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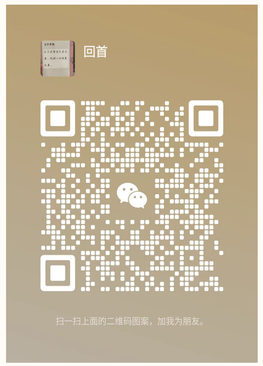
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# 办证

| 认证企业 | 方向 | 周期/方式 | 证书实物图 |
|---|---|---|---|
| 英伟达NVIDIA认证 | 人工智能计算证书 | 一周内全包下证 |  |
| 腾讯云 | 交付工程师 | 一周内全包下证 |  |
| | 云计算技能认证 区块链从业认证 | |  |
| | 腾讯高级工程师-数据库产品认证 | |  |
| 华为云 | 鲲鹏/华为云 技能认证 | 一周内全包下证 |  |
| | 开发者工作级认证 | |  |
| | 大数据技能认证 hicp证书 | |  |
| | openGauss数据库开发者证书 | |  |

| | A | B |
|---|---|---|
| 1 | 项目类别 | 认证专业 |
| 2 | 商务管理类 | 人力资源管理师 |
| 3 | | 风险管理师 |
| 4 | | 项目管理师 |
| 5 | | 物联网管理师 |
| 6 | | 新媒体运营师 |
| 7 | | 大数据分析师 |
| 8 | | 互联网营销师 |
| 9 | | 数字经济管理师 |
| 10 | | 电子商务师 |
| 11 | | 电子政务师 |
| 12 | | 社会工作师 |
| 13 | 医疗防疫公共卫生类 | 消毒员 |
| 14 | | 公共场所卫生管理员 |
| 15 | 美学艺术类 | 化妆品测评师 |
| 16 | | 新媒体主播 |
| 17 | | 美业培训师 |
| 18 | | 美容院管理师 |
| 19 | | 摄影摄像与后期制作 |
| 20 | 经贸管理类 | 酒店经营管理师 |
| 21 | | 理财规划制师 |
| 22 | | 连锁经营管理师 |
| 23 | | 双碳管理师 |
| 24 | | 财务税务管理师 |
| 25 | | 工商企业管理师 |
| 26 | | 公共关系管理师 |
| 27 | | 微商经营管理师 |
| 28 | | 市场营销师 |
| 29 | 计算机与软件 | 劳动关系协调师 |
| 30 | | 计算机信息技术 |
| 31 | | 企业培训师 |
| 32 | | 管理会计师 |
| 33 | | 中式京调师 |
| 34 | | 中式面点师 |

以下说明来源为数据手册内容

## SH1107的1.3寸OLED电气参数

### 3. Optics & Electrical Characteristics

**3.1 Optics Characteristics**

| Characteristics | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Brightness ($V_{PP}$ Supplied Externally) | $L_{br}$ | Note 4 | 120 | 160 | - | cd/m² |
| C.I.E. (White) | (x)<br>(y) | C.I.E. 1931 | 0.25<br>0.27 | 0.29<br>0.31 | 0.33<br>0.35 | |
| Dark Room Contrast | CR | | - | >10000:1 | - | - |
| Viewing Angle | | | - | Free | - | degree |

* Optical measurement taken at $V_{DD}$ = 2.8V, $V_{PP}$ = 9V.
Software configuration follows Section 4.5 Initialization.

**3.2 DC Characteristics**

| Characteristics | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Supply Voltage for Logic | $V_{DD}$ | | 1.65 | 2.8 | 3.5 | V |
| Supply Voltage for Display | $V_{PP}$ | Note 5 | 8.5 | 9.0 | 9.5 | V |
| High Level Input | $V_{IH}$ | $I_{OUT}$ = 100μA, 3.3MHz | 0.8×$V_{DD}$ | - | $V_{DD}$ | V |
| Low Level Input | $V_{IL}$ | $I_{OUT}$ = 100μA, 3.3MHz | 0 | - | 0.2×$V_{DD}$ | V |
| High Level Output | $V_{OH}$ | $I_{OUT}$ = 100μA, 3.3MHz | 0.8×$V_{DD}$ | - | $V_{DD}$ | V |
| Low Level Output | $V_{OL}$ | $I_{OUT}$ = 100μA, 3.3MHz | 0 | - | 0.2×$V_{DD}$ | V |
| Operating Current for $V_{DD}$ | $I_{DD}$ | | - | 55 | 100 | μA |
| Operating Current for $V_{PP}$ | $I_{PP}$ | Note 6 | - | 24 | 29 | mA |
| Sleep Mode Current for $V_{DD}$ | $I_{DD_SLEEP}$ | | - | 0.1 | 5 | μA |
| Sleep Mode Current for $V_{PP}$ | $I_{PP_SLEEP}$ | | - | 0.5 | 5 | μA |

Note 5 & 6: Brightness ($L_{br}$) and Supply Voltage for Display ($V_{PP}$) are subject to the change of the panel characteristics and the customer's request.
Note 6: VDD = 2.8V, VPP = 9.0V, 100% Display Area Turn on.

* Software configuration follows Section 4.5 Initialization.

以下说明来源为数据手册内容

## SH1107的1.3寸OLED引脚说明

| Pin Number | Symbol | I/O | Function |
|---|---|---|---|
| ***Power Supply*** | | | |
| 2 | VPP | P | Power Supply for OEL Panel<br>This is the most positive voltage supply pin of the chip. It must be supplied externally. |
| 4 | VDD | P | Power Supply for Int Log ic<br>This is a voltage supply pin. It must be connected to external source. |
| 12 | VSS | P | Ground of OEL System<br>This is a ground pin. It also acts as a reference for the logic pins, the OEL driving voltages, and the analog circuits. It must be connected to external ground. |
| ***Driver*** | | | |
| 6 | IREF | I | **Current Reference for Brightness Adjustment**<br>This pin is segment current reference pin. A resistor should be connected between this pin and $V_{SS}$. Set the current at 12.5uA maximum. |
| 3 | VCOMH | O | **Voltage Output High Level for COM Signal**<br>This pin is the input pin for the voltage output high level for COM signals. A capacitor should be connected between this pin and $V_{SS}$. |
| ***Interface*** | | | |
| 5 | IM1 | I | Common size reg Protocol Sel ect<br>These pins are MCU interface selection input. See the following table:<br>IM1<br>Exsrie SPI 0<br>NC 1 |
| 8 | RES# | I | **Power Reset for Controller and Driver**<br>This pin is reset signal input. When the pin is low, initialization of the chip is executed. Keep this pin pull high during normal operation. |
| 7 | CS# | I | **Chip Select**<br>This pin is the chip select input. The chip is enabled for MCU communication only when CS# is pulled low. |
| 9 | A0 | I | Data/Command Control<br>This pin is Data/Command control pin. When the pin is pulled high, the input at D7~D0 will be interpreted as display data. When the pin is pulled low, the input at D7~D0 will be interpreted to be command register.<br>When the pin is pulled high and serial interface mode is selected, the data at SI will be interpreted as data. When it is pulled low, the data at SI will be transferred to the command register. In I2C mode, this pin acts as SA0 for slave address selection.<br>For detail relationship to MCU interface signals, please refer to the Timing Characteristics Section. |
| 10,11 | D0,D1 | I/O | Serial Clock Input/Output and Clock<br>When serial mode is selected, D1 will be the serial data input SI and D0 will be the serial clock input SCL.<br>When I2C mode is selected, D1 be the serial data input SDA and D0 is the serial clock input, SCL. |
| ***Reserve*** | | | |
| 1,13 | NC | - | Reserved Pin<br>The N.C. pins between function pins are reserved for compatible and flexible design. |

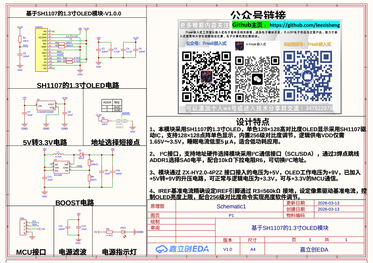
以下说明来源为数据手册内容

## SH1107的1.3寸OLED极限电气特性

### 2. Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Unit | Notes |
|---|---|---|---|---|---|
| Supply Voltage for Logic | $V_{DD}$ | -0.3 | 3.6 | V | 1, 2 |
| Supply Voltage for Display | $V_{PP}$ | 7 | 16.5 | V | 1, 2 |
| Operating Temperature | $T_{OP}$ | -40 | 70 | °C | |
| Storage Temperature | $T_{STG}$ | -40 | 85 | °C | 3 |
| Life Time (150 cd/m²) | | 10,000 | - | hour | 4 |

Note 1: All the above voltages are on the basis of "$V_{SS}$ = 0V".
Note 2: When this module is used beyond the above absolute maximum ratings, permanent breakage of the module may occur. Also, for normal operations, it is desirable to use this module under the conditions according to Section 3 "Optics & Electrical Characteristics". If this module is used beyond these conditions, malfunctioning of the module can occur and the reliability of the module may deteriorate.
Note 3: The defined temperature ranges do not include the polarizer. The maximum withstood temperature of the polarizer should be 80°C.
Note 4: End of lifetime is specified as 50% of initial brightness reached. The reference average operation life time at room temperature is estimated by the accelerated at high temperature conditions.




## 版本记录

V1.0.0版本-2026/03/13-零高幸：初版完成设计

以下说明来源为数据手册内容

## SH1107的1.3寸OLED 简介

**Contents**

***Revision History***

***Contents***

***1. Basic Specifications***
1.1 Display Specifications
1.2 Mechanical Specifications
1.3 Active Area / Memory Mapping & Pixel Construction
1.4 Mechanical Drawing
1.5 Pin Definition

***2. Absolute Maximum Ratings***

***3. Optics & Electrical Characteristics***
3.1 Optics Characteristics
3.2 DC Characteristics
3.3 AC Characteristics
3.3.1 Serial Interface Characteristics (4-wire SPI)
3.3.2 I²C Interface Characteristics

***4. Functional Specification***
4.1 Commands
4.2 Power down and Power up Sequence
4.2.1 Power up Sequence
4.2.2 Power down Sequence
4.3 Reset Circuit
4.4 Actual Application Example
4.4.1 VPP Supplied Externally

***5. Reliability***
5.1 Contents of Reliability Tests
5.2 Failure Check Standard

***6. Outgoing Quality Control Specifications***
6.1 Environment Required
6.2 Sampling Plan
6.3 Criteria & Acceptable Quality Level
6.3.1 Cosmetic Check (Display Off) in Non-Active Area
6.3.2 Cosmetic Check (Display Off) in Active Area
6.3.3 Pattern Check (Display On) in Active Area

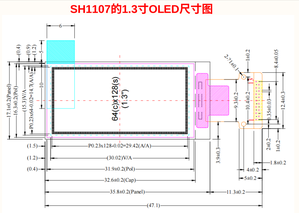
***7. Package Specification***

***8. Precautions When Using These OEL Display Modules***
8.1 Handling Precautions
8.2 Storage Precautions
8.3 Designing Precautions
8.4 Precautions when disposing of the OEL display modules
8.5 Other Precautions

***Warranty***

***Notice***

## SH1107的1.3寸OLED尺寸图




| Pin | Symbol |
|---|---|
| 1 | NC |
| 2 | VPP |
| 3 | VCOMH |
| 4 | VDD |
| 5 | IM0 |
| 6 | IREF |
| 7 | CS |
| 8 | RES |
| 9 | DC |
| 10 | D0 |
| 11 | D1 |
| 12 | VSS |
| 13 | NC |

| | A | B | C |
|---|---|---|---|
| | 序号 | 专业名称 | 级别 |
| 1 | 1 | 广告艺术设计师 | 高级 |
| 2 | 2 | 网络工程师 | 高级 |
| 3 | 3 | 电子商务师 | 高级 |
| 4 | 4 | 室内设计师 | 高级 |
| 5 | 5 | 平面设计师 | 高级 |
| 6 | 6 | ERP财务应用师 | 高级 |
| 7 | 7 | JAVA软件工程师 | 高级 |
| 8 | 8 | 计算机辅助设计师 | 高级 |
| 9 | 9 | 软件技术开发工程师 | 高级 |
| 10 | 10 | 软件开发工程师 | 高级 |
| 11 | 11 | 物联网技术应用工程师 | 高级 |
| 12 | 12 | 数据库管理工程师 | 高级 |
| 13 | 13 | 软件设计师 | 高级 |
| 14 | 14 | 网络安全架构师 | 高级 |
| 15 | 15 | 渗透测试工程师 | 高级 |
| 16 | 16 | 提示工程师 | 高级 |
| 17 | 17 | 大模型开发工程师 | 高级 |
| 18 | 18 | 数字技术应用工程师 | 高级 |
| 19 | 19 | 大数据治理工程师 | 高级 |
| 20 | 20 | 数据安全工程师 | 高级 |
| 21 | 21 | 程序设计工程师 | 高级 |
| 22 | 22 | AIGC应用工程师 | 高级 |
| 23 | 23 | 大模型应用工程师 | 高级 |
| 24 | 24 | 大数据采集工程师 | 高级 |
| 25 | 25 | 商务数模分析师 | 高级 |
| 26 | 26 | 移动安全工程师 | 高级 |
| 27 | 27 | 安全运维工程师 | 高级 |
| 28 | 28 | 软件工程师 | 高级 |
| 29 | 29 | 数据库工程师 | 高级 |
| 30 | 30 | 音响工程 | 高级 |
| 31 | 31 | 舞台灯光 | 高级 |
| 32 | 32 | 通信工程师 | 高级 |
| 33 | 33 | 软件测试工程师 | 高级 |
| 34 | 34 | 新能源应用工程师 | 高级 |
| 35 | 35 | 新材料检测工程师 | 高级 |
| 36 | 36 | 新材料研发工程师 | 高级 |
| 37 | 37 | 新材料技术与应用工程师 | 高级 |
| 38 | 38 | 固体废物资源综合利用技术工程师 | 高级 |
| 39 | 39 | 现场管理工程师 | 高级 |
| 40 | 40 | 网络信息与安全工程师 | 高级 |
| 41 | 41 | 机器学习工程师 | 高级 |
| 42 | 42 | python技术应用工程师 | 高级 |

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| | A | B | C |
|---|---|---|---|
| | 类别 | 编号 | 测评科目 |
| 1 | 计算机与软件 | CPOO1 | Office办公软件 |
| 2 | | CPOO2 | 信息化办公 |
| 3 | | CPOO3 | 计算机硬件维护 |
| 4 | | CPOO4 | 系统管理 |
| 5 | | CPOO8 | 设备管理 |
| 6 | | CPOO9 | 网站管理 |
| 7 | | CPO10 | 物流管理 |
| 8 | | CPO11 | 网络营销 |
| 9 | | CPO12 | 局域网组建 |
| 10 | | CPO13 | 网络工程师 |
| 11 | | CPO15 | 信息安全与管理 |
| 12 | | CPO17 | 电子商务师 |
| 13 | | CPO19 | 跨境电子商务师 |
| 14 | | CPO20 | 数据管理 |
| 15 | | CPO21 | 数据库应用技术 |
| 16 | | CPO22 | C语言编程高阶 |
| 17 | | CPO24 | .NET开发工程师 |
| 18 | | CPO25 | Android软件开发工程师 |
| 19 | | CPO26 | Java软件开发工程师 |
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| 24 | | CPO45 | 平面设计师 |
| 25 | | CPO47 | 网页设计师 |
| 26 | | CPO48 | 二维动画设计师 |
| 27 | | CPO49 | 三维设计师 |

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