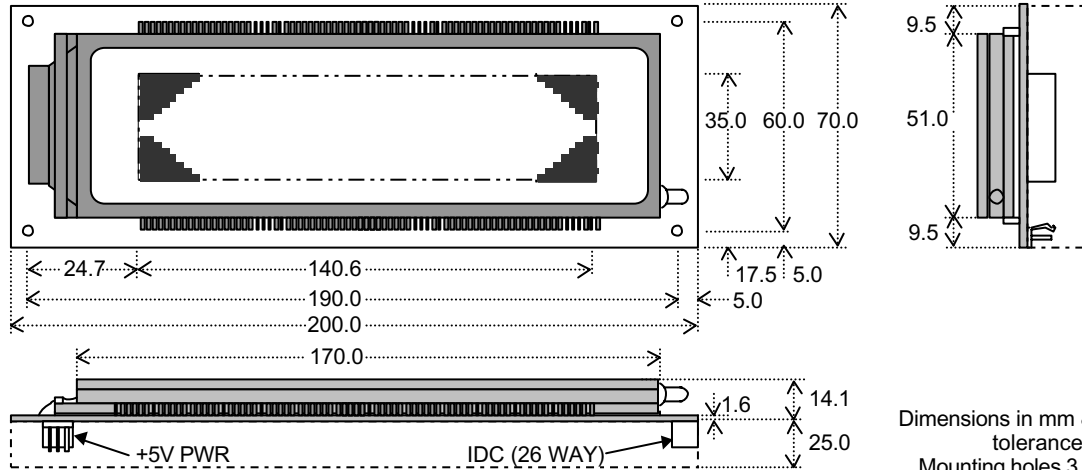


# Dot Graphic VFD Module

# GU256X64-332A

- ❑ 256 x 64 Dot Graphic
- ❑ Operating Temp -0°C to +50°C
- ❑ Single 5V Supply.
- ❑ High Brightness Blue Green Display
- ❑ 8 bit High Speed Parallel Interface
- ❑ ASCII + Extended Character Font
- ❑ Twin Graphic/Character RAM
- ❑ 4 Level Brightness Control Function

The module includes the Vacuum Fluorescent Display glass, driver and control ASIC, 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. 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	V <sub>CC</sub>	5.0VDC +/- 5%	GND=0V
Power Supply Current	I <sub>CC</sub>	1.25ADC typ.	V <sub>CC</sub> =5V
Logic High Input	V <sub>IH</sub>	2.2VDC min.	V <sub>CC</sub> =5V
Logic Low Input	V <sub>IL</sub>	0.8VDC max.	V <sub>CC</sub> =5V
Logic High Output	V <sub>OH</sub>	4.2VDC min.	I <sub>OH</sub> = -40uA
Logic Low Output	V <sub>OL</sub>	0.5VDC max.	I <sub>OL</sub> = 1.6mA

The power on rise time should be less than 100ms. The inrush current at power on can be 2 x I<sub>CC</sub>.

## OPTICAL and ENVIRONMENTAL SPECIFICATIONS

Parameter	Value
Display Area (XxY mm)	140.6 x 35.0
Dot Size/Pitch (XxY mm)	0.4 x 0.4/0.55
Luminance	515 cd/m <sup>2</sup> (150 fL) Typ.
Colour of Illumination	Blue-Green (Filter for colours)
Operating Temperature	0°C to +50°C
Storage Temperature	-20°C to +70°C
Operating Humidity (non condensing)	20 to 80% RH @ 25°C

## SOFTWARE COMMANDS

Instruction	D0-D4
Screen On/Off Control	00H-03H
Auto Increment Cursor	04H-05H
Character/Graphic Screen 2	06H-07H
Data Write/Data Read	08H-09H
Set Screen 1/ 2 RAM Address	0AH-0DH
Set Cursor Address	0EH-0FH
Screen1/2 Merge Control	10H-12H
Screen Luminance Control	18H-1BH

## INTERFACING

Function	/CS	/WR	/RD	C//D	/BL
Command Write	0	0-1	1	1	-
Data Setting	0	0-1	1	0	-
Display Data Read	0	1	0	0	-
Display Blanking	-	-	-	-	0

As no BUSY signal is available between the processor and module, accessing time between data is required to be greater than 2μs.

## IDC DATA CONNECTOR

Pin	Sig	Pin	Sig
1	D7	2	GND
3	D6	4	GND
5	D5	6	GND
7	D4	8	GND
9	D3	10	GND
11	D2	12	GND
13	D1	14	GND
15	D0	16	GND
17	/WR	18	GND
19	C//D	20	GND
21	/RD	22	GND
23	/CS	24	GND
25	FRP	26	/BL

## CHARACTER FONT

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

## POWER CONNECTOR

Pin	Sig
1	V <sub>CC</sub> (5V)
2	NC
3	GND

## TIMING PARAMETERS (min)

Write Pulse Width	100ns
Hold after Write	20ns
FRP Cycle Time	10.4ms
FRP Pulse Width	81μs

## SCREEN COMBINATIONS

The display memory (RAM) has the capacity of producing two display screens for graphic, plus graphic and ASCII characters. This enables up 4 different display combinations, via software commands.

## CONTACT

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