RGB LED driver for automotive lighting based on ALED1642GW and STM8A

Data brief

Description

The STEVAL-ILL073V1 is a high brightness, RGB LED array driver system evaluation board with local dimming and diagnostics based on the ALED1642GW independent PWM LED driver controlled through an STM8A microcontroller SPI interface.

A 16 RGB LED matrix is driven by three ALED1642GW LED drivers, one for each channel; i.e., Red, Green and Blue.

The on-board A7986A DC-DC converter, accepting standard adapter input voltages, provides the voltages and power for the overall operation of the board. The STEVAL-ILL073V1 includes a USB-UART daughterboard bridge for communication with a PC.

The evaluation board is also equipped with jumpers to simulate LED open circuit and LED short circuit faults, and a 4-pin SWIM connector to debug and to develop the STM8 microcontroller firmware.

The STEVAL-ILL073V1 has two modes of operation: in standalone mode, the evaluation board is controlled via on-board buttons and a potentiometer; in GUI mode, a Graphical User Interface is provided to represent the drivers. When connected to PC, the evaluation board enters GUI mode and the GUI has control of the board.

Features

- High brightness 4 x 4 RGB LED matrix
- Complete hardware and software package
- Various preconfigured and programmable patterns
- Open / short error simulation and real-time detection
- 6 to 28 V DC polarity-independent power supply
- GUI for advanced driver configuration
- USB-UART bridge for PC connection
- RoHS compliant

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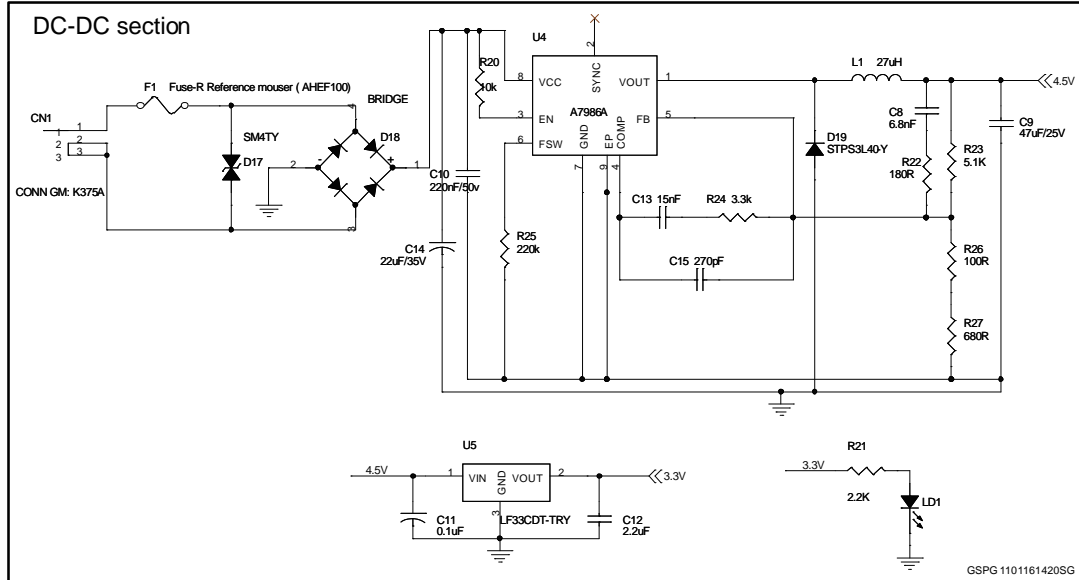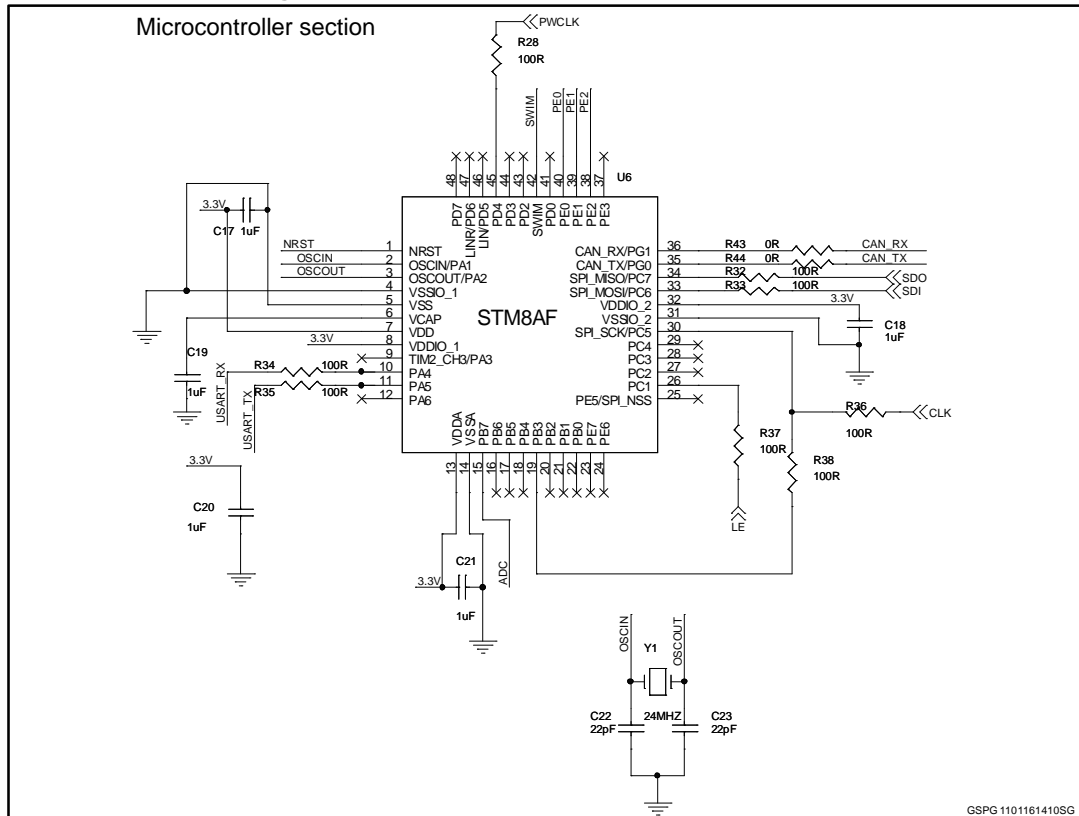
1 Schematic diagram

Figure 1: STEVAL-ILL073V1 circuit schematic (1/9)

Figure 2: STEVAL-ILL073V1 circuit schematic (2/9)

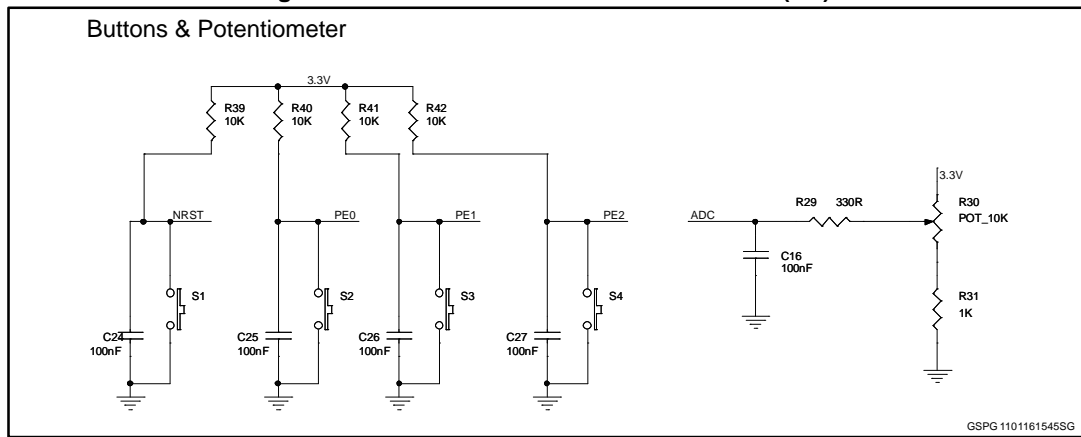**Figure 3: STEVAL-ILL073V1 circuit schematic (3/9)**

Buttons & Potentiometer

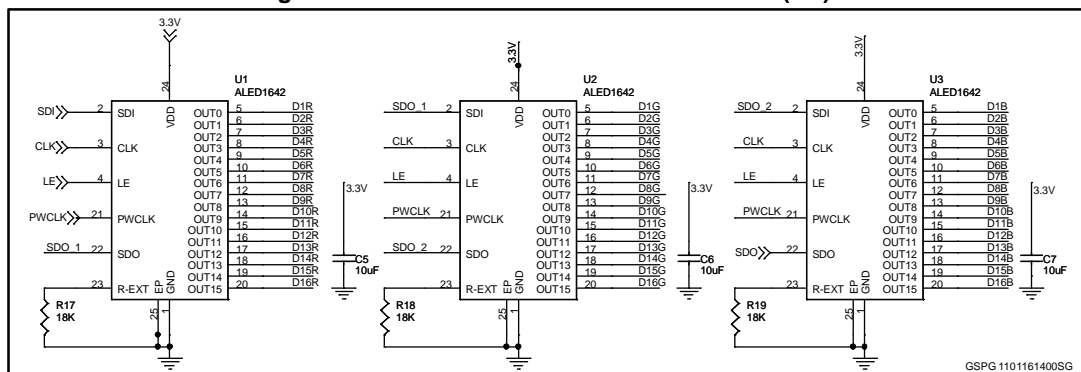**Figure 4: STEVAL-ILL073V1 circuit schematic (4/9)**
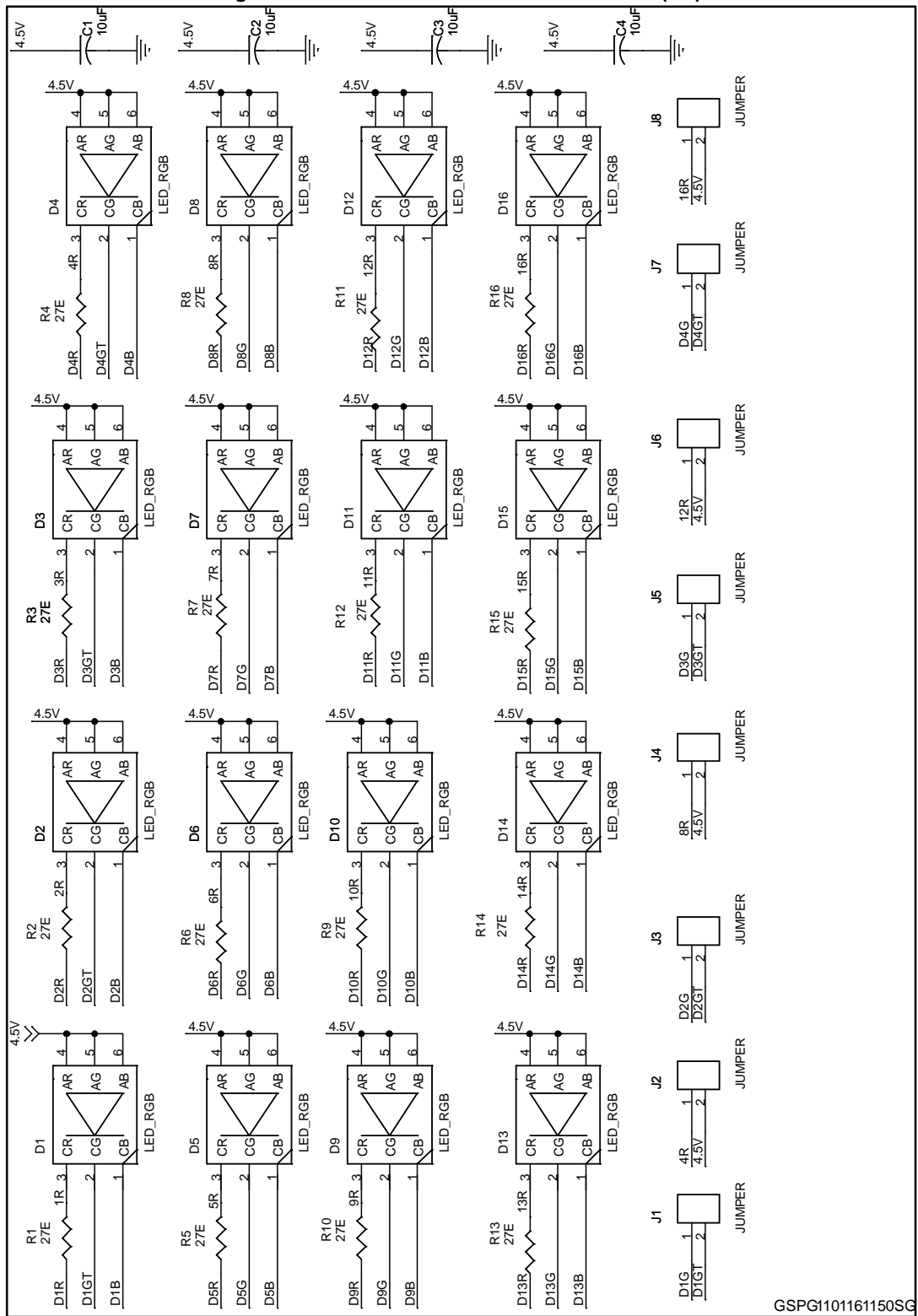
Figure 5: STEVAL-ILL073V1 circuit schematic (5/9)

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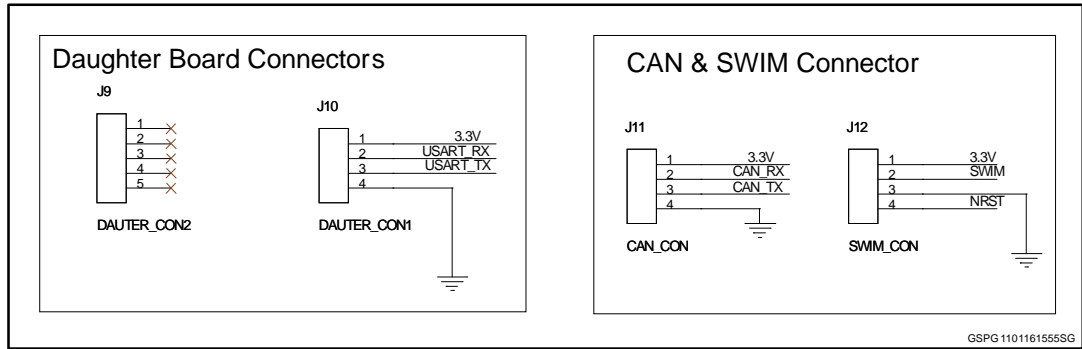**Figure 6: STEVAL-ILL073V1 circuit schematic (6/9)**

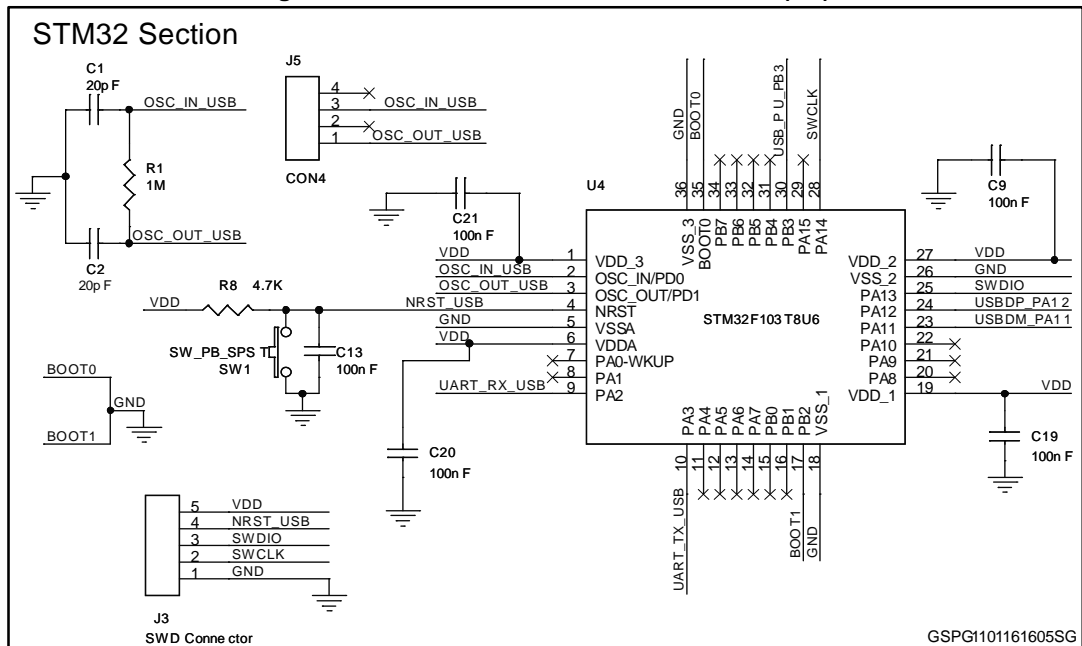**Figure 7: STEVAL-ILL073V1 circuit schematic (7/9)**

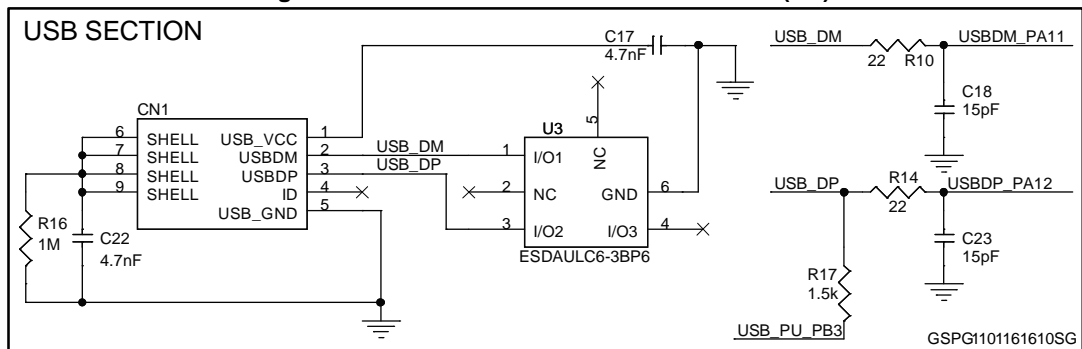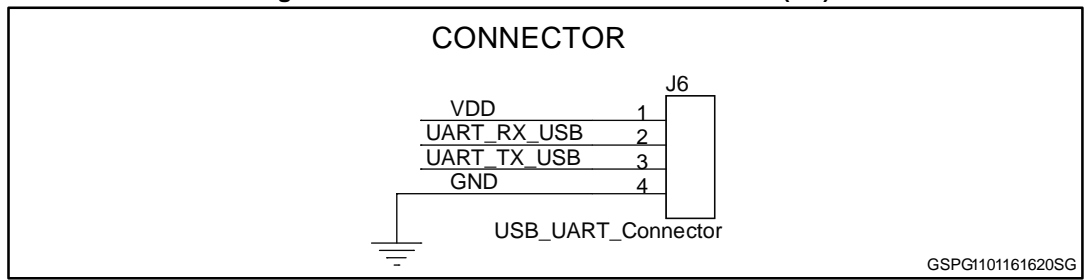**Figure 8: STEVAL-ILL073V1 circuit schematic (8/9)**

Figure 9: STEVAL-ILL073V1 circuit schematic (9/9)

2   Revision history

Table 1: Document revision history

Date	Version	Changes
14-Jan-2016	1	Initial release.

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