# 140x32 Dot Graphic VFD Module

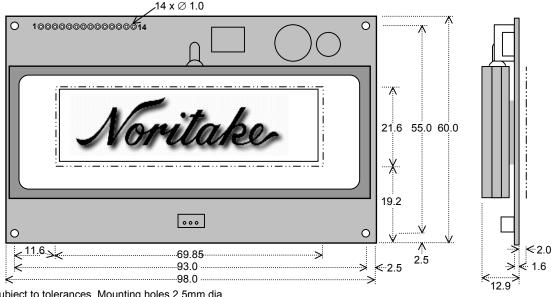
## GU140x32F-7002

- □ Character Graphic ,Transformerless display
- □ Size compatible with U-Version
- □ Operating Temp -40°C to +85°C
- □ Single 5V Supply with Power Save Mode
- □ Smooth vertical/Horizontal scroll
- Proportional and scalable fonts
- 8 bit parallel & CMOS Serial interface
- □ Screen saver & window definition function
- 8 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.

This module have 8 bit parallel & CMOS syn. Or asyn. Serial Interface.

The module can simultaneously display graphic pattern and / or characters on screen.



Dimensions in mm & subject to tolerances. Mounting holes 2.5mm dia.

#### **ELECTRICAL SPECIFICATION**

Parameter	Symbol	Value	Condition			
Power Supply Voltage	Vcc	6.0 VDC Max.	GND=0V			
Power Supply Current	Icc	400mADC typ.	Vcc=5V			
Logic High Input	VIH	0.8VCC min.	Vcc=5V			
Logic Low Input	VIL	0.2VCC max.	Vcc=5V			
Logic High Output	Vон	3.8VDC min.	Iон = -1.5mA			
Logic Low Output	Vol	0.6VDC max.	Iон =1.6mA			

The power on rise time should be less than 50ms. The inrush current at power on can be 2 x lcc.

#### **OPTICAL and ENVIRONMENTAL SPECIFICATIONS**

Parameter	Value
PCB size/Display area ( in mm)	98.0x60.0/ 69.85x21.61
Dot Size/Pitch (XxY mm)	0.35x0.53/ 0.50x0.68
Luminance	700 cd/m <sup>2</sup> (204 fL) Typ.
Color of Illumination	Blue-Green (Filter for more colors)
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	Code
Character display	20H-FFH
Cursor set	1FH 24H xL xH yL yH
Display clear	0CH
Initialize display	1BH 40H
Specify International font	1BH 52H n
Vertical scroll mode	1FH 02H
Horizontal scroll mode	1FH 03H
Brightness level Setting	1FH 58H n
Scroll Display Action	1FH 28H 61H 10H wL wH cL cH s
Display Blank	1FH 28H 61H 11H p t1 t2 c
Screen Saver	1FH 28H 61H 40H p
Bit Image Display group	1FH 28H 66H 11H xL xH
Font magnified Display	1FH 28H 67H 40H x y

#### Parallel interface connector

			••
Pin	Sig	Pin	Sig
1	Gnd	2	Vcc
3	NC	4	RS
5	/W	6	/RD
7	D0	8	D1
9	D2	10	D3
11	D4	12	D5
13	D6	14	D7

### Serial Connector

Pin	Asyn. Sig	Syn. Sig
1	Vcc	Vcc
2	SIN	SIN
3	Gnd	Gnd
4	SBUSY	SBUSY
5	NC	SCK
6	/ RESET	/ RESET

#### COMMON FONT CHARACTER CODE (n=0)

	2 X H	3 X H	4 X H	5 X H	6 X H	7 X H			∞×H	9 × H	A H	В×Н	C X H	D X H	E X H	F X H
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#### CONTACT

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PLEASE INQUIRE FOR FINAL SPECIFICATION

The lcc current is 10mA maximum while in power down mode.