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DMG40960F040_01WTC

DMG40960F040_01WTCZ01

Features:

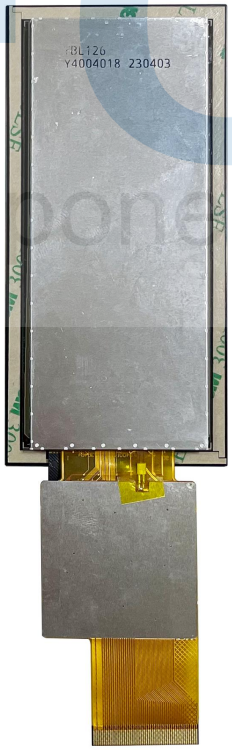
- Based on T5L0, running DGUS II system.
- 4.0-inch, 400*960 pixels resolution, 262K colors, IPS-TFT-LCD, wide viewing angle.
- LCD and TP frame lamination process.
- Optional TP appearance of black and white.
- COF structure. The entire core circuit of the smart screen is fixed on the FPC of LCM, featured by light and thin structure, low cost and easy production.
- 50 pins, including IO, UART, CAN, AD and PWM from user CPU core for easy secondary development.



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1 External Interface





User interface

PIN	Definition	I/O	Functional Description
1	+5V	I	Power supply, DC3.6-5.5V.
2	+5V	I	
3	GND	GND	GND
4	GND	GND	
5	GND	GND	
6	AD7	I	5 input ADCs. 12-bit resolution in case of 3.3V power supply. 0-3.3V input voltage. Except for AD6, the rest data is sent to OS core via UART3 in real time with 16KHz sampling rate. AD1 and AD5 can be used in parallel, and AD3 and AD7 can be used in parallel, which equals to two 32KHz sampling AD. AD1, AD3, AD5, AD7 can be used in parallel, which equals to a 64KHz sampling AD; the data is summed 1024 times and then divided by 64 to obtain a 64Hz 16bit AD value by oversampling.
7	AD6	I	
8	AD5	I	
9	AD3	I	
10	AD1	I	
11	+3.3	O	3.3V output, maximum load of 150mA.
12	SPK	O	External MOSFET to drive buzzer or speaker. The external 10K resistor should be pulled down to the ground to ensure that power-on is low level.
13	SD_CD	IO	SD/SDHC interface,The SD_CK connects a 22pF capacitor to GND near the SD card interface.
14	SD_CK	O	
15	SD_D3	IO	
16	SD_D2	IO	
17	SD_D1	IO	
18	SD_D0	IO	
19	PWM0	O	2 16-bit PWM output. The external 10K resistor should be pulled down to the ground to ensure that power-on is low level. The OS core can be controlled in real time via UART3.
20	PWM1	O	
21	P3.3	IO	If using RX8130 or SD2058 I2C RTC to connect to both IOs, SCL should be connected to P3.2,and SDA connected to P3.3 in parallel with 10K resistor pull-up to 3.3V.
22	P3.2	IO	

23	P3.1/EX1	IO	It can be used as an external interrupt 1 input at the same time, and supports both low voltage level or trailing edge interrupt modes.
24	P3.0/EX0	IO	It can be used as an external interrupt 0 input at the same time, and supports both low voltage level or trailing edge interrupt modes.
25	P2.7	IO	IO interface
26	P2.6	IO	IO interface
27	P2.5	IO	IO interface
28	P2.4	IO	IO interface
29	P2.3	IO	IO interface
30	P2.2	IO	IO interface
31	P2.1	IO	IO interface
32	P2.0	IO	IO interface
33	P1.7	IO	IO interface
34	P1.6	IO	IO interface
35	P1.5	IO	IO interface
36	P1.4	IO	IO interface
37	P1.3	IO	IO interface
38	P1.2	IO	IO interface
39	P1.1	IO	IO interface
40	P1.0	IO	IO interface
41	UART4_TXD	O	UART4
42	UART4_RXD	I	
43	UART5_TXD	O	UART5
44	UART5_RXD	I	
45	P0.0	IO	IO interface
46	P0.1	IO	IO interface
47	CAN_TX	O	CAN interface (External CAN chip drive is required .See 6 - (6) for circuit reference)
48	CAN_RX	I	
49	UART2_TXD	O	UART2(UART0 serial port of OS core)
50	UART2_RXD	I	

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2 Specification Parameters

2.1 Product Parameters

Main Chip	T5L0
User Interface	50Pin_0.5mm FPC
FLASH	8M Bytes
UI Version	DGUSII / TA
Power Supply	HDL662S adapter board power supply
Display Color	262K colors
Dimensions	4.0 inch
Resolution	400*960
Active Area	39.18mm (W)×94.03mm (H)
Viewing Angle	Wide viewing angel, typical value of 85°/85°/85°/85°(L/R/U/D)
Backlight Service Life	＞10000 hours (Time of the brightness decaying to 50% on the condition of continuous working with the maximum brightness)
Brightness	250nit
Brightness Control	0~100 grade (When the brightness is adjusted to 1%~30% of the maximum brightness, flickering may occur and is not recommended to use in this range)
TP Type	CTP (Capacitive Touch Panel)
TP Structure	G+G structure
Touch Mode	Single point touch, support continuous sliding touch
Surface Hardness	6H
Light Transmittance	Over 90%
Life	Over 1,000,000 times touch

2.2 Interface Parameters

Item	Conditions	Min	Typ	Max	Unit
Baud Rate	User Set(Configure the CFG file)	3150	115200	3225600	bps
Output Voltage(TXD)	Output 1	3.0	3.3	-	V
	Output 0	-	0	0.3	V
Input Voltage(RXD)	Input 1	-	-	3.3	V
	Input 0	0	-	0.5	V
Interface	UART2: TTL; UART4: TTL;（Only available after OS configuration） UART5: TTL;（Only available after OS configuration）				
Data Format	UART2: N81; UART4: N81/E81/O81/N82;4 modes (OS configuration) UART5: N81/E81/O81/N82;4 modes (OS configuration)				

2.3 Electrical specifications

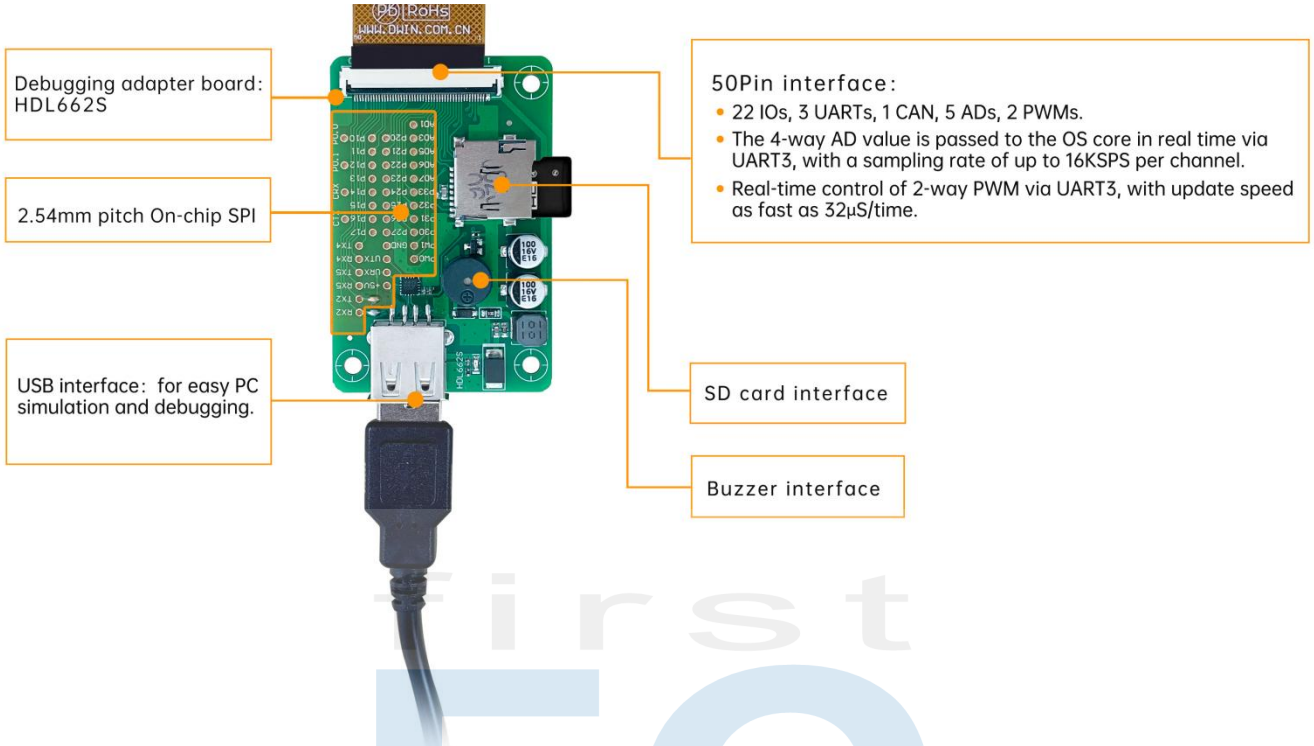
Rated Power	<2W	
Operating Voltage	3.6~5.5V, typical value of 5V	
Operating Current	200mA	VCC=5V, max backlight
	90mA	VCC=5V, backlight off
Recommended power supply: 5V 0.5A DC		

2.4 Operating Environment

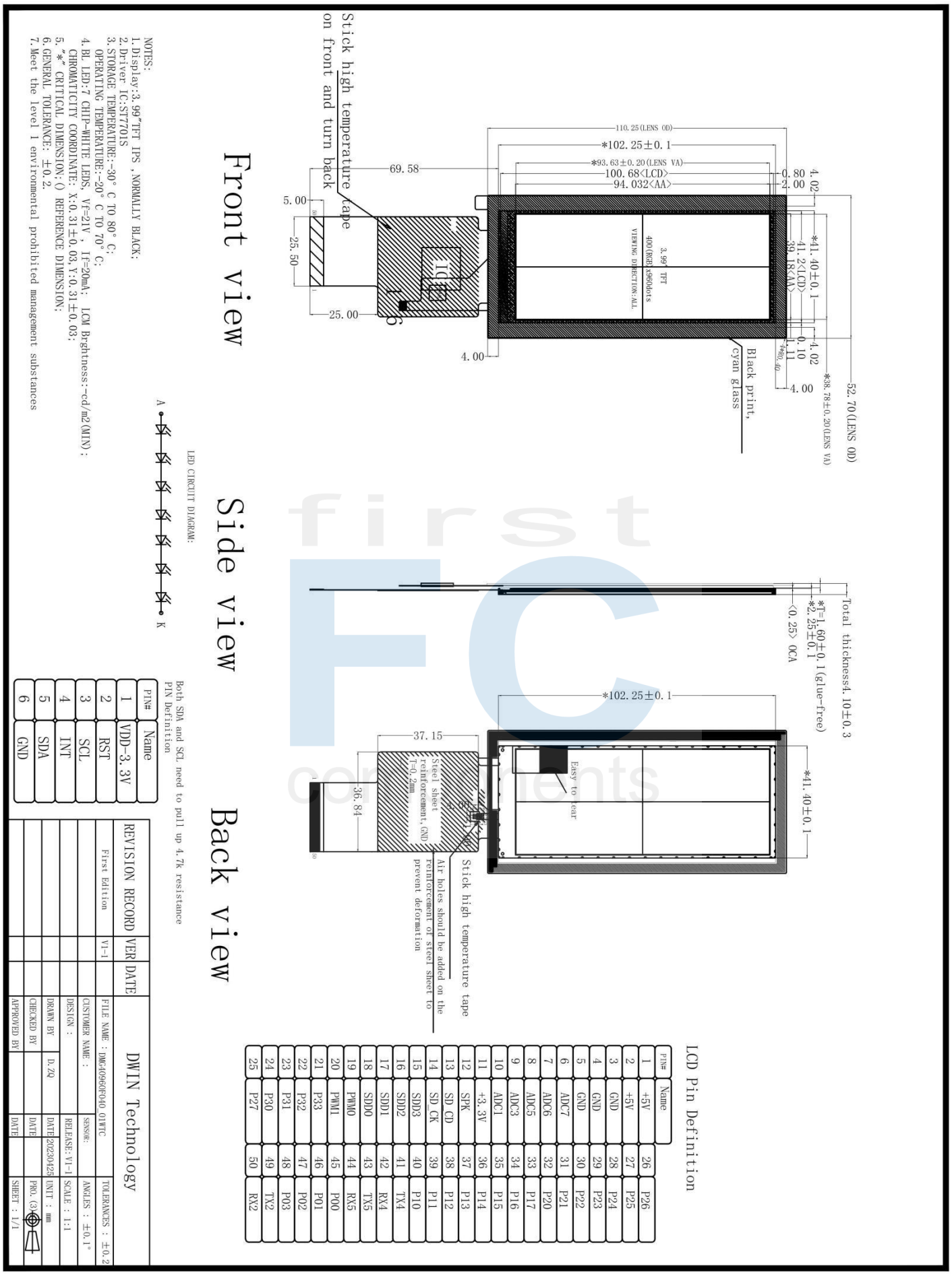
Operating Temperature	-10℃~60℃
Storage Temperature	-20℃~70℃
Operating Humidity	10%~90%RH, typical value of 60% RH

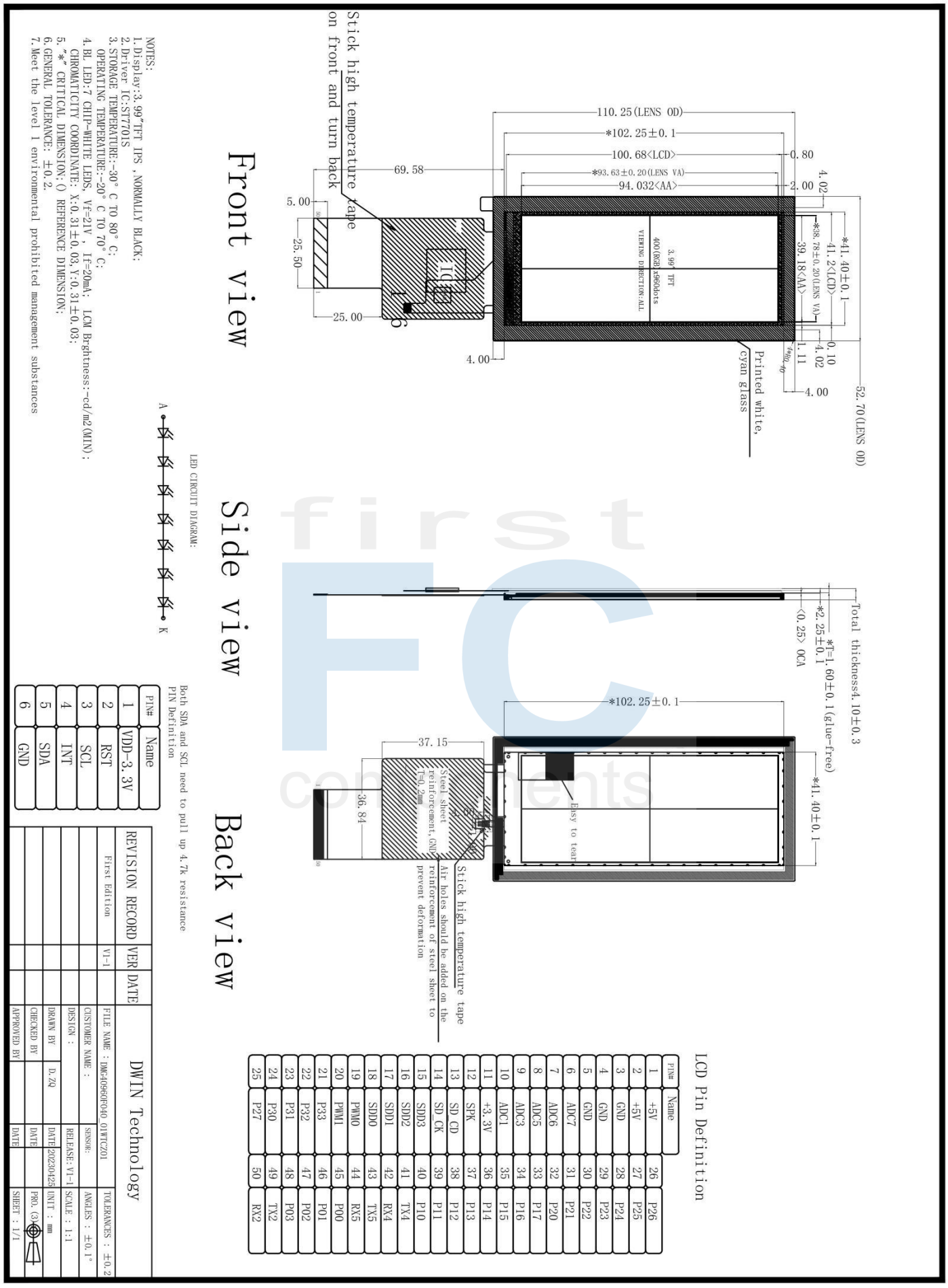
4 Debug

It is recommended for new users of DWIN smart LCMs to purchase official accessories. For more details, please refer to customer service center.



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Front view
Side view
Back view
110.25(LENS OD)
*102.25±0.1
*93.63±0.20(LENS VA)
100.68<LCD>
94.032<AA>
69.58
5.00
25.50
25.00
4.00
0.80
2.00
4.02
*41.40±0.1
41.2<LCD>
39.1<AA>
0.10
0.11
4.00
52.70(LENS OD)
*38.78±0.20(LENS VA)
3.99" TFT
400(RGB)×960dots
VIEWING DIRECTION:ALL
Black print,
cyan glass
Stick high temperature tape
on front and turn back
Total thickness4.10±0.3
*T=1.60±0.1(glue-free)
*2.25±0.1
<0.25> OCA
*102.25±0.1
37.15
36.84
*41.40±0.1
Easy to ear
Steel sheet
reinforcement.GND
T=0.2mm
Stick high temperature tape
Air holes should be added on the
reinforcement of steel sheet to
prevent deformation
LED CIRCUIT DIAGRAM:
A
K
NOTES:
1. Display:3.99"TFT IPS ,NORMALLY BLACK;
2. Driver IC:ST7701S
3. STORAGE TEMPERATURE:-30° C TO 80° C;
OPERATING TEMPERATURE:-20° C TO 70° C;
4. BL LED:7 CHIP-WHITE LEDS, Vf=21V , If=20mA; LCM Brghtness:-cd/m2(MIN);
CHROMATICITY COORDINATE: X:0.31±0.03,Y:0.31±0.03;
5. "*" CRITICAL DIMENSION;() REFERENCE DIMENSION;
6. GENERAL TOLERANCE: ±0.2.
7. Meet the level 1 environmental prohibited management substances
Both SDA and SCL need to pull up 4.7k resistance
PIN Definition
PIN# Name
1 VDD-3.3V
2 RST
3 SCL
4 INT
5 SDA
6 GND
LCD Pin Definition
PIN# Name
1 +5V
2 +5V
3 GND
4 GND
5 GND
6 ADC7
7 ADC6
8 ADC5
9 ADC3
10 ADC1
11 +3.3V
12 SPK
13 SD_CD
14 SD_CK
15 SDD3
16 SDD2
17 SDD1
18 SDD0
19 PWM0
20 PWM1
21 P33
22 P32
23 P31
24 P30
25 P27
26 P26
27 P25
28 P24
29 P23
30 P22
31 P21
32 P20
33 P17
34 P16
35 P15
36 P14
37 P13
38 P12
39 P11
40 P10
41 TX4
42 RX4
43 TX5
44 RX5
45 P00
46 P01
47 P02
48 P03
49 TX2
50 RX2
REVISION RECORD VER DATE
First Edition V1-1
DWIN Technology
FILE NAME : DMG40960F040_01WTC
CUSTOMER NAME :
DESIGN :
DRAWN BY D.ZQ
CHECKED BY
APPROVED BY
SENSOR:
RELEASE: V1-1
DATE 20230425
DATE
DATE
TOLERANCES : ±0.2
ANGLES : ±0.1°
SCALE : 1:1
UNIT : mm
PRO. (3)
SHEET : 1/1



NOTES:
1. Display:3.99"TFT IPS ,NORMALLY BLACK;
2. Driver IC:ST7701S
3. STORAGE TEMPERATURE:-30° C TO 80° C;
   OPERATING TEMPERATURE:-20° C TO 70° C;
4. BL LED:7 CHIP-WHITE LEDS, Vf=21V , If=20mA; LCM Brightness:-cd/m2(MIN);
   CHROMATICITY COORDINATE: X:0.31±0.03,Y:0.31±0.03;
5. "*" CRITICAL DIMENSION; () REFERENCE DIMENSION;
6. GENERAL TOLERANCE: ±0.2.
7. Meet the level 1 environmental prohibited management substances

LED CIRCUIT DIAGRAM:

Both SDA and SCL need to pull up 4.7k resistance
PIN Definition

PIN#	Name
1	VDD-3.3V
2	RST
3	SCL
4	INT
5	SDA
6	GND

LCD Pin Definition

PIN#	Name			
1	+5V	26	P26	
2	+5V	27	P25	
3	GND	28	P24	
4	GND	29	P23	
5	GND	30	P22	
6	ADC7	31	P21	
7	ADC6	32	P20	
8	ADC5	33	P17	
9	ADC3	34	P16	
10	ADC1	35	P15	
11	+3.3V	36	P14	
12	SPK	37	P13	
13	SD_CD	38	P12	
14	SD_CK	39	P11	
15	SDD3	40	P10	
16	SDD2	41	TX4	
17	SDD1	42	RX4	
18	SDD0	43	TX5	
19	PWM0	44	RX5	
20	PWM1	45	P00	
21	P33	46	P01	
22	P32	47	P02	
23	P31	48	P03	
24	P30	49	TX2	
25	P27	50	RX2	

REVISION RECORD	VER	DATE
First Edition	V1-1	

DWIN Technology

FILE NAME : DMG40960F040_01WTC/Z01			TOLERANCES : ±0.2
CUSTOMER NAME :		SENSOR:	ANGLES : ±0.1°
DESIGN :		RELEASE: V1-1	SCALE : 1:1
DRAWN BY	D. ZQ	DATE 20230425	UNIT : mm
CHECKED BY		DATE	PRO. (3)
APPROVED BY		DATE	SHEET : 1/1

8 Revision records

Rev	Revise Date	Content	Editor
00	2023-05-16	First Edition	Xu Ying

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