2.83 Inch SPI TFT LCD Module 240x320 Small Display for Industrial Embedded Applications CH280QV39A

Our Product Introduction

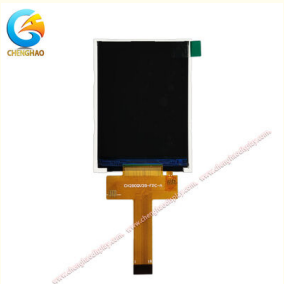
Basic Information

- Place of Origin: China
- Brand Name: chenghao optoelectronic
- Certification: RoHS & CE & FCC
- Model Number: CH280QV39A
- Minimum Order Quantity: 100 pcs
- Price: Negotiable
- Packaging Details: Standard export packaging
- Delivery Time: 7-15 work days
- Payment Terms: T/T
- Supply Ability: 300,000 pieces/month

Product Specification

- Module No: CH280QV39A
- Screen Size: 2.83 Inch
- Resolution: 240x320 DOTS (240*RGB*320)
- Viewing Direction: 12:00
- Screen Brightness: 300 Cd/m²
- Module Interface: SPI
- FPC Pin Numbers: 18 Pin
- Operating Temperature: -20~+70C
- Storage Temperature: -30~+80C
- Touch Type: No Touch

More Images



Product Description

The CH280QV39A is a high-performance 2.83-inch TFT LCD display module designed for industrial and embedded applications. Featuring a compact form factor with a resolution of 240x320 pixels (240*RGB*320 dots), this small-size display delivers crisp and vibrant visuals suitable for a wide range of human-machine interface (HMI) solutions.

Engineered with an SPI interface, the CH280QV39A offers reliable and efficient data transmission, making it easy to integrate with various microcontroller platforms. The display module operates with a brightness of 300 cd/m² (typical), ensuring clear visibility under typical indoor lighting conditions. The 12:00 viewing direction provides consistent image quality from the optimal viewing angle.

This TFT module supports a wide operating temperature range of -20 to +70°C and a storage temperature range of -30 to +80°C, making it suitable for demanding industrial environments. The module comes with an 18-pin FPC connector for flexible and compact installation. No touch functionality is included, allowing for custom touch integration if needed.

Additional features include TFT display mode technology that ensures vivid color reproduction and sharp image quality. The module uses LED backlight technology with typical forward voltage of 3.0-3.2V and forward current of 80mA, providing consistent and energy-efficient illumination.

The CH280QV39A is an ideal display solution for handheld instruments, embedded control panels, smart home devices, and various IoT applications where space is at a premium but display quality cannot be compromised. This compact TFT LCD module measures approximately 2.83 inches diagonally with an estimated active area of 43.2x57.6mm, offering an excellent balance between screen real estate and overall module footprint. The SPI interface simplifies PCB layout and reduces pin count requirements, allowing for straightforward connection with host controllers.

Designed with reliability in mind, the CH280QV39A features a robust construction that meets the demands of continuous operation in industrial settings. The display supports the full 240x320 RGB color gamut, delivering rich and detailed visual content for user interfaces, data displays, and status indicators.

Product Features

1. Compact 2.83-Inch Design

The CH280QV39A features a compact 2.83-inch diagonal screen size, making it an excellent choice for space-constrained applications. With 240x320 resolution in a small footprint, it delivers clear and detailed visuals without occupying excessive enclosure space. This compact form factor is particularly suitable for handheld medical monitors, portable industrial meters, and wearable control terminals.

2. SPI Interface for Easy Integration

Equipped with a standard SPI interface and 18-pin FPC connector, this display module simplifies PCB layout and reduces wiring complexity. The SPI communication protocol requires fewer I/O pins compared to parallel interfaces, allowing seamless integration with a wide variety of microcontrollers and embedded processors. This feature significantly reduces development time for engineers integrating displays into new product designs.

3. Wide Operating Temperature Range

With an operating temperature range of -20 to +70°C and storage range of -30 to +80°C, the CH280QV39A is engineered for reliability in challenging environments. Whether deployed in outdoor industrial equipment,

factory automation panels, or automotive auxiliary displays, this module maintains consistent performance across extreme temperature conditions.

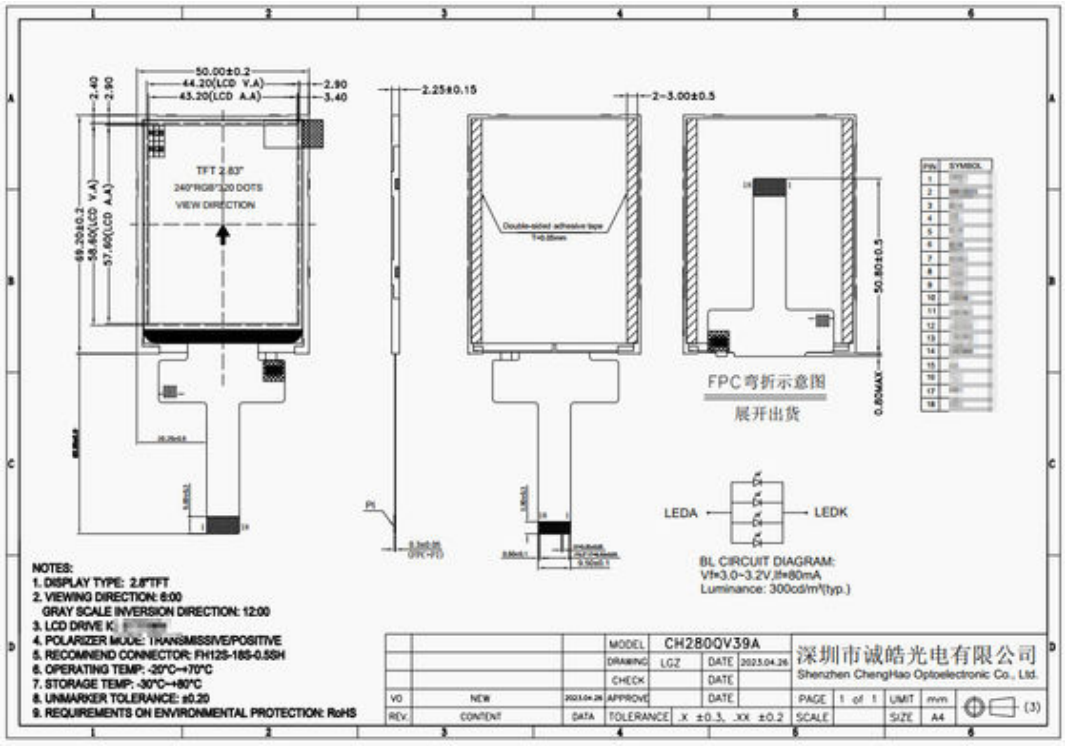
4. High Brightness for Indoor Clarity

The 300 cd/m² typical brightness ensures excellent readability for indoor applications such as medical diagnostic equipment, smart home control panels, and laboratory instruments. The LED backlight system provides efficient illumination with typical forward voltage of 3.0-3.2V, optimizing power consumption while maintaining clear and vibrant display output.

5. Customizable for Specific Requirements

As with all Chenghao display modules, the CH280QV39A supports customization options including FPC connector design, cable length, and backlight brightness tuning to meet specific application requirements. This flexibility allows OEMs to optimize the display for their unique product designs without compromising on quality or performance.

Product Drawing



Detailed Specifications

Parameter	Value
Screen Size	2.83 inch
Resolution	240x320 DOTS (240*RGB*320)
Viewing Direction	12:00
FPC Pin numbers	18 Pin
Operating Temperature	-20~+70C
Storage Temperature	-30~+80C
Module Size	N/A
Active Area Size	43.2x57.6mm ( )

Customized Introduction

Chenghao Optoelectronic Co., Ltd. offers comprehensive customization services for the CH280QV39A and all our TFT LCD display modules, ensuring the perfect fit for your specific application requirements. Our customization capabilities span four major product categories: TFT LCD Module, Mono LCD Display, Color OLED Module, and Mono OLED Module.

FPC Connector Customization

The FPC (Flexible Printed Circuit) connector can be tailored to match your PCB layout, including modifications to physical shape and pin count. The standard 18-pin configuration of the CH280QV39A can be adjusted to accommodate different connector positions, cable lengths, and routing requirements to simplify your overall product assembly.

Interface Customization

Beyond the standard SPI interface, we support a wide range of display interface options including MCU (8-bit/16-bit parallel), RGB, MIPI, LVDS, and HDMI interfaces. This flexibility allows the CH280QV39A footprint to be adapted for various controller platforms and system architectures.

Brightness Customization

While the standard brightness is 300 cd/m², we offer brightness tuning across three tiers: standard (200-300 cd/m²), high brightness (500+ cd/m²), and ultra-high brightness options for outdoor or sunlight-readable applications. Backlight LED configuration can be optimized for power consumption or maximum luminance.

Touch Panel Integration

For applications requiring user interaction, the CH280QV39A can be paired with either capacitive or resistive touch panels. Capacitive touch offers multi-touch support and superior optical clarity, while resistive touch provides cost-effective single-touch functionality suitable for industrial environments.

Additional Customization Options

We also provide anti-glare (AG) surface treatment to reduce reflections in bright environments, custom cover glass with specific thickness and shape requirements, and specialized optical bonding for improved durability and display clarity.

All customization services are supported by our experienced engineering team, with short lead times and competitive pricing to meet your project deadlines and budget requirements.

Application Cases

1. Handheld Industrial Meter Display

The compact 2.83-inch size and SPI interface make the CH280QV39A an ideal display for portable industrial measurement instruments such as digital multimeters, oscilloscopes, and signal analyzers. The wide operating temperature range ensures reliable performance in factory floor environments, while the 240x320 resolution provides clear readouts of measurement data, waveforms, and status indicators.

2. Smart Home Control Panel

In smart home applications, the CH280QV39A serves as an excellent display for wall-mounted control panels, thermostat interfaces, and home automation hubs. Its compact footprint fits seamlessly into modern minimalist designs, while the 300 cd/m² brightness ensures comfortable viewing in indoor settings. The SPI interface simplifies integration with popular IoT microcontrollers, reducing both development time and BOM cost.

3. Medical Monitoring Device Display

For portable medical equipment where space is at a premium, the CH280QV39A delivers the visual clarity

needed for patient vital signs monitoring, infusion pump interfaces, and diagnostic device displays. The reliable LED backlight system provides consistent illumination throughout the device lifetime, and the display's stable performance across temperature variations ensures dependable operation in clinical environments.

FAQ

Q1: What is the interface type of the CH280QV39A?

A: The CH280QV39A uses an SPI (Serial Peripheral Interface) for communication, which requires minimal I/O pins and is compatible with most microcontrollers and embedded processors.

Q2: What is the operating temperature range of this display module?

A: The CH280QV39A operates reliably from -20 to +70°C and can be stored from -30 to +80°C, making it suitable for industrial and outdoor applications.

Q3: Is the CH280QV39A available with touch functionality?

A: The standard CH280QV39A module does not include touch functionality. However, Chenghao offers custom integration of both capacitive and resistive touch panels based on your application requirements.

Q4: What power supply does the display module require?

A: The LED backlight operates with a typical forward voltage of 3.0-3.2V at 80mA. Specific power requirements for the display controller can be found in the detailed datasheet.

Q5: Can the FPC connector be customized for my project?

A: Yes, Chenghao offers full FPC customization including pin count, cable length, connector position, and routing configuration to accommodate your specific PCB layout requirements.

Q6: What is the resolution and display mode of this module?

A: The CH280QV39A has a resolution of 240x320 (240*RGB*320) dots in TFT display mode, delivering rich color reproduction and sharp image quality suitable for graphical user interfaces.

Q7: What customization options are available beyond the standard specifications?

A: Chenghao offers extensive customization including alternative display interfaces (MCU, RGB, MIPI, LVDS), brightness tuning (standard to high brightness), touch panel integration, AG surface treatment, and custom cover glass. Contact our engineering team for your specific requirements.

Shenzhen ChengHao Optoelectronic Co., Ltd.

+86 755-27806536 add@chenghaolcm.com chenghaolcd.com

7th floor, building C5, Hengfeng Industrial City, Hangcheng street, Bao'an District, Shenzhen