SMART DISPLAY SPECIFICATION

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SPECIFICATION

CUSTOMER : Winstar

MODEL NO. : WL0F00050000FGFAAEA00

APPROVED BY: (FOR CUSTOMER USE ONLY)	

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
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VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2024/07/04		First issue

TFT Display Inspection Specification: https://www.winstar.com.tw/technology/download.html
Precaution in use of TFT module: https://www.winstar.com.tw/technology/download/declaration.html

RECORDS OF REVISION			**DOC. FIRST ISSUE**
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1. Smart Display Classification Information

W	L	0F	000500	00F	G	F	AA	E	A	00
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

①	W: WINSTAR products				
②	Type: L:Standard K:Customization				
③	Display Type:	Standard:	0H: Character STN 0X: Graphic STN (TAB/COF) 0F: TFT EH: Character OLED EX: OLED (TAB/COF)	0G: Graphic STN 0P: Graphic STN (COG) EG: Graphic OLED EP: OLED (COG)	
		Customization:	DH: Character DN: Graphic ED: OLED	DG: Graphic STN 0J: TFT	
④	Display size: (diagonal) / Display format: (resolution)	Character STN: Graphic STN:	e.g., 8x1: 000801 16x2: 001602 24x4: 002404 e.g., 128x64: 012864 320x240: 320240		
		TFT Size (inch):	000096-0.96” / 000350-3.5” / 000430-4.3” / 000570-5.7” 000700-7.0” / 000800-8.0” / 001020-10.2” / 001210-12.1” (The last two digits are two digits after the decimal point)		
		OLED:	e.g., 128x64: 012864 Customization: 0001XX		
⑤	Serial No:	0A1 ~ 0ZZ	Customization STN: 000		
⑥	Touch Panel Type:	N: Without TP T: RTP G: CTP			
⑦	Model Interface:	A: CAN B: Bluetooth C:Controller Specified D: RS485 E: RS232 F: USART G: Logic I/O	H: HDMI R: Memory Specified P: RS422 N: Ethernet J: Analog I/O K: USB L: WIFI M: Zigbee	X: Combined Y: Proprietary interface	
⑧	Interface Serial No.:	AA ~ ZZ			
⑨	Control Category:	S: Smart Display N: Non-specified E: Entry			
⑩	Special Code:	A ~ Z			
⑪	Model code:	00 ~ ZZ			

2. Summary

WL0F00050000FGFAAEA00 is built in TFT 5.0” TN display and the features are described as below:

5.0 Inch Smart Display Feature

1. DC 5V working voltage.
2. UART Interface with customized UART protocol, default baud rate at 19200 bit/Sec.
3. Built in 16M flash memory.

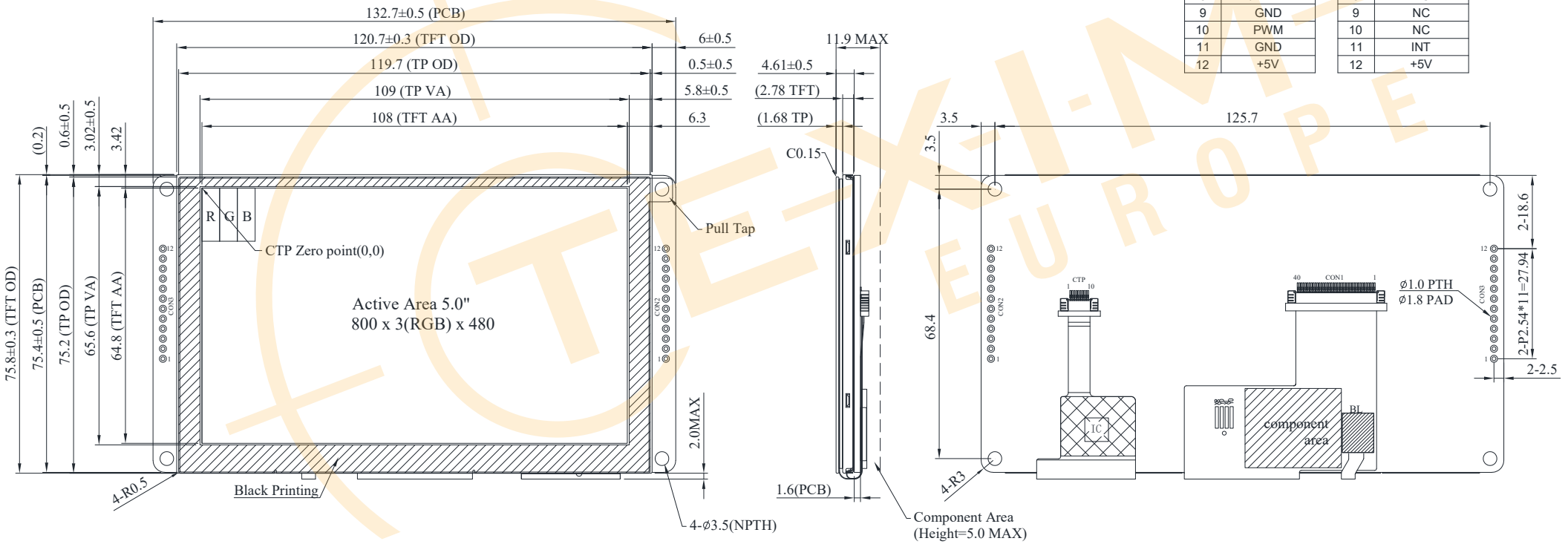
WL0F00050000FGFAAEA00 is defined as a slave device, which is controlled by master device via customized command to render display content on the display screen and return touch event position.

3. Product information

General information

Item	Standard Value	Unit
Operating voltage	5	Vdc
Communication Interface	UART /19200	N/A
MCU	IT9866 /360MHz	N/A
Flash Memory	16	MB
SDRAM Frequency	64MB/ 360MHz	
LCD display size	5.0	inch
Dot Matrix	800× 3(RGB) × 480	dots
Module dimension	132.7(W) ×75.8(H) ×11.9(D)	mm
Active area	108(W) ×64.8 (H)	mm
Pixel pitch	0.135(W) ×0.135(H)	mm
Brightness	300min, 400typ	cd/m^2
LCD type	TFT, Normally Black, Transmissive	
View Direction	80/80/80/80	
Aspect Ratio	5:3	
With /Without TP	With CTP	
Surface	Glare	

4. Contour Drawing



CON2

PIN	SYMBOL
1	GND
2	UART_TX
3	UART_RX
4	+5V
5	D+
6	D-
7	GND
8	/REST
9	GND
10	PWM
11	GND
12	+5V

CON3

PIN	SYMBOL
1	GND
2	SW1
3	SW2
4	SW3
5	SW4
6	GND
7	NC
8	NC
9	NC
10	NC
11	INT
12	+5V

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

5. 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℃

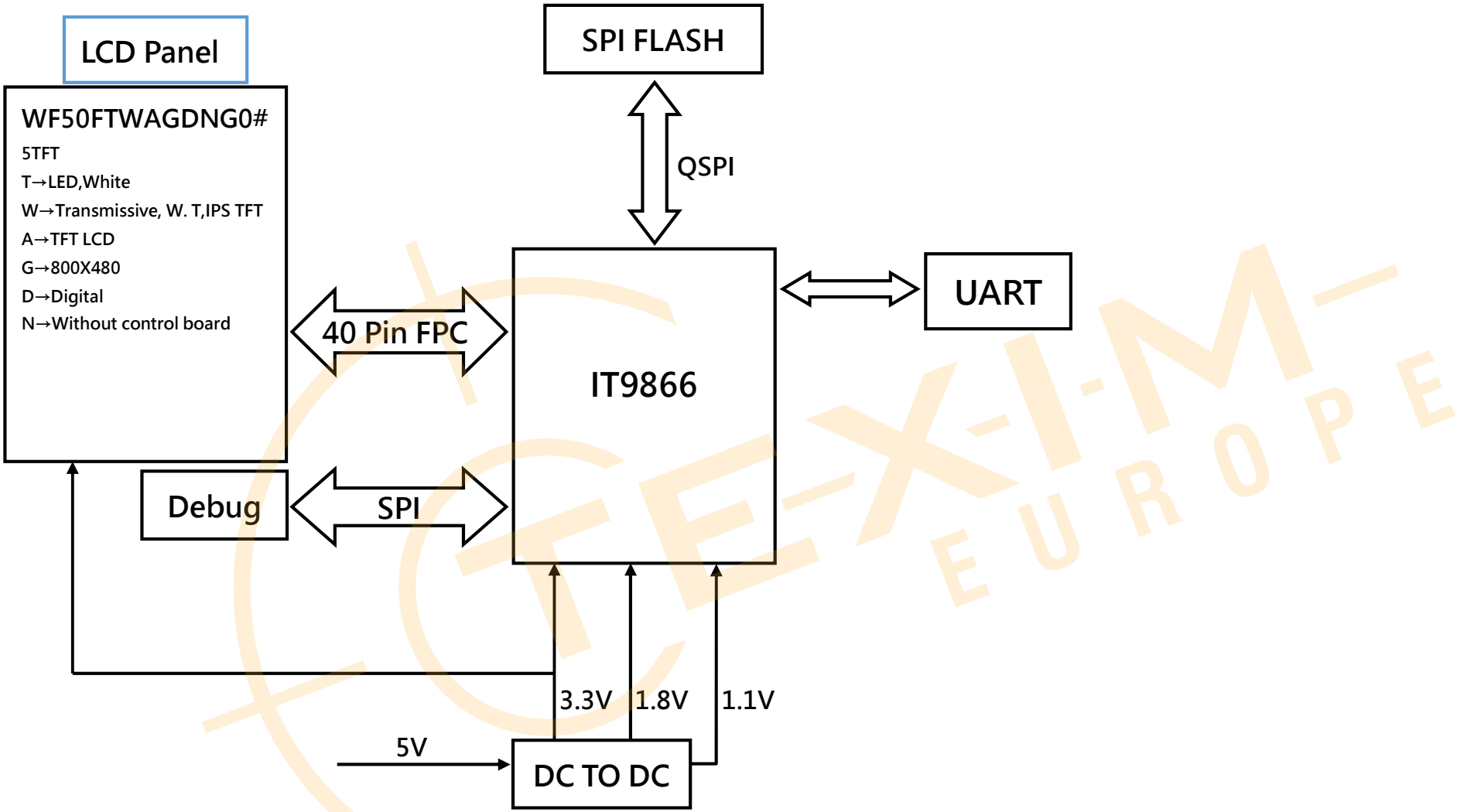
6. Electrical Characteristics

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage	VCC	4.5	5	5.5	V
Supply current	ICC	-	455	-	mA

7. BOM

Item	Description	Remark
LCM	WF50FTWAGDNG0#	
PCBA	SV10005R000FH00N0100	

8. Block diagram



9. Interface

CON2 definition:

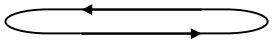
Pin	Symbol	Function	Remark
1	GND	Power Ground	
2	UART_TX	UART TX	
3	UART_RX	UART RX	
4	+5V	Power supply 5V	
5	D+	USB Data+	
6	D-	USB Data-	
7	GND	Power Ground	
8	/REST	Reset (active Low)	
9	GND	Power Ground	
10	PWM	Pulse width modulation	
11	GND	Power Ground	
12	+5V	Power supply : 5V	

CON3 definition:

Pin	Symbol	Function	Remark
1	GND	Power Ground	
2	SW1	Switch (active low)	
3	SW2	Switch (active low)	
4	SW3	Switch (active low)	
5	SW4	Switch (active low)	
6	GND	Power Ground	
7	NC	Reserved	
8	NC	Reserved	
9	NC	Reserved	
10	NC	Reserved	
11	INT	Interrupt output for CTP or external switch	
12	+5V	Power supply : 5V	

10. Reliability

Content of Reliability Test (Wide temperature, -30℃~80℃)

Environmental Test			
Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	80℃ 200hrs	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30℃ 200hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	80℃ 200hrs	——
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-30℃ 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 40℃,90%RH max	60℃,90%RH 96hrs	1,2
Thermal shock resistance	The sample should be allowed stand the following 10 cycles of operation -30℃ 25℃ 80℃  30min 5min 30min 1 cycle	-30℃/80℃ 10 cycles	——
Vibration test	Endurance test applying the vibration during transportation and using.	Total fixed amplitude : 1.5mm Vibration Frequency : 10~55Hz One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes	3
Static electricity test	Endurance test applying the electric stress to the terminal.	VS=±600V(contact) ,±800v(air), RS=330Ω CS=150pF 10 times	——

Note1: No dew condensation to be observed.

Note2: The function test shall be conducted after 4 hours storage at the normal Temperature and humidity after remove from the test chamber.

Note3: The packing have to including into the vibration testing.

11. Product inspection check list

Check samples by meter V_{IN}, I_{system}

Item	No 1	No 2	No 3	Note
V_{IN} (V)	5	5	-	
I_{System}(mA)	455	459	-	

Check sample Reliability Test

Item	Result	Note
Thermal shock		-30℃/80℃ 20 cycles
High Temperature Operation		80℃ 240hrs
Low Temperature Operation		-30℃ 240hrs
Static electricity test		VS=±2KV~±6KV(contact),±2KV~±8KV (air), RS=330Ω CS=150pF 10 times
Vibration test		Total fixed amplitude : 1.5mm Vibration Frequency : 10~55Hz One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes

- Prepare sets for testing

12. Display Usage

Please refer to ***SmartDisplay Entry User Guide*** for the details of UART commands and Clever System User API.

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Please contact us if you have any questions about the contents of the datasheet.

This may not be the latest version of the datasheet. Please check with us if a later version is available.

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