

DMG80480F070_06WN

Features:

- Based on T5L0, running DGUS II system.
- 7.0-inch, 800*480 pixels resolution, 262K colors, TN TFT display.
- 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.



1 External Interface

PIN	Definition	Type	Functional Description
1	+5V	P	Power supply, DC4.5-5.5V
2	+5V		
3	DIN2	I	UART2 Input
4	DOUT2	O	UART2 Output
5	DIN1	I	UART1 Input
6	DOUT1	O	UART1 Output
7	SPK	O	External MOSFET to drive buzzer or speaker
8	RESET	-	RESET
9	GND	P	GND
10	GND		

2 Specification Parameters

2.1 Product Parameters

Main Chip	T5L0
User Interface	10Pin_1.0mm FPC
FLASH	16M Bytes
UI Version	DGUSII / TA
Power Supply	HDL662K adapter board power supply
Display Color	262K colors
Dimensions	7.0-inch
Resolution	800*480
Active Area	154.08mm (W)×85.92mm (H)
Viewing Angle	TV viewing angel, typical value of 70°/70°/40°/30°(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)

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	UART1: TTL; UART2: TTL;				
Data Format	N81				

2.3 Electrical Specifications

Rated Power	<5W	
Operating Voltage	4.5~5.5V, typical value of 5V	
Operating Current	440mA	VCC=5V, max backlight
	120mA	VCC=5V, backlight off
Recommended power supply: 5V 1A DC		

2.4 Operating Environment

Operating Temperature	-10°C~60°C (5V @ 60% RH)
Storage Temperature	-20°C~70°C
Operating Humidity	10%~90%RH, typical value of 60% RH

3 Reliability Test

Before mass production of smart screens, a series of procedural reliability tests need to be conducted according to actual application requirements and product specification control standards to ensure product quality.

3.1 ESD Test

Test temperature: 25°C

- Test standard : EN 61000-4-2:2009 IEC 61000-4-2:2008 GB/T 17626.2-2018
 Other:

Table 1: Electrostatic Discharge Immunity (Air Discharge)

Test Points Locations	Test Levels							
	-2kV	+2kV	-4kV	+4kV	-8kV	+8kV	-15kV	+15kV
Screen					A	A		
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

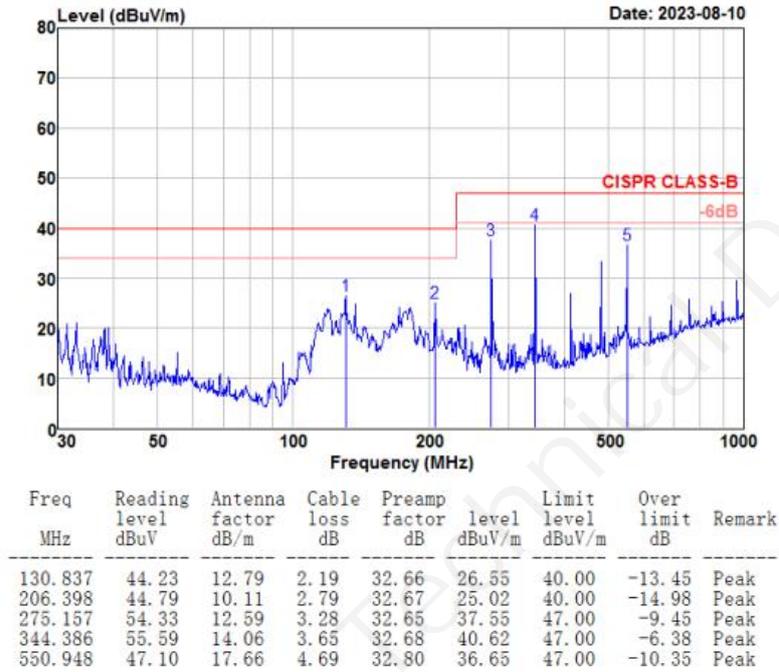
Table 2: Electrostatic Discharge Immunity (Direct Contact)

Test Points Locations	Test Levels							
	-2kV	+2kV	-4kV	+4kV	-6kV	+6kV	-8kV	+8kV
Border					B	B		
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

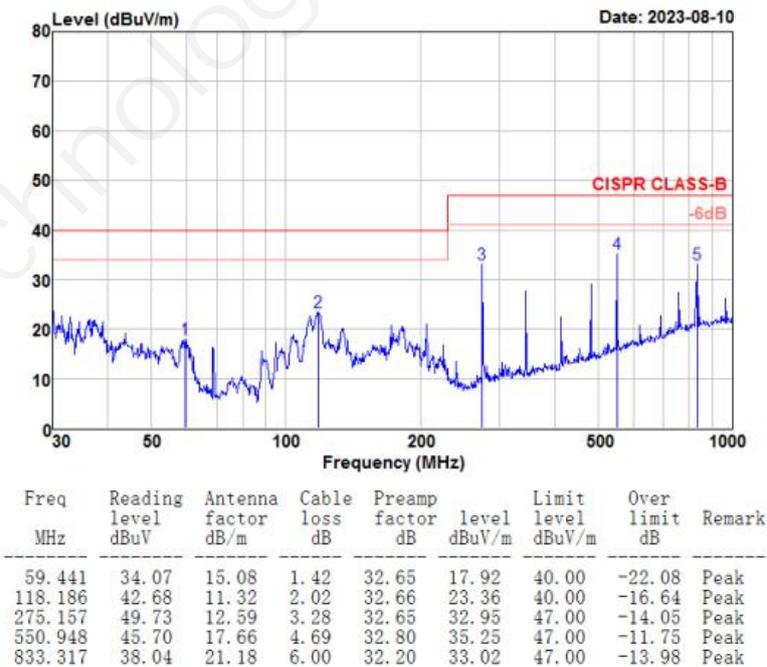
3.2 RE test

Test Item	Test Standard	Result
RE	ClassB-6dB	Normal operation

HORIZONTAL



VERTICAL



3.3 High and Low Temperature Test

Test temperature:-20~70℃

Test process: the product will be placed obliquely in the high and low temperature test chamber for 12h for 20 on and off cycles. Then it will be check at room temperature after power on for the appearance and function, CTP offset situation, jumping point, page random switching and failure.

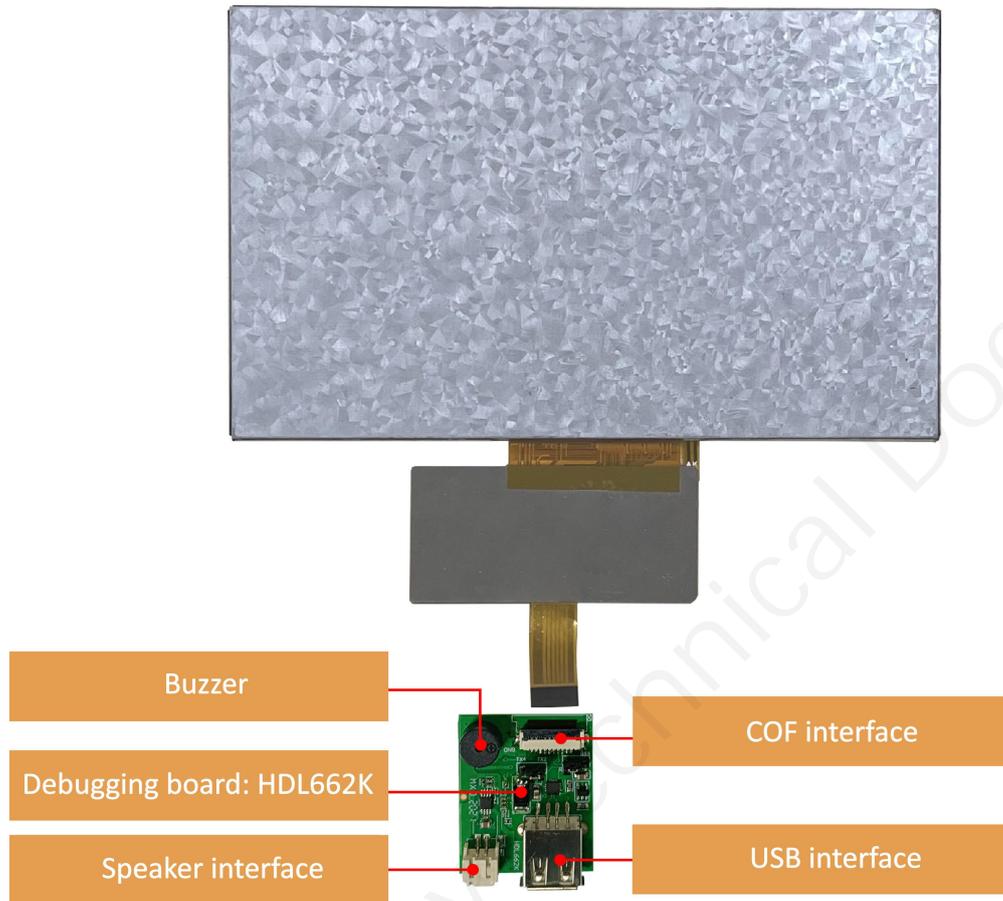
Temperature	Result
High temperature (70℃)	A
Low temperature (-20℃)	A

Performance Criterion:

- A. Normal performance within limits specified by the manufacturer, requestor or purchaser;
- B. Temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention;
- C. Temporary loss of function or degradation of performance, the correction of which requires operator intervention;
- D. Loss of function or degradation of performance which is not recoverable, due to damage to hardware or software, or loss of data.

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.



Please pay attention to the wiring sequence between the debugging board and the COF screen, do not reverse connect.

Operation steps: open serial assistant - custom function command - set command - send.

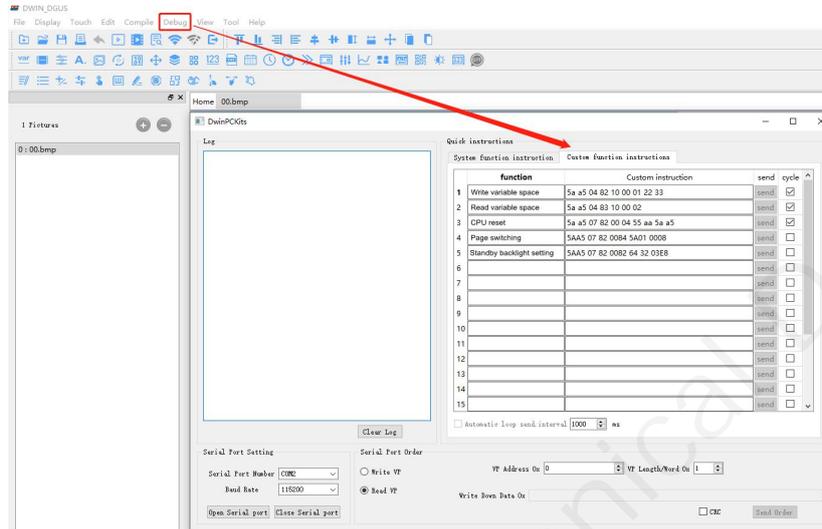
For example:

(1) Page switching

Tx: 5AA5 07 82 0084 5A01 0008

(2) Standby backlight setting

Tx: 5AA5 07 82 0082 64 32 03E8



DGUS operation

5 T5L0 ASIC

T5L0 ASIC is a low-power, cost-effective, GUI and application highly integrated single-chip dual-core ASIC designed by DWIN Technology for small-size LCD and mass produced in 2020.

(1) Mature and stable 8051 core which is the most widely used with the maximum operating frequency of T5L is up to 250MHz, 1T(single instruction cycle)high speed operation.

(2) Separate GUI CPU core running DGUS II System:

- High-speed display memory, 2.4GB/S bandwidth. 18-bit color display resolution support up to 1024*768 (TA mode), 854*480 (DGUS mode).
- 2D hardware acceleration and the UI with animation and icons as its main feature is extremely cool and smooth.
- Images and icons stored in JPEG format. Adopt Low-cost 16Mbytes SPI Flash.
- High quality ratio and sound restoration and playback.
- 128Kbytes variable storage space for exchanging data with OS CPU Core and memory.
- 2 10-bit 800KHz DC/DC controllers simplify LED backlight, analog power design and save cost and space.
- Support DGUS development and simulation on PC. Support backend remote upgrade.

(3) Separate CPU (OS CPU) core runs user 8051 code or DWIN OS system and user CPU is omitted in practical application:

- Standard 8051 core and instruction set, 64Kbytes code space, 32Kbytes on-chip RAM.
- 64-bit integer mathematical operation unit (MDU), including 64-bit MAC and 64-bit divider.
- Built-in software WDT, 3 16-bit Timers, 12 interrupt signals support up to four levels of interrupt nesting.
- Support IAP online simulation and debugging with unlimited breakpoints.
- Upgrade code online through DGUS system.

(4) 1Mbytes on-chip Flash with DWIN patent encryption technology ensure code and data security.

(5) Operating temperature ranges from -40°C to +85°C(IC operating temperature customizable from -55°C to 105°C).

(6) Low power consumption and strong anti-interference ability. It can work stably on double-sided PCB and passes EMC/EMI test easily.

6 Packing Capacity & Dimension

Dimension				
Dimension	165.0(W) × 100.0 (H) × 3.5(T) mm			
Net Weight	110g			
Packing Capacity				
Model	Size	Layer	Quantity/Layer	Quantity(Pcs)
Carton1:	220mm(L)×160mm(W)×47mm(H)	-	-	-
Carton2:	250mm(L)×200mm(W)×80mm(H)	1	2	2
Carton3:	320mm(L)×270mm(W)×80mm(H)	1	4	4
Carton4:	410mm(L)×345mm(W)×165mm(H)	1	52	52

Disclaimer: The product design is subject to alternation and improvement without prior notice.

7 Revision records

Rev	Revise Date	Content	Editor
00	2023-09-28	First Edition	Xu Ying
01	2023-12-07	Adjusting accessories	Xu Ying

Please contact us if you have any questions about the use of this document or our products, or if you would like to know the latest information about our products:

- Customer service Tel: +86 400 018 9008
- Customer service email: dwinhmi@dwin.com.cn
- DWIN Developer Forum: <https://forums.dwin-global.com/>

Thank you all for continuous support of DWIN, and your approval is the driving force of our progress!