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[Noritake Co., Inc.](#)
[CU24025ECPB-W1J](#)

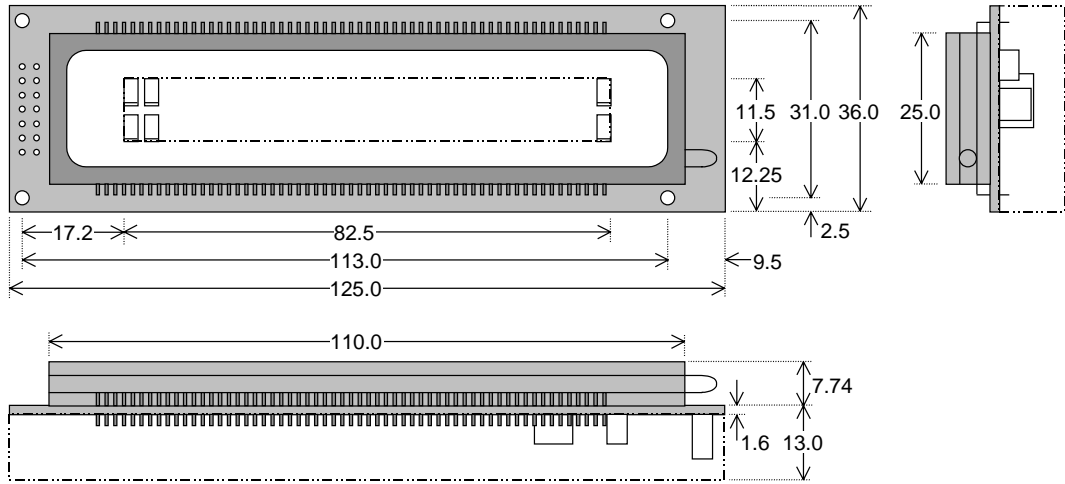
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5X7 Dot Character VFD Module

CU24025ECPB-W1J

- 2 X 24 Characters 5mm 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 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	155mADC 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 _{OH} = 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)	2.4 x 4.7/3.6 x 6.1
Dot Size/Pitch (XxY mm)	0.4 x 0.5/0.5 x 0.7
Luminance	350 cd/m ² (100 fL) Typ.
Colour of Illumination	Blue-Green (Filter for more colours)
Operating Temperature	-40°C to +85°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	DB0	8	DB1
9	DB2	10	DB3
11	DB4	12	DB5
13	DB6	14	DB7

TIMING PARAMETERS (min)

(E)nable Cycle Time	1000ns
(E)nable Pulse Width	450ns
Hold after (E)nable	10ns

CHARACTER FONT

H _{Ex}	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	Q	a	q	A	a	z	.	7	T	4	a	q
02	|	"	2	B	R	b	r	A	E	r	'	i	w	/	B	0
03	|	#	3	C	S	c	s	A	K	.	'	7	T	E	S	*
04	|	\$	4	D	T	d	t	a	#	.	'	I	k	t	M	Q
05	|	%	5	E	U	e	u	E	O	.	'	7	T	1	S	U
06	|	&	6	F	V	f	v	O	+	'	7	T	2	3	P	S
07	|	'	7	G	W	g	w	o	o	'	7	T	7	7	a	T
08	|	(	8	H	X	h	x	o	l	'	7	T	7	7	r	X
09	|	)	9	I	Y	i	y	o	9	'	7	T	7	7	'	y
0A	|	*	:	J	Z	j	z	U	d	'	7	T	7	7	j	7
0B	|	+	:	K	[	k	[	U	z	'	7	T	7	7	o	'
0C	|	,	<	L	]	l	]	\	z	'	7	T	7	7	o	'
0D	|	-	=	M	^	m	^	z	'	7	T	7	7	7	o	'
0E	|	.	>	N	^	n	^	z	'	7	T	7	7	7	o	'
0F	|	/	?	O	_	o	_	z	'	7	T	7	7	7	o	'

JUMPER LINKS

Interface M68/i80
 When jumper link MPU 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 on R19 are linked, Pin 3 = /Reset.

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