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SMART DISPLAY SPECIFICATION



Think good, Do good, Be good !

SPECIFICATION

CUSTOMER	WINSTAR
MODEL NO.	WL0F00050000FGXAANA00-FC
CURRENT VERSION	A

1. Summary

5-inch HMI Display Development Board Feature

1. TFT Module: WF50-800480FD#0PW3-FC 5” IPS, normally black transmissive TFT with 80/80/80/80 wide viewing angle, 800×480 resolution, 24-bit RGB color depth (16.7M colors), typ. 400 cd/m² brightness, 50,000 hours LED backlight lifetime, and integrated I²C 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, I²C, 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.

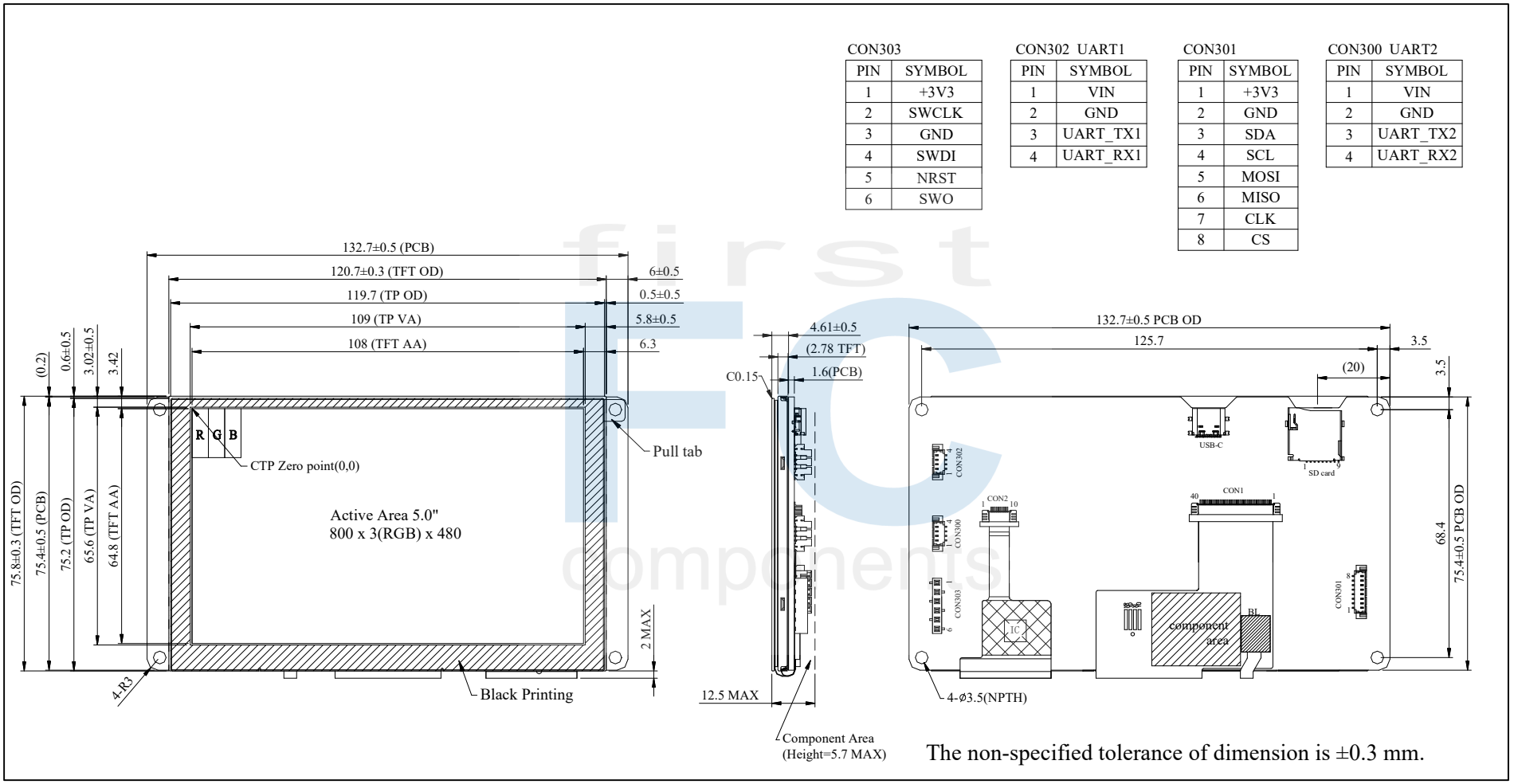
2. Product Information

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	—
	CON301: I²C	—
	CON302: UART	—
MCU	STM32U599ZIT6 (2MB Flash, 2.5MB RAM)	N/A
Flash Memory	16	MB
LCD display size	5	inch
Dot Matrix	800 x R.G.Bx480(TFT)	dot
Module dimension	132.7(W) x 75.8(H) x 12.5(D)	mm
Active area	108 (W) x 64.8(H)	mm
Pixel pitch	0.135(W) x 0.135(H)	mm
Brightness	Min:300; Typ:400	
LCD type	TFT, Normally Black, Transmissive	
View Direction	80/80/80/80	
Aspect Ratio	15:9	
With /Without TP	With CTP	
Surface	Glare	

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3. Contour Drawing



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4. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-30	—	+80	℃
Storage Temperature	TST	-30	—	+80	℃

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

1. Temp. ≦60℃, 90% RH MAX. Temp.＞60℃, Absolute humidity shall be less than 90% RH at 60℃

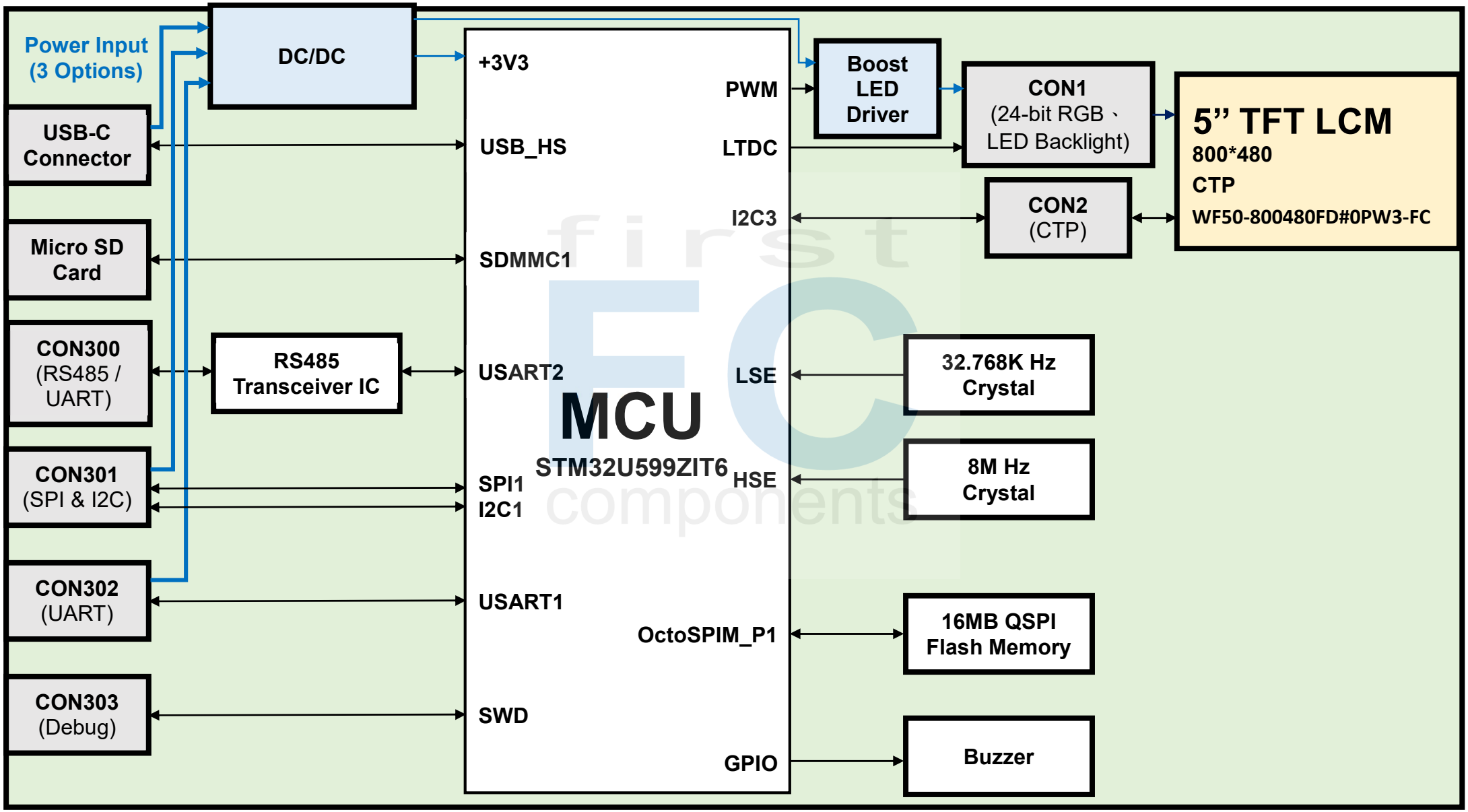
5. Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage	VCC	—	5	12	28	V
Supply LCM current	I(mA)	-	--	150	--	mA

6. BOM

Item	Description	Remark
LCM	WF50-800480FD#0PW3-FC	
PCBA	SV10005R000FJ00N0100	

8.Block diagram



9. Interface

CON300 definition:

Pin	Symbol	Function	Remark
1	VIN	Power supply 5V~28V input	Input
2	GND	Power supply GND input	Input
3	UART_TX2	USART TX2 interface	I/O
4	UART_RX2	USART RX2 interface	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 definition:

Pin	Symbol	Function	Remark
1	+3V3	Power supply +3V3 output	Output
2	GND	Power supply GND output	Output
3	SDA	Serial Data Line	I/O
4	SCL	Serial Clock Line	Output
5	MOSI	Master Out Slave In	I/O
6	MISO	Master In Slave Out	I/O
7	CLK	Clock	I/O
8	CS	Chip Select	I/O

Note:

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

CON302 definition:

Pin	Symbol	Function	Remark
1	VIN	Power supply 5V~28V input	Input
2	GND	Power supply GND input	Input
3	UART_TX1	USART TX1 interface	I/O
4	UART_RX1	USART RX1 interface	I/O

Note:

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

CON303 definition:

Pin	Symbol	Function	Remark
1	+3V3	3.3V power for JTAG interface	Output
2	SWCLK	CLK pin for JTAG interface	Input
3	GND	GND for JTAG interface	Output
4	SWDI	Data pin for JTAG interface	I/O
5	NRST	Reset pin for JTAG interface	Input
6	SWO	Serial Wire Output	Output

Note:

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

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