

TFT DISPLAY SPECIFICATION



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 : Winstar

MODEL NO. : WLOF0007000A8GXACSA00

APPROVED BY: (FOR CUSTOMER USE ONLY)	
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SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
	Ginger Xu	Paul Chen Chung En Cheng Jason Chan	Paul Chen

VERSION	DATE	REVISED PAGE NO.	SUMMARY
A	2025/08/19	P6,8	Revise the description

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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MODLE NO :
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RECORDS OF REVISION

DOC. FIRST ISSUE

VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2025/03/25		First Issue
A	2025/08/19	P6,8	Revise the description



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1. Smart Display Classification Information

W	L	0F	000700	0A8	G	X	AC	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:	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 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 N: Non-specified			
⑩	Special Code:	A ~ Z			
⑪	Model code:	00 ~ ZZ			

2. Summary

WL0F0007000A8GXACSA00 is a 7-inch multiple Interfaces HMI Smart display module with 1024x600 pixels resolution.

Supply input voltage with dynamic range from 8V-48V, typical value is 24V.

It works within temperature range from -20 to +70°C and storage temperature ranges from -30 to +80°C.



Features

Item	Specifications	Connector
Display	WF70A8TYAHLNGB#	CON12
Touch	PCAP	CON2
Brightness	Hi-Brightness(Typ 850/ Min 800 nits)	N/A
MCU	STM32 Hi-end series	N/A
SW GUI tool	ST TouchGFX	N/A
FW design	initial code only	N/A
System interface	RS485_1 w/PWR	2.0mm, 4P (CON3)
	RS485_2 w/PWR	2.0mm, 4P (CON4)
	RS232	2.54mm, 5P (CON5)
	UART_1	1.25mm,3P (CON6)
	UART_2	1.25mm,3P (CON7)
	USB	Type C
	CAN FD_1 w/PWR	2.0mm, 4P (CON8)
	CAN FD_2 w/PWR	2.0mm, 4P (CON9)
	I2C_1	1.25mm,3P (CON10)
	I2C_2	1.25mm,3P (CON11)
	Flash memory	16MB
Operating voltage	8V~48V	1.25mm, 6P(CON13)
	SWD debug port	2.54mm, 4P(CON14)
	Micro SD slot	SD
	PoE add on function(Optional)	(CON15)
	Battery coin cell connector	Y(CONA200), PH-SMT-2AW
	Push button_1(SW4)	RESET module function
	Push button_2(SW2)	PH2 for user development
	Push button_3(SW3)	PH3 for user development
	LED_1	for PWR
	LED_2	SWDIO indicator
	LED_3	SWCLK indicator
	LED_4 (share with CON16 GPIO1)	PI15for user development
	Ethernet	RJ45
GPIO 2.54mm, 16P (CON16)	Each of the GPIO pins can be configured by software as output (push-pull or open-drain, with or without pull-up or pull-down), as input (floating, with or without pull-up or pull-down) or as peripheral alternate function. Most of the GPIO pins are shared with digital or analog alternate functions. Please refer to the datasheet of MCU STM32H747	
	Optional for 1xDAC	Pin1
	Optional for 3xADCs	Pin1/3/4/12/15
	Optional for 16 sets of GPIO	Pin1~16

3. Product information

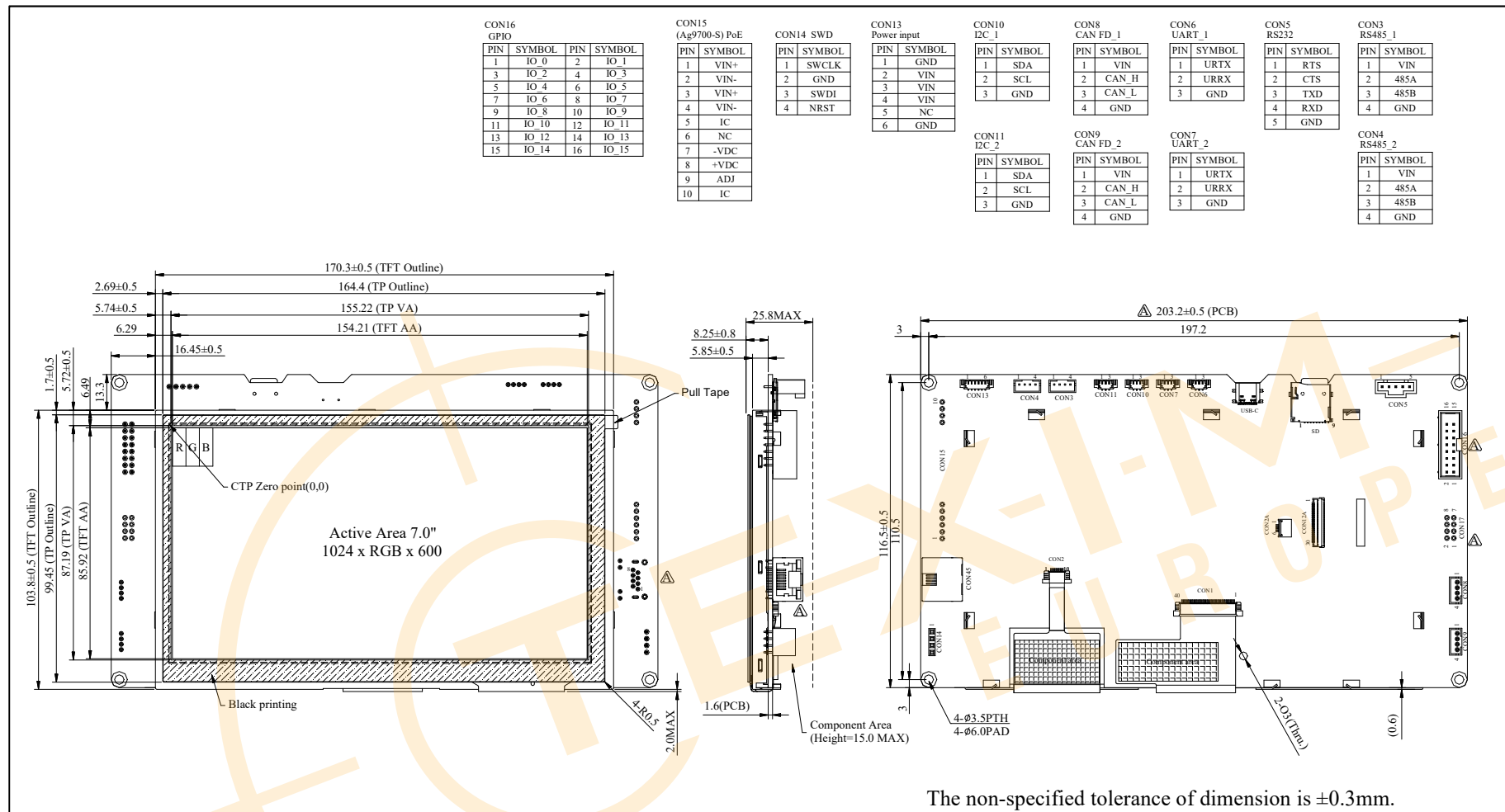
3.1 Mechanical Data

Item	Standard Value	Unit
LCD panel	169.9(W) x 103.4(H) x 7.3(D)	mm

3.2 General information

Item	Standard Value	Unit
Operating voltage	DC 8~48V or POE PD(Optional)	Vdc
Communication Interface	LAN / CANFD / RS485 / RS232 / UART / I2C / USB	NA
MCU	STM32H747	N/A
Flash Memory	16	MB
LCD display size	7.0	inch
Dot Matrix	1024 x RGBx600(TFT)	dot
Module dimension	203.2(W) x 116.5 (H) x 25.8(D)	mm
Active area	154.21 x 85.92	mm
Pixel pitch	0.1506 x 0.1432	mm
Brightness	Min: 800; Typ: 850	cd/m ²
LCD type	TFT, Normally Black, Transmissive	
View Direction	85/85/85/85	
Aspect Ratio	16:9	
With /Without TP	With CTP	
Surface	Glare	
GPIO	16	CH
SD card	Micro SD slot	

4. Contour Drawing



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

6.1. Operating conditions:

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage	VIN	—	8	24	48	V
LCM Power Consumption		—		6.48	7	W
Current Drawn VIN=8V				838		mA
Current Drawn VIN=12V				531		mA
Current Drawn VIN=24V				270		mA
Current Drawn VIN=48V				144		mA

6.2. LED driving conditions:

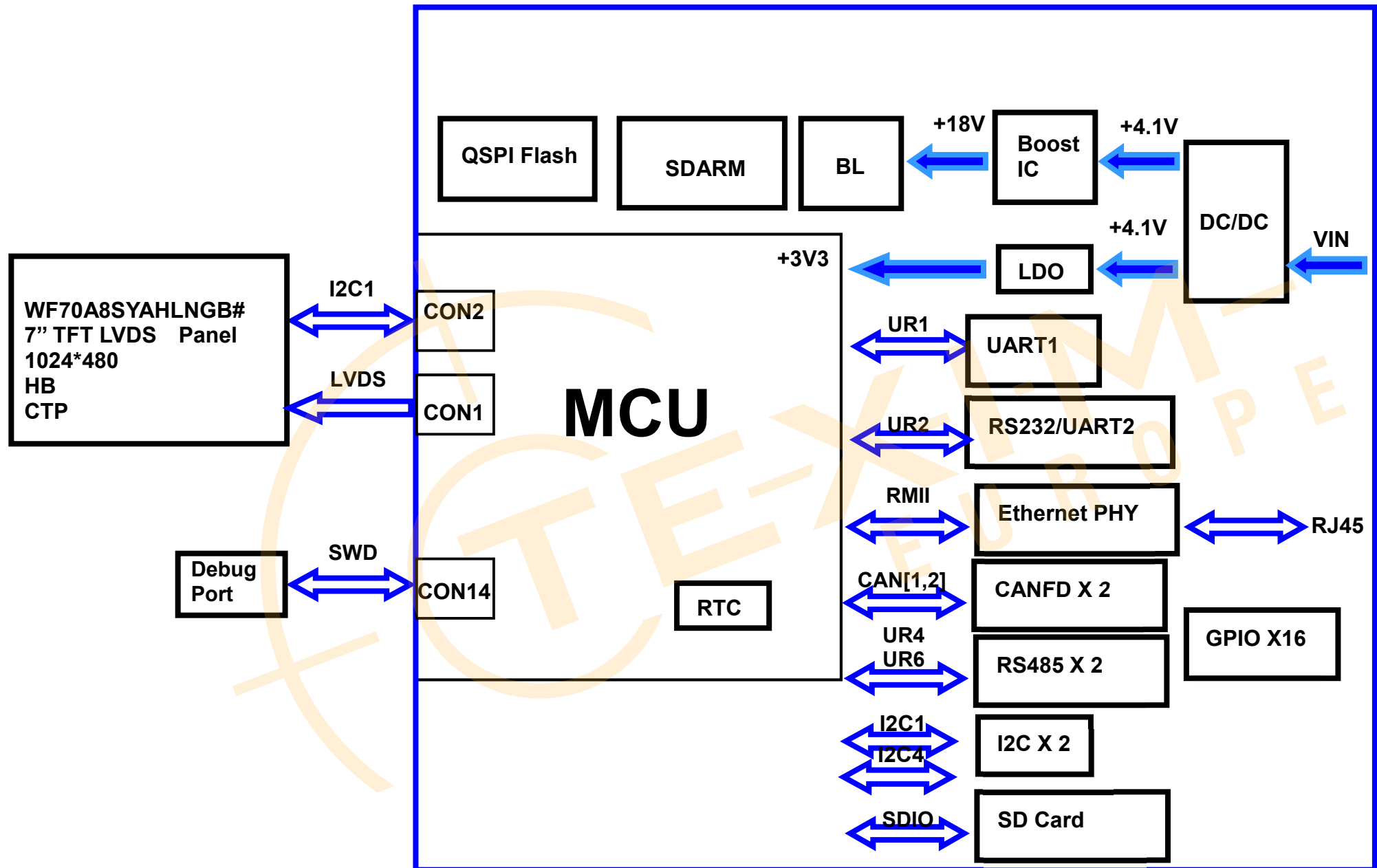
Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED current		-	188		mA	
Power Consumption		-	3.3	3.667	W	

7. BOM

Item	Description	Remark
LCM	WF70A8SYAHLNGB#	
PCBA	SV10007R00A8F00N0100	



8. Block diagram



9. Interface

**Power input connector
CON13 (1.25mm, 6P)**

Pin	Symbol	Function	Remark
1	GND	Power supply GND input	Power
2	VIN	Power supply input; 8~48V	Power
3	VIN	Power supply input; 8~48V	Power
4	VIN	Power supply input; 8~48V	Power
5	NC		
6	GND	Power supply GND input	Power

**RS485_1 interface
CON3 (2.0mm, 4P)**

Pin	Symbol	Function	Remark
1	VIN	Power supply input; 8~48V	Power
2	485A	Non-inverting receiver input and non-inverting driver	
3	485B	Inverting receiver input and inverting driver output	
4	GND	Power supply GND input	Power

**RS485_2 interface
CON4 (2.0mm, 4P)**

Pin	Symbol	Function	Remark
1	VIN	Power supply input; 8~48V	Power
2	485A	Non-inverting receiver input and non-inverting driver	
3	485B	Inverting receiver input and inverting driver output	
4	GND	Power supply GND input	Power

**RS232 interface
CON5 (2.54mm, 5P)**

Pin	Symbol	Function	Remark
1	RTS	Request to send	I/O
2	CTS	Clear to send	I/O
3	TXD	Transmit Data	I/O
4	RXD	Receive Data	I/O
5	GND	Ground	Power

**CAN FD_1 interface
CON8 (2.0mm, 4P)**

Pin	Symbol	Function	Remark
1	VIN	Power supply input; 8~48V	Power
2	CAN_H	CAN High-Level Voltage	
3	CAN_L	CAN Low-Level Voltage	
4	GND	Power supply GND input	Power

**CAN FD_2 interface
CON9 (2.0mm, 4P)**

Pin	Symbol	Function	Remark
1	VIN	Power supply input; 8~48V	Power
2	CAN_H	CAN High-Level Voltage	
3	CAN_L	CAN Low-Level Voltage	
4	GND	Power supply GND input	Power

I2C _1 interface

CON10 (1.25mm, 3P)

Pin	Symbol	Function	Remark
1	SDA	I2C SDA signal	I/O
2	SCL	I2C CLK signal	I/O
3	GND	Power supply GND input	Power

I2C _2 interface

CON11 (1.25mm, 3P)

Pin	Symbol	Function	Remark
1	SDA	I2C SDA signal	I/O
2	SCL	I2C CLK signal	I/O
3	GND	Power supply GND input	Power

SWD interface:

CON14 (2.54mm, 4P)

Pin	Symbol	Function	Remark
1	SWCLK	CLK pin for SWD interface	Input
2	GND	GND for SWD interface	Output
3	SWDI	Data pin for SWD interface	I/O
4	NRST	Reset pin for SWD interface	Input

GPIO

CON16 (2.54mm, 16P)

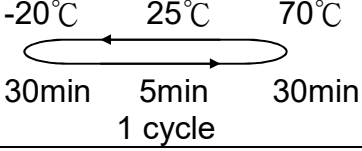
Pin	Symbol	Function	Pin	Symbol	Function
1	IO0 (PA5)	GPIO,ADC1,DAC1,TIMER2	2	IO1 (PI15)	GPIO
3	IO2 (PC2)	GPIO,ADC3	4	IO3 (PC3)	GPIO, ADC3
5	IO4 (PE4)	GPIO, TIMER15	6	IO5 (PA12)	GPIO
7	IO6 (PE5)	GPIO,TIMER15	8	IO7 (PE2)	GPIO
9	IO8 (PE6)	GPIO, TIMER15	10	IO9 (PE3)	GPIO
11	IO10 (PI11)	GPIO	12	IO11 (PB1)	GPIO,ADC1,ADC2,TIMER3
13	IO12 (PD11)	GPIO	14	IO13 (PB10)	GPIO, TIMER2
15	IO14 (PH4)	GPIO,ADC3,I2C2_SCL	16	IO15 (PB11)	GPIO, TIMER2, I2C2_SDA

RTC Battery interface: CONA200 (2.0mm, 2P)

Pin	Symbol	Function	Remark
1	Battery+	3.0V	Input
2	Battery-	GND	Output

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 96hrs	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30°C 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.	70°C 96hrs	—
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20°C 96hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 40°C,90%RH max	40°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)	24			
I_{system} (mA)	270			

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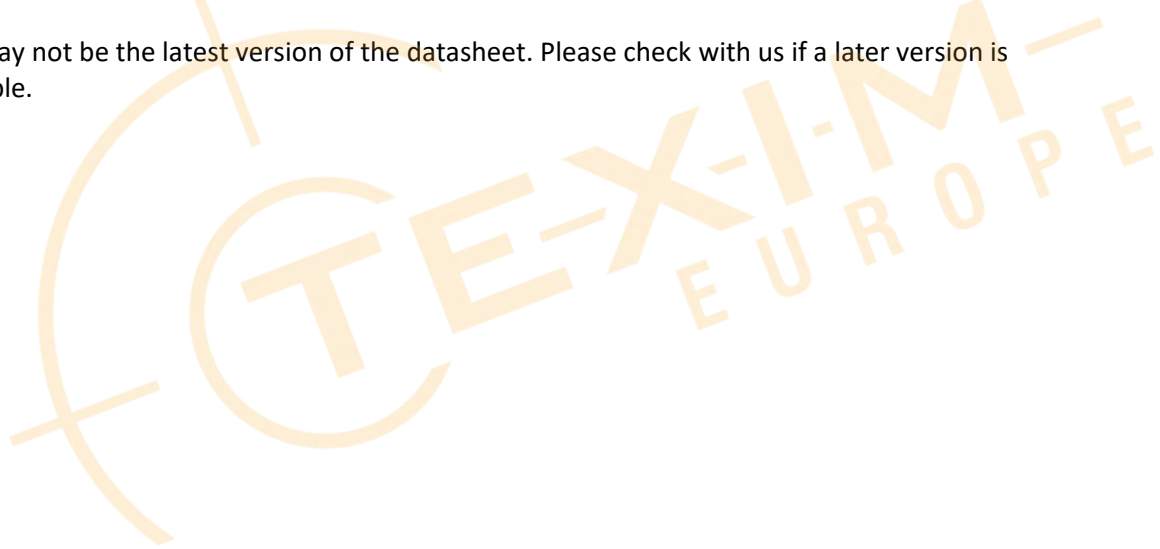
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All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts.

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