

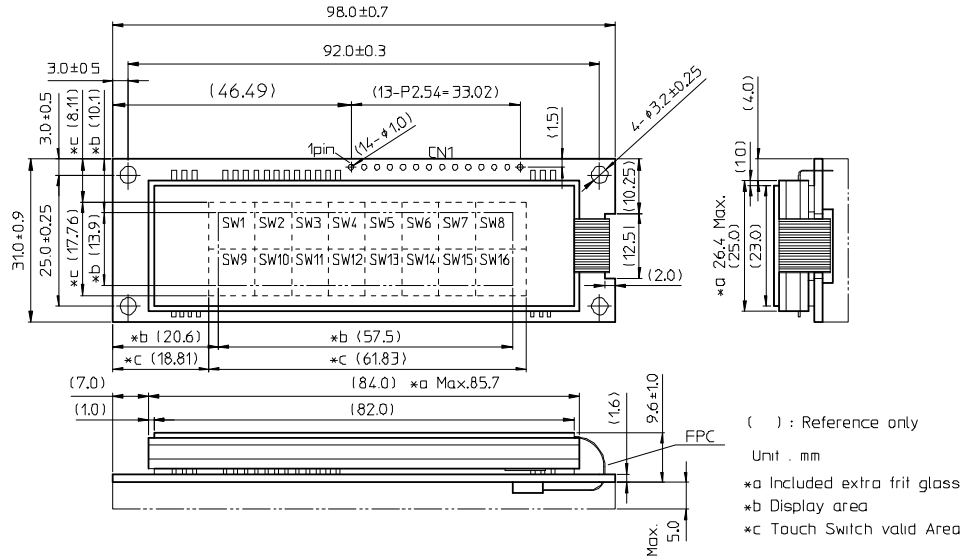
# GU128X32D-D903S

## SIMPLIFIED DATASHEET

### Features

VF Display Module equips 16 (8x2) Capacitive Touch Switches.

### Outline dimensions



### Specifications

#### Electrical Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Power Supply Voltage	VCC	4.75	5.00	5.25	VDC	

#### Electrical Characteristics

Please refer to a full specification for Characteristics of I/O port.

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
I2C Logic Input Current	IIH-1	-	-	-0.5	mA	VIN=0V
SDA,SCL,/RESET	IIH-1	-	-	1.0	$\mu$ ADC	VIN=3.3V
I2C Logic Input Voltage	VIH-1	2.5	-	-	VDC	-
SDA,SCL,/RESET	VIL-1	-	-	0.6	VDC	-
I2C Logic Output Voltage SDA,SCL	VOL-1	-	-	0.5	VDC	IOL=0.5mA
I2C Logic Output Voltage	VOH-2	2.6	-	-	VDC	IOH=-0.5mA
MBUSY,/TRDY	VOL-2	-	-	0.5	VDC	IOL=0.5mA
Logic Input Current RxD	IIH-2	-	-	-0.5	mA	VIN=0V
MOSI,SCK,/CS,HBUSY,/RESET	IIH-2	-	-	1.0	$\mu$ ADC	VIN=3.3V
Logic Input Voltage RXD	VIH-2	2.5	-	-	VDC	-
MOSI,SCK,/CS,HBUSY,/RESET	VIL-2	-	-	0.6	VDC	-
Logic Output Voltage	VOH-3	2.6	-	-	VDC	IOH=-0.5mA
TXD,MISO,MBUSY,/TRDY	VOL-3	-	-	0.5	VDC	IOL=0.5mA
Power Supply Current	ICC-1	-	230	300	mADC	All dots turned on
	ICC-2	-	140	180	mADC	All dots turned off
	ICC-3	-	7	9	mADC	Display power off
Power consumption		-	1.15	1.50	W	All dots turned on

#### Optical characteristics

Parameters	
Luminance	350 cd/m <sup>2</sup> Min. (700 cd/m <sup>2</sup> Typ.)
Color of illumination	Green (Bluish green)

#### Physical Specification

Parameters	
Number of Dots	4,096 (128 x 32)
Active area (XxY)	57.45 mm x 13.93 mm
Size of Dot (XxY)	0.30 mm x 0.29 mm
Pitch of Dot (XxY)	0.45 mm x 0.44 mm
Weight	approximately 38g

#### Environmental Specification

Parameters	
Operating Temperature	-40 ~ +85 degrees Celsius
Storage Temperature	-40 ~ +85 degrees Celsius
Operating Humidity	20 ~ 80% R.H. (non-condensing)
Storage Humidity	20 ~ 80% R.H. (non-condensing)
Vibration (non-operating)	10-55-10Hz, all amplitude 1mm, 30 minutes, X-Y-Z
Shock (non-operating)	392m/s <sup>2</sup> (40G) 9ms X-Y-Z, 3 times each direction

#### Interface

Asynchronous Serial, SPI and I2C (Logic level is 3.3V for all)

#### Pin Assignment

##### CN1: Asynchronous Serial

Pin No.	Signal	Pin No.	Signal
1	VCC	8	TXD
2	RXD	9	/TRDY
3	GND	10	GND
4	MBUSY	11	P00
5	IC	12	P01
6	/RESET	13	P02
7	HBUSY	14	P03

##### CN1 : SPI Interface

Pin No.	Signal	Pin No.	Signal
1	VCC	8	MISO
2	MOSI	9	/TRDY
3	GND	10	GND
4	MBUSY	11	P00
5	SCK	12	P01
6	/RESET	13	P02
7	/CS	14	P03

##### CN1 : I2C Interface

Pin No.	Signal	Pin No.	Signal
1	VCC	8	IC
2	SDA	9	/TRDY
3	GND	10	GND
4	MBUSY	11	P00
5	SCL	12	P01
6	/RESET	13	P02
7	IC	14	P03

#### Character Fonts

Parameters	
Font tables	5 x 7 Alpha-numeric, Kana, International 8 x 16 Alpha-numeric, Kana, International 16 x 16 CJK
Number of digits & line	5x7 dot font: 18/21 digits x 4 lines 16x16 dot font: 8digits x 1line

#### Functions

Characters and Graphics display, Control command, Macro & P Macro, I/O port, Touch Switch with Calibration, etc.

