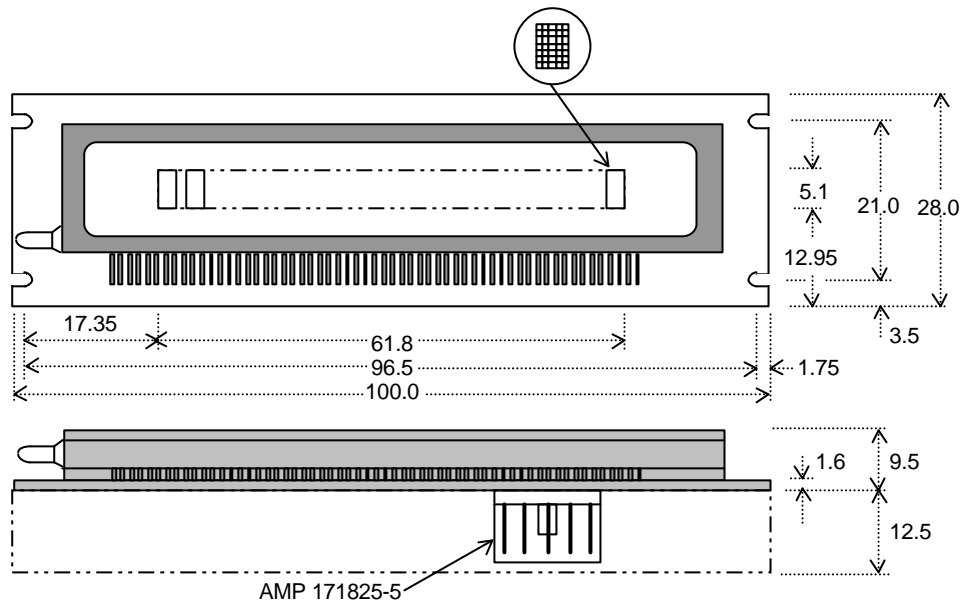


5X7 Dot Character VFD Module

CU165ECPB-T2J

- ❑ 1 X 16 Characters 5mm High
- ❑ Operating Temp -10° C to +65° C
- ❑ Single 5V Supply
- ❑ High Brightness Blue Green Display
- ❑ ASCII + Extended Character Font
- ❑ 16 User Definable Character RAM

The module includes the Vacuum Fluorescent Display glass, driver and micro-controller ICs with refresh RAM, character generator and interface logic.



Dimensions in mm & subject to tolerances. Mounting holes 3.5mm dia.

ELECTRICAL SPECIFICATION

| Parameter | Symbol | Value | Condition |
|-----------------------|-----------------|---------------|---------------------|
| Power Supply Voltage | V _{cc} | 5.0VDC +/- 5% | GND=0V |
| Power Supply Current | I _{cc} | 250mADC typ. | V _{cc} =5V |
| Logic High Input | V _{IH} | 2.0VDC min. | V _{cc} =5V |
| Logic Low Input | V _{IL} | 0.8VDC max. | V _{cc} =5V |
| +ve Threshold Voltage | V _{T+} | 2.0VDC Typ. | V _{cc} =5V |
| -ve Threshold Voltage | V _{T-} | 2.0VDC Typ. | V _{cc} =5V |

The power on rise time should be less than 50ms. The inrush current at power on can be 2 x I_{cc}. Optical filters can provide violet, red, yellow, blue and green output.

OPTICAL and ENVIRONMENTAL SPECIFICATIONS

| Parameter | Value |
|-------------------------------------|--------------------------------------|
| Character Size/Pitch (XxY mm) | 2.55 x 5.1/3.95 |
| Dot Size/Pitch (XxY mm) | 0.43 x 0.6/0.53 x 0.75 |
| Luminance | 700 cd/m ² (200fL) Typ. |
| Colour of Illumination | Blue-Green (Filter for more colours) |
| Operating Temperature | -10°C to +65°C |
| Storage Temperature | -40°C to +85°C |
| Operating Humidity (non condensing) | 20 to 80% RH @ 25°C |

SOFTWARE COMMANDS

| Instruction | Hex |
|--|---------|
| Set Display Length (from 9 to 16 characters) | 00H-07H |
| Set Brightness Value | 08H-0FH |
| Set Digit Scan Time (160uS or 320uS) | F6H-F7H |
| Set Digit Pointer | E0H-EFH |
| Auto Increment Mode On/Off | F4H-F5H |
| Set Display. All off; On; All On. | F0H-F3H |
| Send User Definable Fonts | FCH-FFH |

TIMING PARAMETERS (min)

| | |
|---|-------|
| SCK Cycle Time | 500ns |
| SCK Pulse Width | 230ns |
| Delay After 8 th bit, /CS=L' | 130ns |
| Set Up To SCK, /CS=L' | 0ns |

CHARACTER FONT

| L | H | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 00 | | | | | 0 | a | P | i | P | | | | | | | | |
| 01 | | | | | ! | 1 | A | Q | a | q | | | | | | | |
| 02 | | | | | " | 2 | B | R | b | r | | | | | | | |
| 03 | | | | | # | 3 | C | S | c | s | | | | | | | |
| 04 | | | | | \$ | 4 | D | T | d | t | | | | | | | |
| 05 | | | | | % | 5 | E | U | e | u | | | | | | | |
| 06 | | | | | & | 6 | F | V | f | v | | | | | | | |
| 07 | | | | | ' | 7 | G | W | w | | | | | | | | |
| 08 | | | | | (| 8 | H | X | h | x | | | | | | | |
| 09 | | | | |) | 9 | I | Y | y | | | | | | | | |
| 0A | | | | | * | : | J | Z | j | z | | | | | | | |
| 0B | | | | | + | : | K | [| k | [| | | | | | | |
| 0C | | | | | , | < | L | ^ | l | ^ | | | | | | | |
| 0D | | | | | - | = | M | ^ | m | ^ | | | | | | | |
| 0E | | | | | . | > | N | ^ | n | ^ | | | | | | | |
| 0F | | | | | / | ? | 0 | _ | o | _ | | | | | | | |

PIN CONNECTIONS

| Pin | Sig |
|-----|-----------------|
| 1 | V _{cc} |
| 2 | GND |
| 3 | /CS |
| 4 | CLK |
| 5 | DATA |

CONTACT

Noritake Sales Office Tel Nos
 Nagoya Japan: +81 (0)52-561-9867
 Canada: +1-416-291-2946
 Chicago USA: +1-847-439-9020
 Munchen (D): +49 (0)89-3214-290
 Itron UK: +44 (0)1493 601144
 Rest Europe: +49 (0)61-0520-9220
www.noritake-itron.com

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