

Distributed by:



www.texim-europe.com



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

WEB: <https://www.winstar.com.tw> E-mail: sales@winstar.com.tw



SPECIFICATION

CUSTOMER : _____

MODEL NO. : WLOF00039000FGAAASA00

APPROVED BY: (FOR CUSTOMER USE ONLY)	
--	--

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
	Ginger Xu	Eason Chang	Debby Hsu

VERSION	DATE	REVISED PAGE NO.	SUMMARY
A	2025/05/28	P9	Revise Storage Temperature Revise Interface Operation Voltage

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
VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2025/04/21		First issue
A	2025/05/28	P9	Revise Storage Temperature Revise Interface Operation Voltage



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
11. Product inspection check list

1. Smart Display Classification Information

W	L	0F	000390	00F	G	A	AA	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

3.9 Inch Smart Display Feature

1. Input voltage dynamic range 5V to 48V, typical voltage 5V.
2. Self-testing after booting function.
3. CAN bus communication interface.
4. Support Custom CAN ID protocol. Default baud rate is 250Kbps.
5. Built in flash memory 16MB, store the font and Object Dictionary Data.
6. Support capacitive touch panel (CTP).
7. Embedded buzzer controlled by Master Device.
8. Demo set HOST can be used on multiple platforms, such as Computer (with USB to CAN Dongle), MCU, Raspberry Pi (with PiCAN2).
9. GPIO PIN support



3 Product information

General information

Item	Standard Value	Unit
Operating voltage	5V~ 48V (dynamic)	Vdc
Communication Interface	CAN bus	Vpp
MCU	STM32F750	N/A
Flash Memory	16	MB
LCD display size	3.9	inch
Dot Matrix	480x128 x RGB (TFT)	dot
Module dimension	157.0(W) x 42.0(H) x 16	mm
Active area	95.04 x 25.34	mm
Brightness	Min: 700; Typ: 800	cd/m ²
Pixel pitch	0.198 x 0.198	mm
LCD type	TFT, Normally Black, Transmissive	
Viewing Angle	85/85/85/85	
Aspect Ratio	Bar Type	
With /Without TP	With CTP	
Surface	Glare	

Technical drawing of the WLOF00039000FGAASA00 module, showing dimensions and labels for the top, side, and rear views.

Top View Dimensions:

- Overall Width: 105.5 ± 0.2 (TFT OD)
- Overall Height: 4.75 ± 0.5
- TP OD: 104.5
- TP VA: 96.04
- TFT AA: 95.04
- TP OD (Left): 37 ± 0.2
- TP OD (Right): 25.75 ± 0.5
- TP VA (Left): 26.34
- TP VA (Right): 0.5 ± 0.5
- TFT AA (Left): 25.34
- TFT AA (Right): 0.5 ± 0.5
- TP OD (Bottom): 36
- TP VA (Bottom): 26.34
- TFT AA (Bottom): 25.34
- TP OD (Top): 3.08 ± 0.5
- TP VA (Top): 3.58
- TFT AA (Top): 3.58

Side View Dimensions:

- Overall Height: 16.0 Max
- TP OD: 8.7 ± 0.6
- TP VA: 1.6 (PCB)
- TFT AA: (5.2)

Rear View Dimensions:

- Overall Width: 157 ± 0.5 (PCB)
- Overall Height: 42 ± 0.5 (PCB)
- TP OD: 3.5
- TP VA: 17.78
- TFT AA: 8.61
- TP OD (Left): $4 \cdot R3$
- TP OD (Right): $4 \cdot R3$
- TP VA (Left): 2.54
- TP VA (Right): 2.54
- TFT AA (Left): 1.6
- TFT AA (Right): 1.6

Labels:

- CON1, CON2, CON3, CON4
- CON1 1, CON1 2, CON1 3, CON1 4, CON1 5, CON1 6, CON1 7, CON1 8, CON1 9, CON1 10, CON1 11, CON1 12, CON1 13, CON1 14, CON1 15, CON1 16
- CON2 1, CON2 2, CON2 3, CON2 4, CON2 5, CON2 6, CON2 7, CON2 8, CON2 9, CON2 10, CON2 11, CON2 12, CON2 13, CON2 14, CON2 15, CON2 16
- CON3 1, CON3 2, CON3 3, CON3 4, CON3 5, CON3 6, CON3 7, CON3 8, CON3 9, CON3 10, CON3 11, CON3 12, CON3 13, CON3 14, CON3 15, CON3 16
- CON4 1, CON4 2, CON4 3, CON4 4, CON4 5, CON4 6, CON4 7, CON4 8, CON4 9, CON4 10
- CTP zero point(0,0)
- Active Area 3.9" 480 x RGB x 128
- Pull Tab
- Black printing
- Component Area (Height=5.1MAX)

The non-specified tolerance of dimension is $\pm 0.3 \text{ mm}$.

CON2			
SYMBOL	PIN		SYMBOL
IO 0	1	2	+3V3
IO 1	3	4	SWCLK
IO 2	5	6	GND
IO 3	7	8	SWDIO
IO 4	9	10	NRST
IO 5	11	12	GND
IO 6	13	14	WKUP
IO 7	15	16	BOOT0

The non-specified tolerance of dimension is $\pm 0.3\text{mm}$.

5. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-30	—	+80	°C
Storage Temperature	TST	-40	—	+90	°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

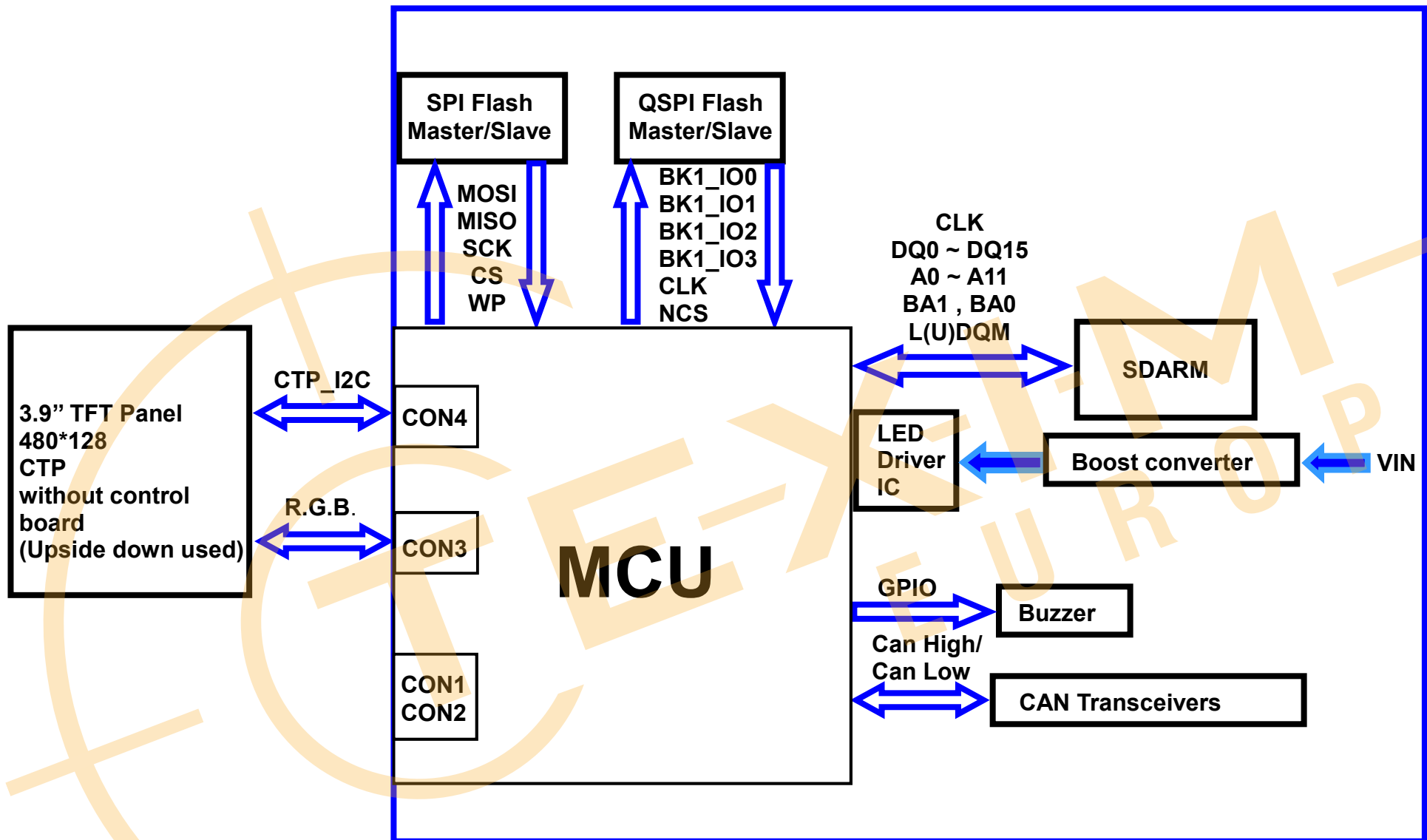
6. Electrical Characteristics

Item	Symbol	Min	Typ	Max	Unit	Remark
Supply Voltage For Analog	VCC	5	5	48	V	
Interface Operation Voltage	ICC	420	460	50	mA	

7. BOM

Item	Description	Remark
LCM	WF39FSWASDNG0#	
PCBA	SV10003R900FA00N0100	

8. Block diagram



9.Interface

CON1 definition:

Pin	Symbol	Function	Remark
1	VIN	Power supply 5V to 48V input	Input
2	GND	Power supply GND input	GND
3	GND	Power supply GND input	GND
4	Reserve	Differential signal D-	I/O
5	CAN_H	CAN bus D+	I/O
6	Reserve	Differential signal D+	I/O
7	CAN_L	CAN bus D-	I/O
8	VBUS	5V output for UART interface	Output
9	GND	Power supply GND input	GND
10	Reserve	UART1_RX	I/O
11	Reserve	-	-
12	Reserve	UART1_TX	I/O
13	Reserve	-	-
14	GND	Power supply GND input	GND
15	VIN	Power supply 5V to 48V input	Input
16	GND	Power supply GND input	GND

I/O allow below 3.3V input. If exceeding 3.3V may cause MCU damage.

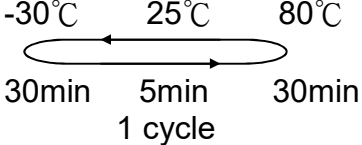
CON2 definition:

Pin	Symbol	Function	Remark
1	IO_0	ADC,DAC,Timer,Event,I/O	TTL signal voltage is 3.3V
2	+3V3	3.3V power for JTAG interface	Output
3	IO_1	ADC,Timer,Event,I/O	TTL signal voltage is 3.3V
4	SWCLK	CLK pin for JTAG interface	Input
5	IO_2	ADC,Timer,Event,I/O	TTL signal voltage is 3.3V
6	GND	GND	Output
7	IO_3	RST,Timer,Event,I/O	TTL signal voltage is 3.3V
8	SWDIO	Data pin for JTAG interface	I/O
9	IO_4	RST,Timer,Event,I/O	TTL signal voltage is 3.3V
10	NRST	Reset pin for JTAG interface	Input
11	IO_5	ADC,Timer,Event,I/O	TTL signal voltage is 3.3V
12	GND	GND	Output
13	IO_6	RST,Timer,Event,I/O	TTL signal voltage is 3.3V
14	WKUP	WKup,ADC,Timer,Event,I/O	TTL signal voltage is 3.3V
15	IO_7	RST,ADC,Event,I/O	TTL signal voltage is 3.3V
16	BOOT0	Lo: Internal flash boot (Default) Hi: External flash boot	TTL signal voltage is 3.3V

I/O allow below 3.3V input. If exceeding 3.3V may cause MCU damage.

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.	90°C 200hrs	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-40°C 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°C 200hrs	—
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-30°C 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 40°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/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=±4KV(contact), ±4KV(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.

Note4: Endurance test applying the electric stress to the finished product housing

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	5	
I_{system} (mA)	463	465	467	

Check sample Reliability Test

Item	Result	Note
Thermal shock		-30°C/80°C 10 cycles
High Temperature Operation		80°C 200hrs
Low Temperature Operation		-30°C 200hrs
Static electricity test		VS=±4KV(contact), ±4KV(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

Disclaimer

ALL PRODUCTS, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Texim Europe B.V. its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Texim"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Texim makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product.

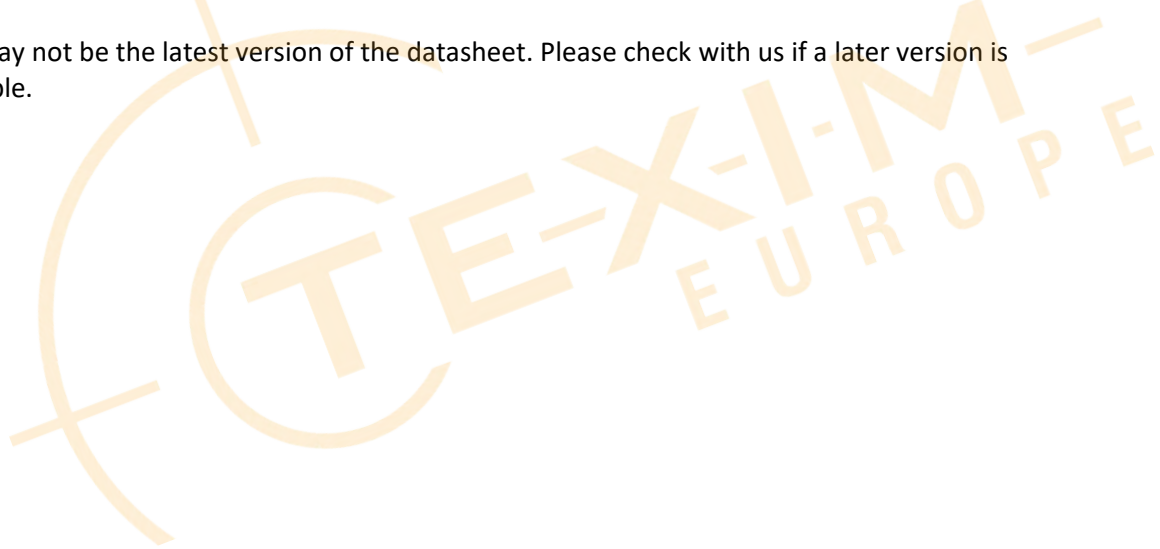
It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application.

Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time.

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

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.





Headquarters & Warehouse

Elektrostraat 17
NL-7483 PG Haaksbergen
The Netherlands

T: +31 (0)53 573 33 33
E: info@texim-europe.com
Homepage: www.texim-europe.com



The Netherlands

Elektrostraat 17
NL-7483 PG Haaksbergen

T: +31 (0)53 573 33 33
E: nl@texim-europe.com



Belgium

Zuiderlaan 14, box 10
B-1731 Zellik

T: +32 (0)2 462 01 00
E: belgium@texim-europe.com



UK & Ireland

St Mary's House, Church Lane
Carlton Le Moorland
Lincoln LN5 9HS

T: +44 (0)1522 789 555
E: uk@texim-europe.com



Germany

Bahnhofstrasse 92
D-25451 Quickborn

T: +49 (0)4106 627 07-0
E: germany@texim-europe.com



Germany

Martin-Kollar-Strasse 9
D-81829 München

T: +49 (0)89 436 086-0
E: muenchen@texim-europe.com



Austria

Warwitzstrasse 9
A-5020 Salzburg

T: +43 (0)662 216 026
E: austria@texim-europe.com



Nordic

Stockholmsgade 45
2100 Copenhagen

T: +45 88 20 26 30
E: nordic@texim-europe.com



Italy

Martin-Kollar-Strasse 9
D-81829 München

T: +49 (0)89 436 086-0
E: italy@texim-europe.com