  | MAX  | UNIT              |
|------------------------|------------|-------------------|------|------|------|-------------------|
| SUPPLY VOLTAGE         | $V_{DD}$   | -                 | 4.5  | 5.0  | 5.5  | V                 |
|                        | $V_L$      | -                 | 22.2 | 22.6 | 23.0 | V                 |
| LOGIC SUPPLY CURRENT   | $I_{DD}$   | $V_L = 22.6V$     | -    | 2.0  | 6.0  | mA                |
| LCD SUPPLY CURRENT     | $I_{LCD}$  | -                 | -    | 8.0  | 15.0 | mA                |
| CCFL OP. VOLTAGE       | $V_{FL}$   | -                 | -    | 320  | -    | $V_{rms}$         |
| CCFL OP. CURRENT       | $I_{FL}$   | -                 | 4    | 5    | 6    | $mA_{rms}$        |
| CCFL Power Consumption | $P_{FL}$   | -                 | -    | 1.6  | -    | W                 |
| CCFL START VOLTAGE     | $V_{FLS}$  | $T_A = 0^\circ C$ | -    | 350  | -    | $V_{rms}$         |
| CCFL FREQUENCY         | $F_{FL}$   | -                 | 20   | 35   | 50   | KHz               |
| BRIGHTNESS             | L          | -                 | -    | 67.5 | -    | cd/m <sup>2</sup> |
| Frame Frequency        | FLM        | -                 | 115  | 120  | 125  | Hz                |
| DRIVE METHOD           | 1/240 DUTY |                   |      |      |      |                   |

### Power Supply



### Pin Connections

| PIN NO.               | SYMBOL    | LEVEL | FUNCTION                 |
|-----------------------|-----------|-------|--------------------------|
| <b>DATA CONNECTOR</b> |           |       |                          |
| 1                     | FRAME     | H     | First Line Marker        |
| 2                     | LOAD      | H/L   | Data Latch               |
| 3                     | CP        | H/L   | Data shift               |
| 4                     | DISPOFF   | H/L   | H=On, L=Off              |
| 5                     | $V_{DD}$  | 5V    | Power supply for logic   |
| 6                     | $V_{SS}$  | 0V    | Ground                   |
| 7                     | $V_L$     | -     | Operating voltage for LC |
| 8                     | D0        | H/L   | Data bus                 |
| 9                     | D1        | H/L   |                          |
| 10                    | D2        | H/L   |                          |
| 11                    | D3        | H/L   |                          |
| 12                    | D4        | H/L   |                          |
| 13                    | D5        | H/L   |                          |
| 14                    | D6        | H/L   |                          |
| 15                    | D7        | H/L   |                          |
| 16                    | $V_{SS}$  | 0V    |                          |
| <b>CCFL CONNECTOR</b> |           |       |                          |
| 1                     | $V_{CFL}$ | -     | Power supply for CCFL    |
| 2                     | NC        | -     | No Connection            |
| 3                     | NC        | -     | No Connection            |
| 4                     | $V_{CFL}$ | -     | CCFL Ground              |

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