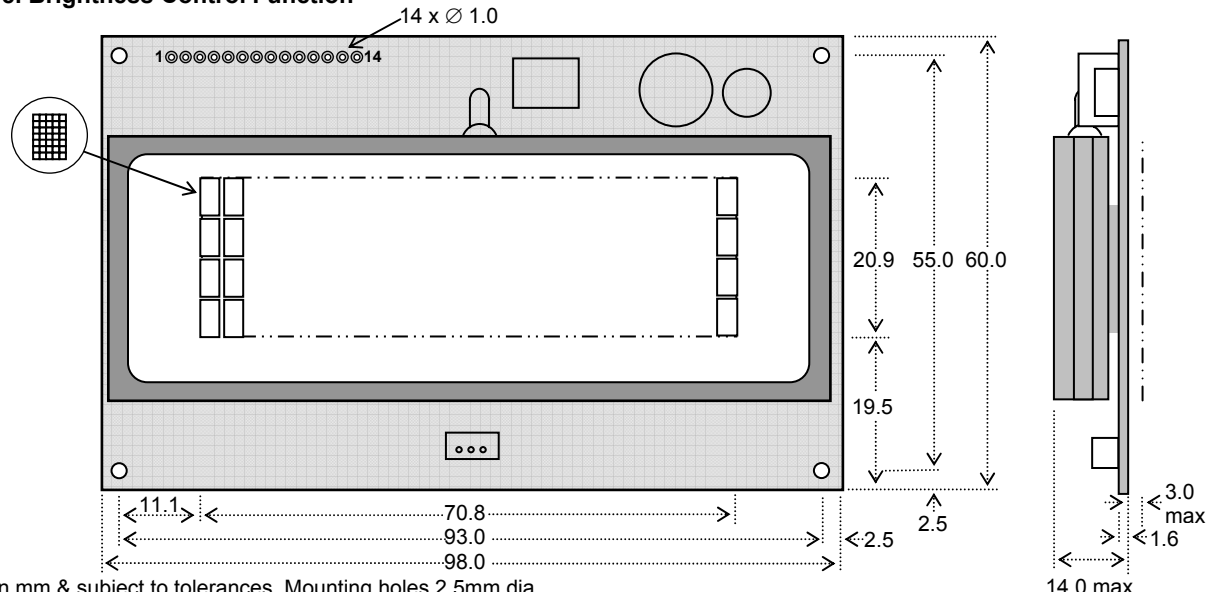


# 5X7 Dot Character VFD Module

# CU20045-UW5J

- ❑ 4 X 20 Characters 5mm High
- ❑ LCD Compatible Design
- ❑ 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 2.5mm dia.

### ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Condition
Power Supply Voltage	Vcc	5.0VDC +/- 5%	GND=0V
Power Supply Current	Icc	275mADC typ.	Vcc=5V
Logic High Input	VIH1	Vss+2.0VDC min.	Vcc=5V
Logic Low Input	VIL1	Vss+0.8VDC max	Vcc=5V
Logic High Output	VOH	Vcc-0.5VDC min.	IOH = 4.0mA
Logic Low Output	VOL	Vss+0.5VDC max	IOL = 4.0mA

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 5.4
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	500ns
(E)nable Pulse Width	230ns
Hold after (E)nable	10ns

### CHARACTER FONT

H <sub>E</sub> X	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00		0	a	P	'	F	Δ	F	-	Δ	E	W	P			
01		!	1	A	Q	a	q	A	a	e	u	7	7	4	a	q
02		"	2	B	R	b	r	A	a	E	r	イ	ウ	×	B	0
03		#	3	C	S	c	s	A	R	↓	ウ	T	E	S	0	
04		\$	4	D	T	d	t	a	#	\	I	ト	ト	W	Q	
05		%	5	E	U	e	u	E	O	.	7	7	1	S	U	
06		&	6	F	V	f	v	O	+	3	0	二	3	P	Σ	
07		'	7	G	U	g	u	0	◇	7	7	7	7	9	π	
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09		)	9	I	Y	i	y	0	5	0	7	7	7	7	7	
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### JUMPER LINKS

# Interface M68/i80  
When jumper link JP9 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 JP2.1 and JP2.2 are linked. Pin 3 = /Reset.

### CONTACT

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