



## User's Guide

# C-58-0601

# VFD

(Vacuum Fluorescent Character Display Module)

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# Vacuum Fluorescent Display Specification

**PART NUMBER:** C-58-0601

**FEATURES:** 6 Digits, Seven Segmented, with Icons – AUTOMOTIVE

**APPLICATION:** Character Display (7-Segmented)

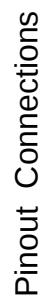
**RATINGS:** Below

|                       |                  |      |             |       |      |
|-----------------------|------------------|------|-------------|-------|------|
| Outer Dimensions      | Panel Length     | P.L. | 110.0       | mm    |      |
|                       | Panel Height     | P.H. | 58.0        | mm    |      |
|                       | Panel Thickness  | P.T. | 10.5        | mm    |      |
|                       |                  |      |             |       |      |
| Leads                 | Lead Pitch       | L.P. | 2.54        | mm    |      |
|                       | Lead Out         | -    | SIL         |       |      |
|                       |                  |      |             |       |      |
| Character Size        | Character Height | C.H. | 7.6         | mm    |      |
|                       | Character Width  | C.W. | 4.3         | mm    |      |
|                       |                  |      |             |       |      |
| Item                  | Symbol           | Min. | Recommended | Max.  | Unit |
| Filament Voltage      | Ef               | 3.78 | 4.2         | 4.62  | Vac  |
| Peak Grid Voltage     | ec               | -    | 32.0        | 38.0  | Vp-p |
| Peak Anode Voltage    | eb               | -    | 32.0        | 38.0  | Vp-p |
| Cut-off Bias          | Ek               | -    | -           | -     | -    |
| Duty Cycle            | Du               | -    | 1/ 7        | -     | -    |
| Pulse Width           | tp               | -    | 100         | -     | uS   |
| Operating Temperature | Topr             | -30  | -           | + 85  | C    |
| Storage Temperature   | Tstg             | -40  | -           | + 100 | C    |
| Color of Illumination | Green / Red      |      |             |       |      |

## Electrical Characteristics

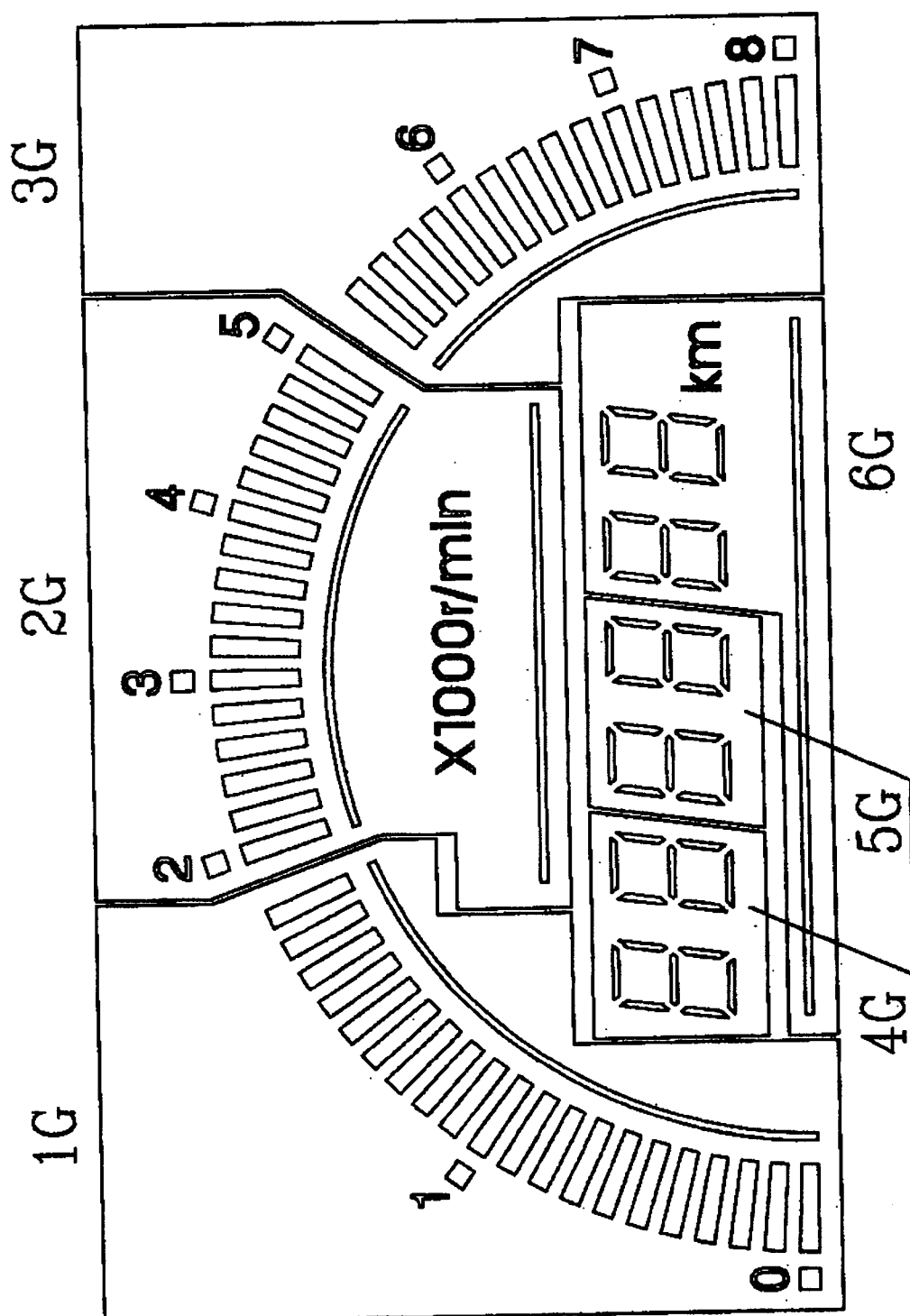
| Item                         | Symbol                                    | Test Condition                                                              | Min.          | Typical       | Max.       | Unit                      |
|------------------------------|-------------------------------------------|-----------------------------------------------------------------------------|---------------|---------------|------------|---------------------------|
| <b>Filament Current</b>      | If<br>-                                   | Ef = 4.2 Vac<br>eb = ec = 0                                                 | 340.0<br>-    | 378.0<br>-    | 416.0<br>- | mAac<br>-                 |
| <b>Anode Current</b>         | ib/1G<br>ib/2,3G<br>Ib/4,5G<br>Ib/6G<br>- | Ef = 4.2 Vac<br>eb = 32.0 Vp-p<br>ec = 32.0 Vp-p<br>Du = 1/7<br>tp = 100 uS | -             | 40.0          | 80.0       | mA <sub>p-p</sub>         |
|                              |                                           |                                                                             | -             | 32.0          | 64.0       | mA <sub>p-p</sub>         |
|                              |                                           |                                                                             | -             | 8.0           | 16.0       | mA <sub>p-p</sub>         |
|                              |                                           |                                                                             | -             | 15.0          | 30.0       | mA <sub>p-p</sub>         |
|                              |                                           |                                                                             | -             | -             | -          | mA <sub>p-p</sub>         |
| <b>Grid Current</b>          | ic/1G<br>ic/2,3G<br>ic/4,5G<br>ic/6G<br>- |                                                                             | -             | 38.0          | 76.0       | mA <sub>p-p</sub>         |
|                              |                                           |                                                                             | -             | 30.0          | 60.0       | mA <sub>p-p</sub>         |
|                              |                                           |                                                                             | -             | 7.5           | 15.0       | mA <sub>p-p</sub>         |
|                              |                                           |                                                                             | -             | 14.0          | 28.0       | mA <sub>p-p</sub>         |
|                              |                                           |                                                                             | -             | -             | -          | mA <sub>p-p</sub>         |
| <b>Luminance</b>             | L(G)<br><br>L(R)<br><br>-                 |                                                                             | 1500<br>(437) | 2060<br>(600) | -          | cd/m <sup>2</sup><br>(fL) |
|                              |                                           |                                                                             | 146<br>(44)   | 292<br>(88)   | -          | cd/m <sup>2</sup><br>(fL) |
|                              |                                           |                                                                             | -             | -             | -          | cd/m <sup>2</sup><br>(fL) |
|                              |                                           |                                                                             | -             | -             | -          | cd/m <sup>2</sup><br>(fL) |
| <b>Luminance Ratio</b>       | Lmin/Lmax                                 |                                                                             | 70            | -             | -          | %                         |
| <b>Grid Cut-off Voltage</b>  | Ecco                                      | Ef = 4.2 Vac<br>Eb = 32.0 Vdc                                               | -6.0          | -             | -          | Vdc                       |
| <b>Anode Cut-off Voltage</b> | Ebco                                      | Ef = 4.2 Vac<br>ec = 32.0 Vp-p<br>Du = 1/7<br>tp = 100 uS                   | -6.0          | -             | -          | Vdc                       |

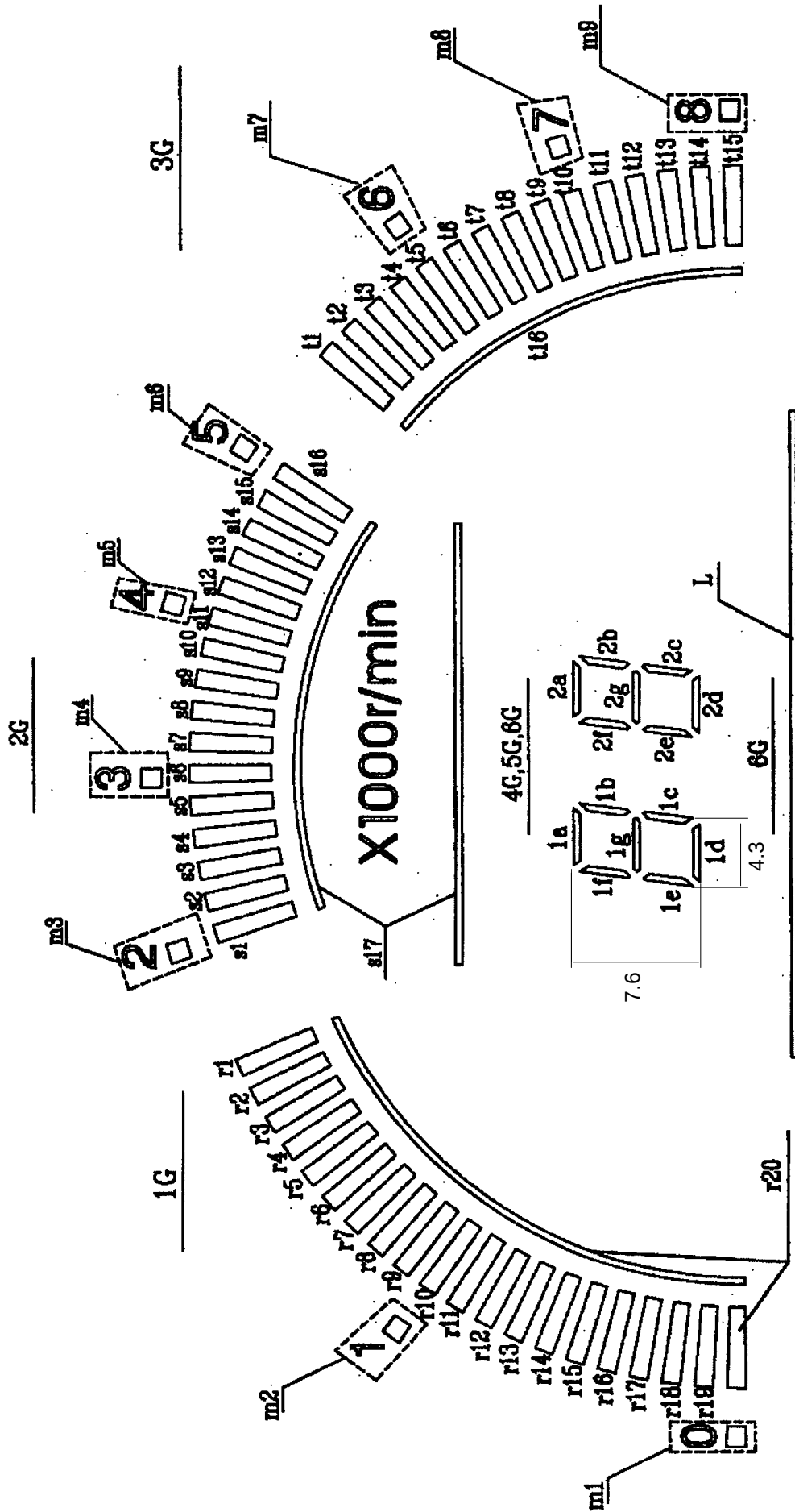
\* Drive Mode = Dynamic State



| Pin No. | 1   | 2   | 3   | 4     | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12    | 13  | 14    | 15  | 16  | 17  | 18  | 19  | 20  |
|---------|-----|-----|-----|-------|----|----|----|----|----|----|----|-------|-----|-------|-----|-----|-----|-----|-----|-----|
| Connect | F1  | F1  | Np  | P1    | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9    | P10 | P11   | P12 | P13 | P14 | P15 | P16 | P17 |
| Pin No. | 21  | 22  | 23  | 24~29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37~40 | 41  | 42~73 | 74  | 75  | 76  |     |     |     |
| Connect | P18 | P19 | P20 | Nc    | 1G | 2G | 3G | 4G | 5G | 6G | Np | F2    | Np  | Nc    | Np  | F1  | F1  | F1  | F1  | F1  |

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





t5~t15 · m7 · m8 · m9 .

.5.

|     | 1G        | 2G                                       | 3G              | 4G | 5G | 6G          |
|-----|-----------|------------------------------------------|-----------------|----|----|-------------|
| P1  | r16       | s16                                      |                 |    |    |             |
| P2  | r15       | s15                                      | t1              | 1a | 1a | 1a          |
| P3  | r14       | s14                                      | t2              | 1f | 1f | 1f          |
| P4  | r13       | s13                                      | t3              | 1b | 1b | 1b          |
| P5  | r12       | s12                                      | t4              | 1g | 1g | 1g          |
| P6  | r11       | s11                                      | t5              | 1e | 1e | 1e          |
| P7  | r10       | s10                                      | t6              | 1c | 1c | 1c          |
| P8  | r9        | s9                                       | t7              | 1d | 1d | 1d          |
| P9  | r8        | s8                                       | t8              |    |    |             |
| P10 | r7        | s7                                       | t9              | 2a | 2a | 2a          |
| P11 | r6        | s6                                       | t10             | 2f | 2f | 2f          |
| P12 | r5        | s5                                       | t11             | 2b | 2b | 2b          |
| P13 | r4        | s4                                       | t12             | 2g | 2g | 2g          |
| P14 | r3        | s3                                       | t13             | 2e | 2e | 2e          |
| P15 | r2        | s2                                       | t14             | 2c | 2c | 2c          |
| P16 | r1        | s1                                       | t15             | 2d | 2d | 2d          |
| P17 | r17       |                                          |                 |    |    |             |
| P18 | r18       |                                          |                 |    |    |             |
| P19 | r19       |                                          |                 |    |    |             |
| P20 | r20,m1,m2 | m3,m4,m5,<br>m6,s17<br><b>X1000r/min</b> | m7,m8,m9<br>t16 |    |    | <b>km,L</b> |