



**WINSTAR Display Co.,Ltd.**  
**華凌光電股份有限公司**



## SPECIFICATION

**MODEL NO. : WLOF00043000WGXAANA00**

### Summary

#### 4.3-inch HMI Display Development Board Feature

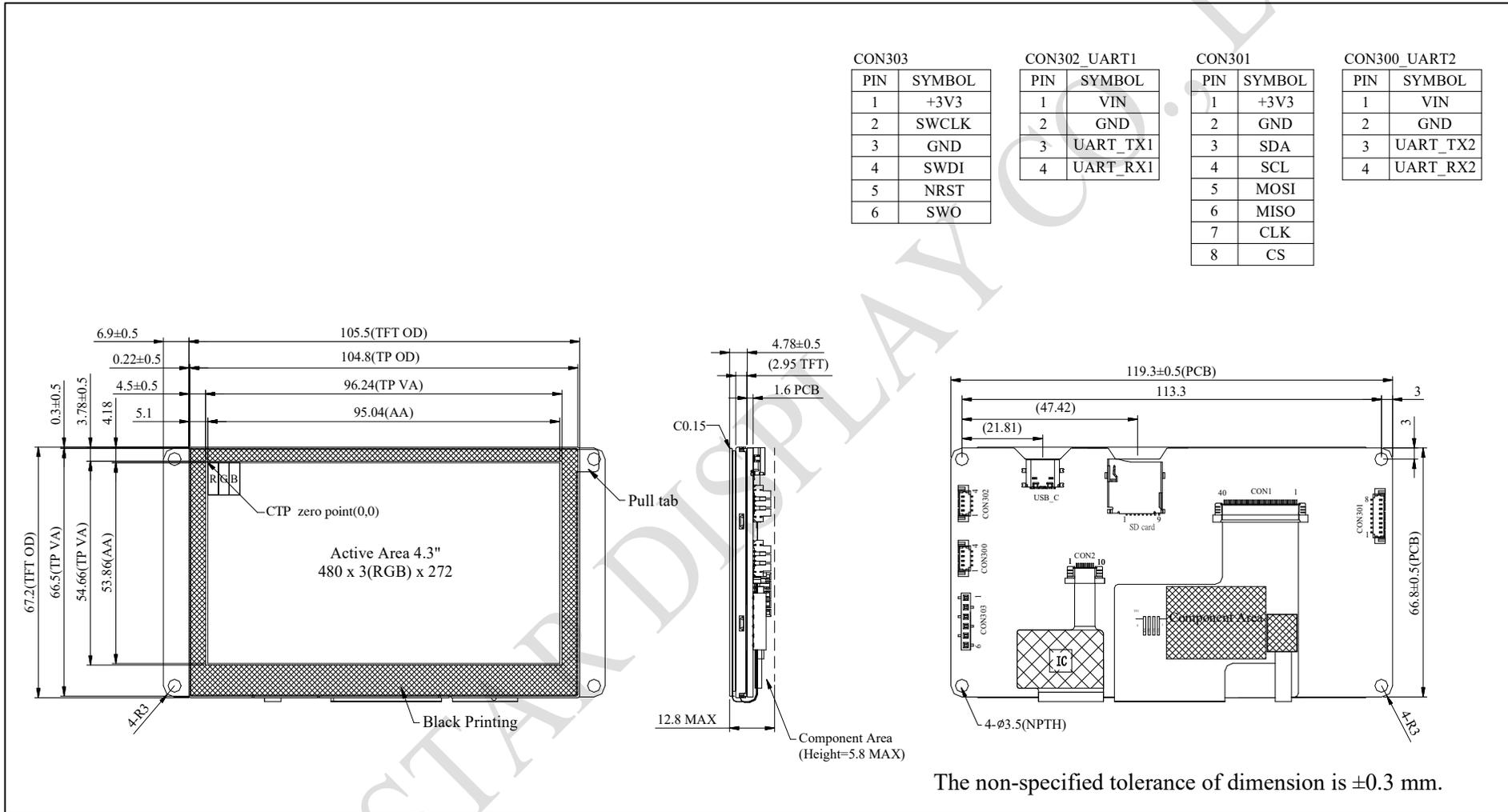
1. **TFT Module:** WF43WTTWAEDNGA# 4.3" IPS, normally black transmissive TFT with 80/80/80/80 wide viewing angle, 480×272 resolution, 24-bit RGB color depth (16.7M colors), typ. 400 cd/m<sup>2</sup> brightness, 50,000 hours LED backlight lifetime, and integrated I<sup>2</sup>C capacitive touch panel.
2. **MCU:** STM32U599ZIT6Q ultra-low-power MCU with 2 MB Flash, ~2.5 MB SRAM, integrated GPU2D and LTDC, and TrustZone-based secure boot, providing efficient GUI processing for low-power HMI systems.
3. **Memory:** W25Q128JVSIQT 128-Mbit (16 MB) serial Flash provides additional storage for fonts, images and application data beyond the MCU's internal memory.
4. **Power Input:** Wide-range VIN input 5–28 V or 5 V via USB-C.
5. **Interfaces:** USB-C (USB 2.0 OTG HS, power + data), Micro SD card slot, RS-485 / UART, SPI, I<sup>2</sup>C, UART, SWD debug interface, plus PWM backlight and GPIO buzzer control.
6. **Development Support:** Supplied with Initial Code Project compatible with STM32CubeMX, STM32CubeIDE, STM32Cube Programmer and TouchGFX Designer, enabling rapid application development; hardware schematic is available under NDA to assist developers with system integration and secondary development.

# Product Information

## General information

Item	Standard Value	Unit	
Operating voltage	5-28	VDC	
Communication Interface	USB-C	—	
	Micro SD Card	—	
	CON300	Option for RS485, UART	—
	CON301	SPI	—
		I <sup>2</sup> C	—
	CON302	UART	—
MCU	STM32U599ZIT6 (2MB Flash, 2.5MB RAM)	—	
External Flash Memory	16	MB	
LCD display size	4.3	inch	
Dot Matrix	480 x R.G.B. x 272 (TFT)	dots	
Module dimension	119.3(W) × 67.2(H) × 12.8(D)	mm	
Active area	95.04(W) × 53.856(H)	mm	
Pixel pitch	0.198(H) × 0.198(V)	mm	
Brightness	Min: 300; Typ: 400	cd/m <sup>2</sup>	
LCD type	TFT, Normally Black, Transmissive		
View Direction	80/80/80/80		
Aspect Ratio	16:9		
Touch Panel	With CTP		
Surface	Glare		

# Contour Drawing



The non-specified tolerance of dimension is ±0.3 mm.

# Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-30	—	+80	°C
Storage Temperature	TST	-30	—	+80	°C
Supply Voltage	VIN	—	—	28	V

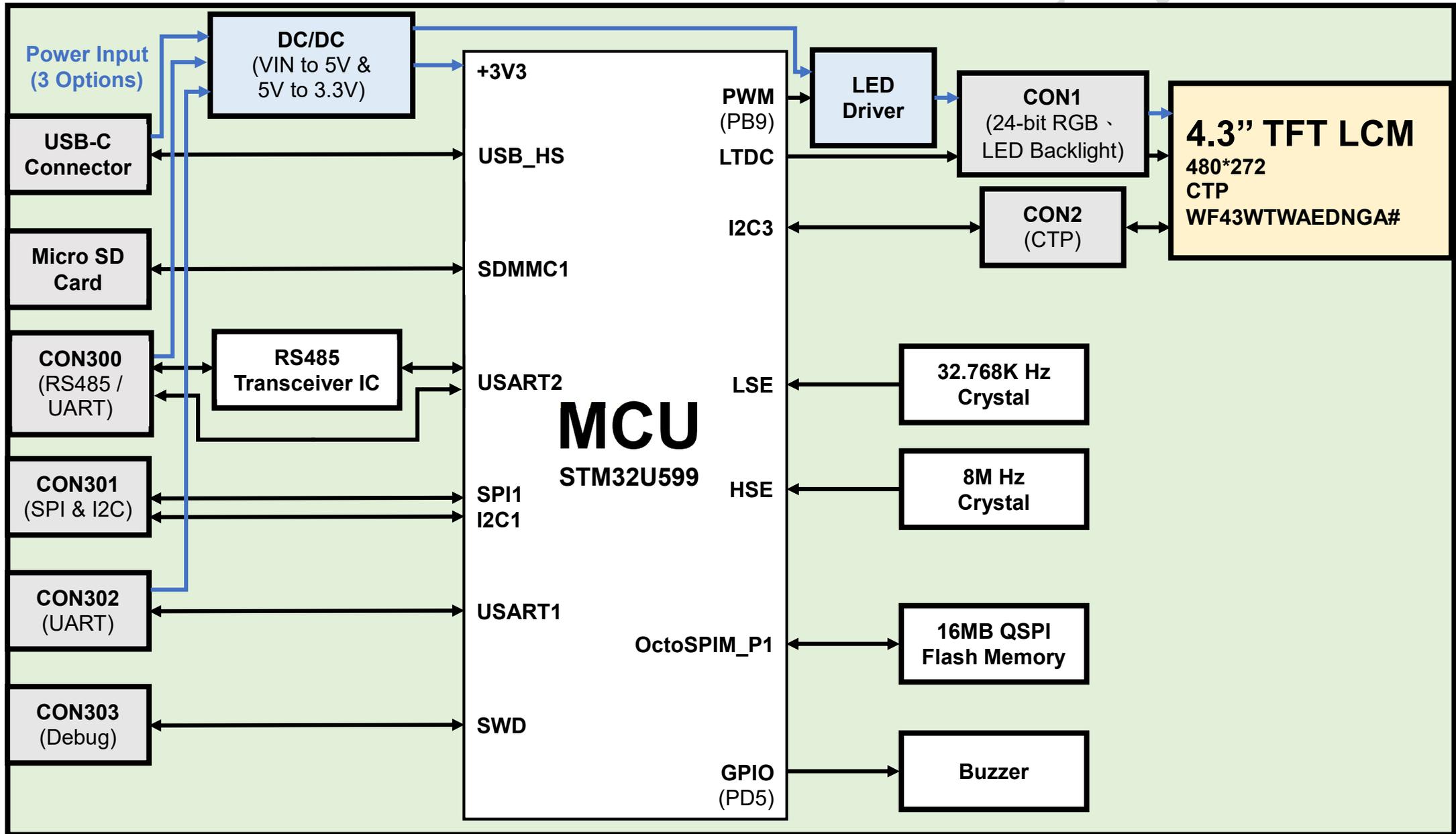
# Electrical Characteristics

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage	VIN	5	12	28	V
Supply Current	ICC	—	120	—	mA

# BOM

Item	Description
LCM	WF43WTWAEDNGA#
PCBA	SV10004R300WC00N0100

# Block diagram



# Interface

## CON300 (RS485 / UART) Definition:

Pin	Symbol	Function	Remark
1	VIN	Power supply input; 5V ~ 28V	Power
2	GND	Ground	Power
3	RS485_A / UART_TX2	USART2_TX	I/O
4	RS485_B / UART_RX2	USART2_RX	I/O

### Note:

1. Pin 3 and Pin 4 share the same USART2 port and operate in RS-485 mode by default (on-board transceiver enabled). When the RS-485 driver is disabled via software, the pins function as a 3.3 V TTL UART. The external wiring must match the selected mode.
2. Connector Type: Molex 0532610471 (1.25 mm pitch, 4-pin) or equivalent.

## CON301 (SPI & I2C) Definition:

Pin	Symbol	Function	Remark
1	+3V3	Power input	Power
2	GND	Ground	Power
3	SDA	I2C1_SDA	I/O
4	SCL	I2C1_SCL	I/O
5	MOSI	SPI1_MOSI	I/O
6	MISO	SPI1_MISO	I/O
7	CLK	SPI1_CLK	I/O
8	CS	SPI1_CS	I/O

### Note:

1. Connector Type: Molex 0532610871 (1.25 mm pitch, 8-pin) or equivalent.

## CON302 (UART) Definition:

Pin	Symbol	Function	Remark
1	VIN	Power supply input; 5V ~ 28V	Power
2	GND	Ground	Power
3	UART_TX1	USART1_TX	I/O
4	UART_RX1	USART1_RX	I/O

### Note:

1. Connector Type: Molex 0532610471 (1.25 mm pitch, 4-pin) or equivalent.

**CON303 (SWD) Definition:**

Pin	Symbol	Function	Remark
1	+3V3	Power input	Power
2	SWCLK	Serial wire clock	I/O
3	GND	Ground	Power
4	SWDIO	Serial wire debug data input/output	I/O
5	NRST	Reset	Input
6	SWO	Serial wire trace output	Output

**Note:**

1. Connector Type: Würth Elektronik 61300611821 (2.54 mm pitch, 6-pin) or equivalent.