TFT DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.

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SPECIFICATION

MODEL NO. : WL0F00039000QGAAASA00-FC

Summary

3.9 Inch Smart Display Feature

1. DC 5V working voltage, low power consumption for USB to drive.
2. Self testing after booting function.
3. CAN bus communication interface.
4. Support CANopen negotiation. Default baud rate is 250KB.
5. Embedded FLASH memory, storing Font and Object Dictionary.
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).

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Product information

Mechanical Data

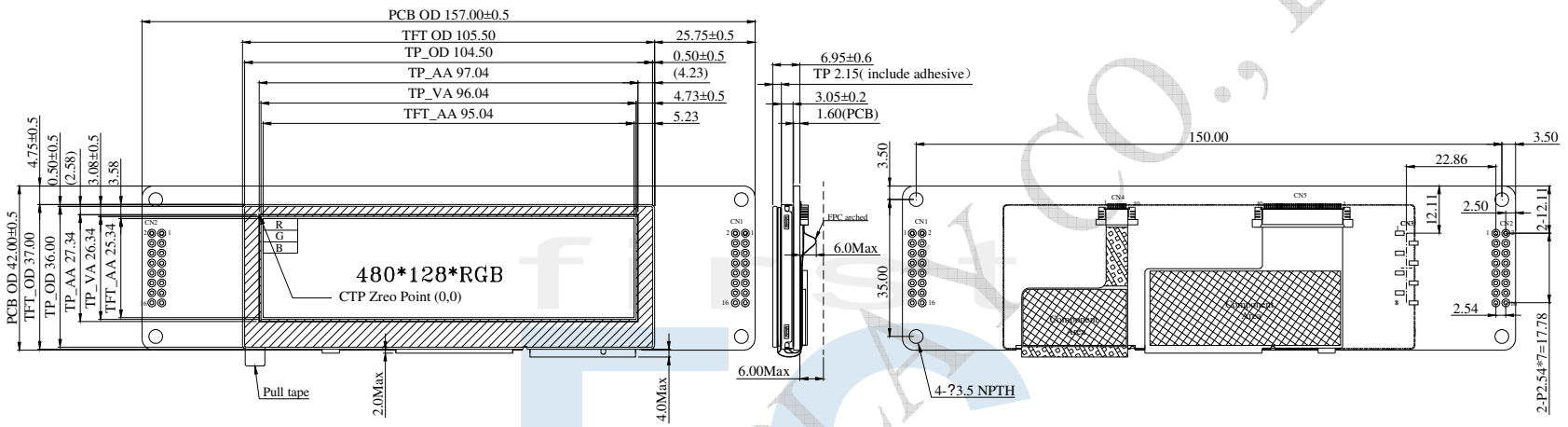
Item	Standard Value	Unit
LCD panel	105.5(W) x 37.0(H) x 5.13	mm
PCB	157(W) x 42(H) x 1.6	mm
Housing outline	NA	mm

General information

Item	Standard Value	Unit
Operating voltage	5	Vdc
Communication Interface	CAN bus differential ± 3.3	Vpp
LCD display size	3.9	inch
Dot Matrix	480x128 x RGB (TFT)	dot
Module dimension	105.5(W) x 37.0(H) x 5.13	mm
Active area	95.04 x 25.34	mm
Dot pitch	0.066(W)x 0.198(H)	mm
LCD type	TFT, Normally White, Transmissive	
View Direction	6 o'clock	
Aspect Ratio	Bar Type	
Touch Panel	PCAP	
Surface	Glare	

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Contour Drawing



CN1

PIN	SYMBOL
1	+5V
2	DGND
3	GND
4	D-
5	CAN High
6	D+
7	CAN Low
8	+5V
9	GND
10	NC
11	GND
12	NC
13	NC
14	NC
15	NC
16	NC

CN2

PIN	SYMBOL
1	NC
2	VDD3V
3	NC
4	TAG_SWCLK
5	NC
6	GND
7	NC
8	TAG_SWDI
9	NC
10	NRST
11	NC
12	TAG_SWDO
13	DGND
14	DGND
15	+5V
16	NC

CN3

PIN	SYMBOL
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC

1	Lcd Type	TFT
2	View Direction	6 O'clock
3	Gray Scale Inversion Direction	12 O'clock
4	Screen size	3.9" (diagonal)
5	Surface	Glare
6	Display format	480x128xRGB
7	Operating Temperature	-10℃ ~70℃
8	Storage Temperature	-30℃ ~80℃
9	Active area	95.04(H)x25.34(V)mm
10	Dot pitch	0.198(H)x0.66(V)mm
11	Color arrangement	RGB-STRIPE
12	Brightness	300min. 400typ. cd/m2
13	CTP Driver IC	CYTM568 or equivalent
14	CTP Resolution	480*128

The non-specified tolerance of dimension is ±0.3 mm .

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Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-10	—	+70	℃
Storage Temperature	TST	-30	—	+80	℃

Electrical Characteristics

Operating conditions:

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Analog	VCI	—	4.4	5	5.6	V
Interface Operation Voltage	IOVCC	—	3.234	3.30	3.367	V
Supply LCM current	ICI(mA)	-	-	350	-	mA

LED driving conditions:

Parameter	Symbol	Min.	Typ.	Max.	Unit
LED current		-	40	-	mA
Power Consumption		-	600	-	mW
LED voltage	VBL+	14	15	17	V
LED Life Time		-	50,000	-	Hr

BOM

Item	Description	Remark
LCM	WF39QTIBSDBG0#	
PCBA	4 layer FR4, 1.6mm	

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Interface

CN1 definition:

Pin	Symbol	Function	Remark
1	+5V	Power supply 5V input	Input
2	DGND	GND for USART interface	Output
3	GND	Power supply GND input	Input
4	D-	Differential signal D-	I/O
5	CAN High	CAN bus D+	I/O
6	D+	Differential signal D+	I/O
7	CAN Low	CAN bus D-	I/O
8	+5V	5V output for USART interface	Output
9	DGND	GND for USART interface	Output
10	NC		
11	DGND	GND for USART interface	Output
12	NC		
13	NC		
14	NC		
15	NC		
16	NC		

CN2 definition:

Pin	Symbol	Function	Remark
1	NC		
2	VMCU	Power supply 3V3 input	Input
3	NC		
4	TAG_SWCLK	JTAG Serial Wire Clock interface	Clock
5	NC		
6	GND	GND for USART interface	I/O
7	NC		
8	TAG_SWDIO	JTAG Serial Wire debug Data Input/Output interface	I/O
9	NC		
10	NRST	Reset input Connect this pin to the (active low) reset input of the target MCU.	I/O
11	NC		
12	TAG_SWO	JTAG Serial Wire trace Output - Optional interface	Output
13	DGND	GND for USART interface	I/O
14	DGND	GND for USART interface	I/O
15	+5V	Power supply 5V input	Input
16	NC		

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CN3 definition:

Pin	Symbol	Function	Remark
1	NC		
2	NC		
3	NC		
4	NC		
5	NC		
6	NC		
7	NC		
8	NC		

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Display Usage

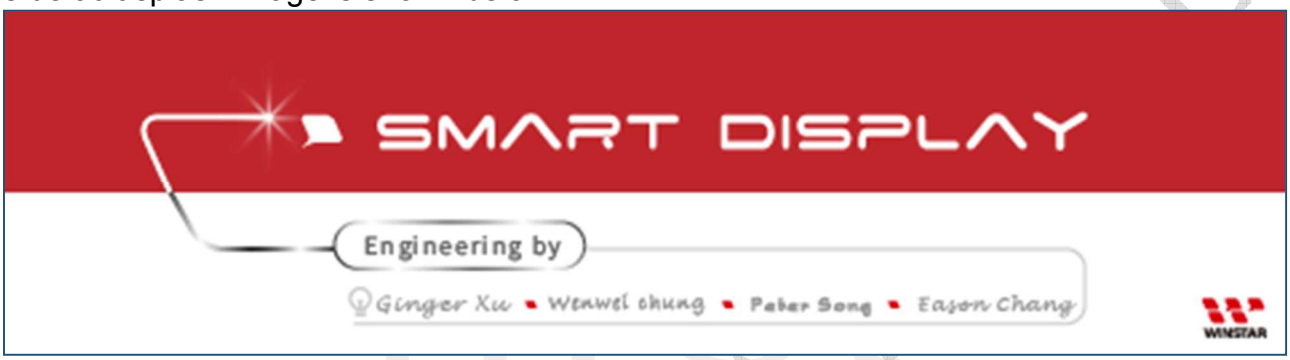
Functional description

Smart Display can be used to display the coordinate, status and data information provided by the connected HOST device. Customers can configure the position coordinates they want to display in normal operation mode (COB-ID = 0x7B).

The Display is designed to be easily connected to a controller network, and to operate with minimum setup or knowledge of the SDO configuration on the controllers.

Splash Screen

The default splash image is shown below.



✓ This product is produced as a generic product. If you require a custom splash image for your application, contact us to discuss.

Acquisition of Displayed Data

The Smart Display can acquire the data that it displays either using the CANopen SDO protocol, or using the CANopen PDO protocol.

On Pre-operational mode, customers can set the coordinates of objects through SDO; On operational mode, customers can send data of objects through PDO.

Configuring the Display

Winstar Smart Display CAN series offers an out-of-the-box CANopen development experience that will lower customers' development costs and speed time-to-market expectations.

The Smart Display can use wide-temperature are designed to support control applications in harsh operating conditions, which designed to be connected to a variety of different situation combinations, such as automotive, marine, power generation and oil-and-gas.

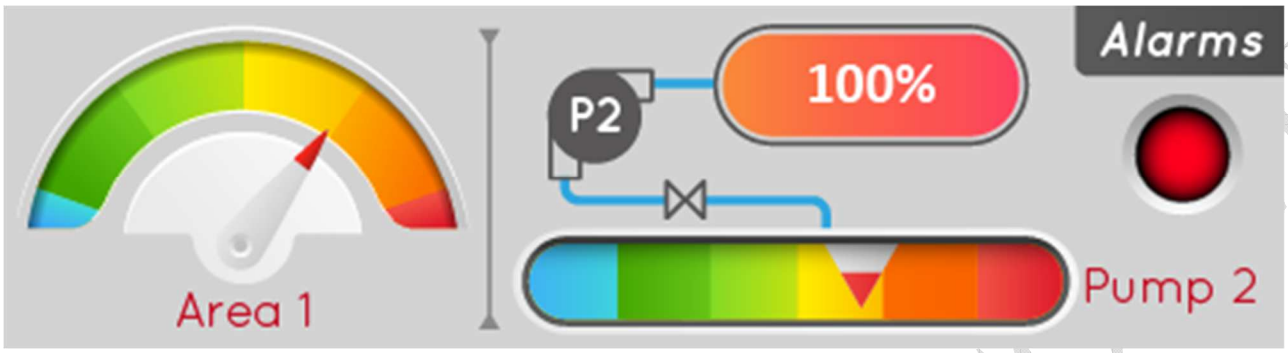
The Smart Display comes with standard UI objects to get customers project off the ground quickly. If customers need custom UI objects support, our engineers are here to help. Send over your contents in PNG/JPG format, we will send over a new set of UI objects within 3~5 working days.

The Smart Display is defined as a slave device, which is controlled by master device via CAN bus command to render display content on the display screen and return touch event data with protocol objects.

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Example Screen Layout (Industry application)

Example Layout
The screen layout described in this section is intended to demonstrate the settings of screen items that can be used in an industry application situation.



Example Screen Layout (Vehicle automotive)

Example Layout
The screen layout described in this section is intended to demonstrate the settings of screen items that can be used in a vehicle automotive situation.



Example Screen Layout (Medical application)

Example Layout
The screen layout described in this section is intended to demonstrate the settings of screen items that can be used in a Medical application situation

