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## User's Guide

# C-29-1002FN

# VFD

(Vacuum Fluorescent Character Display Module)

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## Vacuum Fluorescent Display Specification

**PART NUMBER:** C-29-1002FN

**FEATURES:** 8 Digits, Alphanumeric, with Icons – AUDIO

**APPLICATION:** Character Display (Alphanumeric)

**RATINGS:** Below

| Outer Dimensions      | Panel Length     | P.L. | 100.0       | mm   |      |
|-----------------------|------------------|------|-------------|------|------|
|                       | Panel Height     | P.H. | 29.0        | mm   |      |
|                       | Panel Thickness  | P.T. | 8.0         | mm   |      |
|                       |                  |      |             |      |      |
| Leads                 | Lead Pitch       | L.P. | 2.54        | Mm   |      |
|                       | Lead Out         | -    | SIL         |      |      |
|                       |                  |      |             |      |      |
| Character Size        | Character Height | C.H. | 10.5        | mm   |      |
|                       | Character Width  | C.W. | 5.0         | mm   |      |
|                       |                  |      |             |      |      |
| Item                  | Symbol           | Min. | Recommended | Max. | Unit |
| Filament Voltage      | Ef               | 3.4  | 3.8         | 4.2  | Vac  |
| Peak Grid Voltage     | Ec               | -    | 28.0        | 32.0 | Vp-p |
| Peak Anode Voltage    | Eb               | -    | 28.0        | 32.0 | Vp-p |
| Cut-off Bias          | Ek               | -    | -           | -    | -    |
| Duty Cycle            | Du               | -    | 1/11        | -    | -    |
| Pulse Width           | Tp               | -    | 100         | -    | uS   |
| Operating Temperature | Topr             | -40  | -           | + 80 | C    |
| Storage Temperature   | Tstg             | -55  | -           | + 85 | C    |
| Color of Illumination | Green / Red      |      |             |      |      |

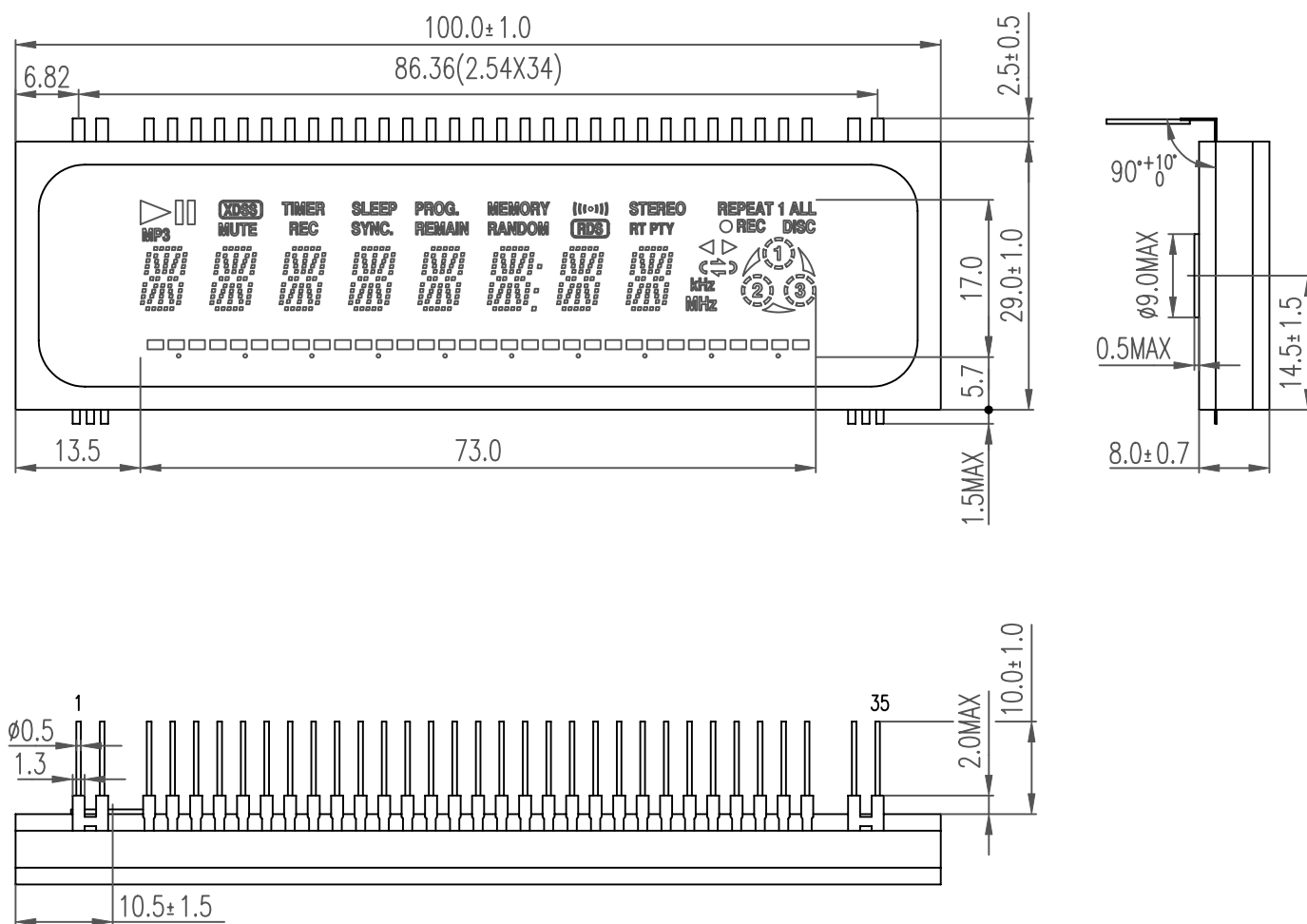
## C-29-1002FN

### Electrical Characteristics

| Item                         | Symbol                               | Test Condition                                                               | Min.         | Typical      | Max.       | Unit                      |
|------------------------------|--------------------------------------|------------------------------------------------------------------------------|--------------|--------------|------------|---------------------------|
| <b>Filament Current</b>      | If<br>-                              | Ef = 3.8 Vac<br>eb = ec = 0                                                  | 148.5<br>-   | 165.0<br>-   | 181.5<br>- | mAac<br>-                 |
| <b>Anode Current</b>         | ib/1~8G<br>ib/9G<br>ib/10G<br>-<br>- | Ef = 3.8 Vac<br>eb = 28.0 Vp-p<br>ec = 28.0 Vp-p<br>Du = 1/11<br>tp = 100 uS | -            | 9.0          | 16.0       | mA <sub>p-p</sub>         |
|                              |                                      |                                                                              | -            | 11.0         | 22.0       | mA <sub>p-p</sub>         |
|                              |                                      |                                                                              | -            | 15.0         | 30.0       | mA <sub>p-p</sub>         |
|                              |                                      |                                                                              | -            | -            | -          | mA <sub>p-p</sub>         |
|                              |                                      |                                                                              | -            | -            | -          | mA <sub>p-p</sub>         |
| <b>Grid Current</b>          | ic/1~8G<br>ic/9G<br>ic/10G<br>-<br>- |                                                                              | -            | 8.5          | 17.0       | mA <sub>p-p</sub>         |
|                              |                                      |                                                                              | -            | 10.0         | 20.0       | mA <sub>p-p</sub>         |
|                              |                                      |                                                                              | -            | 12.0         | 24.0       | mA <sub>p-p</sub>         |
|                              |                                      |                                                                              | -            | -            | -          | mA <sub>p-p</sub>         |
|                              |                                      |                                                                              | -            | -            | -          | mA <sub>p-p</sub>         |
| <b>Luminance</b>             | L(G)<br><br>L(R)                     |                                                                              | 350<br>(102) | 700<br>(204) | -          | cd/m <sup>2</sup><br>(fL) |
|                              |                                      |                                                                              | 35<br>(10.2) | 70<br>(20.4) |            | cd/m <sup>2</sup><br>(fL) |
|                              |                                      |                                                                              |              |              |            | cd/m <sup>2</sup><br>(fL) |
| <b>Luminance Ratio</b>       | Lmin/Lmax                            |                                                                              | 50           | -            | -          | %                         |
| <b>Grid Cut-off Voltage</b>  | Ecco                                 | Ef = 3.8 Vac<br>Eb = 28.0 Vdc                                                | -5.0         | -            | -          | Vdc                       |
| <b>Anode Cut-off Voltage</b> | Ebco                                 | Ef = 3.8 Vac<br>ec = 28.0 Vp-p<br>Du = 1/11<br>tp = 100 uS                   | -5.0         | -            | -          | Vdc                       |

型号 Type No. VFD29-1002FN

附图 1: 外形图 Outline Drawing (Unit:mm)



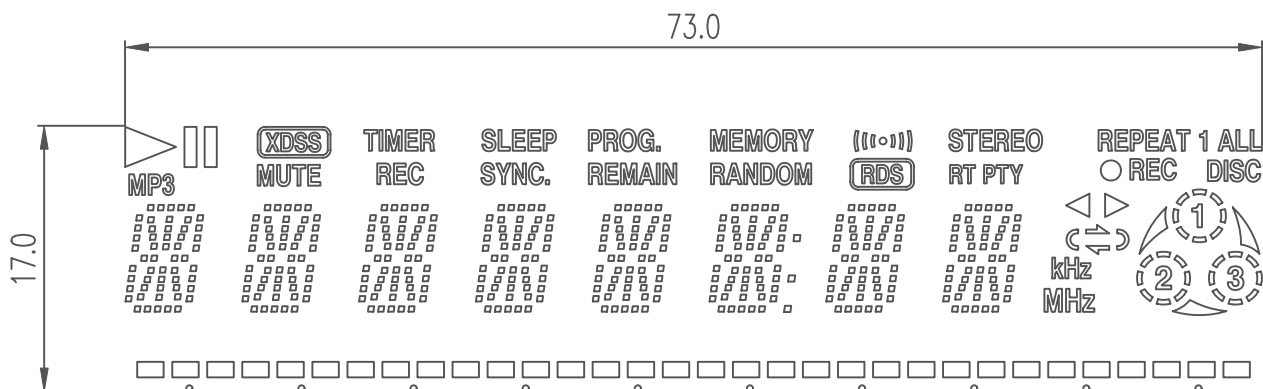
管脚连接 (PIN CONNECTION)

|                 |    |    |    |    |    |     |     |     |     |     |     |     |     |     |    |    |    |    |
|-----------------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|
| 端子序号 (PIN NO.)  | 1  | 2  | 3  | 4  | 5  | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15 | 16 | 17 | 18 |
| 连接 (CONNECTION) | F  | F  | NP | 1G | 2G | 3G  | 4G  | 5G  | 6G  | 7G  | 8G  | 9G  | 10G | NC  | P1 | P2 | P3 | P4 |
| 端子序号 (PIN NO.)  | 19 | 20 | 21 | 22 | 23 | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  | 32  | 33 | 34 | 35 |    |
| 连接 (CONNECTION) | P5 | P6 | P7 | P8 | P9 | P10 | P11 | P12 | P13 | P14 | P15 | P16 | P17 | P18 | NP | F  | F  |    |

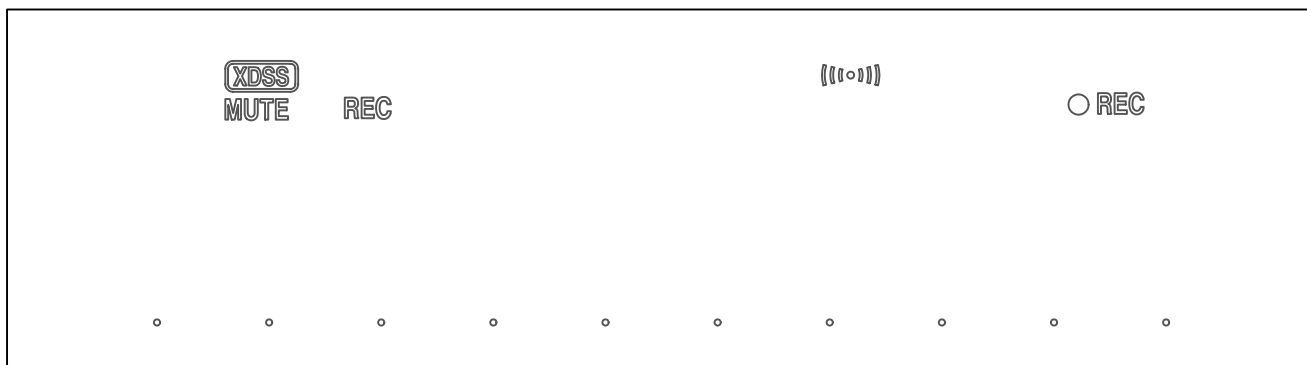
注 :F: 灯丝 (Filament) P: 阳极 (Anode) G: 栅极 (Grid) NC: 无连接 (No connection) NP: 无引出脚 (No pin)

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附图 2: 显示内容 Display Pattern



红色 Red (X=0.627,Y=0.371)



绿色 Green : 其他 Other (X=0.250, Y=0.440)

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附图 3: 栅网分割 Grid Assignment

