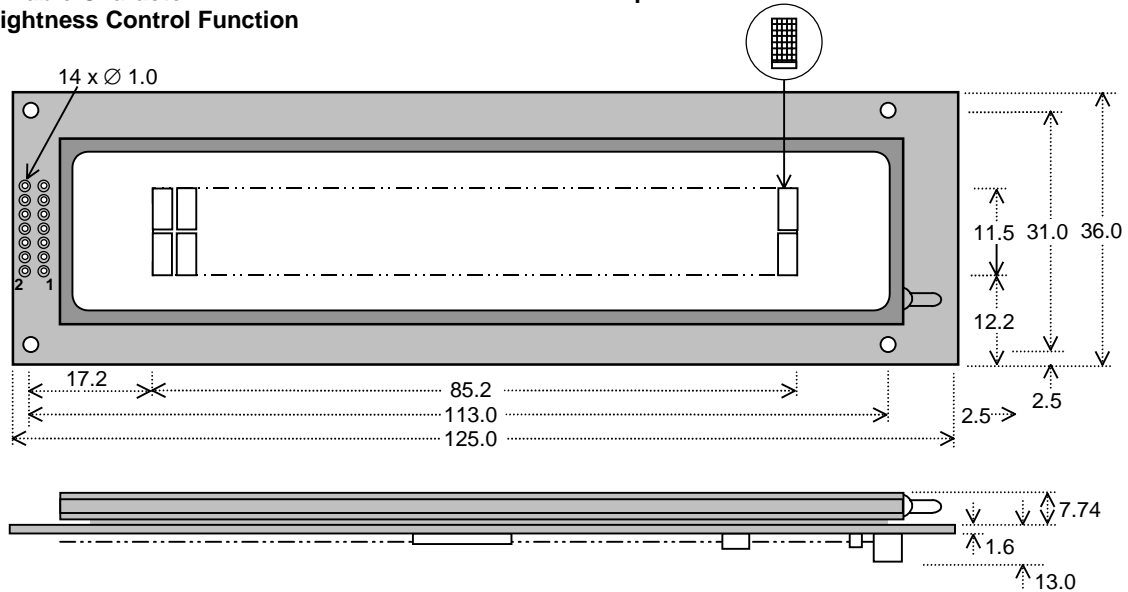


5X7 Dot Character VFD Module

CU24025ECPB-U1J

- ❑ 2 X 24 Characters 5mm High
- ❑ LCD Compatible Design
- ❑ Operating Temp -20°C to +70°C
- ❑ Single 5V Supply with Power Save Mode
- ❑ High Brightness Blue Green Display
- ❑ Selectable 4/8 bit M68/i80 Interface
- ❑ ASCII + Extended Character Font
- ❑ 8 User Definable Character RAM
- ❑ 4 Level Brightness Control Function

The module includes the Vacuum Fluorescent Display glass, driver and micro-controller ICs with refresh RAM, character generator and interface logic. The high speed 8 bit parallel interface is 5V CMOS compatible suitable for connection to a host CPU bus which can be set to M68 or i80 series interface by a solder link on the module. Brightness control and power down functions are provided. A full data sheet is available.



Dimensions in mm & subject to tolerances. Mounting holes 2.5mm dia.

ELECTRICAL SPECIFICATION

| Parameter | Symbol | Value | Condition |
|----------------------|-----------------|------------------------------|--------------------------|
| Power Supply Voltage | V _{CC} | 5.0VDC +/- 5% | GND=0V |
| Power Supply Current | I _{CC} | 155mADC 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 |
| Logic High Output | V _{OH} | V _{CC} -0.4VDC min. | I _{OH} = -1.6mA |
| Logic Low Output | V _{OL} | 0.4VDC max. | I _{OL} = 1.6mA |

The power on rise time should be less than 50ms. The inrush current at power on can be 2 x I_{CC}. The I_{CC} current is 10mA maximum while in power down mode.

OPTICAL and ENVIRONMENTAL SPECIFICATIONS

| Parameter | Value |
|-------------------------------------|--------------------------------------|
| Character Size/Pitch (XxY mm) | 2.4 x 4.7/3.6 x 6.1 |
| Dot Size/Pitch (XxY mm) | 0.4 x 0.5/0.5 x 0.7 |
| Luminance | 700 cd/m ² (204 fL) Typ. |
| Colour of Illumination | Blue-Green (Filter for more colours) |
| Operating Temperature | -20°C to +70°C |
| Storage Temperature | -40°C to +85°C |
| Operating Humidity (non condensing) | 20 to 80% RH @ 25°C |

SOFTWARE COMMANDS

| Instruction | R/W | RS | D0-D7 |
|----------------------|-----|----|---------|
| Clear Display | L | L | 01H |
| Cursor Return Home | L | L | 02H-03H |
| Entry Mode Set | L | L | 04H-07H |
| Display ON/OFF | L | L | 08H-0FH |
| Cursor/Display Shift | L | L | 10H-1FH |
| Function Set | L | L | 20H-3FH |
| Brightness Set | L | H | 00H-03H |
| Set CG RAM Addr. | L | L | 40H-7FH |
| Set DD RAM Addr. | L | L | 80H-E7H |
| Read BUSY/Addr. | H | L | 00H-FFH |
| Write Data to RAM | L | H | 00H-FFH |
| Read Data from RAM | H | H | 00H-FFH |

PIN CONNECTIONS

| Pin | Sig | Pin | Sig |
|-----|-------|-----|-----------------|
| 1 | GND | 2 | V _{CC} |
| 3 | (Fnc) | 4 | RS |
| 5 | R/W # | 6 | E # |
| 7 | D0 | 8 | D1 |
| 9 | D2 | 10 | D3 |
| 11 | D4 | 12 | D5 |
| 13 | D6 | 14 | D7 |

TIMING PARAMETERS (min)

| | |
|----------------------|--------|
| (E)nable Cycle Time | 1000ns |
| (E)nable Pulse Width | 450ns |
| Hold after (E)nable | 10ns |

CHARACTER FONT

| H _E X | 00 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | A0 | B0 | C0 | D0 | E0 | F0 |
|------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 00 | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D |
| 01 | | ! | " | # | \$ | % | & | ' | (|) | * | + | , | - | . | : |
| 02 | | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
| 03 | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E |
| 04 | | \$ | % | & | ' | (|) | * | + | , | - | . | : | ; | < | > |
| 05 | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F | G |
| 06 | | 8 | 9 | A | B | C | D | E | F | G | H | I | J | K | L | M |
| 07 | | 7 | 8 | 9 | A | B | C | D | E | F | G | H | I | J | K | L |
| 08 | | (|) | * | + | , | - | . | : | ; | < | > | ? | ! | " | # |
| 09 | |) | * | + | , | - | . | : | ; | < | > | ? | ! | " | # | \$ |
| 0A | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F | G |
| 0B | | 8 | 9 | A | B | C | D | E | F | G | H | I | J | K | L | M |
| 0C | | 7 | 8 | 9 | A | B | C | D | E | F | G | H | I | J | K | L |
| 0D | | 6 | 7 | 8 | 9 | A | B | C | D | E | F | G | H | I | J | K |
| 0E | | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F | G | H | I | J |
| 0F | | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F | G | H | I |

JUMPER LINKS

Interface M68/i80
When jumper link MPU is soldered, these inputs change to i80 series CPU control lines.
Pin 5= /WR Pin 6 = /RD

Pin 3 (Fnc) Input

This is normally open circuit. If pads R19 are linked. Pin 3 = /Reset.

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