### Electrical Characteristics ($V_{DD}=5.0\pm0.25V$ 25°C)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>CONDITION</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPPLY VOLTAGE</td>
<td>$V_{DD}$</td>
<td>-</td>
<td>4.5</td>
<td>5.0</td>
<td>5.5</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>$V_{IL}$</td>
<td>-</td>
<td>22.2</td>
<td>22.6</td>
<td>23.0</td>
<td>V</td>
</tr>
<tr>
<td>LOGIC SUPPLY CURRENT</td>
<td>$I_{DD}$</td>
<td>$V_{IL}=22.6V$</td>
<td>-</td>
<td>2.0</td>
<td>6.0</td>
<td>mA</td>
</tr>
<tr>
<td>LCD SUPPLY CURRENT</td>
<td>$I_{LCD}$</td>
<td>-</td>
<td>8.0</td>
<td>15.0</td>
<td>mA</td>
<td></td>
</tr>
<tr>
<td>CCFL OP. VOLTAGE</td>
<td>$V_{IL}$</td>
<td>-</td>
<td>320</td>
<td>-</td>
<td>$V_{rms}$</td>
<td>mA</td>
</tr>
<tr>
<td>CCFL OP. CURRENT</td>
<td>$I_{FL}$</td>
<td>-</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>$mA_{rms}$</td>
</tr>
<tr>
<td>CCFL Power Consumption</td>
<td>$P_{IL}$</td>
<td>-</td>
<td>1.6</td>
<td>-</td>
<td>-</td>
<td>W</td>
</tr>
<tr>
<td>CCFL START VOLTAGE</td>
<td>$V_{ILS}$</td>
<td>$T_{A}=0°C$</td>
<td>-</td>
<td>350</td>
<td>$V_{rms}$</td>
<td></td>
</tr>
<tr>
<td>CCFL FREQUENCY</td>
<td>$f_{FL}$</td>
<td>-</td>
<td>20</td>
<td>35</td>
<td>50</td>
<td>kHz</td>
</tr>
<tr>
<td>BRIGHTNESS</td>
<td>$L$</td>
<td>-</td>
<td>67.5</td>
<td>-</td>
<td>-</td>
<td>cd/m²</td>
</tr>
<tr>
<td>Frame Frequency</td>
<td>$F_{LM}$</td>
<td>-</td>
<td>115</td>
<td>120</td>
<td>125</td>
<td>Hz</td>
</tr>
<tr>
<td>DRIVE METHOD</td>
<td></td>
<td></td>
<td>1/240 DUTY</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>MIN</th>
<th>MAX</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPPLY VOLTAGE</td>
<td>$V_{DD}$</td>
<td>-V</td>
<td>5.0</td>
<td>V</td>
</tr>
<tr>
<td>SUPPLY VOLTAGE LCD</td>
<td>$V_{EE}$</td>
<td>0</td>
<td>42.0</td>
<td>V</td>
</tr>
<tr>
<td>INPUT VOLTAGE</td>
<td>$V_{IN}$</td>
<td>-0.3</td>
<td>$V_{DD}$+0.3</td>
<td>V</td>
</tr>
<tr>
<td>OPERATING TEMPERATURE</td>
<td>$T_{OP}$</td>
<td>0</td>
<td>50</td>
<td>°C</td>
</tr>
<tr>
<td>STORAGE TEMPERATURE</td>
<td>$T_{STG}$</td>
<td>-20</td>
<td>60</td>
<td>°C</td>
</tr>
</tbody>
</table>

### Power Supply

```
\[ V_{DD} \quad 5V \quad \text{Power supply for logic} \\
V_{SS} \quad 0V \quad \text{Ground} \\
V_{L} \quad \text{Operating voltage for LCD} \]
```

### Pin Connections

**DATA CONNECTOR**

- 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 LCD
- 8: D0 H/L
- 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

**CCFL CONNECTOR**

- 1: $V_{CCFL}$ Power supply for CCFL
- 2: NC No Connection
- 3: NC No Connection
- 4: $V_{CCFL}$ CCFL Ground

---

**Dimensions**

- 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
- Weight: 280g

**Features**

- Backlight: CCFL
- Options: Color RGB
- Normal Temperature
- Top/Bottom Viewing: None

---

**Electrical Characteristics**

- Supply Voltage: $V_{DD}$
- Logic Supply Voltage: $V_{IL}$
- LCD Supply Voltage: $V_{LCD}$
- CCFL Operations Voltage: $V_{IL}$
- CCFL Operations Current: $I_{FL}$
- CCFL Power Consumption: $P_{IL}$
- CCFL Start Voltage: $V_{ILS}$
- CCFL Frequency: $f_{FL}$
- Brightness: $L$
- Frame Frequency: $F_{LM}$
- Drive Method: 1/240 Duty

---

**Physical Data**

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

---

**Packaging**

- Connector Information: Supplied with 1.0mm FFC, Mating: MOLEX 52271-1690

---

**Power Supply**

```
\[ V_{DD} \quad 5V \quad \text{Power supply for logic} \\
V_{SS} \quad 0V \quad \text{Ground} \\
V_{L} \quad \text{Operating voltage for LCD} \]
```