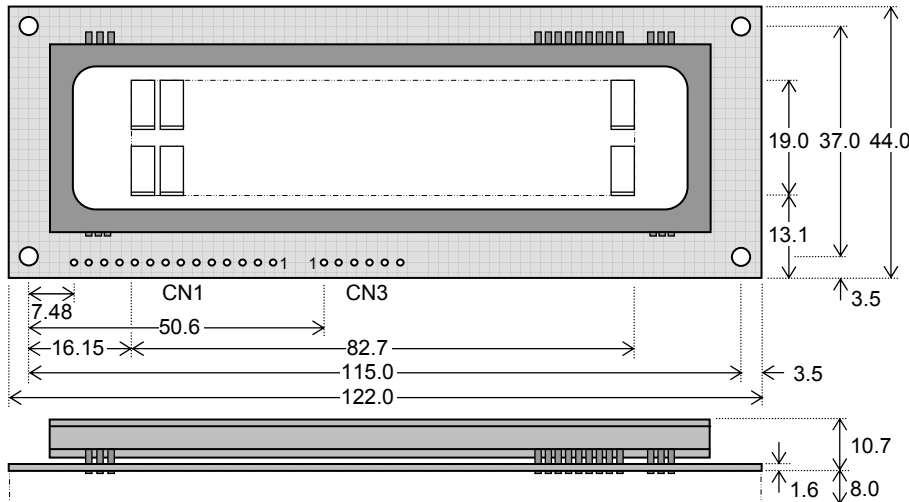


# 5X7 Dot Character VFD Module

# CU16029-UW1J

- 2 X 16 Characters 8mm High + Cursor
- 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 Parallel & Serial 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	350mADC 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-0.8VDC min.	I <sub>OH</sub> = -4.0mA
Logic Low Output	V <sub>OL</sub>	0.6VDC max.	I <sub>OL</sub> = 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)	3.85 x 8.002/5.26 x 9.81
Dot Size/Pitch (XxY mm)	0.53 x 0.89/0.83 x 1.19
Luminance	350 cd/m <sup>2</sup> (100 fL) min.
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

## TIMING PARAMETERS (min)

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

## PIN CONNECTIONS (CN1)

Pin	Sig	Pin	Sig
1	GND	2	Vcc
3	(FNC)	4	RS
5	R/W #	6	E #
7	DB0	8	DB1
9	DB2	10	DB3
11	DB4	12	DB5
13	DB6	14	DB7

## Serial Interface Con. (CN3)

Pin	Signal
1	Vcc
2	SI/SO
3	GND
4	STB
5	SCK
6	(FNC)

## 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	1	2	3	4	5	6	7	8	9	A	B	C	D
01		!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
02		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E
03		#	3	C	S	c	s	a	r	u	o	t	e	e	o	
04		\$	4	D	T	d	t	a	#	\	/	I	T	t	H	o
05		%	5	E	U	e	u	E	o	.	'	+	1	s	U	
06		&	6	F	U	f	u	F	o	+	'	h	2	3	P	Σ
07		'	7	G	U	g	u	G	o	o	'	7	7	7	9	π
08		(	8	H	X	h	x	H	o	!	4	7	7	7	r	X
09		)	9	I	Y	i	y	I	o	o	'	7	7	7	7	7
0A		*	:	J	Z	j	z	J	o	d	e	3	o	n	v	J
0B		+	;	K	k	K	k	K	o	Δ	*	7	E	o	o	7
0C		,	<	L	l	L	l	L	o	2	o	7	7	7	7	7
0D		-	=	M	m	M	m	M	o	7	7	7	7	7	7	7
0E		.	>	N	n	N	n	N	o	7	7	7	7	7	7	7
0F		/	?	O	o	O	o	O	o	7	7	7	7	7	7	7

## 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 & 6 (Fnc) Input**  
This is normally open circuit. If pads JP1.1 and JP1.2 are linked. Pin 3 of CN1 & Pin 6 of CN3 = /Reset.

**Font Selection**  
If JP6 is open, Katakana font is selected. If JP6 is linked, International is selected.

## Interface Selection

If JP5 is open parallel interface is selected. If JP5 is linked, serial interface is selected.

## CONTACT

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