

DMG19108C215_05WTC

产品特点:

- 基于 2K DGUS 核心模块, 运行 DGUS II 人机交互软件平台, 商业级智能屏。
- 21.5 英寸, 1920*1080 分辨率, IPS 液晶显示屏, 2K 高清智能屏。
- 板载蜂鸣器, 带 RTC、扬声器接口。
- 高可靠性电容触摸屏。

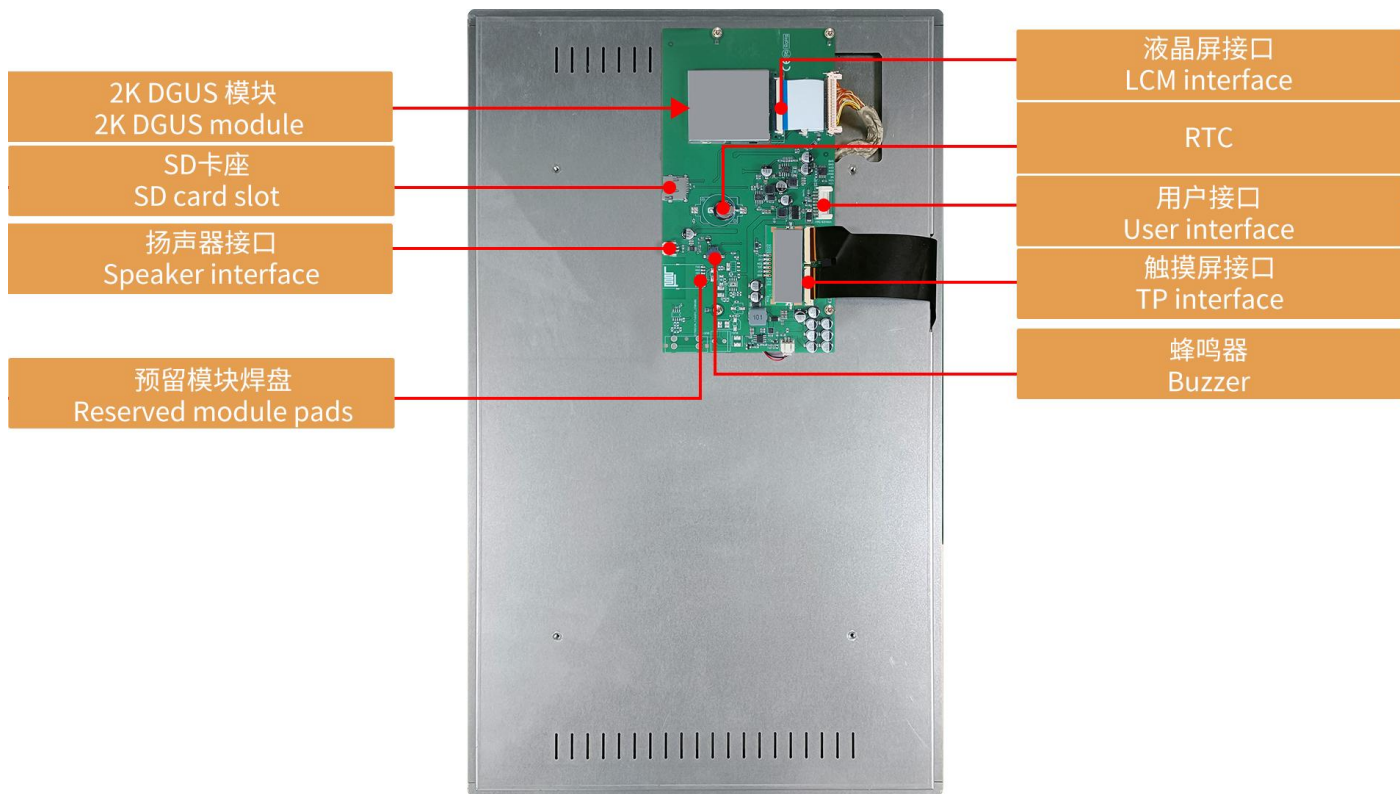
Features:

- Powered by 2K DGUS core module, running DGUS II HMI platform, commercial-grade smart LCM.
- 21.5-inch, 1920*1080 resolution, IPS-TFT LCD, 2K HD smart screen.
- With onboard buzzer, RTC and speaker interface.
- Reliable capacitive touch panel.



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	2K DGUS 模块 2K DGUS module	迪文自主研发，基于 T5L2 ASIC，运行 DGUS II 人机交互软件平台的一款核心模块。 DWIN independently developed, A Core module powered by the T5L2 ASIC, running DGUS II HMI platform.
2	用户接口 User interface	用于供电和串口通讯，8Pin_2.0mm 座子。 8Pin_2.0mm socket for power supply and serial communication.
3	Flash	32Mbytes (2*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。 32Mbytes (2*16Mbytes NOR Flash) for storing UI files like fonts, images, music, with over 100,000 erase/write cycles.
4	扩展 Flash 焊盘 Expand Flash pads	有 2 个扩展位，支持扩展 NOR Flash、NAND Flash。 最大可拓展到 64Mbytes (4*16Mbytes NOR Flash)或 48Mbytes+512Mbytes (3*16Mbytes NOR Flash+1*512Mbytes NAND Flash)。 Two expansion slots support NOR or NAND Flash, up to 64Mbytes (4*16Mbytes NOR Flash) or 48Mbytes+512Mbytes (3*16Mbytes NOR Flash+1*512Mbytes NAND Flash).
5	RTC	法拉电容供电，精度：±20ppm @25℃。掉电后可维持 7 天正常工作。 Super-capacitor powered, accuracy: ±20ppm @25℃, maintains operation for 7 days after power-off.
6	蜂鸣器 Buzzer	3V 无源蜂鸣器。 3V passive buzzer.
7	扬声器接口 Speaker interface	2Pin_2.0mm 接口，外接扬声器。 2Pin_2.0mm interface, external speaker.
8	SD 卡座 SD card slot	用于 DGUS 工程文件下载 (UI 文件、CFG 文件、内核等)，下载速率：4Mb/s。 For DGUS project file downloads (UI, CFG files, kernel, etc.), 4 Mb/s rate.
9	预留模块焊盘 Reserved module pads	支持拓展迪文 Wi-Fi 模组 (Wi-Fi-20 等)、USB 下载模组 (HDL702 等)。 Supports DWIN Wi-Fi modules (e.g., Wi-Fi-20) and USB download modules (e.g., HDL702).

2、规格参数 Specification parameters

2.1 显示参数 Display parameters

显示屏类型 LCD Type	IPS TFT 液晶屏。 IPS, TFT LCD.
视角 Viewing Angle	视角宽（典型值是 85°/85°/85°/85°），对比度高、色彩还原好。 Wide viewing angle (85°/85°/85°/85° typical), high contrast, and good color reproduction.
分辨率 Resolution	1920×1080（支持 0°/90°/180°/270°显示模式） 1920×1080 (0°/90°/180°/270°)
有效显示区域 Active Area (AA)	476.06mm (W)×267.88mm (H)
可视区域 Viewing Area (VA)	477.24mm (W)×268.71mm (H)
背光模式 Backlight Mode	LED
背光寿命 Backlight Service Life	>20000 小时（以最高亮度连续工作，亮度减半时间） >20000 hours (Time of the brightness decaying to 50% on the condition of continuous working with the maximum brightness)
背光亮度 Brightness	150nit
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。 Capacitive touch panel.
触摸屏结构 Structure	G+FF 结构，表层为钢化玻璃，玻璃硬度≥6H。 G+FF structure with tempered glass surface and hardness ≥ 6H.
透光率 Light Transmittance	>85%

2.3 串口参数 Serial interface parameters

串口模式 Mode	UART2: ON=TTL/CMOS; OFF=RS232				
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	4.78	5.0	-	V
	Output 0, Iout = 4mA	-	-	0.4	V
	Input 1	2.5	5.0	-	V
	Input 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				
接口端子 Interface Cable	8Pin_2.0mm				

2.4 电气规格 Electrical specifications

额定功率 Rated Power	20.4W	
工作电压 Operating Voltage	15~36V, 典型值 24V。 15~36V, typical value of 24V.	
工作电流 Operating Current	850mA	VCC=24V, 背光亮度最大。 VCC=24V, max backlight.
	270mA	VCC=24V, 背光关闭。 VCC=24V, backlight off.
推荐工作电源: 24V 1A 的直流稳压电源。 Recommended power supply: 24V 1A DC.		

2.5 工作环境 Operating environment

工作温度 Operating Temperature	0℃~50℃ (24V @ 60% RH)
存储温度 Storage Temperature	-20℃~60℃
三防漆工艺 Conformal coating	无 N
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.

测试过程：将产品放置在测试台面的测试工装上（测试工装高度约 15cm），针对智能屏进行接触放电和空气放电测试，实验过程观察屏幕有无死机、黑屏、白屏、花屏、重启等异常现象。

Test process: Place the product on the test bench fixture (approximately 15cm in height), and perform contact and air discharge tests on the smart LCM. Observe if any freezing, black or white screen, flickering, or rebooting occurs during the test.

测试结论：产品 ESD 性能达到 GB/T 17626.2 B 级。

Test conclusion: The product's ESD performance meets GB/T 17626.2 Class B standards.

■ 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		
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

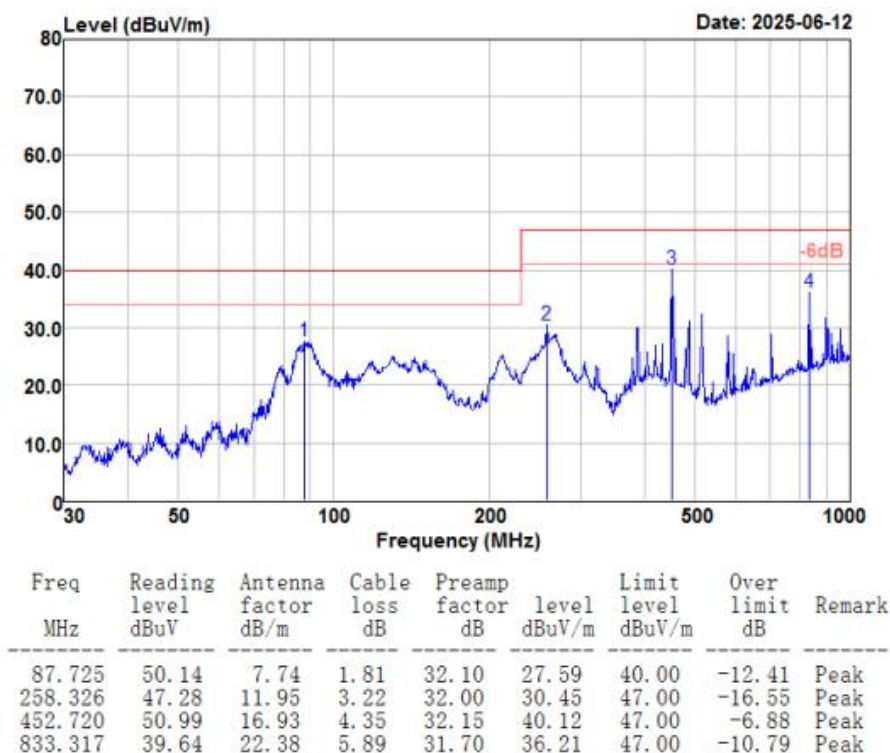
Table 2: Electrostatic Discharge Immunity (Direct Contact)

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

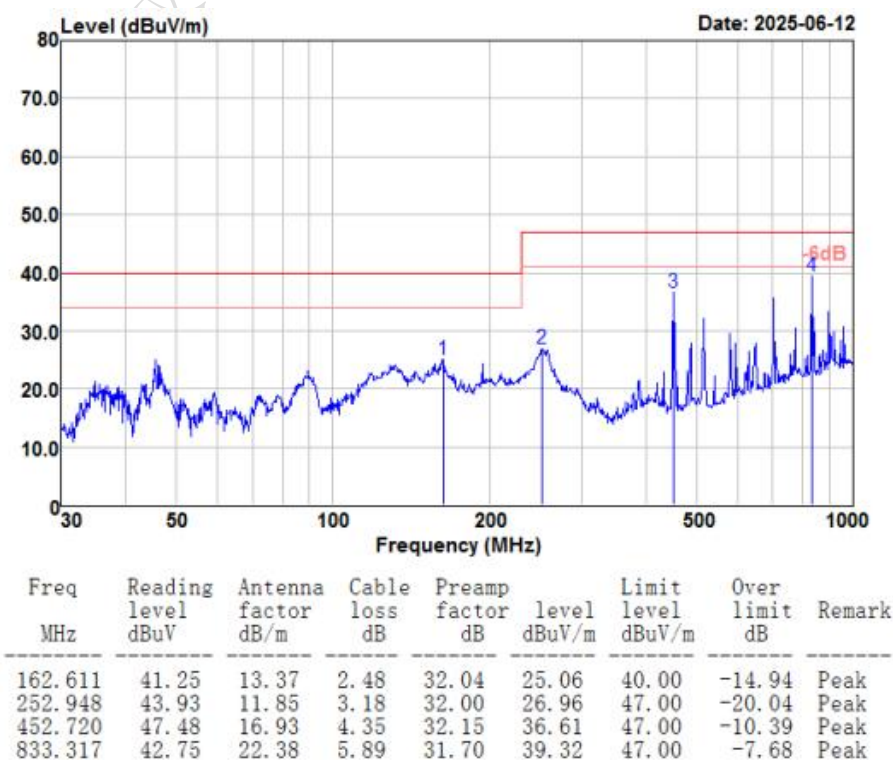
3.2 辐射干扰测试 RE test

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



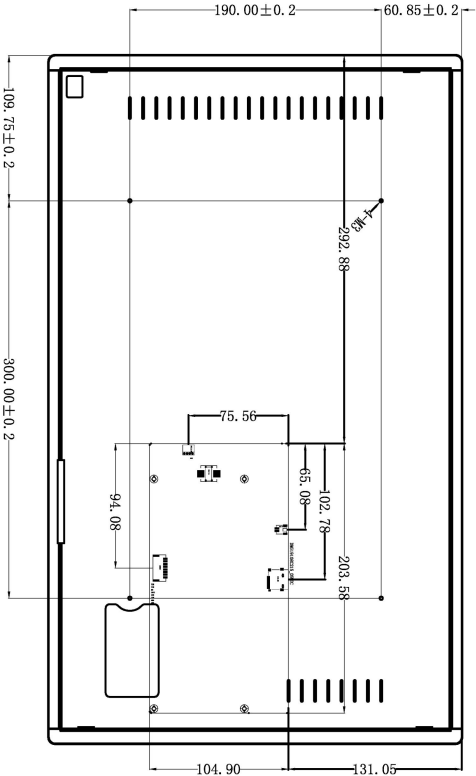
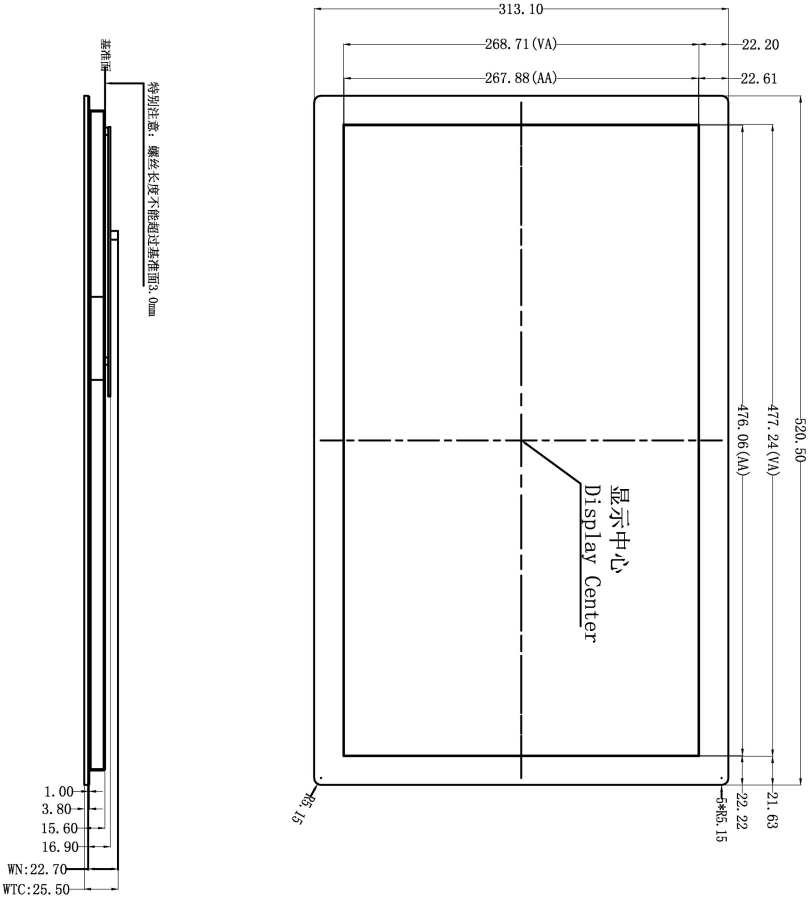
4、包装和物理尺寸 Packaging & dimensions

外形尺寸 Form Factor	520.5mm (W)×313.1mm (H)×25.5mm (T)			
净重量 Net Weight	4300g			
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)
纸箱 Carton:	655mm(L)×445mm(W)×425mm(H)	1	4	4

定义 Definition	序号 Pin#	类型 Type	说明 Description
VIN	1, 2	P	电源输入 Power Input
NC	3	-	未定义 Undefined
DOU ^T	4	0	串口输出 Output
DIN	5	1	串口输入 Input
DIN	6	1	串口输入 Input
GND	7, 8	P	公共接地 GND

型号				DMG19108C215_05WTC				迪文科技 DWIN Technologies			
图纸				A 4	图纸		G, Y	日期			
比例				1:1	审核			日期			
单位				MM	批准			日期			

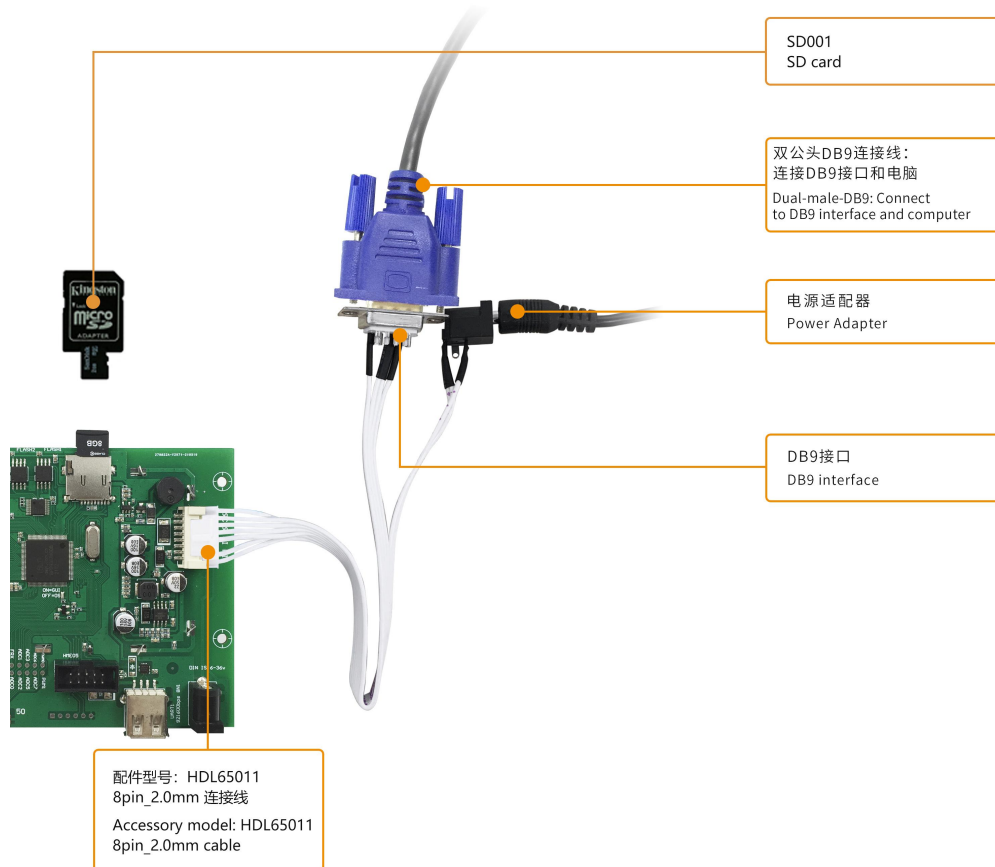
1. 尺寸定位基准为定位孔
Location hole is used as position reference.
2. 未标注公差为 $\pm 0.3\text{mm}$
Unmarked Tolerance is $\pm 0.3\text{mm}$
注：虚线标注为有效显示区域
Active area is marked in Dash lines



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	2022-08-18	首次发布 First Edition	郑运佳
01	2022-11-11	修改尺寸说明 Modify dimension description	郑运佳
02	2023-02-07	功能优化，更新实物图，CAD 图纸 Function optimization, updating physical drawings and CAD drawings	郑运佳
03	2025-04-02	PCB 优化更新 CAD 及实物图 PCB optimization updates CAD and physical drawings	郑运佳
04	2025-07-24	更新产品实物图、高度数据和 EMC 报告 Updated product image, height and EMC test results	郑运佳

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企业微信 WeCom:

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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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