DMG80480C070_03WTC

产品特点：

- **基于 T5L1 芯片，运行 DGUS II 系统，商业级产品。**
- **7.0 英寸，800*480 分辨率，16.7M 色，TN 屏，普通视角。**
- **电容触摸屏。**

Features:

- **Based on T5L1, running DGUS II system, commercial grade.**
- **7.0-inch, 800*480 pixels resolution, 16.7M colors, TN-TFT-LCD, normal viewing angle.**
- **Capacitive touch screen.**

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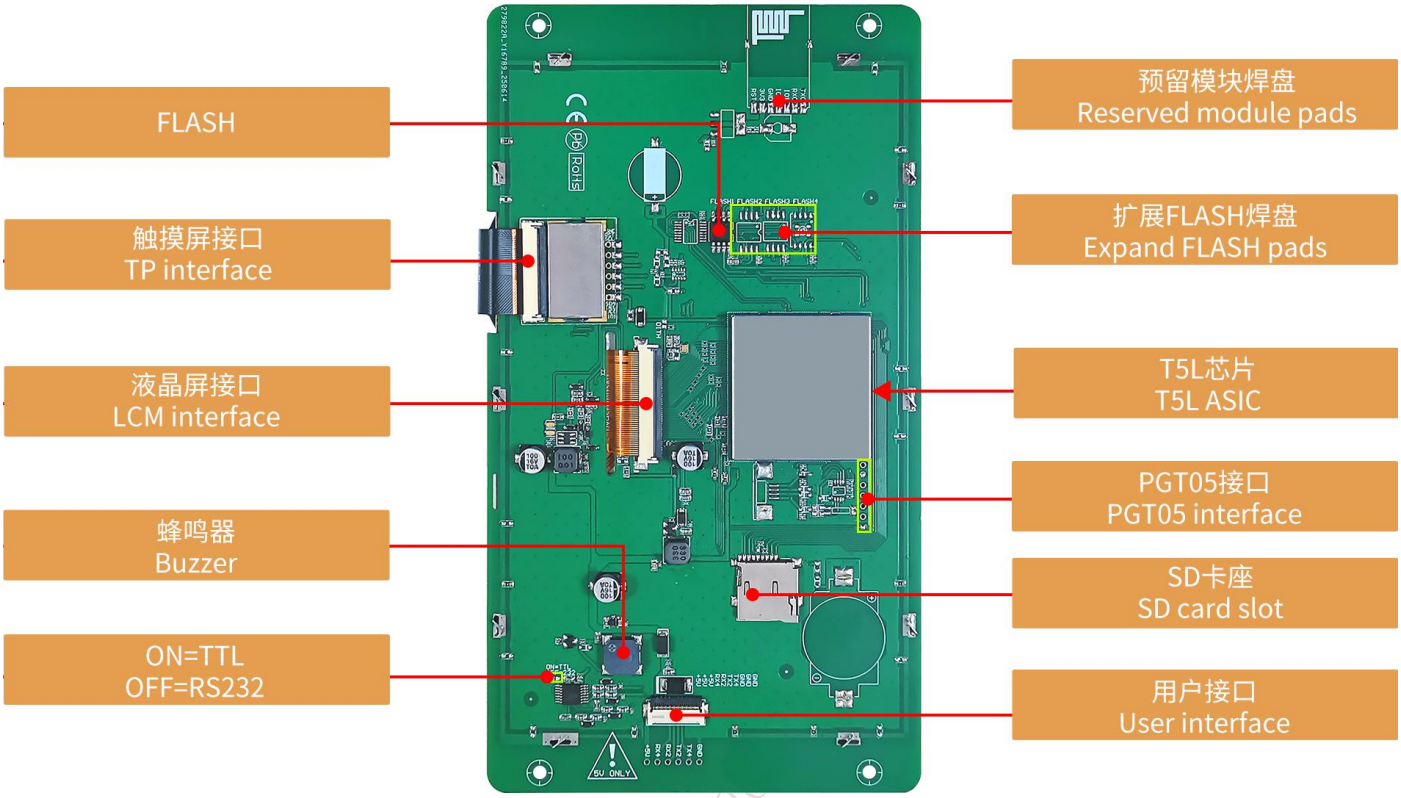
1、硬件及接口 Hardware and interface

1.1 硬件接口图 Hardware interface



硬件接口图
Hardware interface

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1.2 硬件及接口说明 Hardware and interface description

序号 No.	名称 Name	说明 Description
1	T5L1 芯片 T5L1 ASIC	T5L1 芯片迪文自主研发，2019 年量产，1MBytes 片内 Nor Flash，其中 512KBytes 用于存储用户数据库，擦写次数>100,000 次 T5L1 ASIC Developed by DWIN. Mass production in 2019,1MBytes Nor Flash on the chip, 512KBytes used to store the user database. Rewrite cycle: over 100,000 times
2	液晶屏接口 LCM interface	FPC50_0.5mm，RGB 接口 FPC50_0.5mm, RGB interface
3	电容触摸屏接口 CTP interface	COB 结构，IIC 接口 COB structure, IIC interface
4	用户接口 User interface	用于供电和串口通讯，10Pin_1.0mm 座子。串口下载速率（典型值）：12KByte/s 10Pin_1.0mm socket for power supply and serial communication. Download rate(typical value): 12KByte/s
5	Flash	16MBytes NOR Flash，存放字库、图片、音乐文件，擦写次数>100,000 次 16MBytes NOR Flash, for fonts, pictures and audio files. Rewrite cycle: over 100,000 times
6	扩展 Flash 接口 Expand Flash	可以扩展到 64Mbytes NOR Flash 或 48Mbytes NOR Flash+512Mbytes NAND Flash。Flash 扩展时需焊接译码器、电容等元器件。相关定制可咨询对应业务员。 Expandable to 64Mbytes NOR Flash or 48Mbytes NOR Flash+512Mbytes NAND Flash.When expanding Flash, components such as decoders and capacitors need to be soldered. Please consult the corresponding salesperson for relevant customization.
7	蜂鸣器 Buzzer	3V 无源蜂鸣器，功率：<1W 3V passive buzzer. Power: <1W
8	SD 卡接口 SD interface	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
9	预留模块接口 Reserved module interface	WIFI 模块：焊接 WIFI-10 模块，可连接到云平台实现远程更新 USB 模块：焊接 USB 模块，可通过 U 盘下载文件 Wi-Fi module: connect to the cloud platform to update remotely USB module: download files by USB flash disk
10	PGT05 接口 PGT05 interface	当产品因意外无法正常运行时，可通过 PGT05 更新 DGUS 底层，使产品重新恢复正常 When product crashes by accident, you can use PGT05 to update DGUS kernel and make the product return to normal

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2、规格参数 Specification parameters

2.1 显示参数 Display parameters

显示屏类型 **LCD Type**	TN, TFT LCD
视角 **Viewing Angle**	普通视角，典型值 70°/70°/50°/70°（L/R/U/D） Normal viewing angle, 70°/70°/50°/70°（L/R/U/D）
分辨率 **Resolution**	800×480（支持 0°/90°/180°/270°显示模式） 800×480 pixels (support 0°/90°/180°/270°)
色彩 **Color**	24 位 8R8G8B 24-bit 8R8G8B
AA 区 **Active Area (A.A.)**	154.10mm (W)×85.90mm (H)
VA 区 **View Area (V.A.)**	-
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**	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，不背光调节建议在此范围使用） 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+G 结构，表层为钢化玻璃，玻璃硬度≥6H。 G+G structure with tempered glass surface and hardness ≥ 6H.
透光率 **Light Transmittance**	>85%

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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 = 1mA	3.0	3.3	-	V
	Output 0, Iout = -1mA	-	0	0.3	V
	Input 1, Iin = 1mA	2.4	3.3	5.0	V
	Input 0, Iin = -1mA	0	-	0.5	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	10Pin_1.0mm				

2.4 电气规格 Electrical specifications

额定功率 Rated Power	<5W	
工作电压 Operating Voltage	4.5~5.5V，典型值 5V 4.5~5.5V, typical value of 5V	
工作电流 Operating Current	610mA	VCC = +5V，背光亮度最大 VCC = +5V, Backlight on
	160mA	VCC = +5V，背光关闭 VCC = +5V, Backlight off
推荐工作电源：5V 1A 的直流稳压电源 Recommended power supply: 5V 1A DC		

2.5 工作环境 Operating environment

工作温度 Operating Temperature	-20℃~70℃ (5V @ 60% RH)
存储温度 Storage Temperature	-30℃~80℃
三防漆工艺 Conformal coating	无 None
工作湿度 Operating Humidity	10%~90%RH，典型值 60%RH 10%~90%RH, typical value of 60% RH
防紫外线 Anti-UV	无（不推荐户外使用） N(Not recommended for outdoor use)

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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.

试验过程：将产品平置于测试台上，针对串口屏铁框和显示区域依次进行接触和空气放电；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。性能符合判据 GB/T 17626.2 B 级及以上。

Test process: the product was placed on the test bench to perform contact and air discharge in turn of the serial screen iron frame and display area. During the experimental process, it was observed whether the screen is dead, black, white, splash, or reboot. According to the experiment results, the performance is in line with the criteria GB/T 17626.2 B level and above.

■ 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					B	B		
/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/

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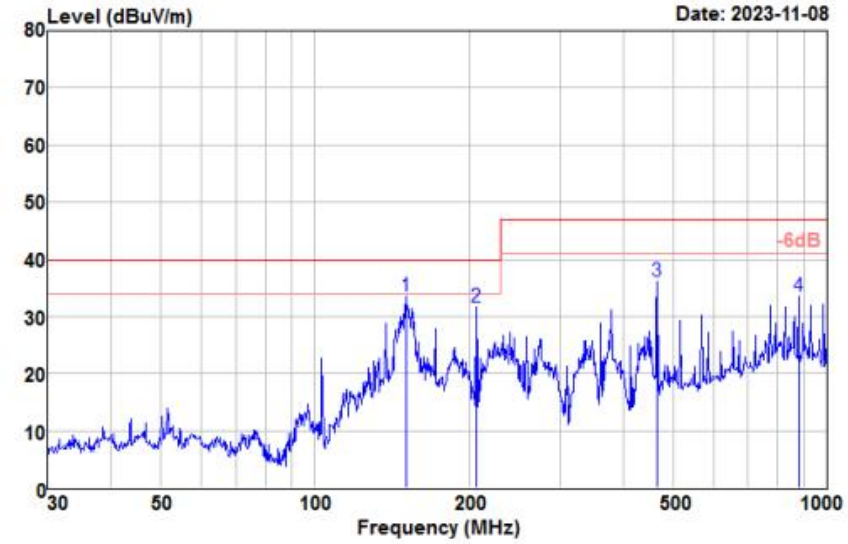
3.2 辐射干扰测试 RE test

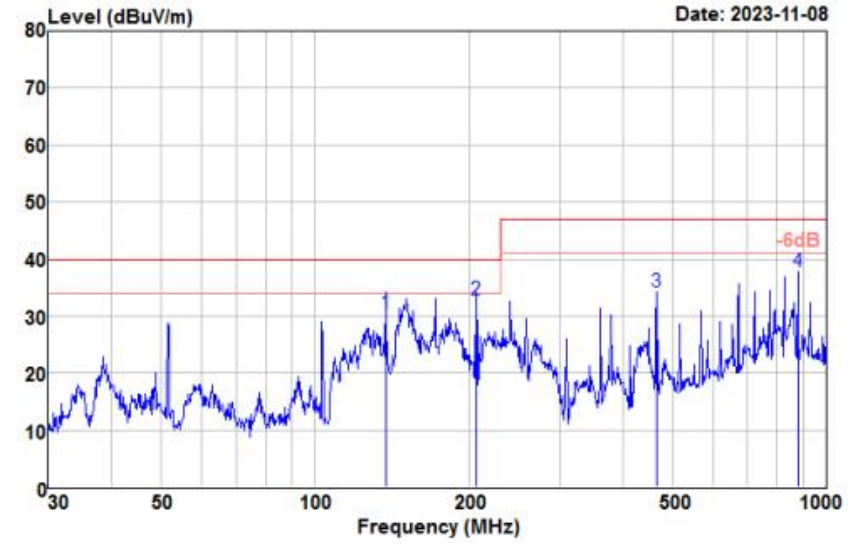
测试项目 Test Item	测试标准 Test Standard	结果 Result
辐射干扰 RE	Class B	正常工作 Normal operation

HORIZONTAL



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
150.538	50.28	13.35	2.35	32.50	33.48	40.00	-6.52	Peak
206.398	51.91	9.47	2.78	32.49	31.67	40.00	-8.33	Peak
465.599	47.25	17.05	4.28	32.44	36.14	47.00	-10.86	Peak
878.322	37.39	22.67	6.15	32.78	33.43	47.00	-13.57	Peak

VERTICAL



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
137.420	48.20	12.63	2.21	32.50	30.54	40.00	-9.46	QP
206.398	53.10	9.47	2.78	32.49	32.86	40.00	-7.14	QP
465.599	45.39	17.05	4.28	32.44	34.28	47.00	-12.72	Peak
878.322	41.63	22.67	6.15	32.78	37.67	47.00	-9.33	Peak

性能标准：

A.在制造商、委托方或购买方规定的限值内性能正常；

B.功能或性能暂时丧失或降低，但在骚扰停止后能自行恢复，不需要操作者干预；

C.功能或性能暂时丧失或降低，但需操作者干预才能恢复；

D.因设备硬件或软件损坏，或数据丢失而造成不能恢复的功能丧失或性能降低。

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.

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4、包装和物理尺寸 Packaging & dimensions

外形尺寸 Form Factor	190.50mm (W)×105.40mm (H)×13.40mm (T)
安装尺寸 Installation Dimensions	开孔尺寸：166.20 (+0.3mm)×101.50(+0.3mm) Positioning hole: 166.20 (+0.3mm)×101.50(+0.3mm)
净重量 Net Weight	319g

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：	220mm(L)×160mm(W)×47mm (H)	1	1	1
2 号箱 Carton2：	250mm(L)×200mm(W)×80mm (H)	2	1	2
3 号箱 Carton3：	320mm(L)×270mm(W)×80mm (H)	2	2	4
4 号箱 Carton4：	435mm(L)×335mm(W)×290mm(H)	不适用 none	不适用 none	不适用 none
5 号箱 Carton5：	600mm(L)×430mm(W)×290mm(H)	1	40	40

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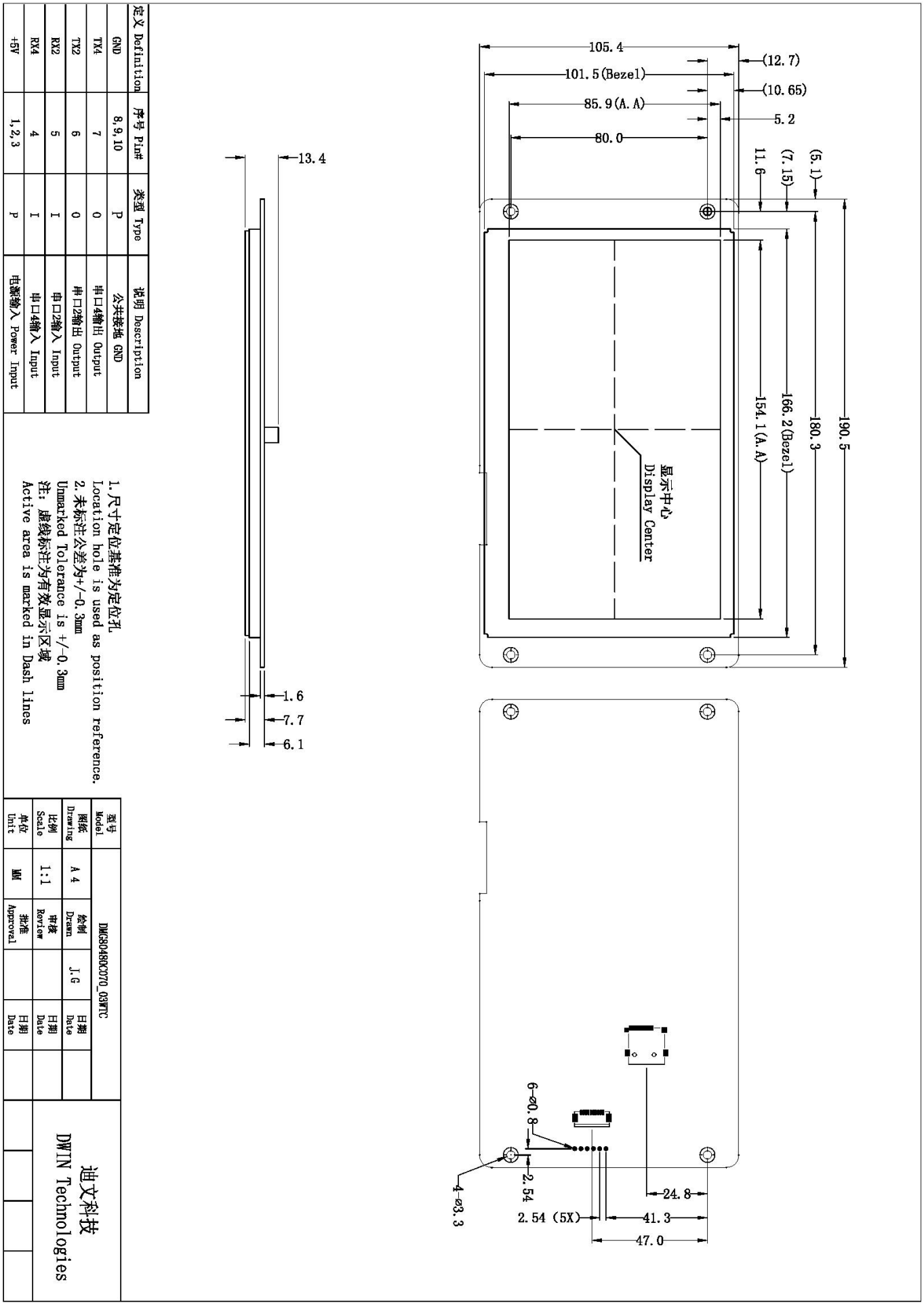


定义 Definition	序号 Pin#	类型 Type	说明 Description
GND	8,9,10	P	公共接地 GND
TX4	7	O	串口4输出 Output
TX2	6	O	串口2输出 Output
RX2	5	I	串口2输入 Input
RX4	4	I	串口4输入 Input
+5V	1,2,3	P	电源输入 Power Input

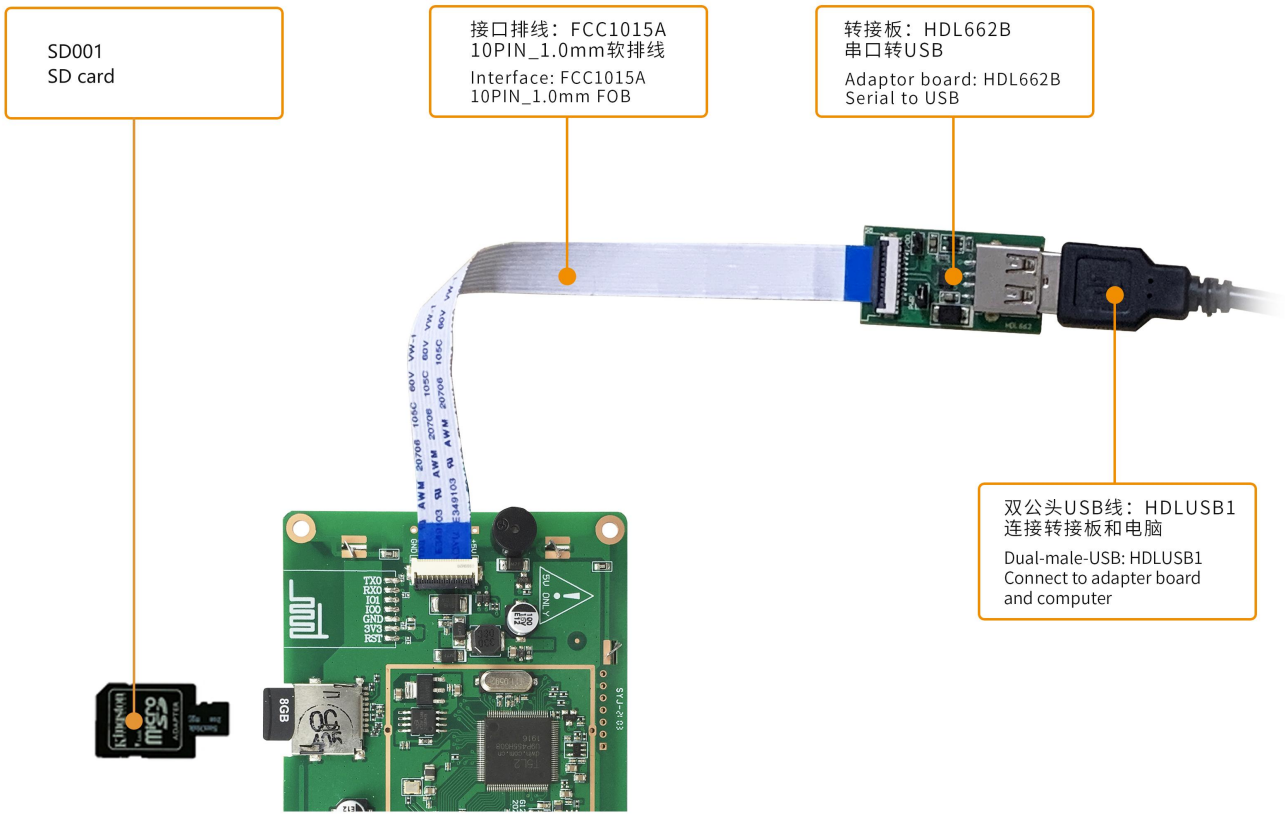
1.尺寸定位基准为定位孔
Location hole is used as position reference.
2.未标注公差为+/-0.3mm
Unmarked Tolerance is +/-0.3mm
注：虚线标注为有效显示区域
Active area is marked in Dash lines

迪文科技 DWIN Technologies		型号 Model	DMG80480C070_03WTC			
		图纸 Drawing	A4	绘制 Drawn	J.G	日期 Date
		比例 Scale	1:1	审核 Review		日期 Date
		单位 Unit	MM	批准 Approval		日期 Date

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.



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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.

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- 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.

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7、修订记录 Revision records

版本 Rev	日期 Revise Date	描述 Content	编辑人 Editor
00	2019-03-28	首次发布 First Edition	质控部
01	2019-08-22	修改串口模式 Modify Interface	质控部
02	2019-11-26	修改串口模式说明 Modify Interface Description	质控部
03	2020-03-07	变更铁框 Change bezel	质控部
04	2021-03-07	更新尺寸图/Update dimension drawing	质控部
05	2021-08-02	更新实物图（增加 FLASH 焊盘和 RTC 线路、COB 结构） Update pictures（Add flash pad and RTC line、COB structure）	郑运佳
06	2021-11-04	升级版本 Upgrade version	郑运佳
07	2022-01-25	更新 CAD 图 Update CAD	郑运佳
08	2022-11-14	修改尺寸说明 Modify dimension description	郑运佳
09	2023-11-22	EMC 硬件升级，库存旧板自然消耗 EMC hardware upgrade, natural consumption of old inventory boards	郑运佳
10	2025-07-04	更新实物图（更换蜂鸣器） Update pictures（Replace buzzer）	广明鑫

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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!

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重要声明

Important Disclaimer

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客户应自行确保在产品应用过程中严格遵循所有相关标准及其他要求，包括但不限于功能安全、信息安全及监管等方面的规定。

对于客户在其产品中采用迪文产品可能引发的任何后果，迪文不承担连带责任。特别地，对于可能导致的重大财产损失、环境危害、人身伤害甚至死亡等风险，尤其是在军事、易燃易爆、生命医疗设备等高风险应用领域，客户应自行评估风险，并采取相应的预防和保护措施，迪文不承担相关责任。

DWIN reserves the right to make any changes to product designs without prior notice.

Customers should ensure strictly adhering to all the relevant standards and requirements during the product application process, including but not limited to functional safety, information security, and regulatory provisions.

DWIN shall not bear any joint and several liability for any consequences that may arise from customers' adoption of DWIN products. In particular, for risks that may lead to significant property losses, environmental hazards, personal injury, or even death, especially in high-risk application areas such as military applications, flammable and explosive places, and life-saving medical equipment, customers should independently assess the risks and take corresponding preventive and protective measures. DWIN shall not bear any relevant responsibility.

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