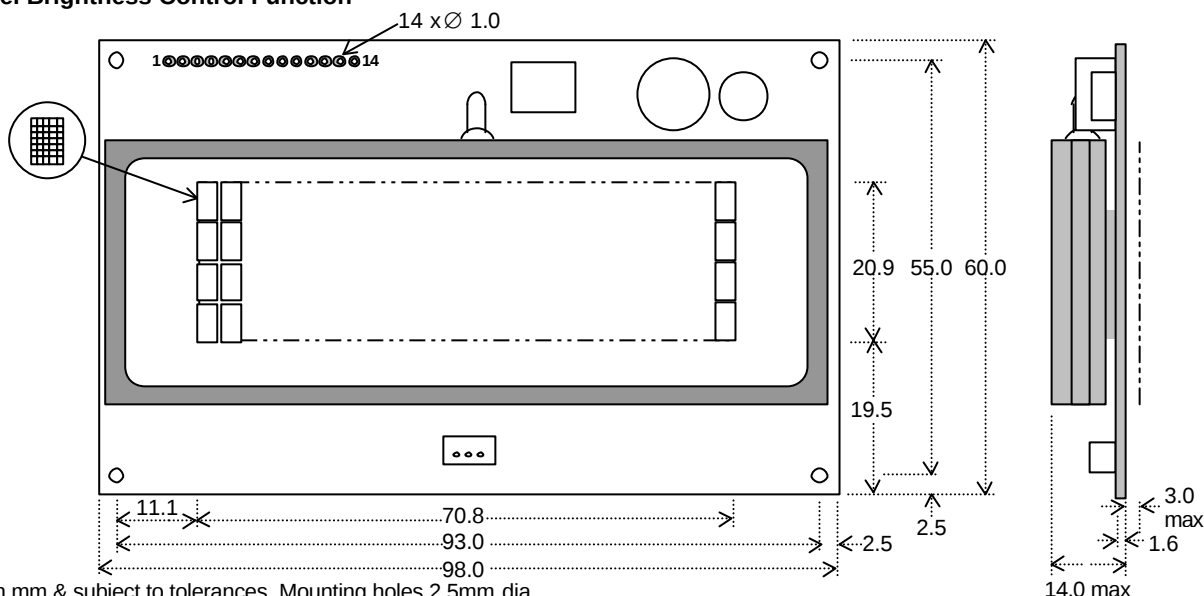


5X7 Dot Character VFD Module

CU20045SCP-B-W5J

- ❑ 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.



ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Condition
Power Supply Voltage	V _{CC}	5.0VDC +/- 5%	GND=0V
Power Supply Current	I _{CC}	275mA typ.	V _{CC} =5V
Logic High Input (DB0-DB7)	V _{IH1}	V _{SS} +2.2VDC min.	V _{CC} =5V
Logic Low Input (DB0-DB7)	V _{IL1}	V _{SS} +0.6VDC max.	V _{CC} =5V
Logic High Input (RS,R/W,E)	V _{IH2}	0.7 V _{CC} min.	V _{CC} =5V
Logic Low Input (RS,R/W,E)	V _{IL2}	0.3 V _{CC} max.	V _{CC} =5V
Logic High Output	V _{OH}	V _{CC} -0.6VDC min.	I _{OH} = -1.6mA
Logic Low Output	V _{OL}	V _{SS} +0.6VDC 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 5.4
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	-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	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)noble Cycle Time	666ns
(E)noble Pulse Width	300ns
Hold after (E)noble	10ns

CHARACTER FONT

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

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.

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