Solomon Systech SSD1331 :: OLED Display

th muda engineering

The Solomon Systech SSD1331 is a single chip CMOS OLED/PLED driver with 288 segments and 64 common cathode outputs supporting up to 96x64 RGB dot matrix displays. This chip is designed for OLED/PLED panels with common cathode.

The SSD1331 had embedded Graphic Display Data RAM (GDDRAM) with 256-level contrast and 65K color control and has a graphics acceleration command (GAC) with continuous horizontal, vertical and diagonal scrolling. To improve the low-power design of the application, this driver implements the sleep and low-power mode, which can reduce the power consumption from 1.2mA to 10uA (ideally).

The software is architected with long-term maintainability, portability across MCU platforms, and adherence to high software quality standards as core design principles.

✅ Layered architecture with clear HAL abstraction
✅ Conforms to ISO C99 standard
✅ Portable across multiple MCU platforms
✅ Supports both RTOS and bare-metal environments
✅ CMake build system for scalable integration
✅ Seamless integration with GCC toolchain
✅ Statically analyzed for MISRA, CERT, and CWE compliance

Initialization Interface

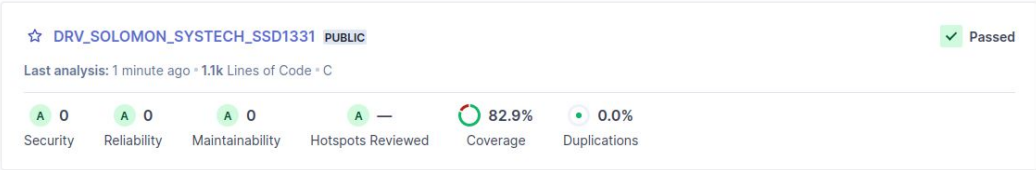
```
ssd1331_result_t ssd1331_init( ssd1331_handle_t*, ... )
```

Configuration Interface

```
ssd1331_result_t ssd1331_set_power_mode( ssd1331_handle_t*, ... )
```

Display Interface

```
ssd1331_result_t ssd1331_draw_pixel( ssd1331_handle_t*, ... )
ssd1331_result_t ssd1331_draw_line( ssd1331_handle_t*, ... )
ssd1331_result_t ssd1331_draw_rectangle( ssd1331_handle_t*, ... )
ssd1331_result_t ssd1331_draw_bitmap( ssd1331_handle_t*, ... )
ssd1331_result_t ssd1331_write( ssd1331_handle_t*, ... )
ssd1331_result_t ssd1331_copy( ssd1331_handle_t*, ... )
ssd1331_result_t ssd1331_clear( ssd1331_handle_t*, ... )
```



Communication Interface:
SPI