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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 : _____

MODEL NO. : WLOF00035000XGAAASA02

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	2023/12/18		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>



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RECORDS OF REVISION

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1. Smart Display Classification Information

W	L	0F	000350	00X	G	A	AA	S	A	02
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 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, low power consumption.
2. Self testing after booting function.
3. CAN bus communication interface.
4. Supports CANopen protocol, default baud rate at CAN 250Kbps.
5. Built in flash memory, 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).



3. Product information

General information

Item	Standard Value	Unit
Operating voltage	5 ~ 24	Vdc
Communication Interface	CAN bus differential ± 3.3	Vpp
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	cd/m ²
LCD type	TFT, Normally Black, Transmissive	
View Direction	80/80/80/80	
Aspect Ratio	4:3	
With /Without TP	With CTP	
Surface	Glare	

Front View Dimensions:

- Total Width: 76.25 ± 0.15 (TP OD)
- Active Area Width: 71 ± 0.2 (TP VA)
- Internal Frame Width: 70.08 (TFT AA)
- Right Side Margin: 0.3 ± 0.5 , 2.92 ± 0.5 , 3.38 , 11.58
- Total Height: 63.84 ± 0.5 (TFT OD)
- Top Margins: 0.67 ± 0.5 , 2.87 ± 0.5 , 3.32 , 6
- Bottom Margins: 53.51 ± 0.2 (TP VA), 52.56 (TFT AA)
- Pin 1 Location: CON3 (bottom left), CON2 (bottom right)
- Pull Tab: Located at the bottom center.
- Black Printing: Located at the bottom center.
- CTP Zero point(0,0): Located at the top-left corner of the active area.
- Active Area: $3.5''$ 320 x RGB x 240
- Corner Radius: $4-R0.5$

Side View Dimensions:

- Module Thickness: 5.01 ± 0.5 (3.42 TFT), 1.6 (PCB)
- Mounting Hole Spacing: (11.8)
- Maximum Mounting Height: 13.2 MAX.

Top View Dimensions:

- Module Width: 100 ± 0.5 (PCB)
- Module Height: 82 ± 0.5 (PCB)
- Pin 1 Location: CON3 (top left), CON2 (bottom left), CN4 (right side)
- Component Area: Indicated by a hatched rectangle.
- Mounting Holes: $4-\phi 3.5$ PTH, $4-\phi 6.0$ PAD
- Other Labels: 1, 2-2.5, 2-P2.54*15=38.1 ± 0.25 , 2-18.95, 1, 6, 54, 10, 16, CON3

15	SWCLK
16	+3V3

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5. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit	Remark
Operating Temperature	TOP	-20	—	+70	°C	
Storage Temperature	TST	-30	—	+80	°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

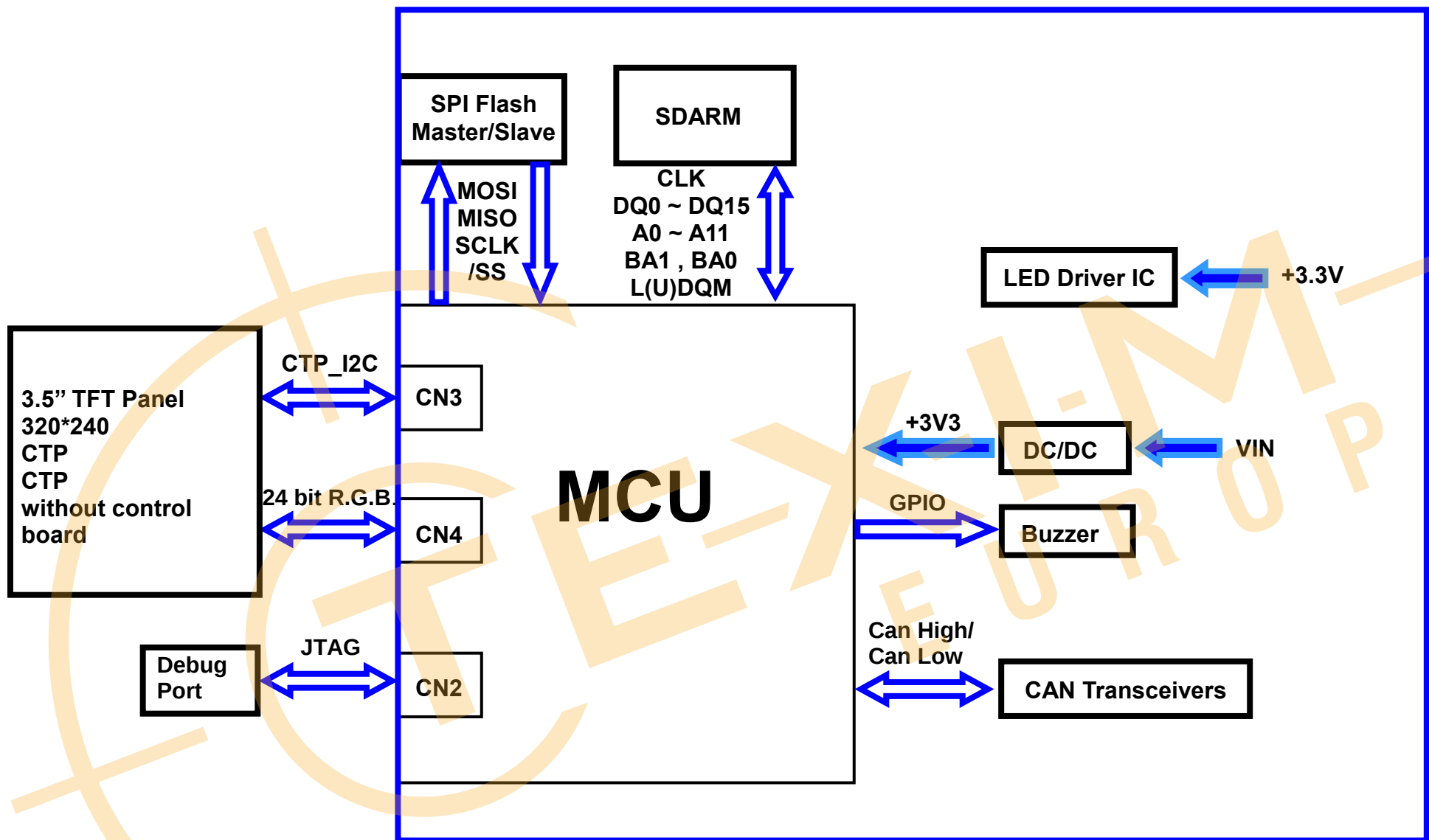
Item	Symbol	Min	Typ	Max	Unit	Remark
Supply Voltage	VIN	5	12	24	V	
Supply Current	ICC	-	150	-	mA	

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	WF35XTYACDNG0#	
PCBA	SV100035000XA00N0104	

8. Block diagram



9. Interface

CON2 definition:

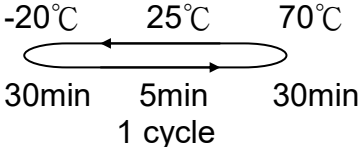
Pin	Symbol	Function	Remark
16	VIN	Power +5V~24V	Input
15	GND	Power GND	Input
14	CAN_H	CAN bus D+	I/O
13	CAN_L	CAN bus D-	I/O
12-1	Reserved	--	--

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	Output
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, -20°C~70°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 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.	70°C 200hrs	—
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20°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  -20°C 25°C 70°C 30min 5min 30min 1 cycle	-20°C/70°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.

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		-20°C/70°C 20 cycles
High Temperature Operation	PASS_20210406	80°C 200hrs
Low Temperature Operation	PASS_20210305	-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

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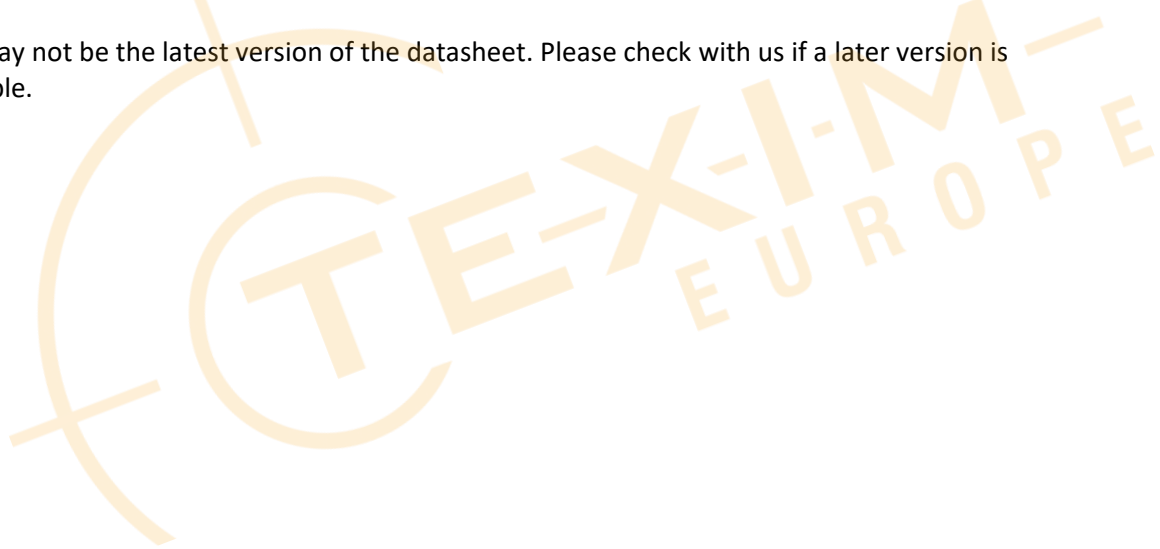
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Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time.

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.

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