



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司



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

SPECIFICATION

CUSTOMER : _____

MODEL NO. : WLOF00035000XGDAASA00

APPROVED BY:

(FOR CUSTOMER USE ONLY)

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
		Leo Liu	Debby Hsu

VERSION	DATE	REVISED PAGE NO.	SUMMARY
C	2023/09/13	4	Revise contents

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	2023/04/24		First issue
A	2023/09/11	9	Add note in 6.Electrical Characteristics
B	2023/09/13	12	Revised Thermal shock resistance Temperature
C	2023/09/13	4	Revise contents

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1. Smart Display Classification Information
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3. Product information
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1. Smart Display Classification Information

W	L	0F	000350	00X	G	D	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 OJ: 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)	
⑤	Serial No:	OLED:	e.g., 128x64: 012864 Customization: 0001XX	
		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 E: Entry N: Non-specified		
⑩	Special Code:	A ~ Z		
⑪	Model code:	00 ~ ZZ		

2. Summary

3.5 Inch Smart Display Feature

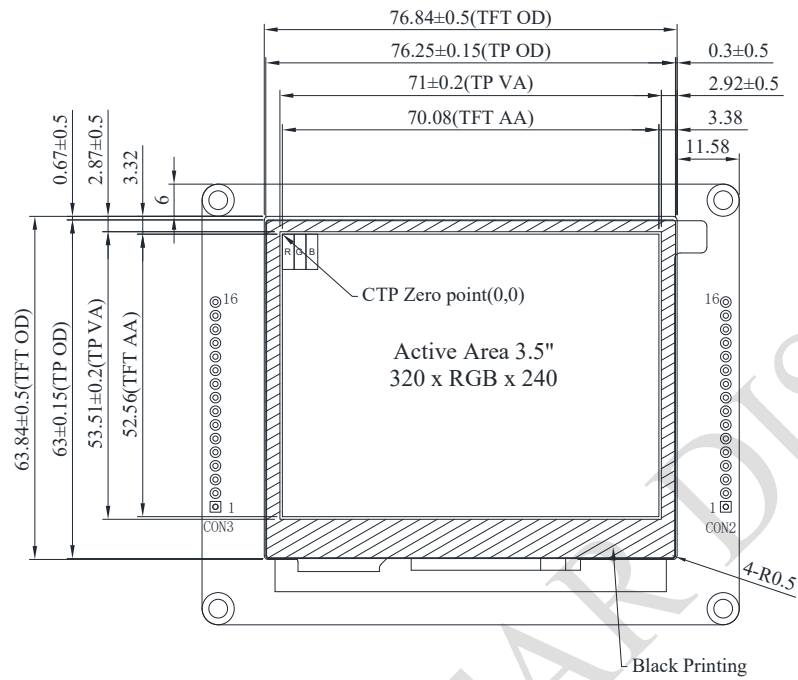
1. DC 5V~24V working voltage and low power consumption.
2. Self testing after booting function.
3. RS485 communication interface.
4. Built in flash memory, store the font and Object Dictionary Data.
5. Support capacitive touch panel (CTP).
6. Embedded buzzer controlled by Master Device.
7. HOST can be used on multiple platforms, such as Computer (with USB to RS-485 Dongle), MCU.

3. Product information

General information

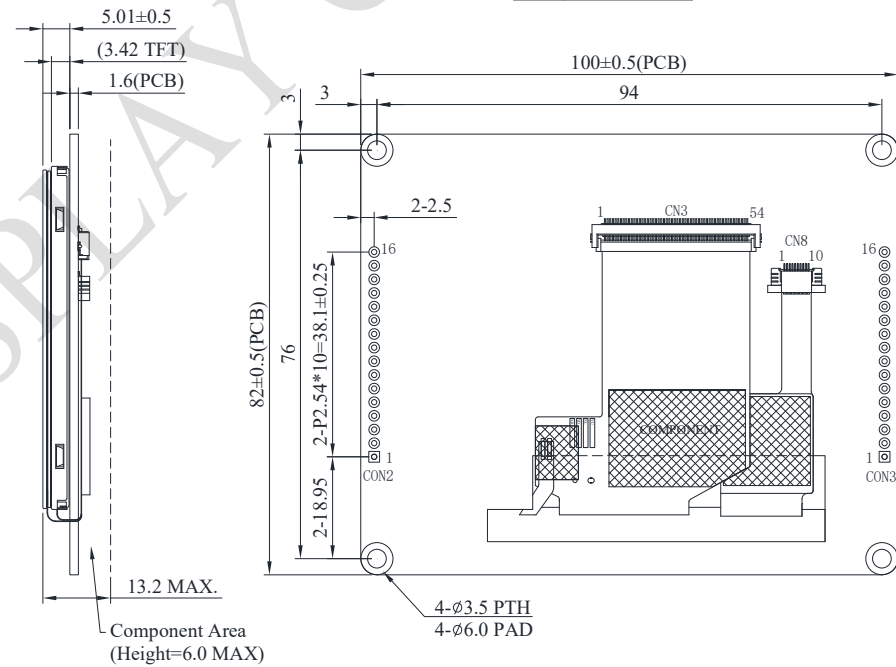
Item	Standard Value	Unit
Operating voltage	5 ~ 24	Vdc
Communication Interface	RS485 differential	-
MCU	STM32F750	N/A
Flash Memory	16	MB
SDRAM Frequency	108	MHz
LCD display size	3.5	inch
Dot Matrix	320× 3(RGB) × 240	dot
Module dimension	100(W) x 82(H) x 13.2(D)	mm
Active area	70.08(W) x 52.56(H)	mm
Pixel pitch	0.219 x 0.219	mm
Brightness	Min: 300; Typ: 400	
LCD type	TFT, Normally Black, Transmissive	
View Direction	80/80/80/80	
Aspect Ratio	4:3	
With /Without TP	With CTP	
Surface	Glare	

4. Contour Drawing



PIN	SYMBOL
1~10	Reserved
11	SWDO
12	NRST
13	SWDI
14	GND
15	SWCLK
16	+3V3

PIN	SYMBOL
1	GND
2	RS485_A
3	RS485_B
4~14	Reserved
15	GND
16	VIN



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

5. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit	Remark
Operating Temperature	TOP	-30	—	+85	°C	
Storage Temperature	TST	-30	—	+85	°C	

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above
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	VIN	5	12	24	V	
Supply Current	ICC	-	150	-	mA	

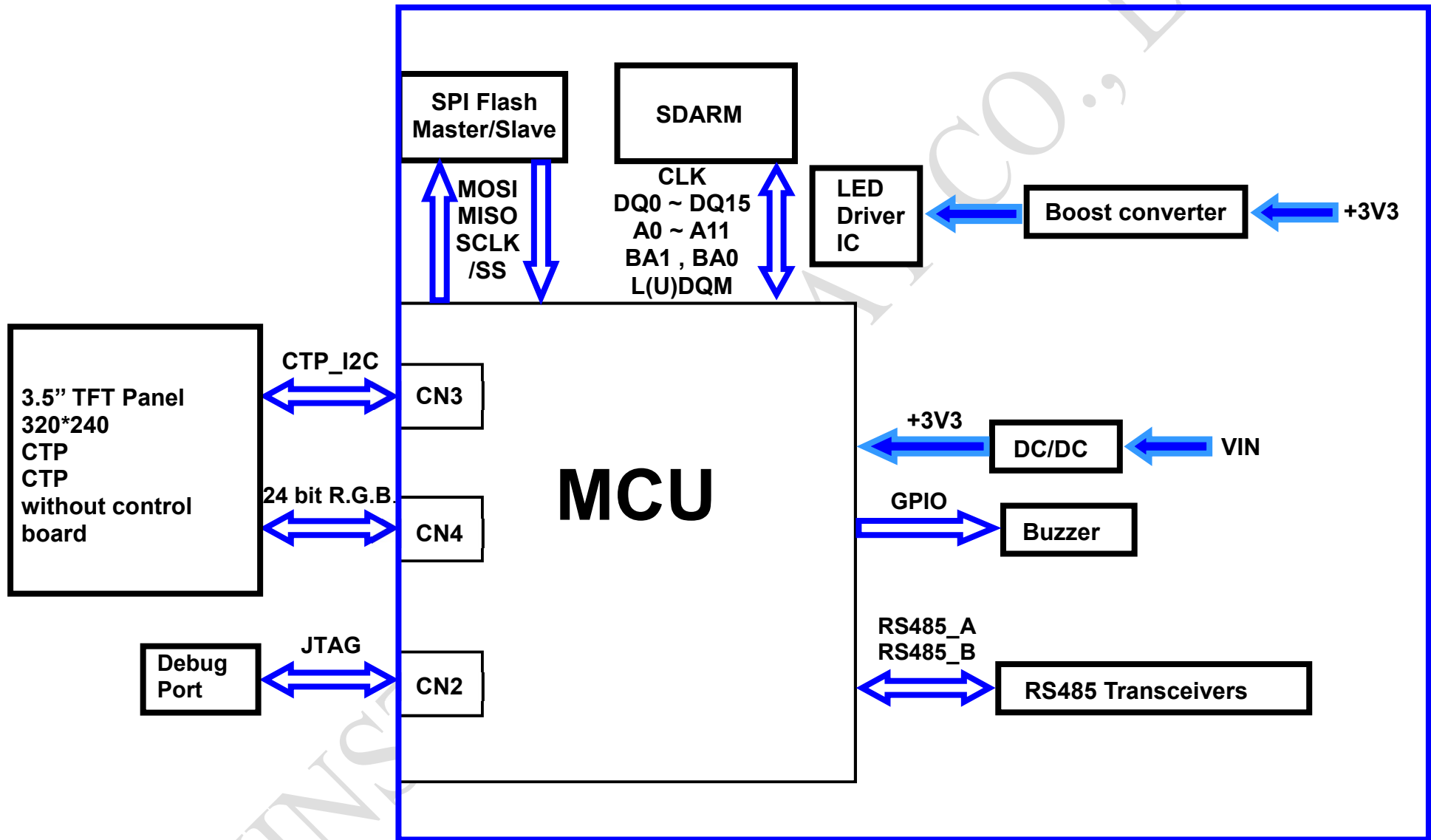
Note: if device supply voltage more than 12V. Must in power add one 10uF/50V~100uF/50V electrolytic capacitor.

7. BOM

Item	Description	Remark
LCM	WF35XTWACDNG0#	
PCBA	SV100035000XA00N0103	

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8. Block diagram



9. Interface

CON2 definition:

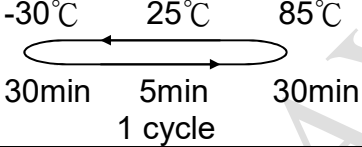
Pin	Symbol	Function	Remark
16	VIN	Power +5V~24V	Input
15	GND	Power GND	Input
14-4	Reserved	--	--
3	RS485_B	RS485 DATA-	I/O
2	RS485_A	RS485 DATA+	I/O
1	GND	Power supply GND input	Input

CON3 definition:

Pin	Symbol	Function	Remark
16	+3V3	3.3V power for JTAG interface	Output
15	SWCLK	CLK pin for JTAG interface	Input
14	GND	GND for JTAG interface	Input
13	SWDI	Data pin for JTAG interface	I/O
12	NRST	Reset pin for JTAG interface	Input
11	SWDO	Data pin for JTAG interface	I/O
10-1	Reserved	--	--

10. Reliability

Content of Reliability Test (Wide temperature, -30°C~85°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.	85°C 200hrs	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30°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.	85°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 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 85°C 30min 5min 30min 1 cycle	-30°C/85°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(cont act),±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.

11. Product inspection check list

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

Item	No 1	No 2	No 3	Note
V_{IN} (V)	12	12	12	
I_{system} (mA)	151	150	150	

Check sample Reliability Test

Item	Result	Note
Thermal shock		-30°C/85°C 20 cycles
High Temperature Operation		85°C 200hrs
Low Temperature Operation		-30°C 200hrs
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