



WINSTAR Display Co.,Ltd.
華凌光電股份有限公司



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SPECIFICATION

CUSTOMER : _____

MODEL NO. : WLOF00101000JGAABSA00

<p>APPROVED BY: (FOR CUSTOMER USE ONLY)</p>	
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SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
		Eason Chang	Jason Chan

VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2023/04/17		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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1. Smart Display Classification Information

W	L	OF	001010	00J	G	A	AB	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:	OH: Character STN OX: Graphic STN (TAB/COF) OF: TFT EH: Character OLED EX: OLED (TAB/COF)				OG: Graphic STN OP: 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)							
	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	H: HDMI			X: Combined				
		B: Bluetooth	R: Memory Specified			Y: Proprietary interface				
		C: Controller Specified	N: Ethernet							
		D: RS485	J: Analog I/O							
		E: RS232	K: USB							
		F: USART	L: WIFI							
		G: Logic I/O	M: Zigbee							
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

10.1 Inch Smart Display (CAN series) Features

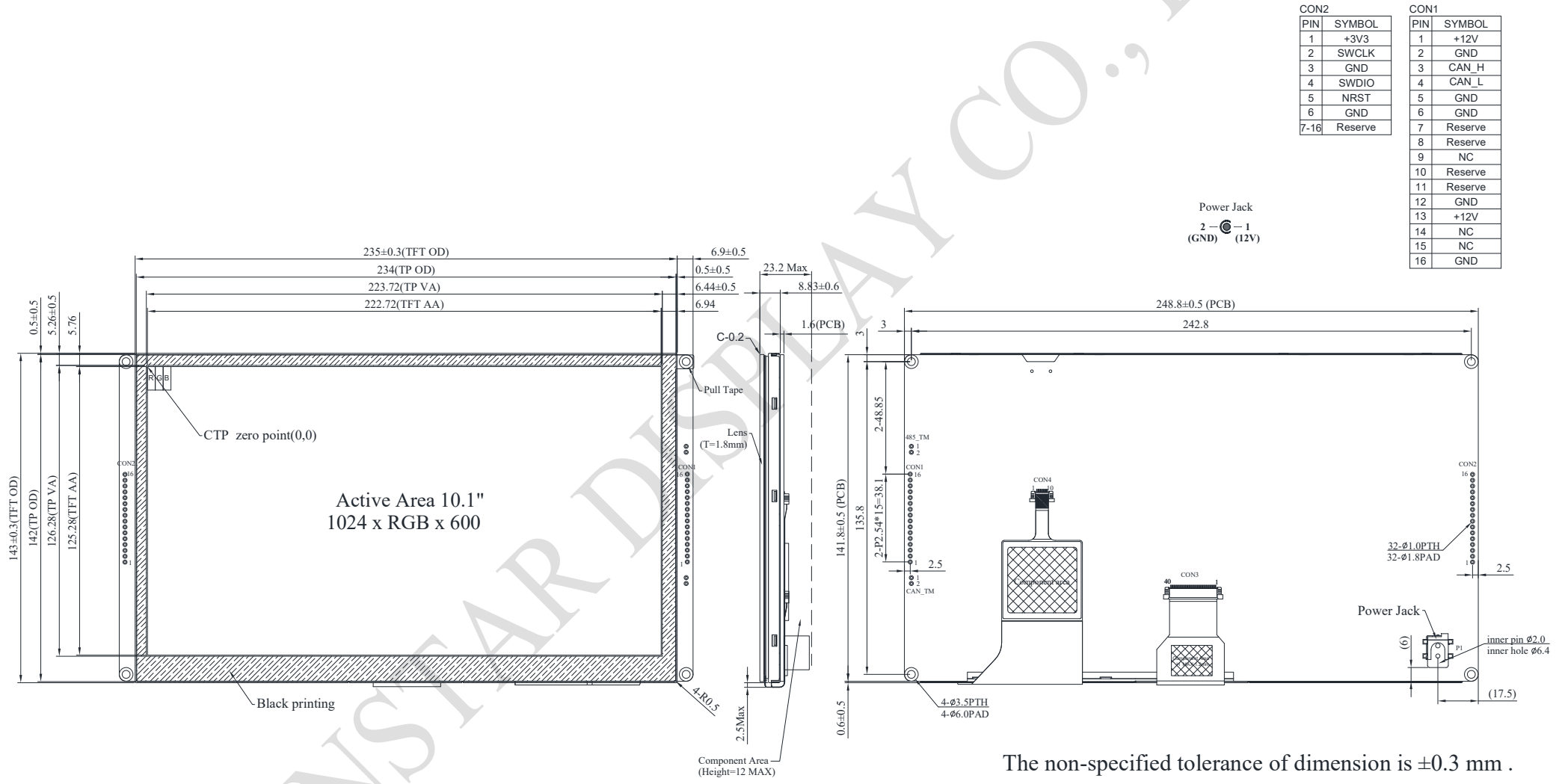
1. +12V power supply input, the power consumption is around 6W.
2. Self testing after booting function.
3. CAN bus communication interface.
4. Supports CANopen protocol. Default baud rate is at 250KB.
5. Built in flash memory, store the font and Object Dictionary Data.
6. Support capacitive touch panel (CTP).
7. Smart Display scenario is slave device display and action from Master Device instruction.
8. Embedded buzzer controlled by Master Device.
9. 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

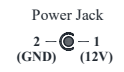
General information

Item	Standard Value	Unit
Operating voltage	8V~28V dynamic	Vdc
Communication Interface	CAN bus differential ± 3.3	Vpp
MCU	STM32F746	N/A
Flash Memory	16	MB
SDRAM Frequency	166	MHz
LCD display size	10.1	inch
Dot Matrix	1024 x RGBx600(TFT)	dot
Module dimension	235(W) x 143(H) x 8.78(D)	mm
Active area	222.72 (H) x 125.28(V)	mm
Dot pitch	0.2175(W) x 0.2088(H)	mm
Brightness	Min: 300; Typ: 400	
LCD type	LED, Normally White	
View Direction	85/85/85/85	
Aspect Ratio	16:9	
With /Without TP	With CTP	
Surface	Glare	

4. Contour Drawing



CON2		CON1	
PIN	SYMBOL	PIN	SYMBOL
1	+3V3	1	+12V
2	SWCLK	2	GND
3	GND	3	CAN_H
4	SWDIO	4	CAN_L
5	NRST	5	GND
6	GND	6	GND
7-16	Reserve	7	Reserve
		8	Reserve
		9	NC
		10	Reserve
		11	Reserve
		12	GND
		13	+12V
		14	NC
		15	NC
		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	-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
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

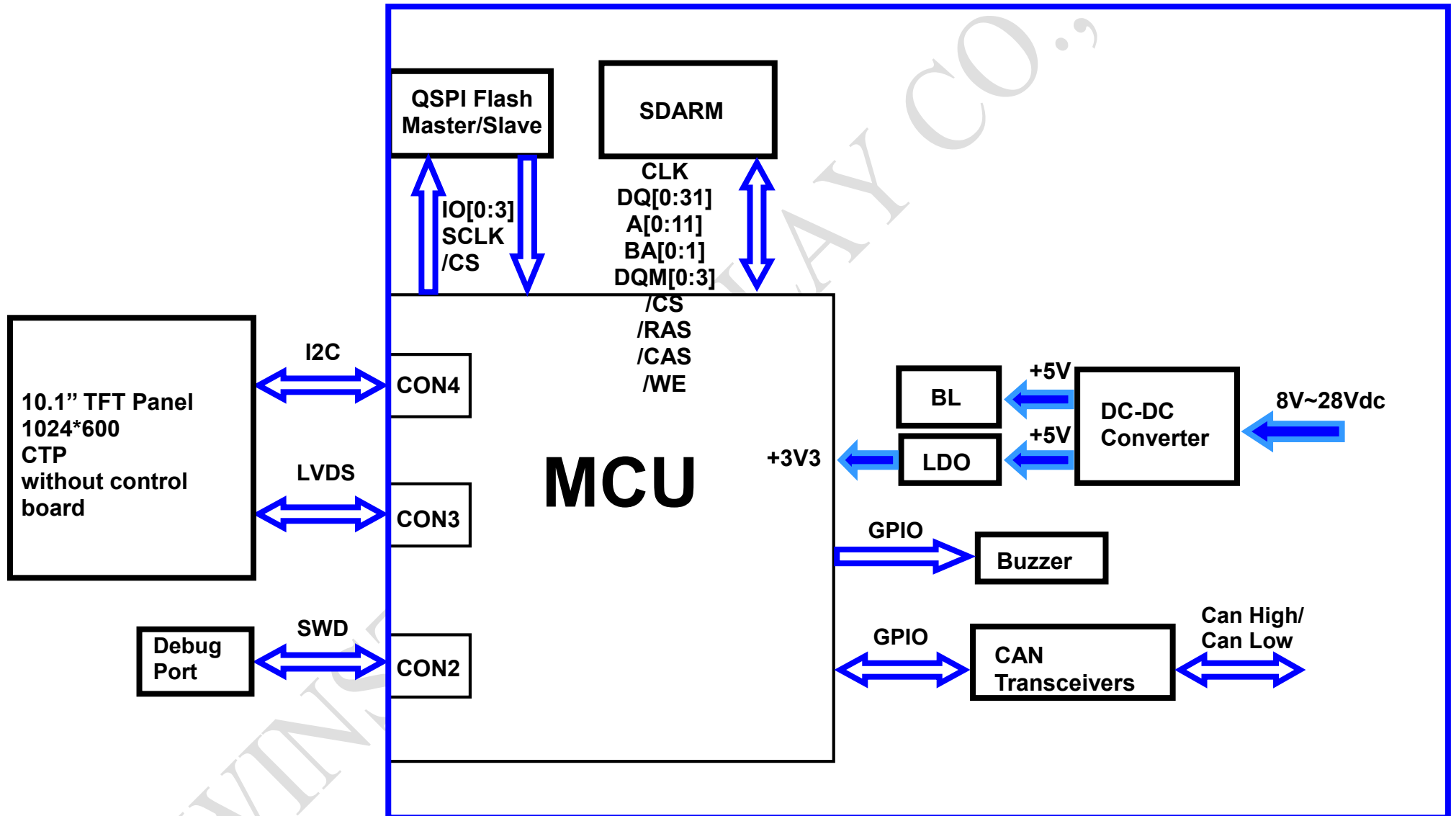
6. Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage	VCC	—	11.4	12	12.6	V
Supply LCM current	I(mA)	-	-	530	-	mA

7. BOM

Item	Description	Remark
LCM	WF101JTYAHLNB0#	
PCBA	SV10010R100JB00N0100	

8. Block diagram



9. Interface

CON1 definition:

Pin	Symbol	Function	Remark
1	+12V	Power supply12V input	Input
2	GND	Power supply GND input	Input
3	CAN_H	CAN bus D+	I/O
4	CAN_L	CAN bus D-	I/O
5	GND	Power supply GND input	GND
6	GND	Power supply GND input	GND
7	Reserve	USB_D-	Reserve
8	Reserve	USB_D+	Reserve
9	NC	-	-
10	Reserve	USART RX interface(Reserve)	Reserve
11	Reserve	USART TX interface(Reserve)	Reserve
12	GND	Power supply GND input	GND
13	+12V	Power supply12V input	Input
14	NC	-	-
15	NC	-	-
16	GND	Power supply GND input	Input

CON2 definition:

Pin	Symbol	Function	Remark
1	VDD3V	3.3V power for JTAG interface	Output
2	JTAG_SWCLK	CLK pin for JTAG interface	Input
3	GND	GND for JTAG interface	Output
4	JTAG_SWDIO	Data pin for JTAG interface	I/O
5	NRST	Reset pin for JTAG interface	Input
6	GND	GND	Output
7	Reserve	IO_8 for system Resume from suspend (Reserve)	WKup,ADC,Timer,Event,I/O
8	Reserve	Reset (active Low) (Reserve)	I
9	Reserve	IO_0 (Reserve)	ADC,DAC,Timer,Event,I/O
10	Reserve	IO_1 (Reserve)	ADC,Timer,Event,I/O
11	Reserve	IO_2 (Reserve)	ADC,Timer,Event,I/O
12	Reserve	IO_3 (Reserve)	RST,Timer,Event,I/O
13	Reserve	IO_4 (Reserve)	RST,Timer,Event,I/O
14	Reserve	IO_5 (Reserve)	ADC,Timer,Event,I/O
15	Reserve	IO_6 (Reserve)	RST,Timer,Event,I/O
16	Reserve	IO_7 (Reserve)	RST,ADC,Event,I/O

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 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 <div style="text-align: center;"> <p style="margin: 0;">-20°C 25°C 70°C</p> <p style="margin: 0;">←—————→</p> <p style="margin: 0;">30min 5min 30min</p> <p style="margin: 0;">1 cycle</p> </div>	-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=±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)	12.1	12.1	12.1	
I_{system} (mA)	0.533	0.535	0.537	

Check sample Reliability Test

Item	Result	Note
Thermal shock	—	-20°C/70°C 20 cycles
High Temperature Operation	—	70°C 96hrs
Low Temperature Operation	—	-20°C 96hrs
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