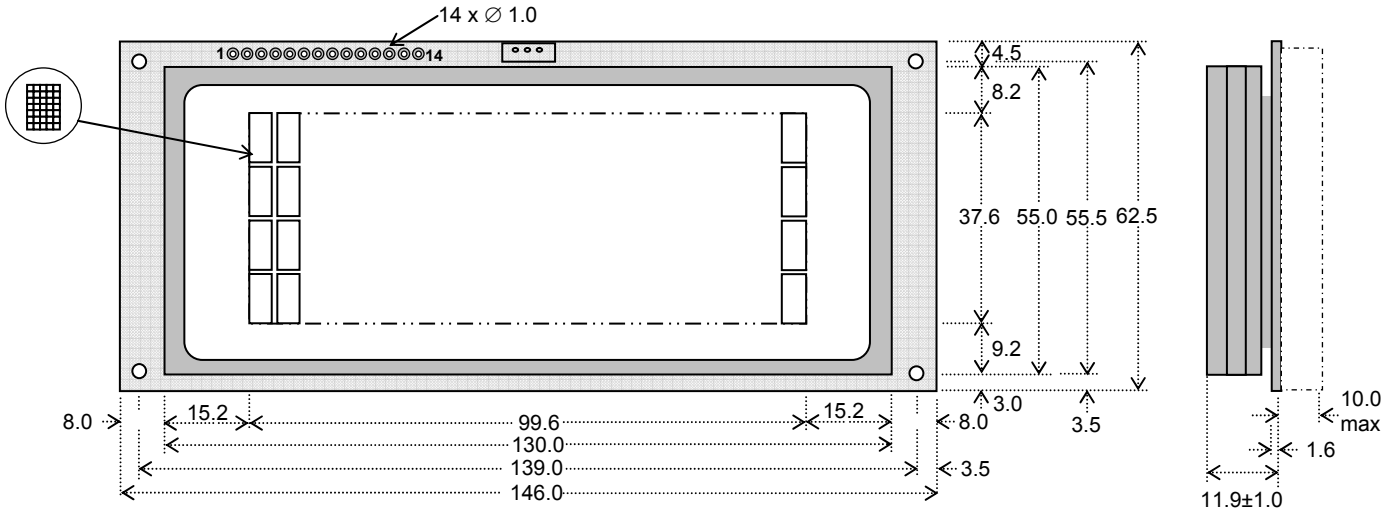


5X7 Dot Character VFD Module

CU20049-UW2J

- ❑ 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	Vcc	5.0VDC +/- 5%	GND=0V
Power Supply Current	Icc	650mADC 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-0.8VDC min.	I _{OH} = -4mA
Logic Low Output	V _{OL}	0.4VDC max	I _{OL} =4mA

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)	3.65 x 8.8/5.05 x 9.6
Dot Size/Pitch (XxY mm)	0.57 x 0.84/0.77 x 1.14
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	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 _E X	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00		0	a	P	\	F	A	F		-	9	E	0	P		
01		!	1	A	Q	a	q	A	a	q	7	7	4	a	q	
02		"	2	B	R	b	r	B	R	b	r	8	8	5	5	
03		#	3	C	S	c	s	C	S	c	s	9	9	6	6	
04		\$	4	D	T	d	t	D	T	d	t	0	0	7	7	
05		%	5	E	U	e	u	E	U	e	u	1	1	8	8	
06		&	6	F	V	f	v	F	V	f	v	2	2	9	9	
07		'	7	G	W	g	w	G	W	g	w	3	3	0	0	
08		(8	H	X	h	x	H	X	h	x	4	4	1	1	
09)	9	I	Y	i	y	I	Y	i	y	5	5	2	2	
0A		*	0	J	Z	j	z	J	Z	j	z	6	6	3	3	
0B		+	1	K	0	k	0	K	0	k	0	7	7	4	4	
0C		,	2	L	1	l	1	L	1	l	1	8	8	5	5	
0D		-	3	M	2	m	2	M	2	m	2	9	9	6	6	
0E		.	4	N	3	n	3	N	3	n	3	0	0	7	7	
0F		/	5	O	4	o	4	O	4	o	4	1	1	8	8	

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 JP4.1 and JP4.2 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-iron.com

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