SPECIFICATION

CUSTOMER :

MODEL NO. : WL0F00043000WGAABSA00

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	2022/11/16		First Issue

Winstar Display Co., LTD

華凌光電股份有限公司

MODLE NO：

RECORDS OF REVISION			DOC. FIRST ISSUE
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Contents

1. Smart Display Classification Information

W	L	0F	000430	00W	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:	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: Graphic STN:	e.g., 8x1: 000801 16x2: 001602 24x4: 002404 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 ~ Z		
⑪	Model code:	00 ~ ZZ		

2. <u>Summary</u>

4.3 Inch Smart Display Feature

1. DC 5V working voltage.

2. Self-testing after booting function.

3. CAN bus communication interface.

4. Supports Custom CAN ID protocol, default baud rate at 250KB.

5. Built in flash memory, store the fonts and pictures.

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).
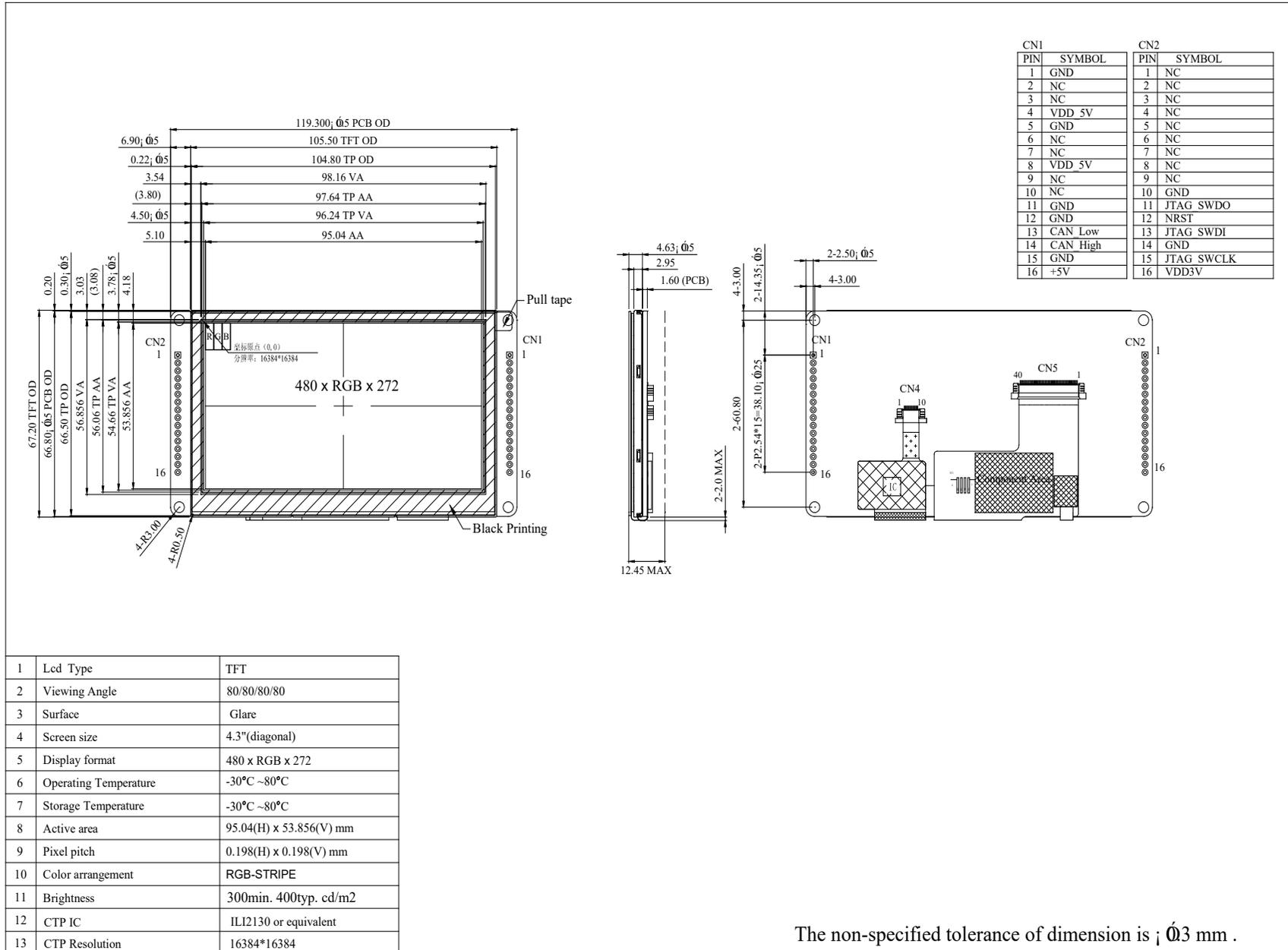
3. Product information

3.1Mechanical Data

Item	Standard Value	Unit
LCD panel	105.5(W) x 67.2(H) x 4.6(D)	mm
PCB	119.3(W)*67.2(H)*1.6	mm
Housing outline	NA	mm

3.2General information

Item	Standard Value	Unit
Operating voltage	5	Vdc
Communication Interface	CAN bus differential ± 3.3	Vpp
MCU	STM32F750	N/A
Flash Memory	16	MB
SDRAM Frequency	108	MHz
LCD display size	4.3	inch
Dot Matrix	480 x RGBx272(TFT)	dot
Module dimension	105.5(W) x 67.2(H) x 4.6(D)	mm
Active area	95.04(W) ×53.856 (H)	mm
Dot pitch	0.066 (W) ×0.198(H)	mm
LCD type	TFT, Normally Black, Transmissive	
View Direction	80/80/80/80	
Aspect Ratio	16:9	
With /Without TP	With CTP	
Surface	Glare	

4. <u>Contour Drawing</u>

CN1		CN2	
PIN	SYMBOL	PIN	SYMBOL
1	GND	1	NC
2	NC	2	NC
3	NC	3	NC
4	VDD_5V	4	NC
5	GND	5	NC
6	NC	6	NC
7	NC	7	NC
8	VDD_5V	8	NC
9	NC	9	NC
10	NC	10	GND
11	GND	11	JTAG_SWDO
12	GND	12	NRST
13	CAN_Low	13	JTAG_SWDI
14	CAN_High	14	GND
15	GND	15	JTAG_SWCLK
16	+5V	16	VDD3V

1	Lcd Type	TFT
2	Viewing Angle	80/80/80/80
3	Surface	Glare
4	Screen size	4.3"(diagonal)
5	Display format	480 x RGB x 272
6	Operating Temperature	-30℃ ~80℃
7	Storage Temperature	-30℃ ~80℃
8	Active area	95.04(H) x 53.856(V) mm
9	Pixel pitch	0.198(H) x 0.198(V) mm
10	Color arrangement	RGB-STRIPE
11	Brightness	300min. 400typ. cd/m2
12	CTP IC	ILI2130 or equivalent
13	CTP Resolution	16384*16384

The non-specified tolerance of dimension is ¡Ó3 mm .

5. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-30	—	+80	℃
Storage Temperature	TST	-30	—	+80	℃

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above
1. Temp. ≦60℃, 90% RH MAX. Temp.＞60℃, Absolute humidity shall be less than 90% RH at 60℃

6. Electrical Characteristics

Item	Symbol	Min	Typ	Max	Unit	Remark
Supply Voltage	VCC	4.5	5-	5.5	V	
Supply Current	ICC	-	330		mA	

7. BOM

Item	Description	Remark
LCM	WF43WTWAEDNGA#	
PCBA	SV10004R300WA00N0100	

8. Block diagram

SPI Flash Master/Slave

MOSI
MISO
SCLK
/SS

SDARM

CLK
DQ0 ~ DQ15
A0 ~ A11
BA1 , BA0
L(U)DQM

LED Driver IC

Boost converter

+5V

4.3" TFT Panel 480*272 CTP without control board

CTP_I2C

CN3

24 bit R.G.B.

CN4

MCU

+3V3

LDO

+5V

GPIO

Buzzer

Can High/ Can Low

CAN Transceivers

JTAG

Debug Port

CN2
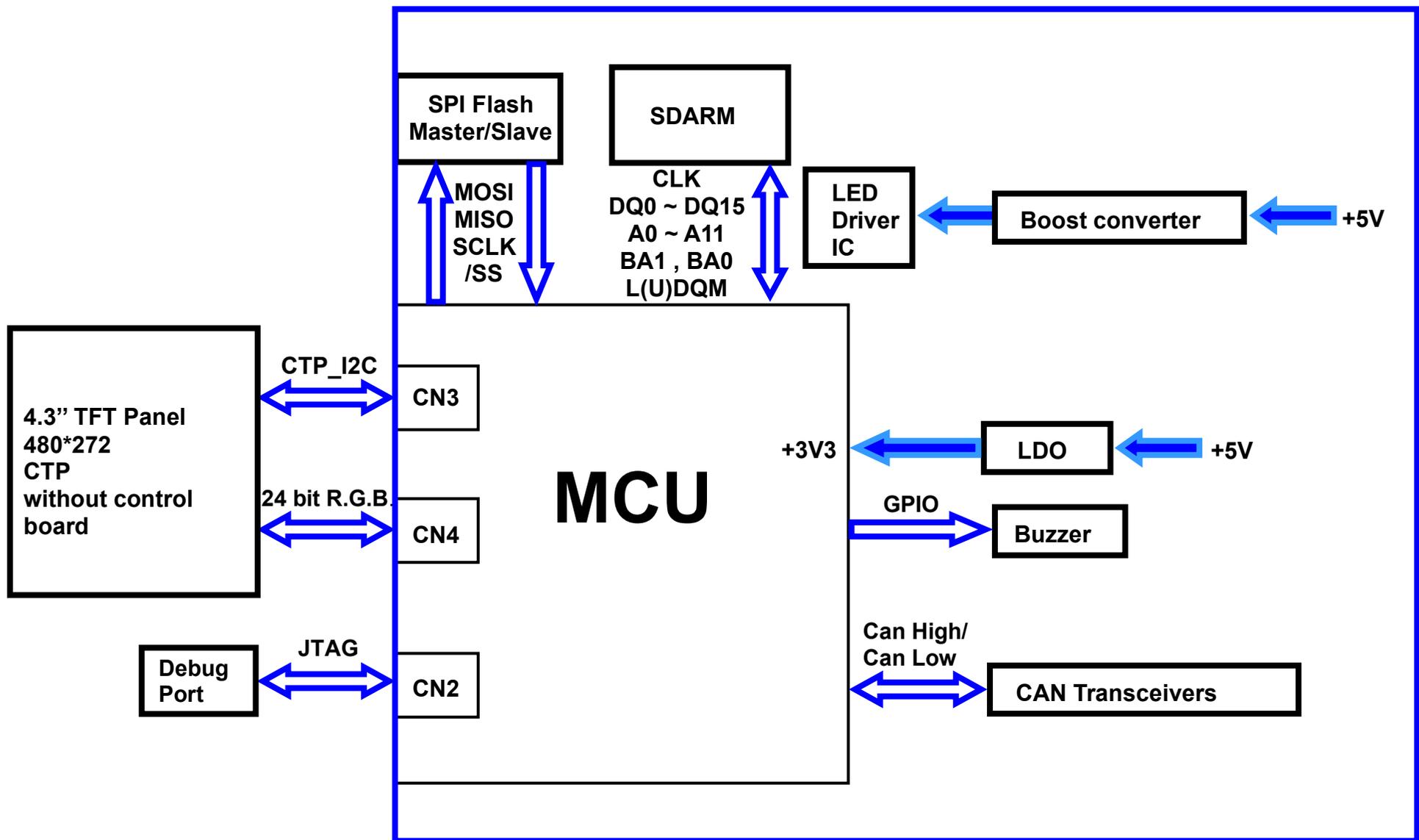
9. Interface

CN1 definition:

Pin	Symbol	Function	Remark
1	GND	GND	Output
2-3	NC		
4	+5V	+5V	Output
5	GND	GND	Output
6-7	NC		
8	+5V	+5V	Output
9-10	NC	Connection	
11	GND	GND	Output
12	GND	GND	Output
13	CAN_L	Differential signal D-	I/O
14	CAN_H	Differential signal D+	I/O
15	GND	Power supply GND input	Input
16	+5V	Power supply 5V input	Input

CN2 definition:

Pin	Symbol	Function	Remark
1-9	NC		-
10	GND	GND	Output
11	SYS_JTAG_SWO	Data pin for JTAG interface	I/O
12	NRST	Reset pin for JTAG interface	Input
13	SYS_JTAG_SWDIO	Data pin for JTAG interface	I/O
14	GND	GND for JTAG interface	Output
15	SYS_JTAG_SWCLK	CLK pin for JTAG interface	Input
16	VMCU	3.3V power for JTAG interface	Output

10. <u>Reliability</u>

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

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

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)		5	5	5	
I_{System}(mA)		326	336	331	

Check sample Reliability Test

Item	Result	Note
Thermal shock		-30℃/80℃ 20 cycles
High Temperature Operation	PASS_20210217	80℃ 240hrs
Low Temperature Operation	PASS_20210315	-30℃ 240hrs
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