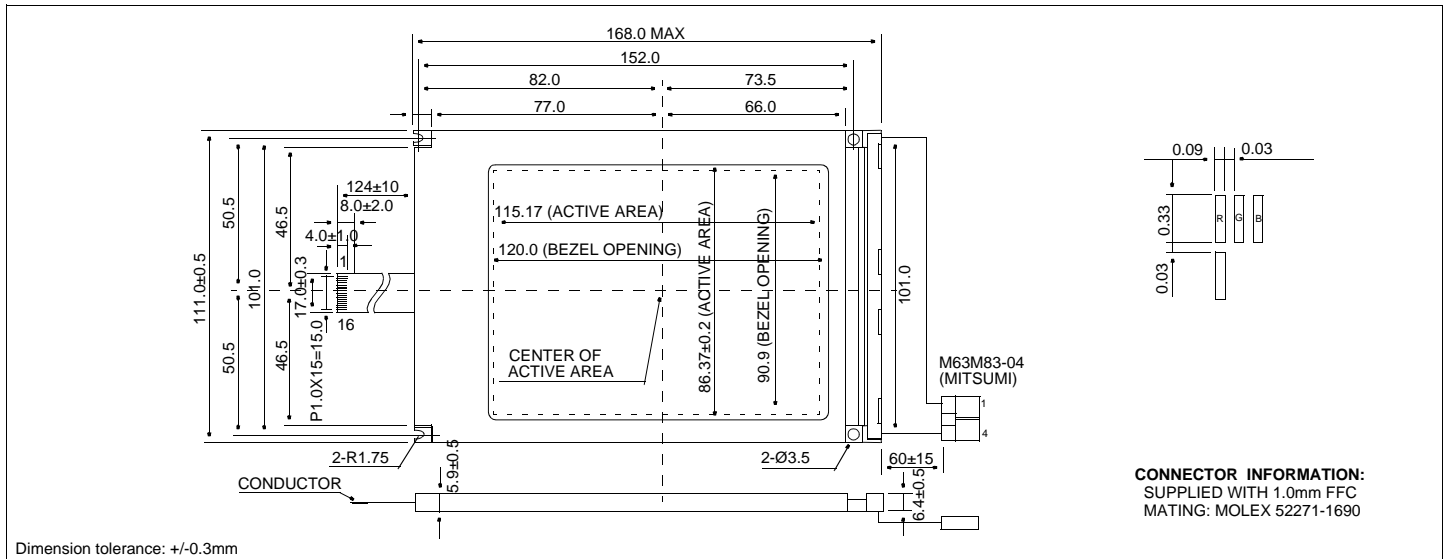


# HDM3224-C

320 X 240 Dots Color Graphic CCFL Backlight

## Dimensional Drawing



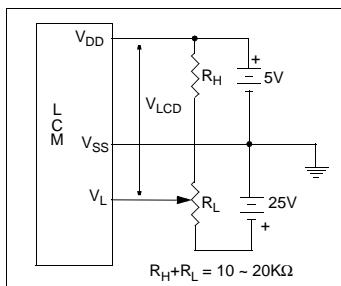
### Features

Backlight.....CCFL  
 Options.....Color RGB  
 Normal/Extended Temperature  
 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

### Power Supply



### 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          |
|                    | $V_L$      | -                 | 23.3        | 23.5 | 23.6        | V          |
| INPUT HIGH VOLTAGE | $V_{IH}$   | -                 | .8 $V_{DD}$ | -    | $V_{DD}$    | V          |
| INPUT LOW VOLTAGE  | $V_{IL}$   | -                 | 0           | -    | .2 $V_{DD}$ | V          |
| CCFL OP. VOLTAGE   | $V_{FL}$   | -                 | -           | 320  | -           | $V_{rms}$  |
| CCFL OP. CURRENT   | $I_{FL}$   | -                 | 4           | 5    | 6           | $mA_{rms}$ |
| CCFL START VOLTAGE | $V_{FLS}$  | $T_A = 0^\circ C$ | -           | 455  | -           | $V_{rms}$  |
| CCFL FREQUENCY     | $F_{FL}$   | -                 | 20          | 35   | 50          | KHZ        |
| DRIVE METHOD       | 1/240 DUTY |                   |             |      |             |            |

### 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 | 7.0  | V    |
| OPERATING TEMPERATURE      | $T_{OP}$        | 0    | 50   | °C   |
| STORAGE TEMPERATURE        | $T_{STG}$       | -20  | 70   | °C   |
| OPERATING TEMPERATURE (WT) | $T_{OP}$        | -20  | 70   | °C   |
| STORAGE TEMPERATURE (WT)   | $T_{STG}$       | -30  | 80   | °C   |

### 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              |