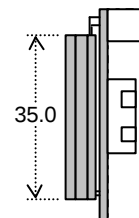
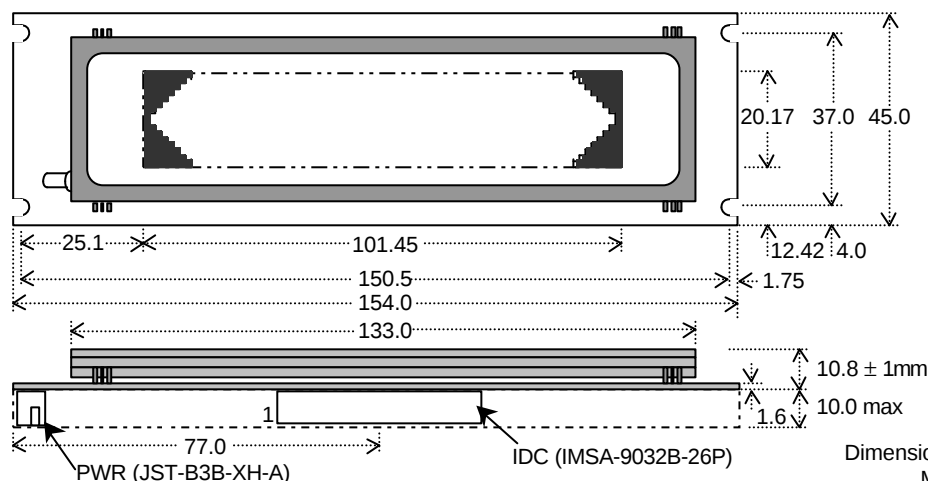


GU160X32-800A

- ❑ **160 x 32 Dot Graphic**
- ❑ **Operating Temp -40°C to +85°C**
- ❑ **Single 5V Supply.**
- ❑ **High Brightness Blue Green Display**
- ❑ **Selectable Parallel (i80/M68)/Serial Interface**
- ❑ **Twin Screen Graphic RAM**
- ❑ **16 Level Brightness Control Function**

The module includes the Vacuum Fluorescent Display glass, driver and control ASIC, with integral refresh Graphic RAM and logic for parallel and synchronous serial interfaces. 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	VCC	5.0VDC +/- 5%	GND=0V
Power Supply Current	ICC	550mADC typ.	VCC= 5V
Logic High Input	VIH	4.0 VDC min.	IIH = 2uA
Logic Low Input	VIL	1.0VDC max.	IIL = -600uA
Logic High Output	VOH	4.7VDC min.	IOH = -300uA
Logic Low Output	VOL	0.3 VDC max.	IOL = 300uA
Reset Input Voltage	VRH	4.0 VDC min.	IRH = 5uA
Reset Input Voltage	VRL	0.6 VDC max.	IRL = -600uA

The power on rise time should be less than 100ms. The inrush current at power on can be $2 \times I_{CC}$.

OPTICAL and ENVIRONMENTAL SPECIFICATIONS

Parameter	Value
Display Area (XxY mm)	101.45 x 20.17
Dot Size/Pitch (XxY mm)	0.485 x 0.485/0.635 x 0.635
Luminance	350 cd/m ² Min.
Colour of Illumination	Blue-Green (Filter for 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	C/D	Instruction Byte	No. Bytes
Set Display On/Off / Layer Merge	1	20H-2FH	2
Set Display Brightness	1	40H-4FH	1
Clear Display	1	52H-5FH	1
Set Cursor XY Address	1	60H-67H	3
Set Display Start X Address	1	70H-7FH	2
Set Write Address Mode	1	80H-8FH	1
Scroll Display Vertically Up/Down	1	B0H-BFH	1
Read Cursor XY Address	1	D4H-D7H	3
Write Data	0	00H-FFH	1

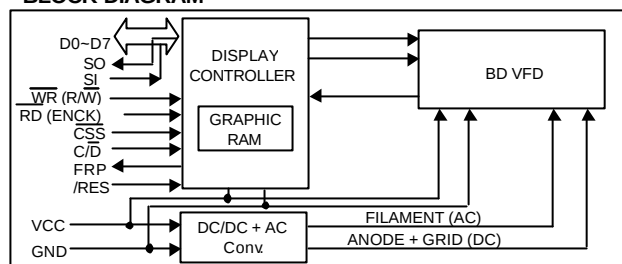
TIMING PARAMETERS (min)

i80/M68 Parameters	Time	Serial Parameters	Time
Write /WR/EN Cycle Time	400ns	SCK Cycle Time	200ns
Write /MR/EN Pulse Width	100ns	SCK Pulse Width	80ns
Set Up To Write /WR/EN	30ns	Set Up To SCK, /CSS='L'	40ns
Hold after Write /MR/EN	20ns	Delay After 8 th bit, /CSS='H'	150ns

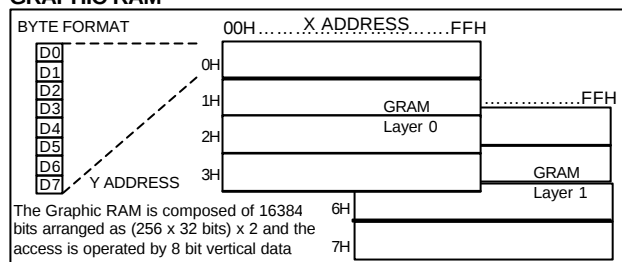
SCROLLING GRAPHIC DISPLAY

The pattern in GRAM can be scrolled around the display. Horizontal scroll is achieved by increment/decrement of the Display Start X Address. The vertical scroll process considers layer 0, then layer 1 as a continuous 64 bit high vertical area within RAM.

BLOCK DIAGRAM



GRAPHIC RAM



IDC DATA CONNECTOR

Pin	i80	M68	Serial	Pin	Sig
1	D7	D7	X	2	GND
3	D6	D6	X	4	GND
5	D5	D5	X	6	GND
7	D4	D4	X	8	GND
9	D3	D3	X	10	GND
11	D2	D2	X	12	GND
13	D1	D1	SO	14	GND
15	D0	D0	SI	16	GND
17	M/R, R/W		X	18	GND
19	C/D	C/D	C/D	20	GND
21	/RD 'ENCK' SCK			22	GND
23	/CSS, /CSS		/CSS	24	GND
25	ERP	ERP	ERP	26	/RES

3 PIN POWER CONNECTOR

Pin	Sig
1	Vcc
2	Test (Factory only)
3	GND

PCB JUMPERS (O)pen (L)ink

Interface	J1	J2
Serial	L	O / L
i80 Parallel	O	O
M68 Parallel	O	L

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