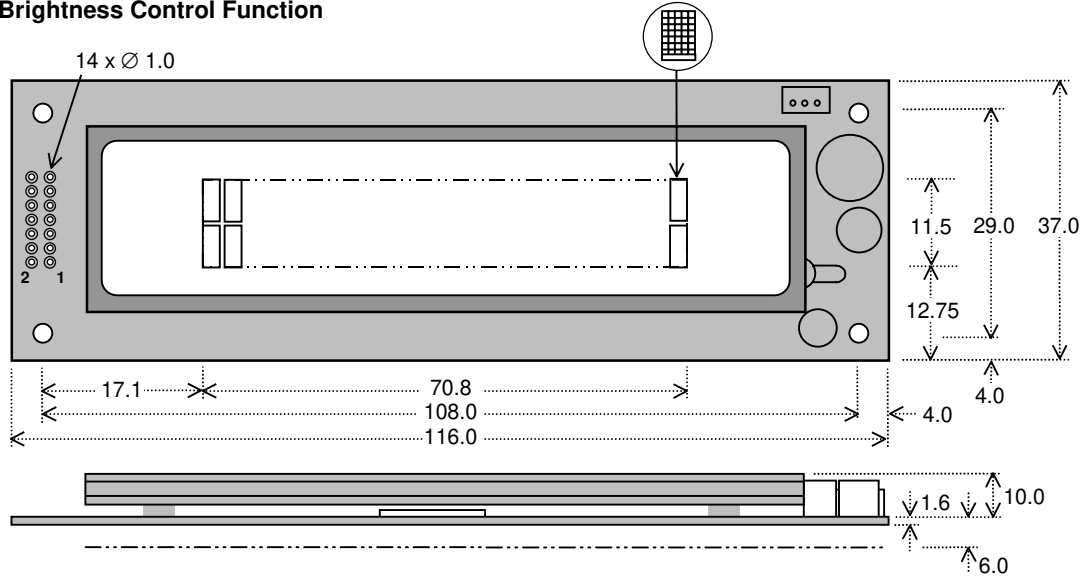


# 5X7 Dot Character VFD Module

# CU20025ECPB-W1J

- ❑ 2 X 20 Characters 5mm High
- ❑ LCD Compatible Design
- ❑ Wide Operating Temp -40°C to +85°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 3.5mm dia.

## ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Condition
Power Supply Voltage	Vcc	5.0VDC +/- 5%	GND=0V
Power Supply Current	Icc	130mADC typ.	Vcc=5V
Logic High Input	V <sub>IH</sub>	2.0VDC min.	Vcc=5V
Logic Low Input	V <sub>IL</sub>	0.8VDC max.	Vcc=5V
Logic High Output	V <sub>OH</sub>	Vcc-0.4VDC min.	I <sub>OH</sub> = -1.6mA
Logic Low Output	V <sub>OL</sub>	0.4VDC max.	I <sub>OL</sub> = 1.6mA

The power on rise time should be less than 50ms. The inrush current at power on can be 2 x Icc. The Icc 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 <sup>2</sup> (204 fL) Typ.
Colour of Illumination	Blue-Green (Filter for more colours)
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°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	Vcc
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 <sub>Ex</sub>	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00			0	0	P	\	P	A	F	-	3	E	0	P		
01			1	A	0	a	9	A	e	e	7	7	4	3	9	
02			"	2	B	R	b	r	3	E	r	Y	X	P	0	
03			#	3	C	S	c	s	3	R	J	7	T	E	e	0
04			\$	4	D	T	d	t	a	#	\	I	t	P	H	0
05			%	5	E	U	e	u	E	o	.	7	7	1	0	U
06			&	6	F	U	f	u	0	+	7	0	2	3	P	Σ
07			'	7	G	U	g	u	0	o	7	7	7	7	0	π
08			(	8	H	X	h	x	0	l	4	0	7	U	J	Σ
09			)	9	I	Y	i	y	0	5	0	7	J	U	"	Y
0A			*	:	J	Z	j	z	U	0	4	0	7	U	J	7
0B			+	:	K	K	<	0	Σ	7	7	E	0	"	7	Σ
0C			<	:	L	Y	l	Y	l	2	7	7	7	7	0	π
0D			=	:	M	I	m	>	7	7	7	7	7	7	0	÷
0E			>	:	N	^	n	7	7	7	7	7	7	7	0	ñ
0F			?	:	0	_	0	+	Σ	7	7	7	7	7	0	Σ

## JUMPER LINKS

# Interface M68/i80  
When jumper link JP2 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 JP1.1 and JP1.2 are linked. Pin 3 = /Reset.

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