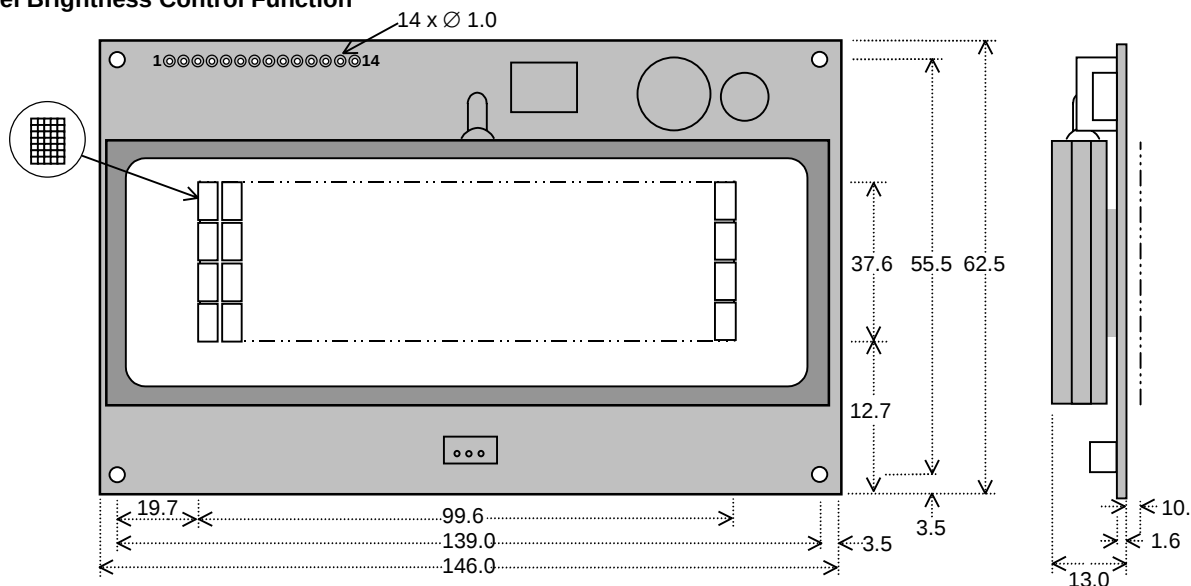


5X7 Dot Character VFD Module

CU20049SCP-B-W2J

- 4 X 20 Characters 9mm 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}	650mADC typ.	V _{CC} =5V
Logic High Input	V _{IH}	2.2VDC min.	V _{CC} =5V
Logic Low Input	V _{IL}	0.6VDC 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} +0.6 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)	3.65x8.8/5.05x9.6
Dot Size/Pitch (XxY mm)	0.57x0.84/0.77x1.14
Luminance	700 cd/m ² (204 fL) Typ.
Colour of Illumination	GreenBlue-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)nable Cycle Time	666ns
(E)nable Pulse Width	300ns
Hold after (F)nable	10ns

CHARACTER FONT

H _{EX}	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
01					1	2	3	4	5	6	7	8	9	A	B	C
02					2	3	4	5	6	7	8	9	A	B	C	D
03					3	4	5	6	7	8	9	A	B	C	D	E
04					4	5	6	7	8	9	A	B	C	D	E	F
05					5	6	7	8	9	A	B	C	D	E	F	G
06					6	7	8	9	A	B	C	D	E	F	G	H
07					7	8	9	A	B	C	D	E	F	G	H	I
08					8	9	A	B	C	D	E	F	G	H	I	J
09					9	A	B	C	D	E	F	G	H	I	J	K
0A					A	B	C	D	E	F	G	H	I	J	K	L
0B					B	C	D	E	F	G	H	I	J	K	L	M
0C					C	D	E	F	G	H	I	J	K	L	M	N
0D					D	E	F	G	H	I	J	K	L	M	N	O
0E					E	F	G	H	I	J	K	L	M	N	O	P
0F					F	G	H	I	J	K	L	M	N	O	P	Q

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.

CONTACT

Noritake Sales Office Tel Nos
Nagoya Japan: +81 (0)52-561-9867
Canada: +1-416-291-2946
Chicago USA: +1-847-439-9020
Munich (D): +49 (0)89-3214-290
Itron UK: +44 (0)1493 601144
Rest Europe: +49 (0)61-0520-9220
www.noritake-elec.com

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