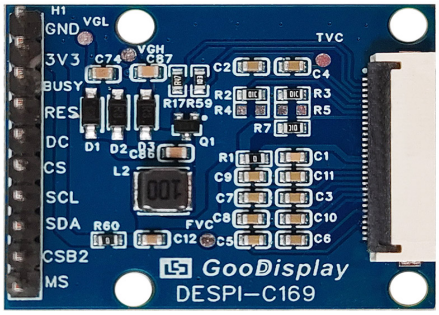
Connector Board for E-paper Display

GooDisplay®

DESPI-C169

Dalian Good Display Co., Ltd.

Product Specifications



Customer	Standard
Description	Adapter Board
Model Name	DESPI-C579
Date	2025/11/26
Revision	1.0

	Design Engineering		
	Approval	Check	Design
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1.Overview

This adapter board is specifically designed for the 1.69-inch round color E Ink E6 electronic paper display, enabling the boost drive function for the GDEH0169E01 e-paper display.

2.Parameters

Parameters	Product Specifications
Model	DESPI-C169
Supported Platforms	STM32、Arduino
Dimensions	35mm x 28mm
Power Supply	3.3V
Example Programs	Available
Operating Temperature	0℃ ~50℃
Main Features	- Provide driving voltage for the e-paper display - Provide communication interface between the e-paper display and the main controller board - Help users quickly master the operation and use of the e-paper display
Auxiliary Functions	E-paper display power consumption measurement and operating status detection

3. Main Functional

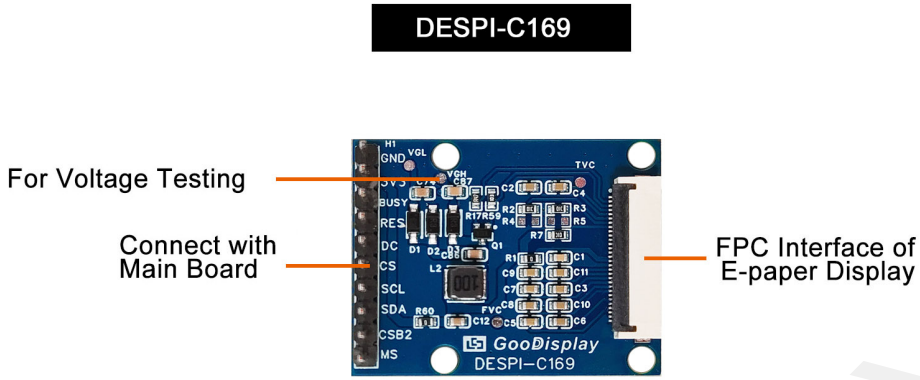

Figure 1: Main Adapter Board DESPI-C169 Function Diagram

3.1 Pin Functions

1) BUSY: E-paper display busy signal.
When the display is refreshing, the BUSY pin sends a busy signal to the main MCU. During this time, the MCU cannot perform read/write operations on the driver IC. After the e-paper display finishes refreshing, the BUSY pin signals an idle state, allowing the MCU to read from or write to the driver IC.

The BUSY-N pin is low when busy and high when idle.
2) RES: E-paper display reset signal, active low.
3) DC: Data/Command selection; high level = data, low level = command.
4) CS: Chip select 1, active low.
5) SCL: SPI serial communication clock line.
6) SDA: SPI serial communication data line.
7) GND: Power ground.
8) VDD: Power positive.
9) CSB2: Chip select 2, active low.
10) MS: Cascading configuration pin; H = master, L = slave.

Note: During program design, the BUSY pin is generally set as input mode, while all other IO pins are set as output mode.

3.2 Test Points

This adapter board provides test points for measurement convenience. The test points include VGH, VGL, TVC, and FVC, with the following functions:

1) VGH: Positive gate voltage of the MOS transistor.
2) VGL: Negative gate voltage of the MOS transistor.
3) TVC, FVC: VCOM (common electrode) voltage test points for the e-paper display.

3.3 E-paper Display FPC Interface

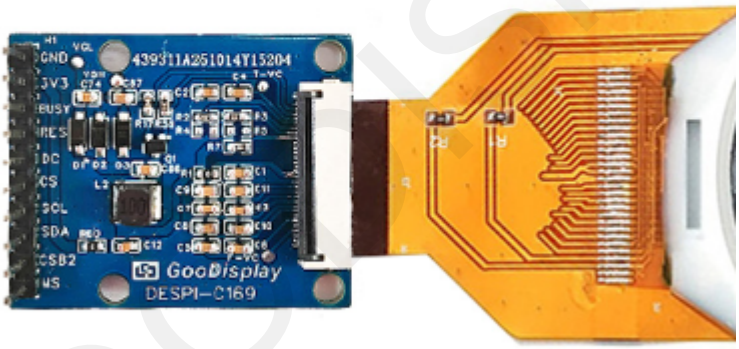

Figure 2: Connection Method Between E-paper Display and Adapter Board

4. Common Issues in E-paper Display Driver Circuit Design

4.1 The self-made driver board fails to drive the e-paper display

First measure the VGH and VGL voltages to check whether the boost circuit has successfully stepped up the voltage. If the boost fails, check whether the boost section of the driver schematic is correct and whether the components meet requirements (ensure the voltage rating of the boost capacitors is sufficient; if the rating is too low, the capacitors will burn out during boosting).

4.2 Diode selection for e-paper display driver circuit

A Schottky diode with parameters equivalent to MBR0530 must be selected, and the switching frequency must meet actual requirements.

4.3 FPC socket selection for e-paper display driver circuit

Choose a 30-pin FPC socket with either top-contact or top-and-bottom contact design, with a pin pitch of 0.5 mm.

4.4 High current consumption in deep sleep mode of the e-paper display

Excessive current in deep sleep mode may be caused by excessively large capacitance in the boost circuit section.