

DT322X220034Z240201N

产品特点:

- 基于 T5L2 芯片，运行 DGUS II 系统。
- 7.0 英寸，1280*800 分辨率，16.7M 色，IPS 屏，宽视角。
- 电容触摸屏。
- 支持单路 1080P 高清显示或两路 720P 同屏显示。
- 支持摄像头缩放、画面截图功能。支持定制画面录像功能。

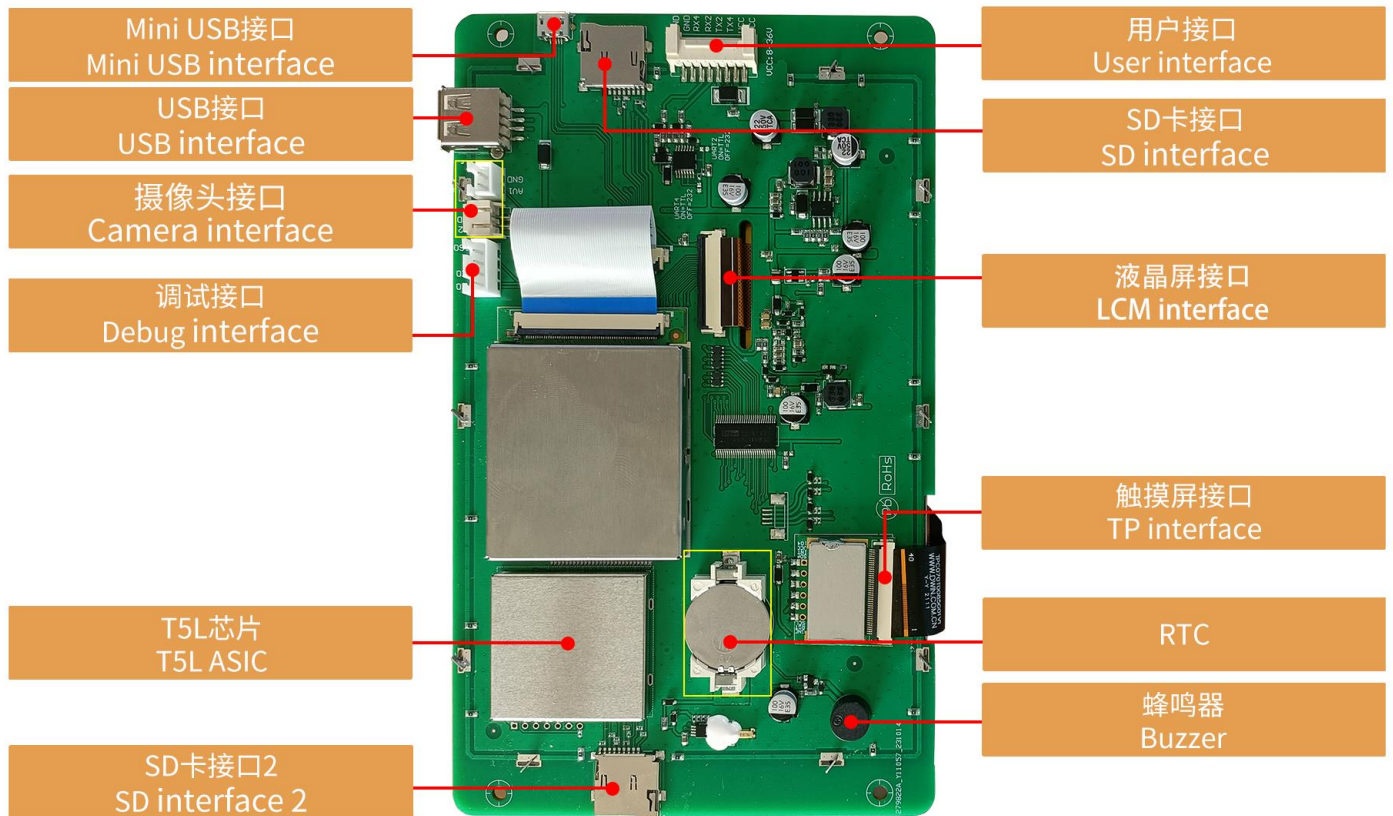
Features:

- Based on T5L2, running DGUS II system.
- 7.0-inch, 1280*800 pixels resolution, 16.7M colors, IPS-TFT-LCD, wide viewing angle.
- Capacitive touch screen.
- Supports one 1080P single screen display or two 720P same screen displays.
- Supports camera zooming, screenshot saving functions. Supports customized video recording function.



1、硬件及接口 Hardware and interface

1.1 硬件接口图 Hardware interface



硬件接口图
Hardware interface

1.2 硬件及接口说明 Hardware and interface description

序号 No.	名称 Name	说明 Description
1	T5L2 芯片 T5L2 ASIC	迪文自主研发，2019 年量产；专利加密技术，确保代码和数据安全；功耗低，抗干扰能力强，双面 PCB 设计上轻松通过 EMC/EMI 测试。 DWIN independently developed, mass production in 2019; patented encryption technology ensures code and data security; low power consumption, strong anti-interference capability, easily passes EMC/EMI tests with dual-sided PCB design.
2	用户接口 User interface	用于供电和串口通讯，8Pin_2.0mm 座子。串口下载速率（典型值）：12KByte/s。 8Pin_2.0mm socket for power supply and serial communication. Download rate(typical value): 12KByte/s.
3	Flash	16MBytes (1 颗 16MBytes NOR Flash)，可用于存放字库、图片、音乐等用户 UI 文件，擦写次数>100,000 次。 16MBytes (1*16MBytes NOR Flash), can be used to store user UI files such as fonts, images, music, etc., with erase/write cycles >100,000 times.
4	蜂鸣器 Buzzer	3V 无源蜂鸣器，功率：<1W。 3V passive buzzer, Power: <1W.
5	RTC	纽扣电池供电，精度：±20ppm @25℃。 Button cell for power supply, Accuracy: ±20ppm @25℃.
6	SD 卡接口 SD interface	R11 SD 卡接口，支持保存截图图像数据。 R11 SD card interface, supports saving screenshot image data.
7	SD 卡接口 2 SD interface 2	FAT32 格式，下载文件，文件可在屏幕统计显示，下载速率：4Mb/s。 FAT32, download files by SD interface can be displayed in statistics, Download rate: 4Mb/s.
8	Mini USB 接口 Mini USB interface	用于 R11 固件烧录。 Using for R11 firmware burning.
11	USB 接口 USB interface	卧式 USB 接口，用于 R11 固件烧录。 Horizontal USB interface, Used for R11 firmware burning.
12	调试接口 Debug interface	4Pin_2.54mm 接口，RX0, TX0, SPIO 调试接口。 4Pin_ 2.54mm interface, RX0, TX0, SPIO debug interface.
13	摄像头接口 Camera interface	卧式 2pin_2.0mm*1 和立式 2Pin_2.54mm*1（1080P AHD 高清模拟输入，2 路端子，支持 1 路/2 路输入，接入 2 路的情况下支持切换显示，不支持两路同屏显示。） Horizontal 2pin_ 2.0mm * 1 and vertical 2Pin_ 2.54mm * 1 (1080P AHD HD analog input, two terminals, supports 1 / 2 inputs, supports switching display when connected to two channels, and does not support two channels of same screen display.)

2、规格参数 Specification parameters

2.1 显示参数 Display parameters

显示屏类型 LCD Type	IPS 工艺 TFT 显示屏。 IPS process TFT display screen.
视角 Viewing Angle	宽视角（典型值是 85°/85°/85°/85°），对比度高、色彩还原好。 Wide viewing angle (typical values are 85°/85°/85°/85°), high contrast, and good color reproduction.
分辨率 Resolution	1280×800（支持 0°/90°/180°/270°显示模式） 1280×800 pixels (support 0°/90°/180°/270°)
色彩 Color	16.7M 色（24 位 8R8G8B） 16.7M color (24-bit 8R8G8B)
AA 区 Active Area (A.A.)	149.76mm (W) ×93.60mm (H)
VA 区 View Area (V.A.)	150.76mm (W) ×94.60mm (H)
接口 Interface	RGB
背光模式 Backlight Mode	LED
背光寿命 Backlight Service Life	>20,000 小时（以最高亮度连续工作，亮度减半时间） >20,000 hours (Time of the brightness decaying to 50% on the condition of continuous working with the maximum brightness)
背光亮度 Brightness	250nit
背光调节 Brightness Control	100 级亮度调节（当亮度调节至最高亮度的 1%~30%时，可能出现闪烁现象，不建议在此范围使用） 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)
注：长时间固定画面显示可能导致屏幕残影，可以用动态图片切换做屏保解决。 Note: You can use dynamic screen saver wallpapers to avoid afterimages caused by fixed page display for a long time.	

2.2 触摸参数 Touch parameters

触摸屏类型 Type	电容式触摸面板。 CTP (Capacitive touch panel).
接口 Interface	I ² C
触摸屏结构 Structure	G+G 结构，表面盖板为钢化玻璃。 G+G structure with surface cover of tempered glass.
触摸方式 Touch Mode	单点触摸，支持连续滑动触摸。 Support point touch and drag.
表面硬度 Surface Hardness	≥6H
透光率 Light Transmittance	>85% Over 85%
触控寿命 Life	>20,000 小时。 Over 20,000 hours touch.

2.3 串口参数 Serial interface parameters

串口模式 Mode	UART2: ON=TTL/CMOS; OFF=RS232 UART4: ON=TTL/CMOS; OFF=RS232 (OS 配置后才能使用 Only available after OS configuration)				
串口电平 Voltage Level	测试条件 Test Condition	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
	Output 1, Iout = -4mA	2.7	3.2	-	V
	Output 0, Iout = 4mA	-	0.1	0.4	V
	Input 1	2.4	3.3	5.5	V
	Input 0	0	-	1.0	V
串口波特率 Baud Rate	3150~3225600bps, 典型值: 115200bps。 3150~3225600bps, typical value of 115200bps.				
数据格式 Data Format	UART2: N81 UART4: N81/E81/O81/N82 四种模式可选 (OS 配置) 4 modes (OS configuration)				
接口排线 Interface Cable	8Pin_2.0mm				

2.4 电气规格 Electrical specifications

额定功率 Rated Power	<10W	
工作电压 Operating Voltage	9~36V, 典型值 12V。 9~36V, typical value of 12V.	
工作电流 Operating Current	440mA	VCC=12V, 背光亮度最大。 VCC=12V, max backlight.
	160mA	VCC=12V, 背光关闭。 VCC=12V, backlight off.
推荐工作电源: 12V 1A 的直流稳压电源。 Recommended power supply: 12V 1A DC.		

2.5 工作环境 Operating environment

工作温度 Operating Temperature	-20℃~70℃ (12V @ 60% RH)
存储温度 Storage Temperature	-30℃~80℃
三防漆工艺 Conformal coating	有 Yes
工作湿度 Operating Humidity	10%~90%RH, 典型值 60%RH。 10%~90%RH, typical value of 60% RH.

3、可靠性测试 Reliability test

3.1 静电放电测试 Electrostatic discharge test

测试环境温度：25°C，测试环境湿度：50%RH。

Test temperature: 25°C. Test humidity: 50%RH.

■ 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
屏幕					A	A		
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

Test Points Locations	Test Levels							
	-2kV	+2kV	-4kV	+4kV	-6kV	+6kV	-8kV	+8kV
边框					A	A		
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

3.2 电快速瞬变脉冲群 EFT 测试 EFT test

测试环境温度：25°C，测试环境湿度：50%RH。

Test temperature: 25°C. Test humidity: 50%RH.

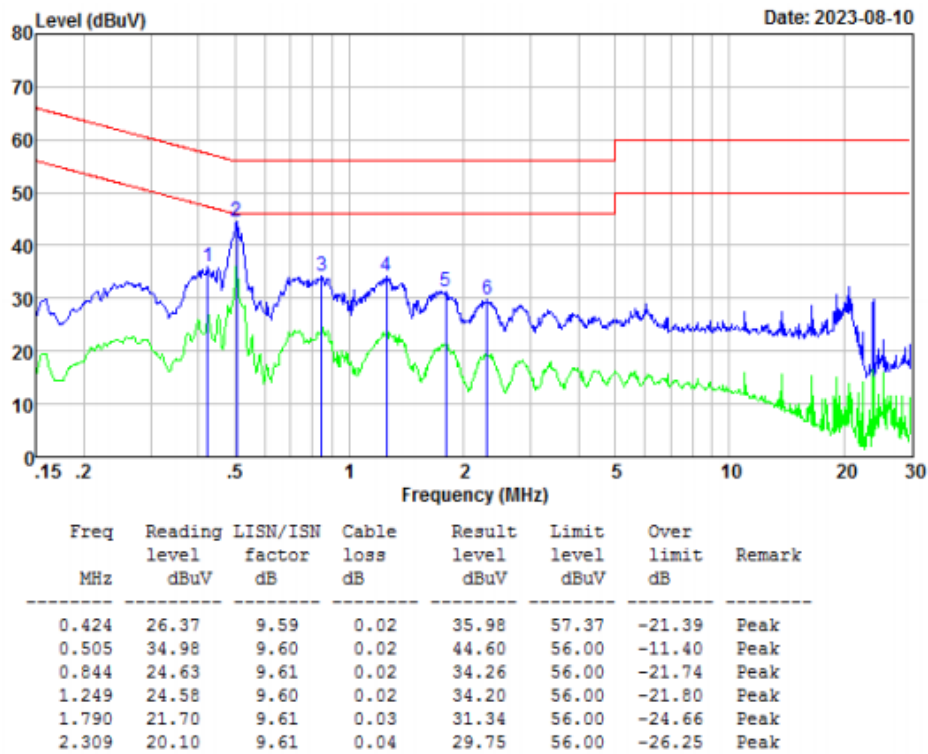
■ Test standard : ☐ EN 61000-4-4:2012 ☒ IEC 61000-4-4:2012 ☐ GB/T 17626.4-2018
☐ Other:

Test Points		Test Levels(kV)							
		-0.5	+0.5	-1.0	+1.0	-2.0	+2.0	-4.0	+4.0
AC Power ports	L					A	A		
	N					A	A		
	Earth	/	/	/	/	/	/	/	/
	L+N					A	A		
	L + Earth	/	/	/	/	/	/	/	/
	N + Earth	/	/	/	/	/	/	/	/
	L+N+Earth	/	/	/	/	/	/	/	/
Signal ports	—/—	/	/	/	/	/	/	/	/

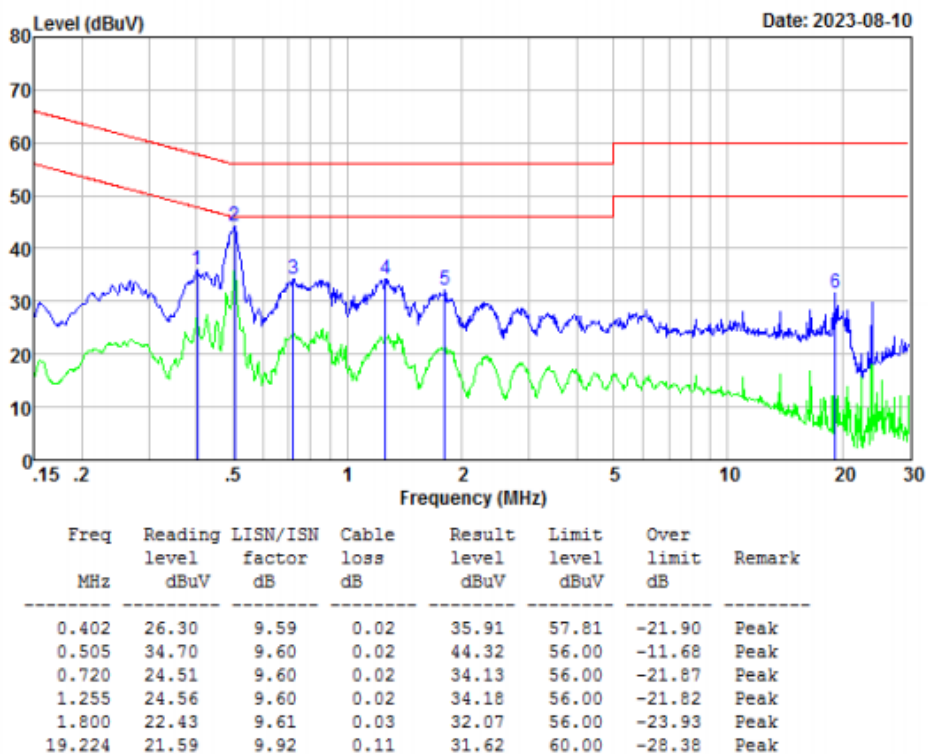
3.3 传导干扰测试 CE test

测试项目 Test Item	测试标准 Test Standard	结果 Result
传导干扰 CE	Class B	正常工作 Normal operation

LINE



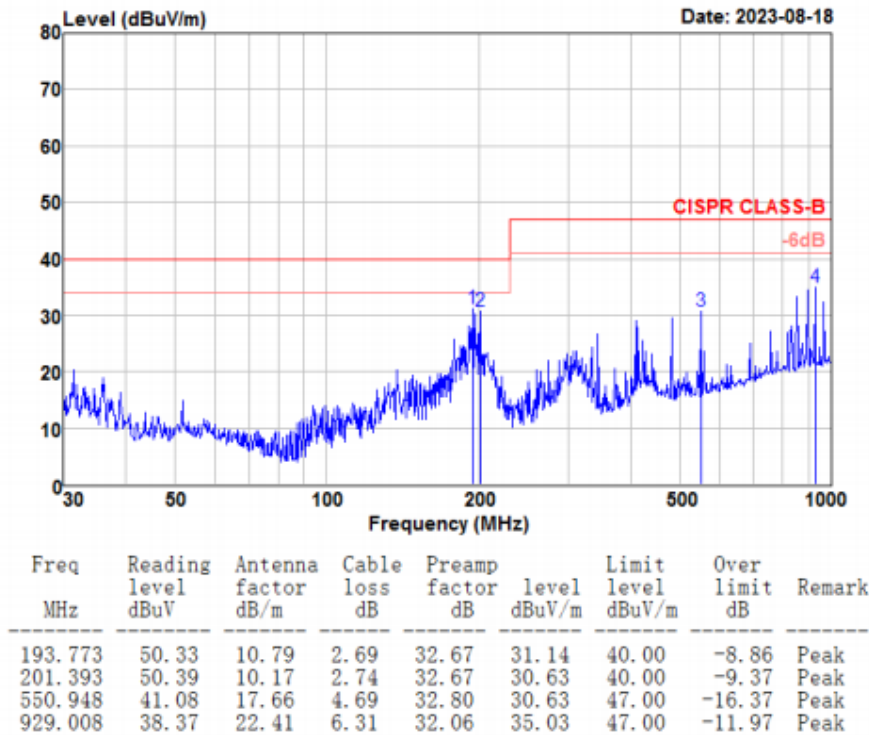
NEUTRAL



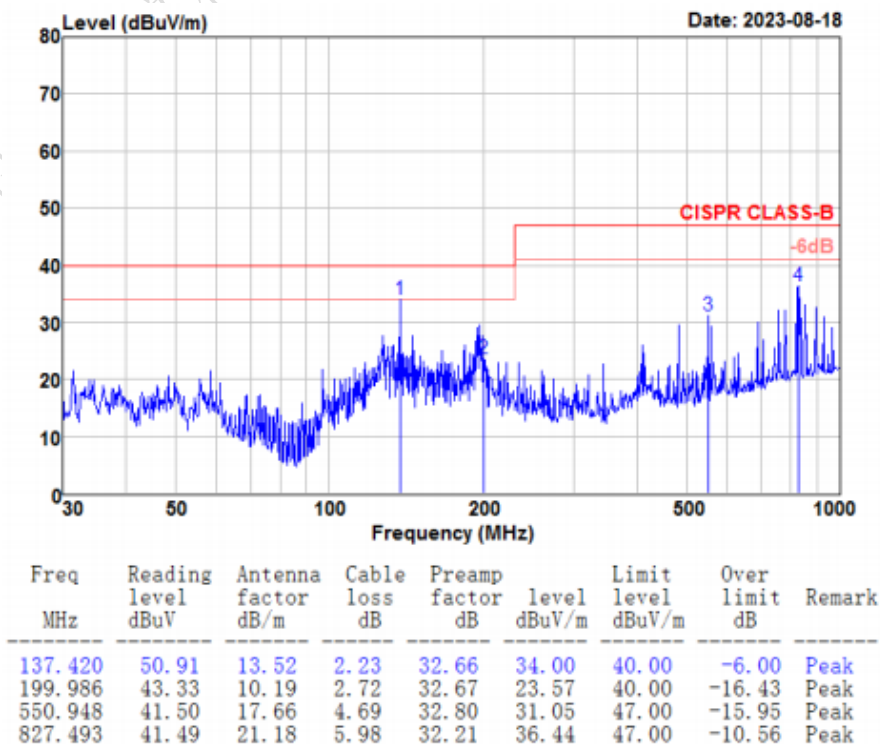
3.4 辐射干扰测试 RE test

测试项目 Test Item	测试标准 Test Standard	结果 Result
辐射干扰 RE	Class B	正常工作 Normal operation

HORIZONTAL

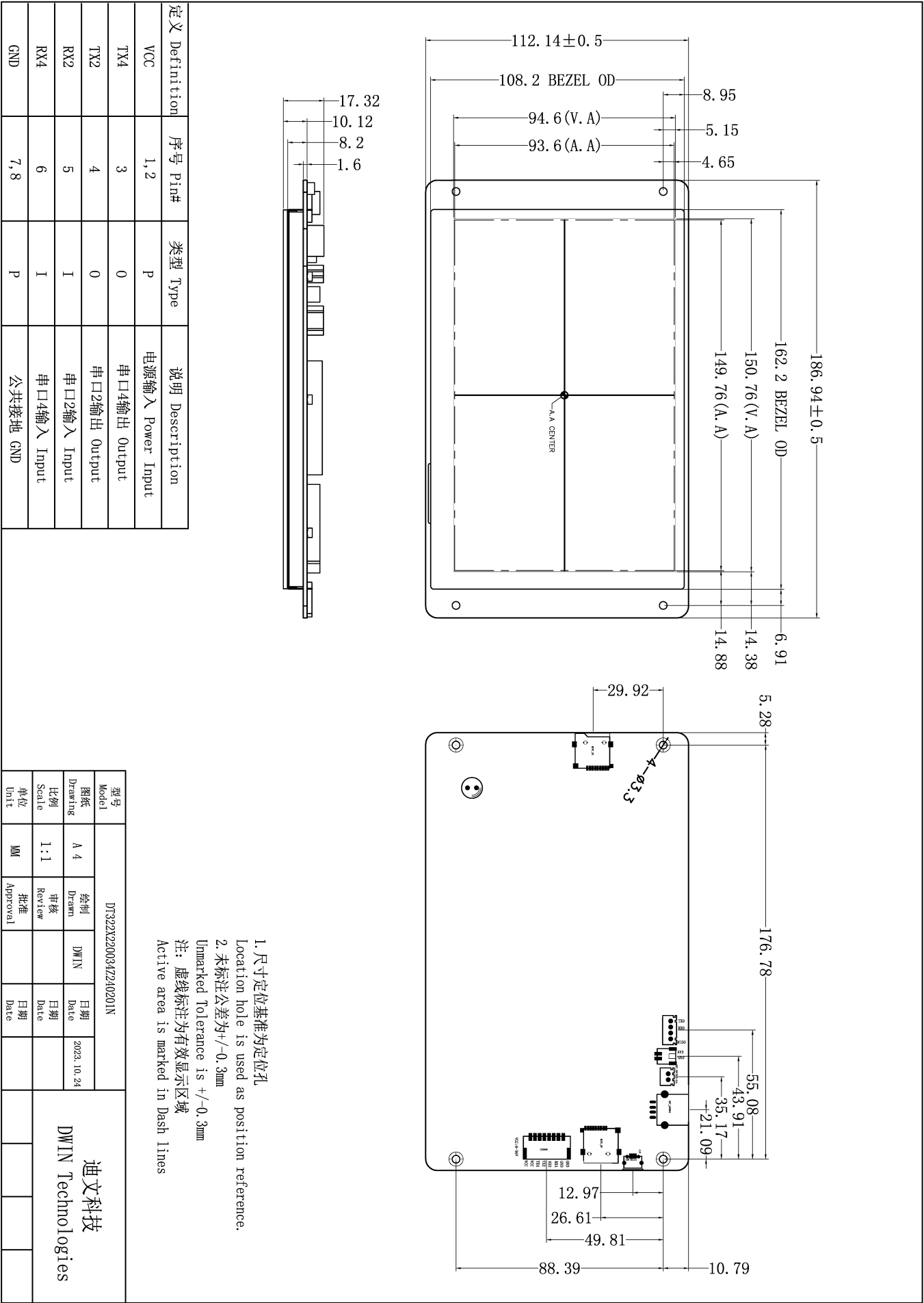


VERTICAL



4、包装和物理尺寸 Packaging & dimensions

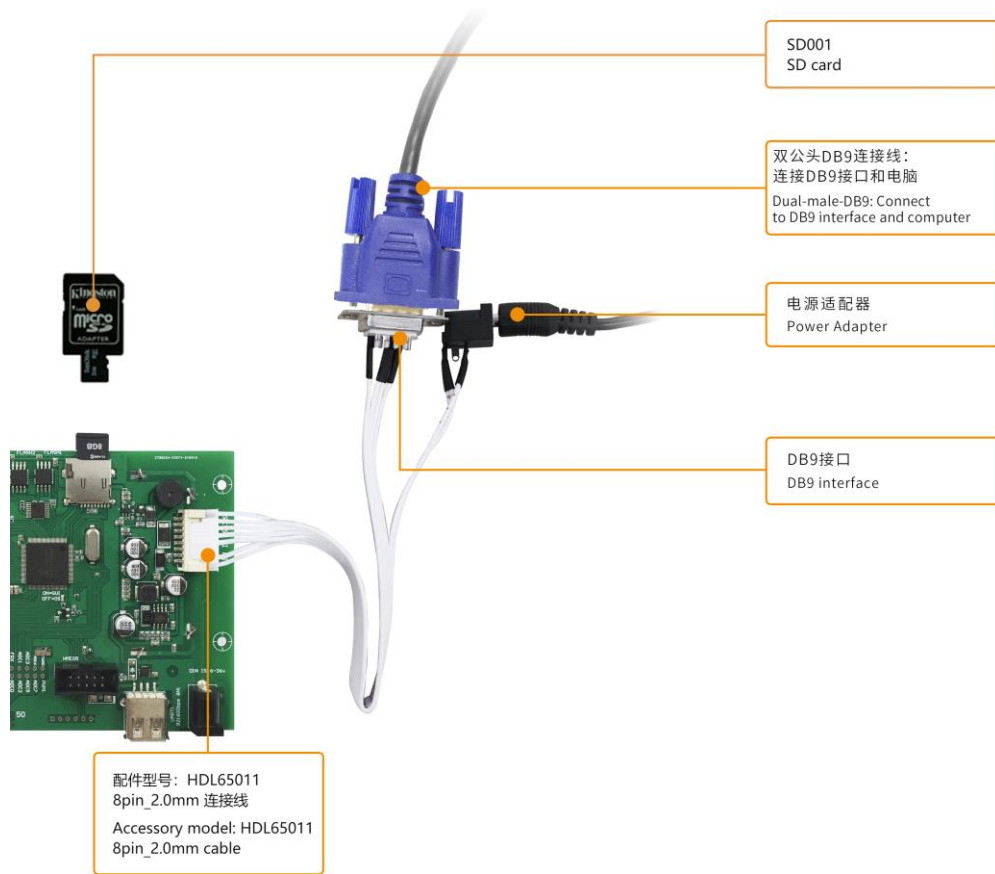
外形尺寸 Form Factor	186.94(W) × 112.14(H) ×17.32(T) mm			
安装尺寸 Installation Dimensions	开孔尺寸：162.20(+0.3mm)×108.20(+0.3mm) Positioning hole: 162.20(+0.3mm)×108.20(+0.3mm)			
净重量 Net Weight	340g			
包装标准 Packaging Standards				
包装箱型号 Model	包装箱尺寸 Dimensions	层数（层） Layer	数量/层（片） Quantity/Layer	总数量（片） Quantity(Pcs)
1 号箱 Carton1:	220(L)×160(W)×47(H)mm	1	1	1
2 号箱 Carton2:	250(L)×200(W)×80 (H)mm	2	1	2
3 号箱 Carton3:	320(L)×270(W)×80 (H)mm	2	2	4
4 号箱 Carton4:	435(L)×335(W)×290(H)mm	-	-	-
5 号箱 Carton5:	600(L)×430(W)×290(H)mm	1	40	40



5、调试工具 Debugging tools

建议首次使用迪文智能屏的用户购买标准配件。详细信息可联系客服人员。

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



6、T5L 系列芯片特点 T5L series IC features

- (1) 采用应用最广泛、成熟和稳定的 8051 核，1T（单指令周期）高速工作，最高主频 250MHz。

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) 单独 CPU 核（GUI CPU）运行 DGUS II 系统：

Separate GUI CPU Core running DGUS II System:

- 内置高速显存，2.4GB/S 带宽。

High-speed display memory, 2.4GB/S bandwidth.

- 2D 硬件加速，JPEG 解压缩速度高达 200fps@1280*800，UI 极其流畅。

2D hardware acceleration, the decompression speed of JPEG is up to 200fps@1280*800 and the UI with animation and icons as its main feature is extremely cool and smooth.

- JPEG 压缩模式存储图片、图标，大幅度缩小外置存储器到低成本的 16Mbytes SPI Flash。

Images and icons stored in JPEG format. Adopt Low-cost 16Mbytes SPI Flash.

- 支持电阻或电容触摸屏，灵敏度可以调节，最快 400Hz 触控打点速度。

Support CTP or RTP with adjustable sensitivity and maximum 400 Hz touch frequency.

- 1 路 15bit 32Ksps PWM 数字功放驱动扬声器，实现高品质语音压缩存储和播放。

1-way 15bit 32Ksps PWM digital power amplifier driver loudspeaker, save power amplifier cost and achieve high signal-to-noise ratio and sound quality restoration.

- 128Kbytes 变量存储器空间，存储器接口和 OS CPU 核交换数据，应用及其简单。

128Kbytes variable storage space for exchanging data with OS CPU Core and memory.

- 支持 PC 端组态开发和仿真，支持后台远程升级。

Support DGUS development and simulation on PC. Support background remote upgrade.

- (3) 单独 CPU 核（OS CPU）运行用户 8051 代码，应用中省掉用户 CPU：

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

- 标准 8051 架构和指令集，64Kbytes 代码空间，32Kbytes 片内 RAM。

Standard 8051 architecture and instruction set, 64Kbytes code space, 32Kbytes on-chip RAM.

- 64bit 整数型数学运算单元（MDU），包括 64bit MAC 和 64bit 除法器。

64 bit integer mathematical operation unit (MDU), including 64 bit MAC and 64 bit divider.

- 28 个 IO，4 路 UARTs，1 路 CAN 接口，最多 8 路 12bit A/D，2 路 16bit 分辨率可调的 PWM。

28 IOs, 4-channel UARTs, 1-channel CAN, up to 8-channel 12-bit A/Ds and 2-channle 16-bit PWM of adjustable resolution.

- 支持 IAP 在线仿真和调试，断点数量无限制。

Support IAP on-line simulation and debugging with unlimited number of breakpoints.

- 可以透过 DGUS 系统在线升级代码。

Upgrade code online through DGUS system.

- (4) 1Mbytes 片内 Flash, 迪文专利加密技术, 确保代码和数据安全, 杜绝山寨和克隆。

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

- (5) -40℃~+85℃工作温度范围 (可定制 -55℃~105℃工作温度范围 IC)。

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

迪文欢迎广大用户基于 T5L 自主设计客制化产品。

DWIN encourages users to design your own customized product based on T5L.

7、修订记录 Revision records

版本 Rev	日期 Revise Date	描述 Content	编辑人 Editor
00	2023-10-25	首次发布 First Edition	郑运佳
01	2024-04-24	增加页码，增加重要声明 Add page numbers and important disclaimer	孟可
02	2024-05-11	型号变更为 DT322X220034Z240201N Model changed to DT322X220034Z240201N	孟可
03	2024-05-28	修改功能说明 Modify function description	孟可
04	2024-09-23	修改工作电压 Modify operating voltage	孟可

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客服 QQ Customer service QQ: 400 018 9008

客服邮箱 Customer service email: dwinhmi@dwin.com.cn

迪文开发者论坛 DWIN Developer Forum: <http://inforum.dwin.com.cn:20080/forum.php>

感谢大家一直以来对迪文的支持，您的支持是我们进步的动力！

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

重要声明

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