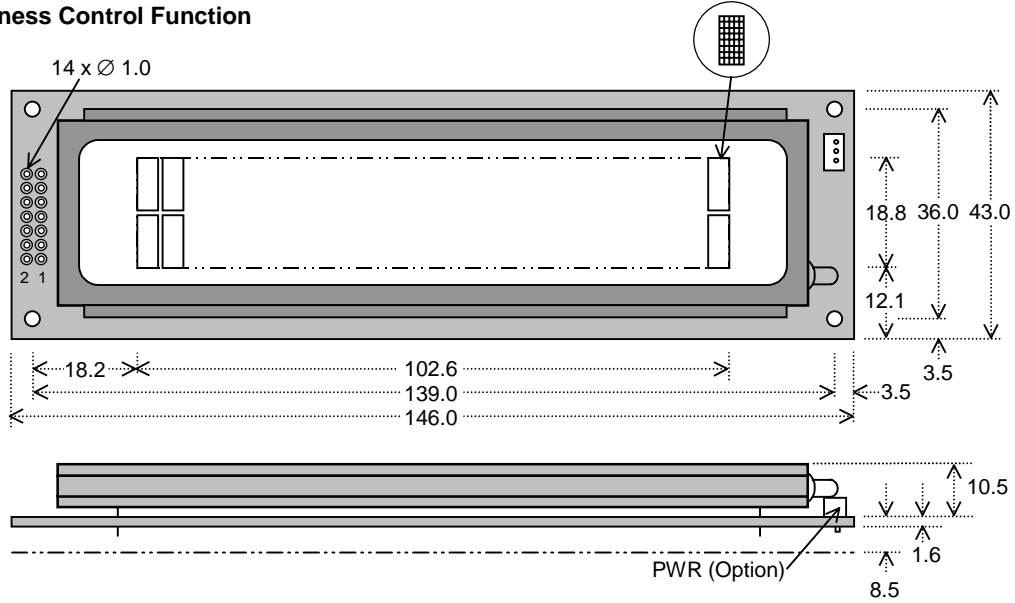


5X7 Dot Character VFD Module

CU20029ECPB-U1J

- ❑ 2 X 20 Characters 9mm 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	Vcc	5.0VDC +/- 5%	GND=0V
Power Supply Current	Icc	400mADC typ.	Vcc=5V
Logic High Input	V _{IH}	2.0VDC min.	Vcc=5V
Logic Low Input	V _{IL}	0.8VDC max.	Vcc=5V
Logic High Output	V _{OH}	Vcc-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 Icc. The Icc current is 10mA maximum while in power down mode.

OPTICAL and ENVIRONMENTAL SPECIFICATIONS

Parameter	Value
Character Size/Pitch (XxY mm)	3.8 x 9.2/5.2 x 9.6
Dot Size/Pitch (XxY mm)	0.6 x 0.97/0.80 x 1.17
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	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

Hex	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	|	|	0	0	P	\	P	A	F	-	9	E	0	P		
01	|	|	1	A	0	a	a	a	a	a	a	a	a	a	a	a
02	|	|	"	2	B	R	b	r	Δ	E	r	ι	υ	×	β	θ
03	|	|	#	3	C	S	c	s	Δ	R	ι	υ	×	β	θ	
04	|	|	\$	4	D	T	t	t	a	#	\	I	T	†	H	Ω
05	|	|	%	5	E	U	e	u	E	0	.	†	†	†	†	†
06	|	|	&	6	F	V	f	v	0	+	†	†	†	†	†	†
07	|	|	'	7	G	U	g	u	0	+	†	†	†	†	†	†
08	|	|	(	8	H	X	h	x	0	!	4	0	†	†	†	†
09	|	|	)	9	I	Y	i	y	0	5	†	†	†	†	†	†
0A	|	|	*	*	J	Z	j	z	0	Δ	†	†	†	†	†	†
0B	|	|	+	+	K	K	<	G	Δ	†	†	†	†	†	†	†
0C	|	|	,	,	<	L	†	†	†	†	†	†	†	†	†	†
0D	|	|	-	-	=	M	†	†	†	†	†	†	†	†	†	†
0E	|	|	.	.	>	N	†	†	†	†	†	†	†	†	†	†
0F	|	|	/	/	?	0	†	†	†	†	†	†	†	†	†	†

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 JP3.1 and JP3.2 are linked. Pin 3 = /Reset.