GODIYMODULES B0DZMMDW4X

GODIYMODULES 2.4" SPI TFT LCD Display 240x320 ILI9341 Driver User Manual

Introduction

This manual provides detailed instructions for the GODIYMODULES 2.4-inch SPI TFT LCD Display Module. This display features a 240x320 resolution color screen, utilizes the ILI9341 driver, and communicates via a Serial Peripheral Interface (SPI) port. It is designed for integration into various electronic projects and compatible with Single Board Computers (SBCs) that support SPI display output.

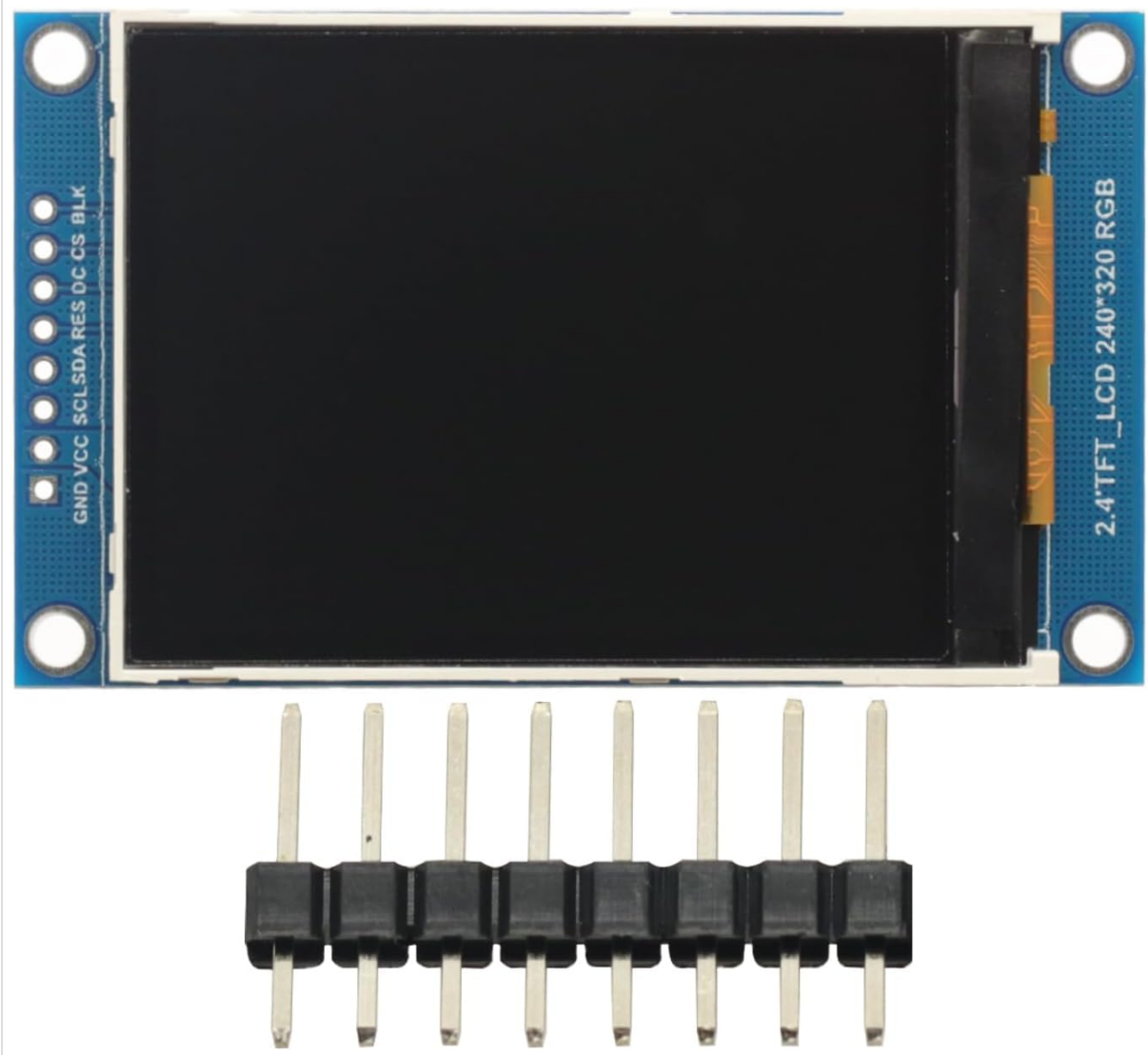

Figure 1: Front view of the 2.4-inch SPI TFT LCD Display module.

Specifications

Feature	Description
Brand	GODIYMODULES
Display Size	2.4 inches
Resolution	240x320 pixels
Driver Chip	ILI9341
Communication Interface	SPI (Serial Peripheral Interface)
Operating Voltage	3.3V
Touch Type	Without touching
Compatible Devices	SBCs with SPI display output

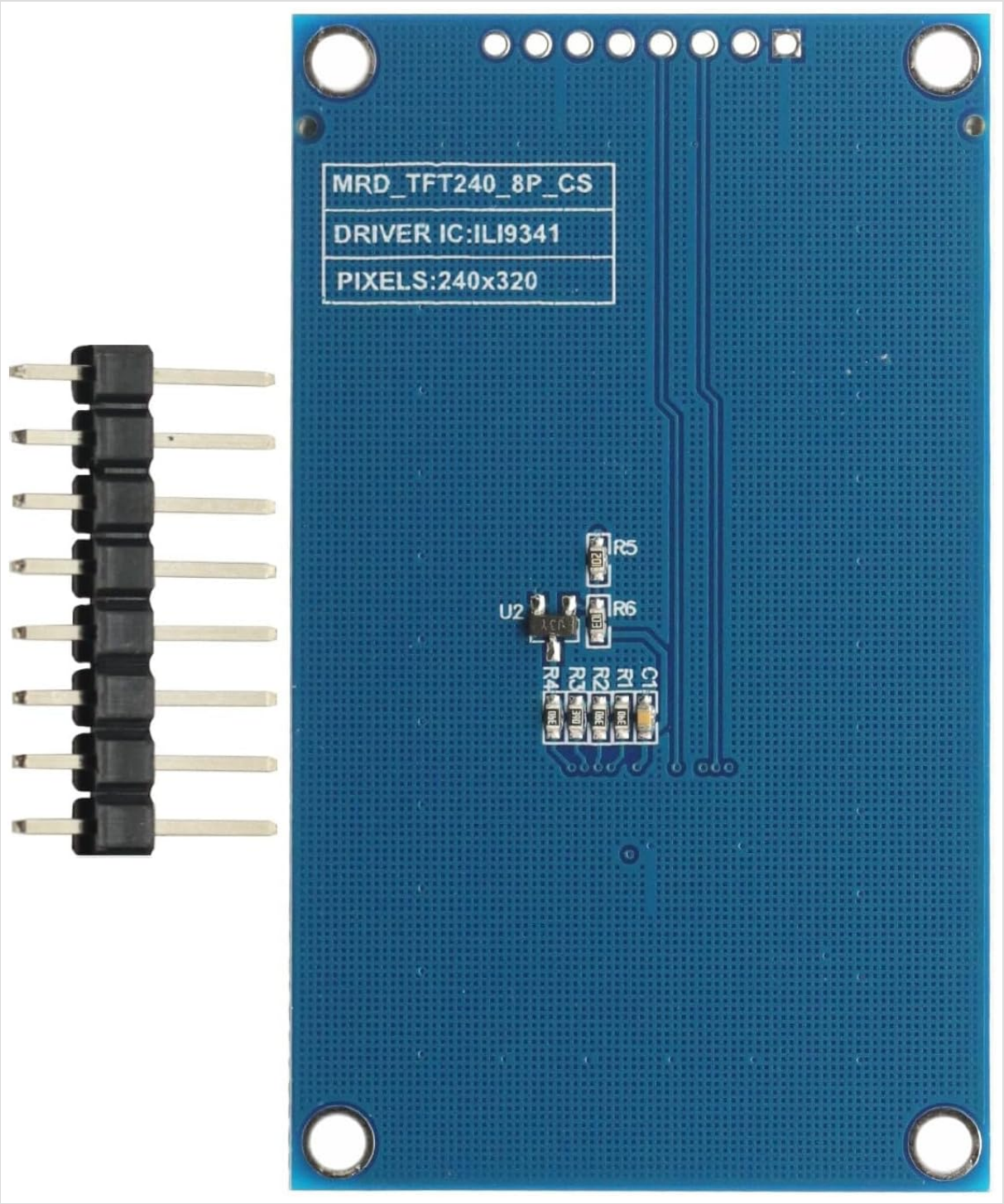

Figure 2: Back view of the display module with driver information.

Setup

Pinout Description

The display module features an 8-pin header for connection. Understanding each pin's function is crucial for proper integration.

Figure 3: Pinout description for the display module.

- **GND:** Power Ground
- **VCC:** Positive Power Supply (2.8V ~ 3.55V, typically 3.3V)
- **SCL:** 4-wire SPI Serial Clock
- **SDA:** 4-wire SPI Data Line (MOSI)
- **RES:** Display Reset
- **DC:** LCD Data/Command Selection
- **CS:** Display Driver Chip Select (Active Low, connect to GND when not in use)
- **BLK:** Backlight Control Switch (Backlight is ON by default, low level turns it OFF)

Connection Diagram

Connect the display module to your microcontroller or SBC using the following diagram as a guide. Ensure all connections are secure and correctly matched to avoid damage.

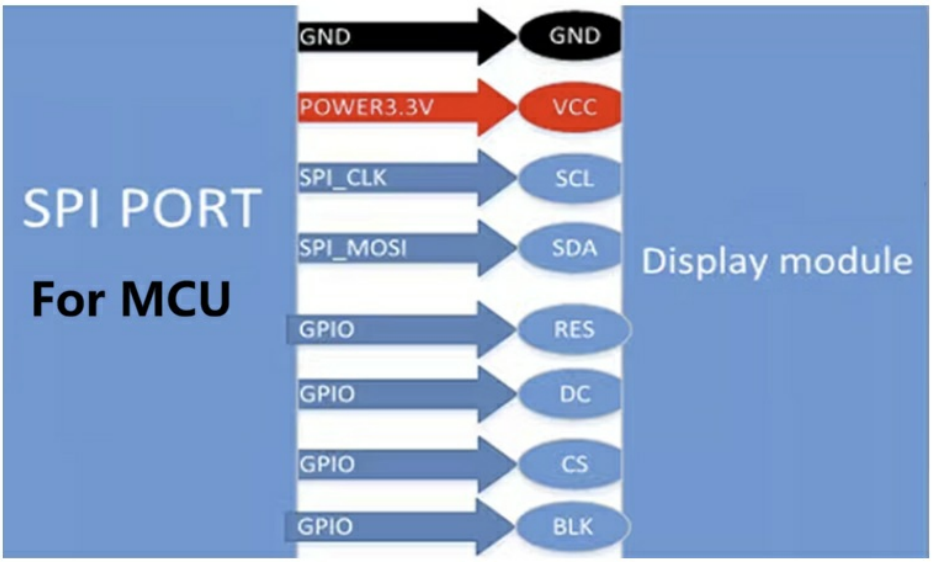

Figure 4: SPI Port connection diagram for MCU.

A schematic diagram is also provided for advanced users to understand the internal connections and components.

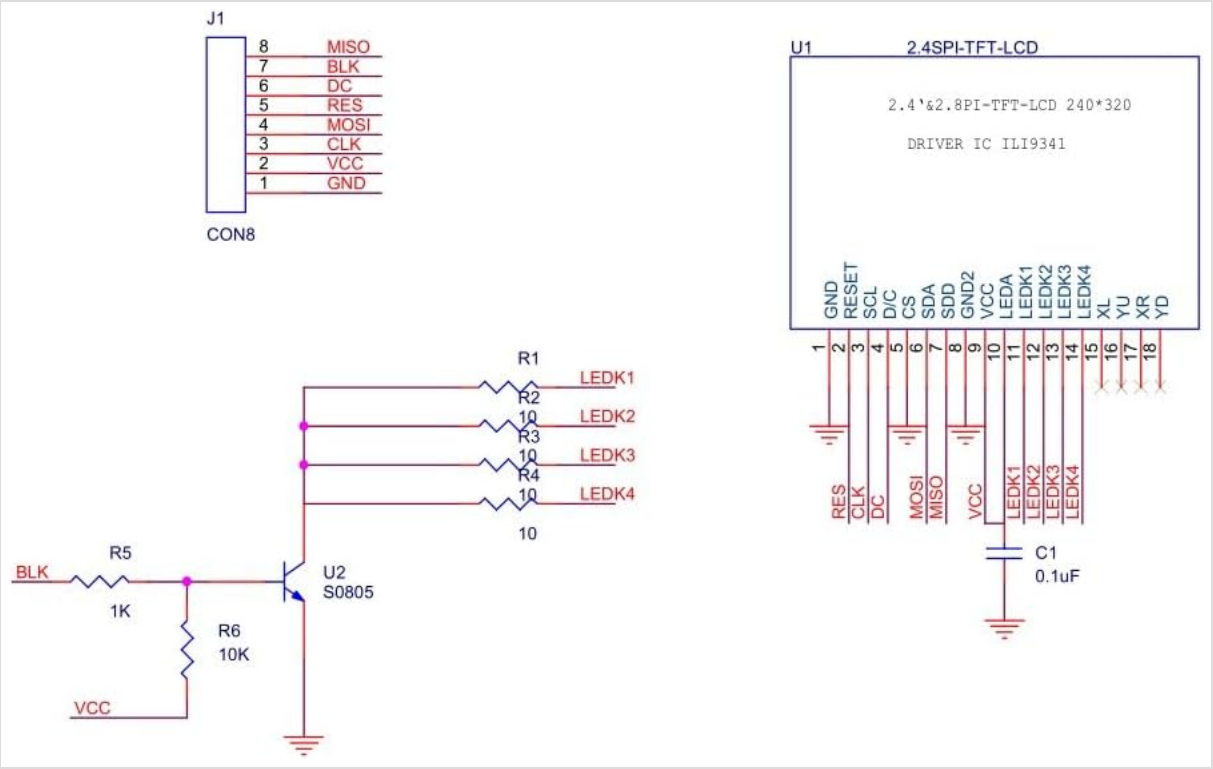

Figure 5: Schematic diagram of the display module.

Operating Instructions

To operate the display, you will need to interface it with a microcontroller or SBC using the SPI protocol. The ILI9341 driver chip requires specific commands for initialization, drawing pixels, and managing display functions.

Software Libraries

Many microcontrollers and SBC platforms have existing libraries that support the ILI9341 driver. For Arduino, Adafruit's GFX library and ILI9341 library are commonly used. For Raspberry Pi or other Linux-based systems, various Python or C++ libraries are available. Refer to the documentation of your chosen platform and library for specific programming examples.

Basic Display Functions

- **Initialization:** Send a sequence of commands to the ILI9341 driver to set up the display mode, color depth, and other parameters.
- **Drawing:** Use commands to draw pixels, lines, rectangles, circles, and text. Libraries typically abstract these low-level commands into user-friendly functions.
- **Backlight Control:** The BLK pin can be used to control the backlight. A low-level signal will turn the backlight off.

Maintenance

The 2.4" SPI TFT LCD Display module is a robust electronic component, but proper handling and care will ensure its longevity.

- **Cleaning:** Use a soft, dry, anti-static cloth to gently wipe the display surface. Avoid abrasive materials or harsh chemicals.
- **Storage:** Store the module in a dry, cool environment, away from direct sunlight and extreme temperatures.
- **Handling:** Avoid applying excessive pressure to the display surface. Handle the module by its edges to prevent damage to the screen or components.
- **Power Supply:** Ensure the power supply voltage is within the specified range (2.8V ~ 3.55V) to prevent damage to the display and driver IC.

Troubleshooting

If you encounter issues with your display module, consider the following troubleshooting steps:

- **No Display/Blank Screen:**
  - Verify all power connections (VCC, GND) are correct and stable at 3.3V.
  - Check the BLK pin connection. Ensure it is not pulled low if you intend the backlight to be on.
  - Confirm SPI connections (SCL, SDA, RES, DC, CS) are correctly wired according to the pinout diagram.
  - Ensure your software initialization code for the ILI9341 driver is correct and being executed.
- **Garbled or Incorrect Display:**
  - Double-check your SPI wiring for any crossed or loose connections.
  - Verify the SPI communication speed is compatible with the display module and your microcontroller.
  - Ensure the correct ILI9341 library is being used and configured for a 240x320 resolution.
  - Check for any conflicts with other SPI devices on the same bus.
- **Display Not Responding:**
  - Ensure the RES (Reset) pin is correctly toggled during initialization.
  - Verify the CS (Chip Select) pin is being correctly asserted (pulled low) during SPI communication.

Warranty

This product is typically covered by a standard return policy. For specific warranty details and return procedures, please refer to the seller's policy at the point of purchase. Generally, a 30-day return window for refunds or replacements is offered for defective items.

Support

For technical assistance, programming examples, or further inquiries, please contact the seller, DIY-Module, through the platform where the product was purchased. Online communities and forums dedicated to microcontrollers and display modules can also be valuable resources for project-specific questions.