Connector Board for E-paper Display

DESPI-C102_30P

GooDisplay ®

www.e-paper-display.com

Product Specifications

Customer	Standard
Description	Connector Board for E-paper Display
Model Name	DESPI-C102_30P
Date	2020/03/11
Revision	1.1

	Design Engineering		
	Approval	Check	Design

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Contents

1.Overview

This connector board is designed for 1.2'' SPI e-paper display. It can boost the driving voltage of Good Display's e-paper GDEW0102I3F and GDEW0102T4.

2.Mechanical Specifications

Parameter	Specification
Model	DESPI-C102_30P
Platform	STM32、Arduino
Dimension	33.8mm x 22.2mm
Power Supply	3.3V
Sample Code	Available (please contact sales)
Operating Temp.	-20°C ~+70°C
Main Function	Provide driving voltage for e-paper; Provide interface for e-paper and motherboard; Help users operate e-paper quickly.
Additional Function	Measurement of e-paper power consumption; Test of e-paper working condition.

3.Functions
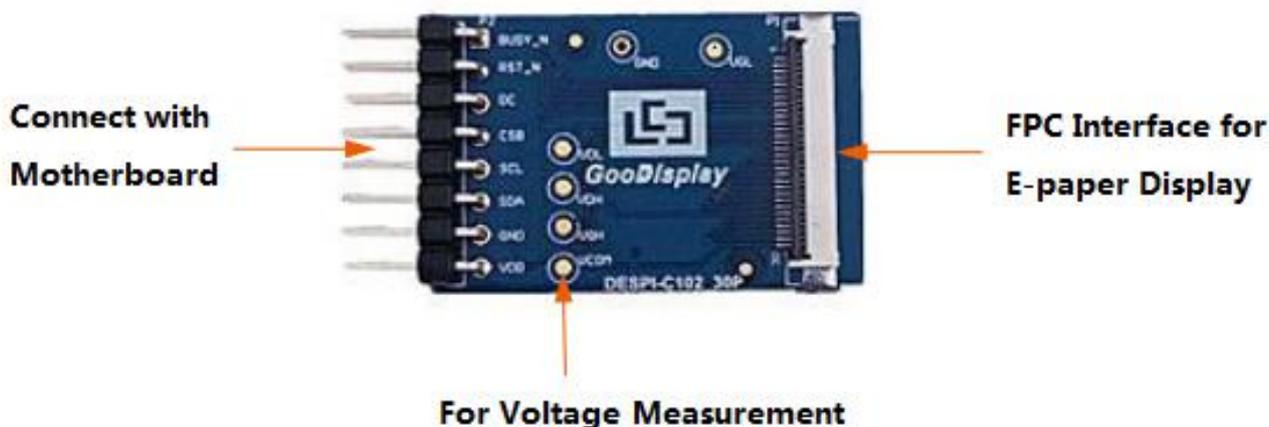
Figure 1 : DESPI-C102_30P

3.1 Pin function

1) BUSY_N: Busy signal of e-paper. When the e-paper is refreshing, the BUSY pin sends out "busy" signal to MCU, then MCU can not read and write the e-paper IC; When the e-paper refresh is completed, the BUSY pin sends out "free" signal, then MCU can read and write the e-paper IC. GDEW series e-paper busy state is high level (GDEH series is low level), and free state is opposite.

2) RST_N: Reset signal of e-paper. Low level effective.

3) DC: Data / Command selection. High level for data, low level for command.

4) CSB: Chip selection. Low level effective.

5) SCL: SPI serial communication clock signal line.

6) SDA: SPI serial communication data signal line.

7) GND: Negative power supply.

8) VDD: Positive power supply.

Tips: When setting IO during programming, the BUSY_N pin should set to input mode, others should set to output mode.

3.2 Voltage measurement

This connector board supports voltage measurement. The points for measurement include VDH, VDL, VGH, VGL, VCOM and GND, the functions are as follows:

1) VDH: MOS tube source positive voltage.

2) VDL: MOS tube source negative voltage.

3) VGH: MOS tube gate positive voltage.

4) VGL: MOS tube gate negative voltage.

5) VCOM: Common ground of e-paper.

6) GND: Power negative. (Common ground for measurement.)

3.3 FPC interface for e-paper

There is a FPC interface P1 on DESPI-C102_30P, which can connect the e-paper. Users should connect the e-paper FPC to DESPI-C102_30P as shown in Figure 2. (Pay attention to the direction of the e-paper.)

(1) FPC connector	
(2) Open the connector	
(3) Insert the FPC	
(4) Close the connector	
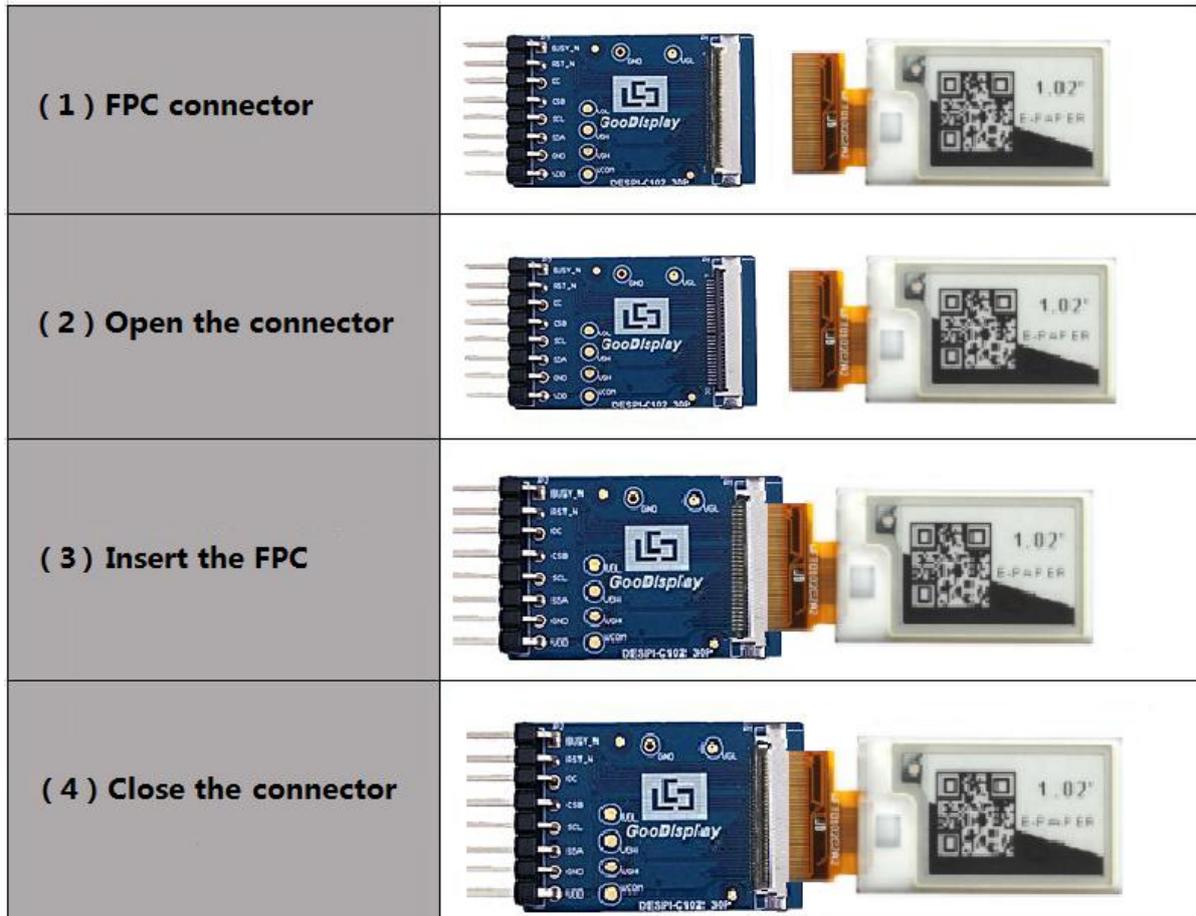
Figure 2 : Connection between DESPI-C102_30P and e-paper

4.Problems of designing drive circuit

4.1 Self-made drive board cannot drive e-papers

Measure the voltage of VGH and VGL to see if it boost successfully. If it doesn't boost successfully, check if the boost part of the schematic is correct and the components meet the requirements. (Make sure the max voltage of the booster capacitor is adequate. If it is not enough, the capacitor will be burned out during boost.)

4.2 Diode selection for e-paper drive circuit

A schottky diode equivalent to the MBR0530 parameters is recommended. And the switching frequency should meet the actual requirements.

4.3 FPC socket selection for e-paper drive circuit

Select the 30 PIN FPC socket with 0.5mm pin spacing which has contact at up side or both side.

4.4 High current in deep sleep mode

The high current in deep sleep mode may be due to the larger capacitance in the boost part.