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SMART DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司



Winstar Display Co., LTD

華凌光電股份有限公司



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SPECIFICATION

CUSTOMER : Winstar

MODEL NO. : WLOF00050000FGDADSA00

APPROVED BY: (FOR CUSTOMER USE ONLY)	
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SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
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VERSION	DATE	REVISED PAGE NO.	SUMMARY
A	2025/05/21	p7,9	Revised LCD type and BOM

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>

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RECORDS OF REVISION			DOC. FIRST ISSUE
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0	2024/12/17		First issue
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Contents

1. Smart Display Classification Information
2. Summary
3. Product information
4. Contour Drawing
5. Absolute Maximum Ratings
6. Electrical Characteristics
7. BOM
8. Block diagram
9. Interface
10. Reliability

1. Smart Display Classification Information

W	L	OF	000500	00F	G	A	AD	S	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:	e.g., 8x1: 000801 16x2: 001602 24x4: 002404	
		Graphic STN:	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 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 E: Entry N: Non-specified		
⑩	Special Code:	A → Generic B → Industrial C →Automotive D →Medical		
⑪	Model code:	00 ~ ZZ		

2. Summary

5 Inch Smart Display (RS485 series with GPIO) Feature

1. Input voltage dynamic range 5V to 28V, typical voltage 12V.
2. Self-testing after booting function.
3. RS485 communication interface.
4. Built in 16MB external flash memory to store the font and Object Dictionary Data.
5. Support capacitive touch panel (CTP).
6. Build in buzzer and can be controlled by Master Device.
7. Demo set HOST can be used on multiple platforms, such as Computer (with USB to CAN Dongle), MCU, Raspberry Pi (with PiCAN2).
8. GPIO PIN support.

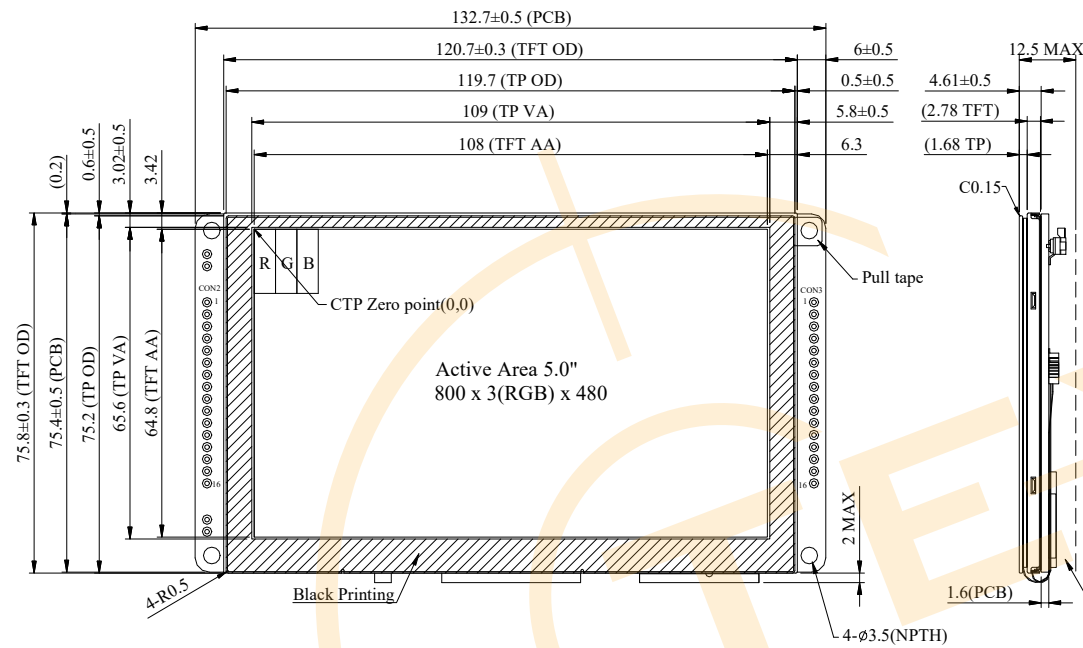


3. Product information

General information

Item	Standard Value	Unit
Operating voltage	5V~ 28V dynamic	Vdc
Communication Interface	RS485	--
MCU	STM32F750	N/A
Flash Memory	16	MB
LCD display size	5.0	inch
Dot Matrix	800× 3(RGB) × 480	dot
Module dimension	132.7(W) ×75.8(H) ×12.5	mm
Active area	108(W) ×64.8 (H)	mm
Pixel pitch	0.135(W) ×0.135(H)	mm
Brightness	Min: 300; Typ: 400	cd/m ²
LCD type	TFT, Normally Black, Transmissive	
View Direction	80/80/80/80	
Aspect Ratio	15:9	
With /Without TP	With CTP	
Surface	Glare	

4. Contour Drawing

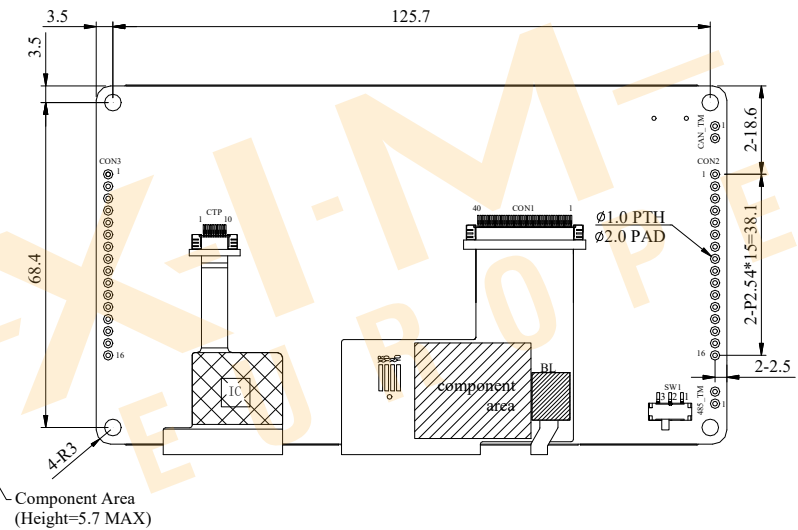


CON3

PIN	SYMBOL	PIN	SYMBOL
1	+3V3	9	IO_0
2	SWCLK	10	IO_1
3	GND	11	IO_2
4	SWDIO	12	IO_3
5	NRST	13	IO_4
6	GND	14	IO_5
7	WKUP	15	IO_6
8	BOOT0	16	IO_7

CON2

PIN	SYMBOL	PIN	SYMBOL
1	VIN	9	VBUS
2	GND	10	Reserve
3	NC	11	Reserve
4	NC	12	GND
5	GND	13	VIN
6	GND	14	RS485_B
7	Reserve	15	RS485_A
8	Reserve	16	GND



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	°C
Storage Temperature	TST	-30	—	+80	°C

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

1. Temp. $\leq 60^{\circ}\text{C}$, 90% RH MAX. Temp. $> 60^{\circ}\text{C}$, Absolute humidity shall be less than 90% RH at 60°C

6. Electrical Characteristics

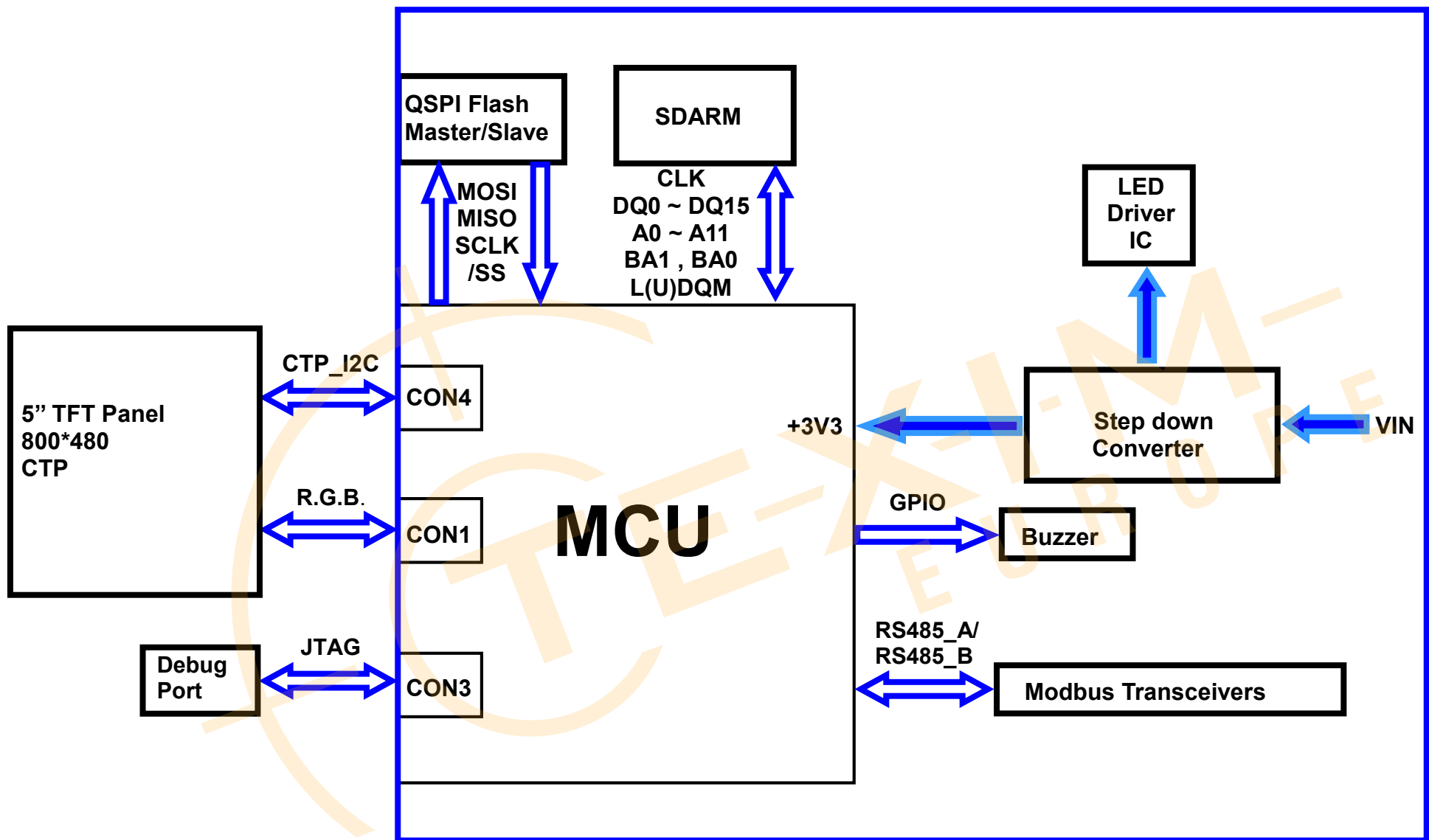
Item	Symbol	Min	Typ	Max	Unit	Note
Supply Voltage	VCC	5	12	28	V	
Supply Current	ICC	670	240	110	mA	
I/O pin Voltage	--	--	--	3.3	V	Note 1

Note1: Exceed 3.3V may cause MCU damage.

7. BOM

Item	Description	Remark
LCM	WF50FTWAGDNG0#	
PCBA	SV10005R000FG00N0104	

8. Block diagram



9. Interface

CON2 definition:

Pin	Symbol	Function	Remark
1	VIN	Power supply 5V to 28V input	Input
2	GND	Power supply GND input	Input
3	NC	-	-
4	NC	-	-
5	GND	Power supply GND input	GND
6	GND	Power supply GND input	GND
7	Reserve	-	-
8	Reserve	-	-
9	VBUS	Power supply 5V input	Input
10	Reserve	-	-
11	Reserve	-	-
12	GND	Power supply GND input	Input
13	VIN	Power supply 5V to 28V input	Input
14	RS485_B	RS485 DATA-	I/O
15	RS485_A	RS485 DATA+	I/O
16	GND	Power supply GND input	Input

CON3 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	SWDIO	Data pin for JTAG interface	I/O
5	NRST	Reset pin for JTAG interface	Input
6	GND	GND	Output
7	WKUP	WKup,ADC,Timer,Event,I/O	TTL signal voltage is 3.3V
8	BOOT0	Lo: Internal flash boot (Default) Hi: External flash boot	TTL signal voltage is 3.3V
9	IO0	ADC,DAC,Timer,Event,I/O	TTL signal voltage is 3.3V
10	IO1	ADC,Timer,Event,I/O	TTL signal voltage is 3.3V
11	IO2	ADC,Timer,Event,I/O	TTL signal voltage is 3.3V
12	IO3	RST,Timer,Event,I/O	TTL signal voltage is 3.3V
13	IO4	RST,Timer,Event,I/O	TTL signal voltage is 3.3V
14	IO5	ADC,Timer,Event,I/O	TTL signal voltage is 3.3V
15	IO6	RST,Timer,Event,I/O	TTL signal voltage is 3.3V
16	IO7	RST,ADC,Event,I/O	TTL signal voltage is 3.3V

10. Reliability

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

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°C 96hrs	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30°C 96hrs	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°C 240hrs	—
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-30°C 240hrs	1
High Temperature/Humidity Operation	The module should be allowed to stand at 60°C,90%RH max	60°C,90%RH 96hrs	1,2
Thermal shock resistance	The sample should be allowed stand the following 10 cycles of operation -30°C 25°C 80°C 30min 5min 30min 1 cycle	-30°C/80°C 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=±2KV~±6KV(contact),±2KV~±8KV(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.

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

Item	No 1	Note
V_{IN} (V)	12	
I_{system} (mA)	247	

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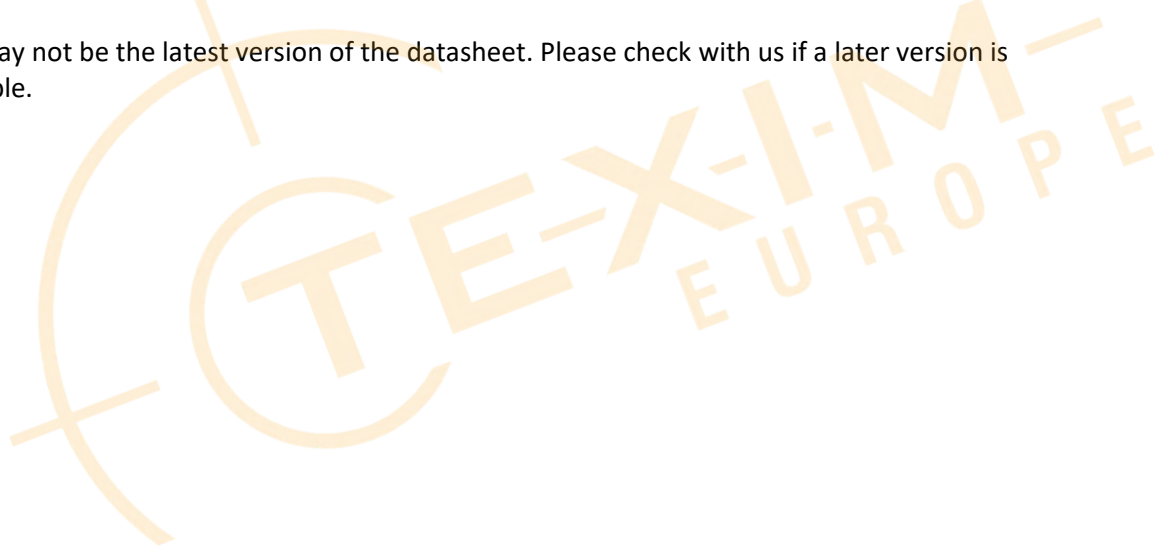
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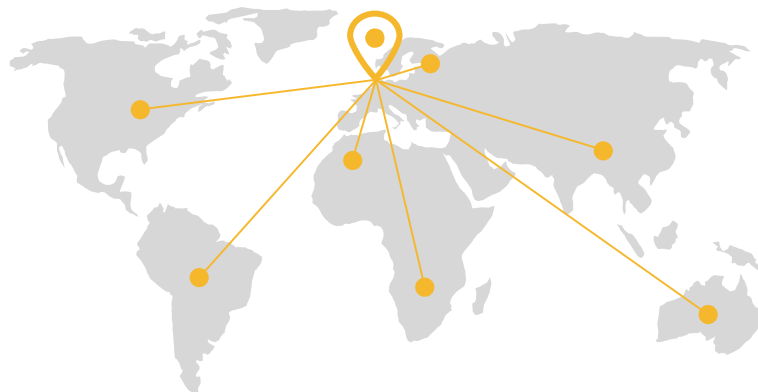
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All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts.

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





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