

## User's Guide

# D0109MT-25-1101

## **VFD- RoHS Compliant**

(Vacuum Fluorescent Display Module)

—————For product support, contact

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# Vacuum Fluorescent Display Specification

PART NUMBER: D0109MT-25-1101

FEATURES: 9 Digits – Seven Segmented, with custom segments, Decimals + Apostrophe

APPLICATION: Character Display- (7-Seg) - Scales

RATINGS: Below

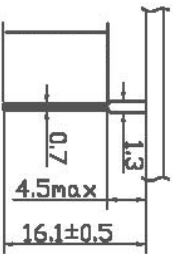
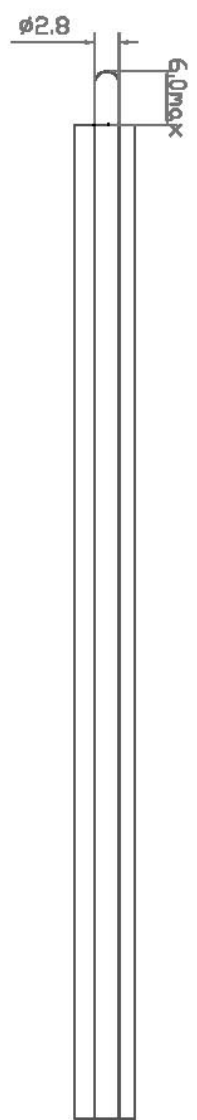
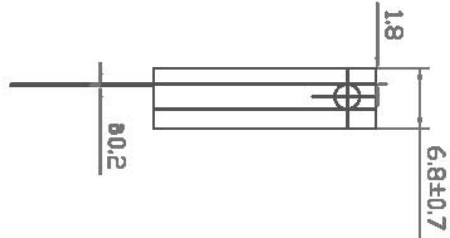
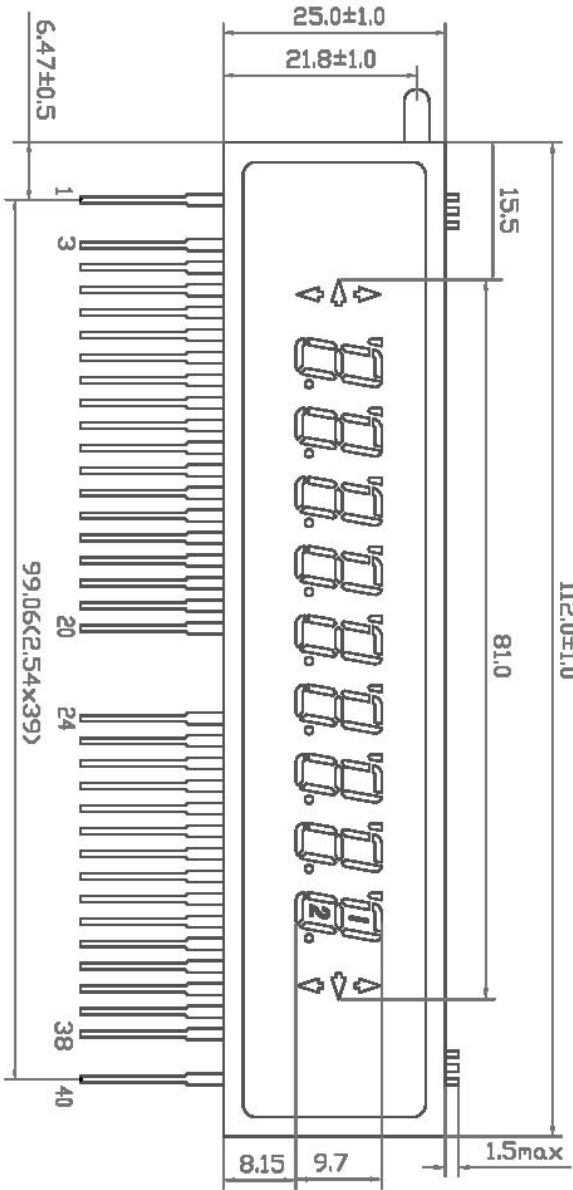
|                       |                  |      |             |           |
|-----------------------|------------------|------|-------------|-----------|
| Outer Dimensions      | Panel Length     | P.L. | 112.0       | mm        |
|                       | Panel Height     | P.H. | 25.0        | mm        |
|                       | Panel Thickness  | P.T. | 6.8         | mm        |
|                       |                  |      |             |           |
| Leads                 | Lead Pitch       | L.P. | 2.54        | mm        |
|                       | Lead Out         | -    | SIL         |           |
|                       |                  |      |             |           |
| Character Size        | Character Height | C.H. | 9.7         | mm        |
|                       | Character Width  | C.W. | -           | mm        |
|                       |                  |      |             |           |
| Item                  | Symbol           | Min. | Recommended | Max. Unit |
| Filament Voltage      | Ef               | 3.9  | 4.3         | 4.7 Vac   |
| Peak Grid Voltage     | ec               | -    | 25.0        | 30.0 Vp-p |
| Peak Anode Voltage    | eb               | -    | 25.0        | 30.0 Vp-p |
| Cut-off Bias          | Ek               | -    | 0           | - Vdc     |
| Duty Cycle            | Du               | -    | 1/15        | -         |
| Pulse Width           | tp               | -    | 100         | - uS      |
| Operating Temperature | Topr             | -40  | -           | + 85 C    |
| Storage Temperature   | Tstg             | -50  | -           | + 95 C    |
| Color of Illumination | Green            |      |             |           |

# Electrical Characteristics

| Item                         | Symbol                         | Test Condition                                                              | Min.                  | Typical                 | Max.                     | Unit                                  |
|------------------------------|--------------------------------|-----------------------------------------------------------------------------|-----------------------|-------------------------|--------------------------|---------------------------------------|
| <b>Filament Current</b>      | If<br>-                        | Ef = 4.3 Vac<br>eb = ec = 0                                                 | 70.0<br>-             | 78.0<br>-               | 86.0<br>-                | mAac<br>-                             |
| <b>Anode Current</b>         | ib / 1~11G<br>-<br>-<br>-<br>- | Ef = 4.3 Vac<br>eb = 25.0 Vp-p<br>ec = 25.0 Vp-p<br>Du = 1/15<br>tp = 100uS | -<br>-<br>-<br>-<br>- | 4.0<br>-<br>-<br>-<br>- | 8.0<br>-<br>-<br>-<br>-  | mA <sub>p-p</sub><br>-<br>-<br>-<br>- |
| <b>Grid Current</b>          | ic / 1~11G<br>-<br>-<br>-<br>- | ( All segs are ON )                                                         | -<br>-<br>-<br>-<br>- | 5.0<br>-<br>-<br>-<br>- | 10.0<br>-<br>-<br>-<br>- | mA <sub>p-p</sub><br>-<br>-<br>-<br>- |
| <b>Luminance</b>             | L(G)<br>-                      |                                                                             | 350<br>(102)          | 700<br>(204)            | -                        | cd/m <sup>2</sup><br>fL               |
| <b>Luminance Ratio</b>       | Lmin/Lmax                      |                                                                             | 50                    | -                       | -                        | %                                     |
| <b>Grid Cut-off Voltage</b>  | Ecco                           | Ef = 4.3 Vac<br>Eb = 25.0 Vdc                                               | -4.5                  | -                       | -                        | Vdc                                   |
| <b>Anode Cut-off Voltage</b> | Ebco                           | Ef = 4.3 Vac<br>ec = 25.0 Vp-p<br>Du = 1/15<br>Tp = 100uS                   | -4.5                  | -                       | -                        | Vdc                                   |

**DRIVE MODE: Dynamic State**

1: Outline Drawing (Unit:mm)

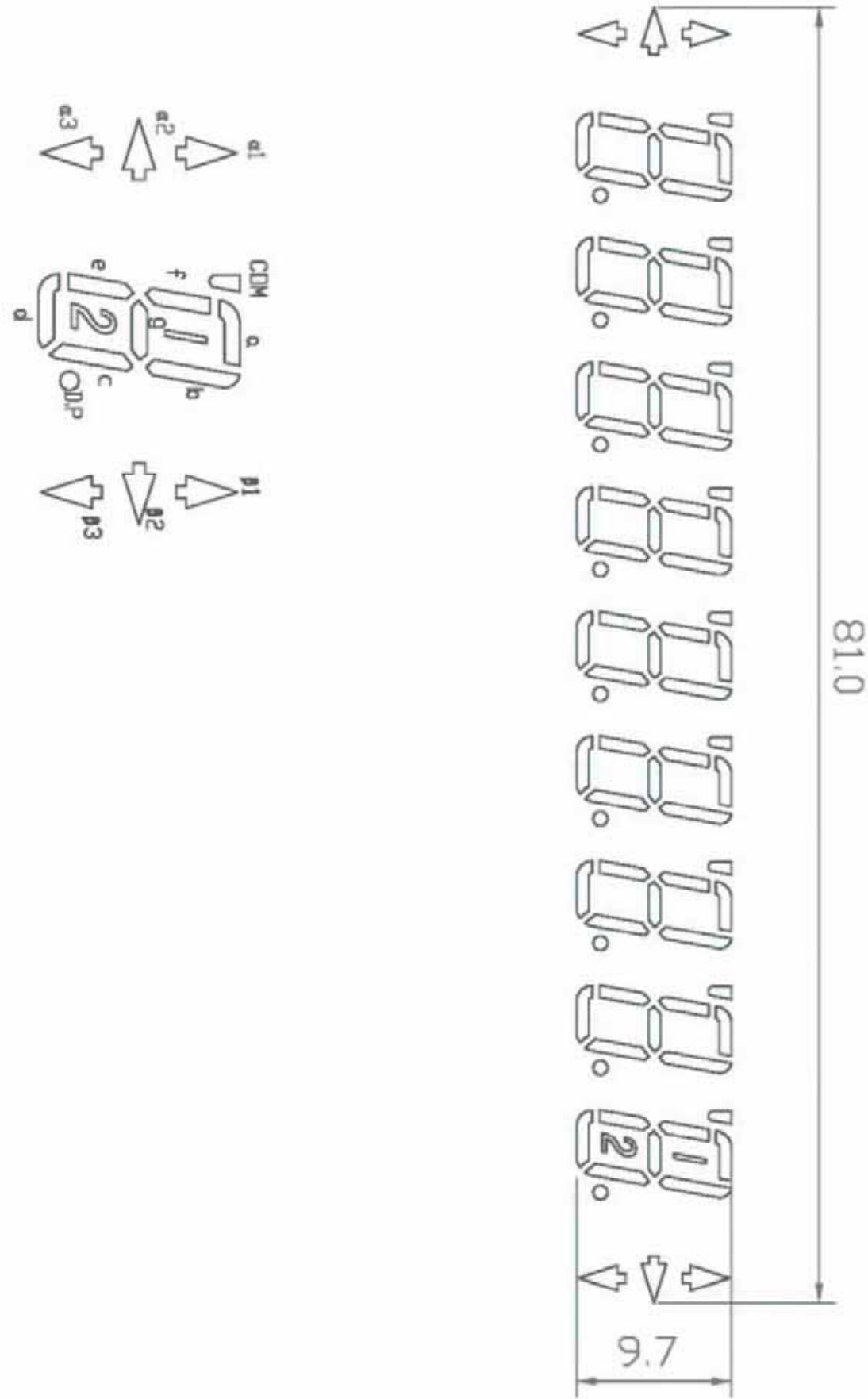


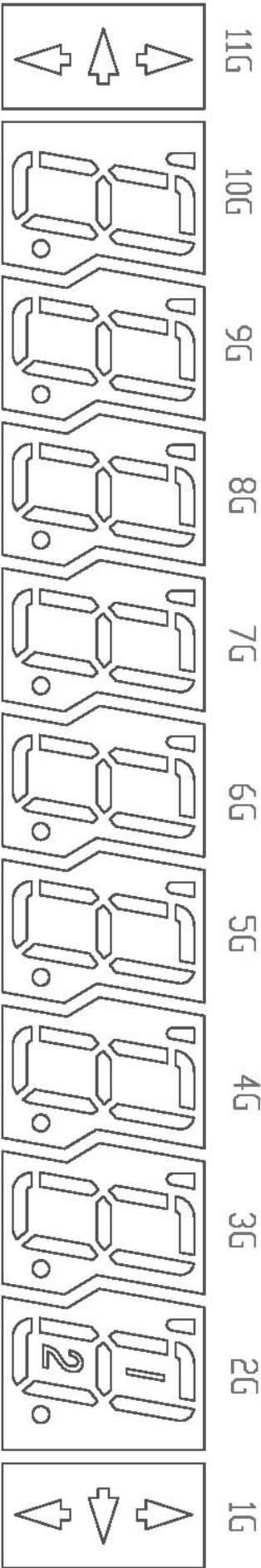
Pin Connections:

| Pin Number | 1  | 2  | 3  | 4  | 5   | 6  | 7  | 8   | 9   | 10 | 11  | 12 | 13 | 14  | 15  | 16 | 17  | 18  | 19 | 20 |
|------------|----|----|----|----|-----|----|----|-----|-----|----|-----|----|----|-----|-----|----|-----|-----|----|----|
| Connection | F  | NP | P1 | P2 | 11G | P3 | NC | 10G | NC  | P4 | 9G  | P5 | P6 | 8G  | NC  | P7 | 7G  | NC  | NC | 8G |
| Pin Number | 21 | 22 | 23 | 24 | 25  | 26 | 27 | 28  | 29  | 30 | 31  | 32 | 33 | 34  | 35  | 36 | 37  | 38  | 39 | 40 |
| Connection | NP | NP | NP | 5G | P8  | P9 | 4G | P10 | P11 | 3G | P12 | NC | 2G | P13 | P14 | 1G | P15 | P16 | NP | F  |

NOTE: F: Filament G: Grid P: Anode NP: No Pin NC: No Connection

2: Grid Assignment:





## 4: Anode Connection:

|     | 1G        | 2G     | 3G  | 4G  | 5G  | 6G  | 7G  | 8G  | 9G  | 10G | 11G        |
|-----|-----------|--------|-----|-----|-----|-----|-----|-----|-----|-----|------------|
| P1  |           |        |     |     |     |     |     |     |     |     | $\alpha 1$ |
| P2  |           |        |     |     |     |     |     |     |     |     | $\alpha 2$ |
| P3  |           |        |     |     |     |     |     |     |     |     | $\alpha 3$ |
| P4  |           | g      | g   | g   | g   | g   | g   | g   | g   | g   |            |
| P5  |           | f      | f   | f   | f   | f   | f   | f   | f   | f   |            |
| P6  |           | e      | e   | e   | e   | e   | e   | e   | e   | e   |            |
| P7  |           | d      | d   | d   | d   | d   | d   | d   | d   | d   |            |
| P8  |           | D.P    | D.P | D.P | D.P | D.P | D.P | D.P | D.P | D.P |            |
| P9  |           | c      | c   | c   | c   | c   | c   | c   | c   | c   |            |
| P10 |           | b      | b   | b   | b   | b   | b   | b   | b   | b   |            |
| P11 |           | a      | a   | a   | a   | a   | a   | a   | a   | a   |            |
| P12 |           | COM    | COM | COM | COM | COM | COM | COM | COM | COM |            |
| P13 |           | 1<br>2 |     |     |     |     |     |     |     |     |            |
| P14 | $\beta 3$ |        |     |     |     |     |     |     |     |     |            |
| P15 | $\beta 2$ |        |     |     |     |     |     |     |     |     |            |
| P16 | $\beta 1$ |        |     |     |     |     |     |     |     |     |            |

# Mouser Electronics

Authorized Distributor

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