

## High brightness LED array driver with diagnostics for automotive applications based on the STAP16DPS05 and STM8A

Data brief



### Description

The STEVAL-ILL059V1 evaluation board is a high brightness LED array driver application with diagnostics based on the automotive grade, low voltage, 16-bit constant current LED sink driver STAP16DPS05 from STMicroelectronics.

The LED driver is configured and controlled through an 8-bit automotive grade STM8A microcontroller via SPI interface.

An automotive grade A5974D DC-DC converter provides the voltages and power for the overall functioning of the board.

This board can be used to demonstrate the LED driver features or used to aid in application development.

Software applications can be written, downloaded and debugged using the on-board SWIM connector.

### Features

- Stand-alone mode:
  - Demonstrates pre-configured patterns (with adjustable brightness/speed) such as rolling text, wave effect, dot sequence, etc.
  - On-board buttons to switch between the demos
  - Potentiometer as a slider to control speed or brightness of the pattern
  - Open circuit, short circuit using open-circuit/short-circuit jumpers
- GUI mode:
  - All the features present in stand-alone mode can be controlled using the GUI
  - Global brightness control to change the brightness of all channels
  - Frame programming mode and 4 predefined presets with variable transition time between frames
  - Open/short error detection and representation on the GUI
  - Error detection in “no loop” and in loop of 0.5 s and 1 s
- RoHS compliant

# 1 Schematic diagrams

Figure 1. Power section

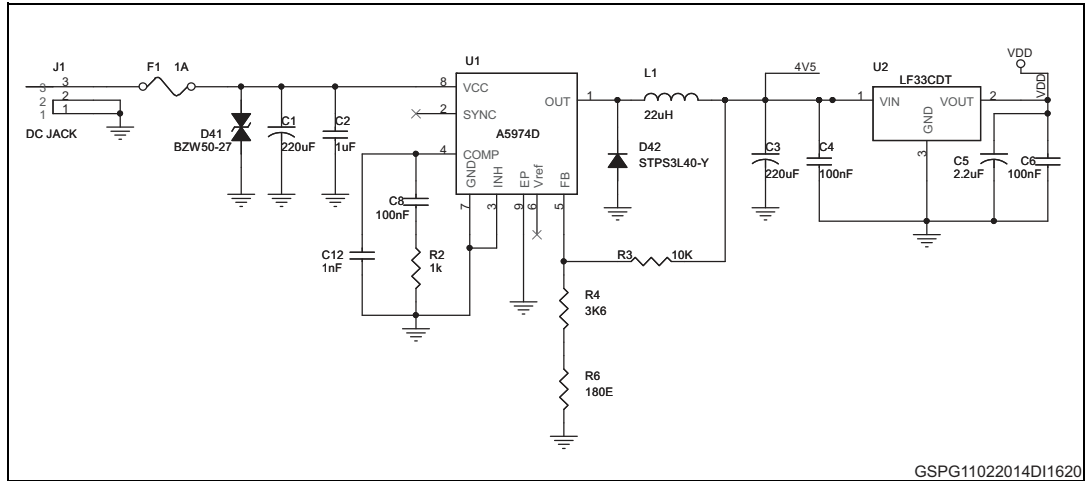


Figure 2. Microcontroller

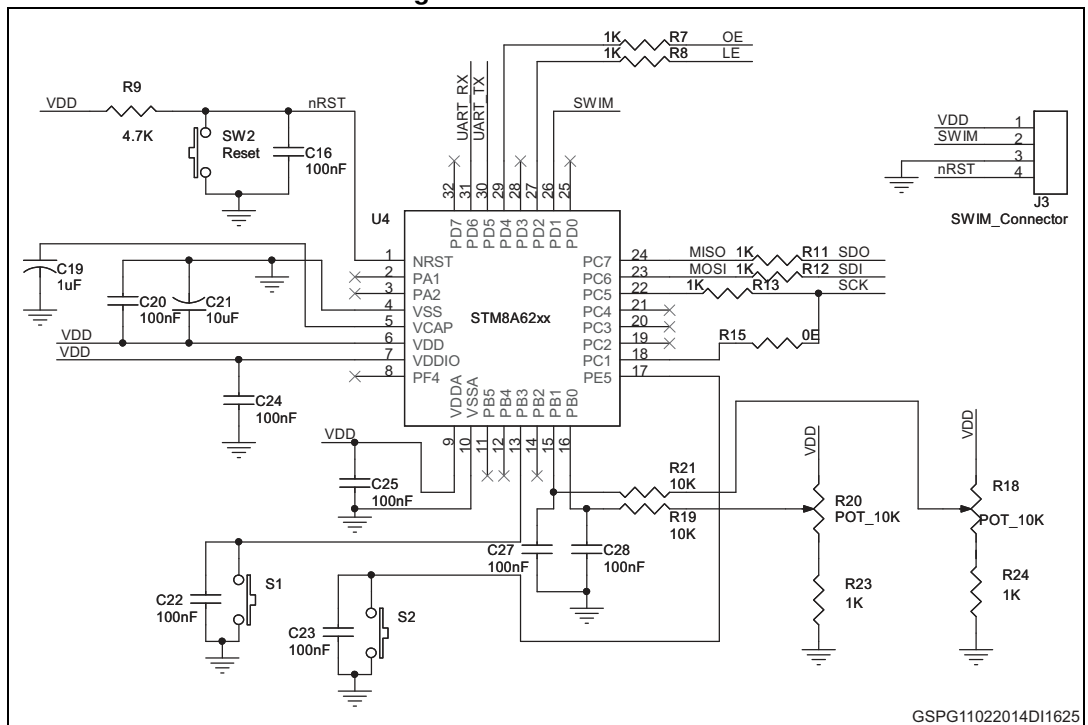
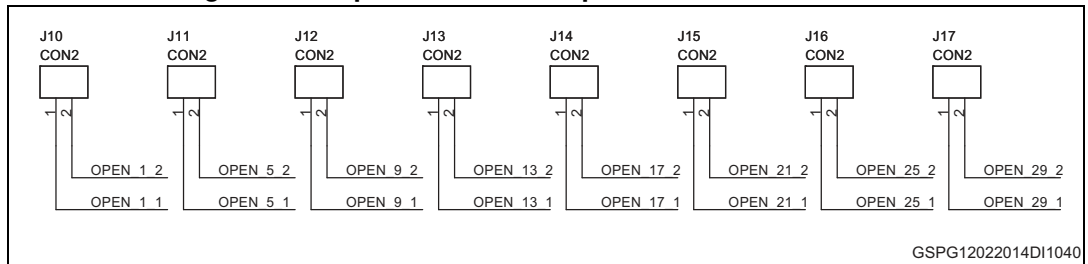
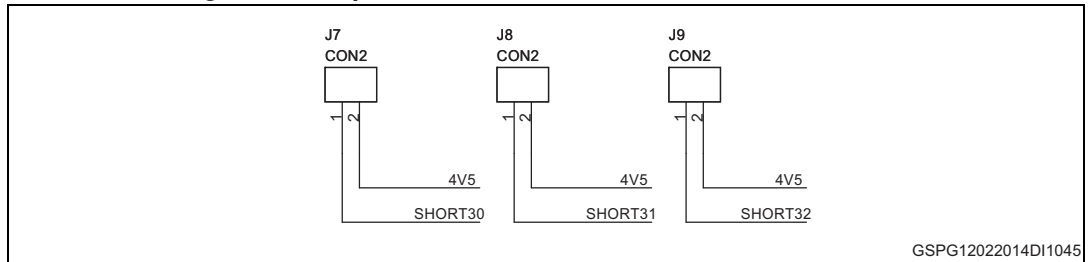


Figure 3. Jumpers to simulate open circuit error detection



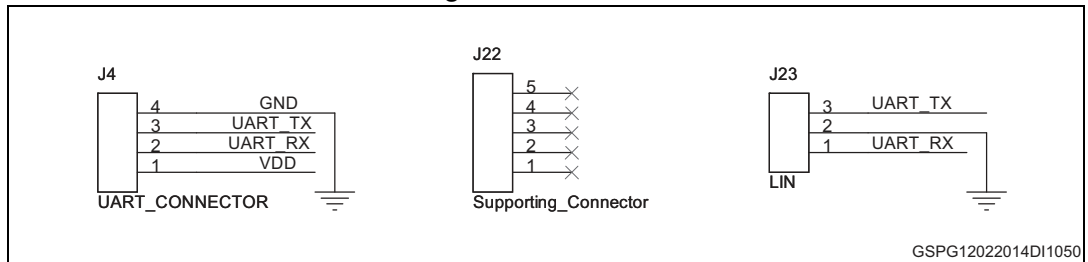
GSPG12022014DI1040

Figure 4. Jumpers to simulate short circuit error detection



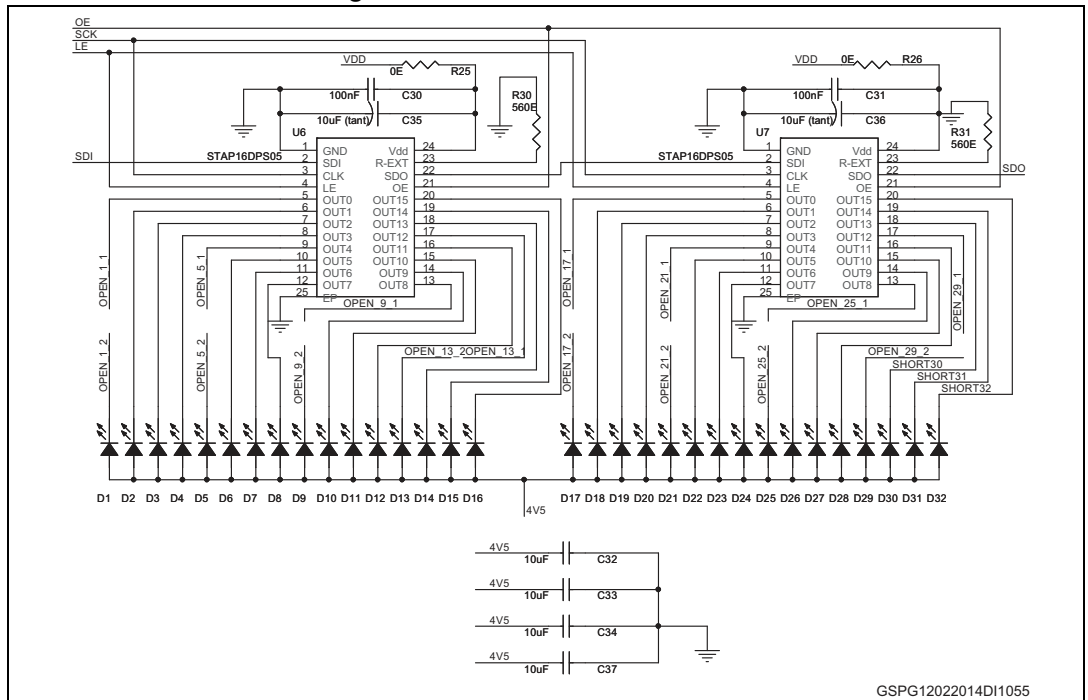
GSPG12022014DI1045

Figure 5. Connector



GSPG12022014DI1050

Figure 6. LED driver STAP16DPS05



GSPG12022014DI1055

Figure 7. USB section

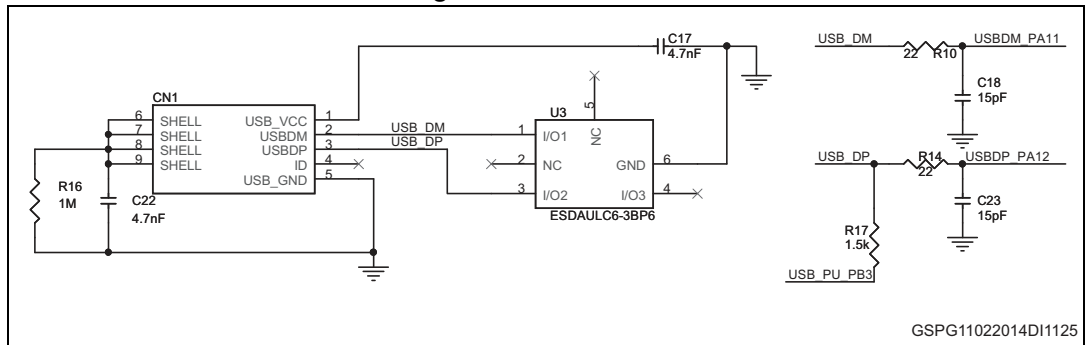


Figure 8. STM32 section

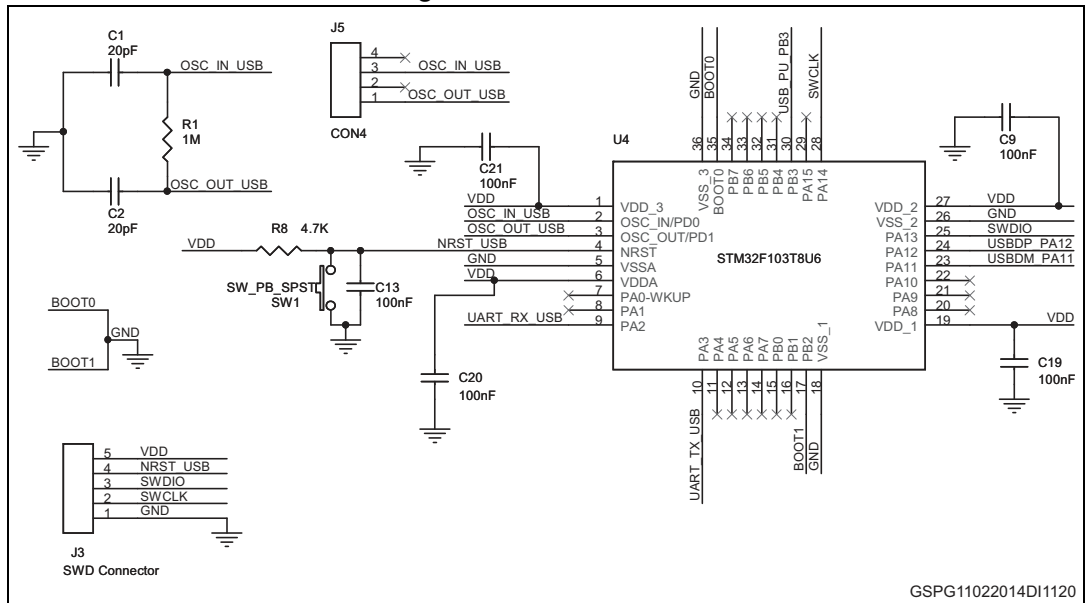
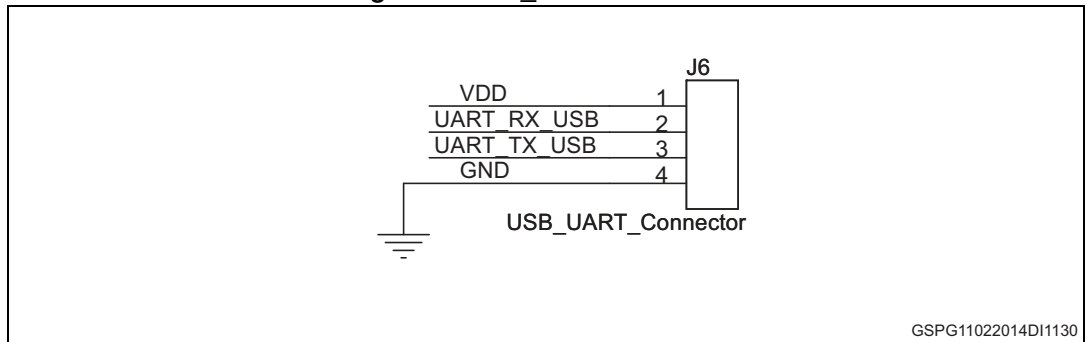


Figure 9. USB\_UART connector



## 2 Revision history

Table 1. Document revision history

Date	Revision	Changes
07-Aug-2014	1	Initial release.

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