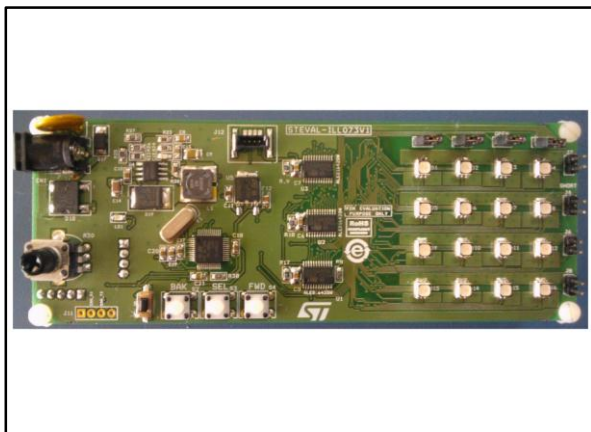## RGB LED driver for automotive lighting based on ALED1642GW and STM8A

Data brief

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

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.

January 2016 DocID028832 Rev 1 1/8

www.st.com

1   Schematic diagram

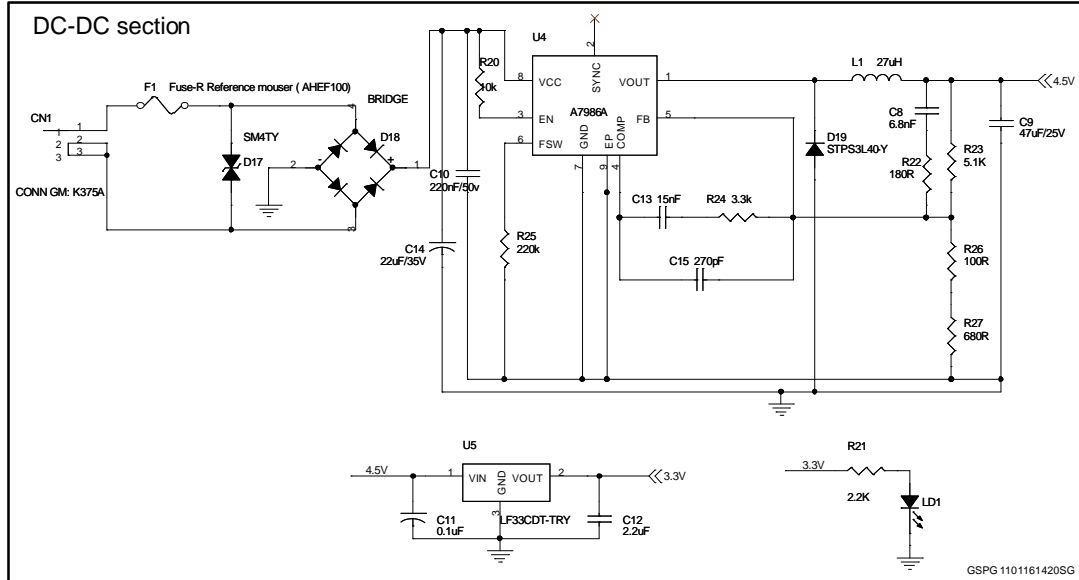**Figure 1: STEVAL-ILL073V1 circuit schematic (1/9)**

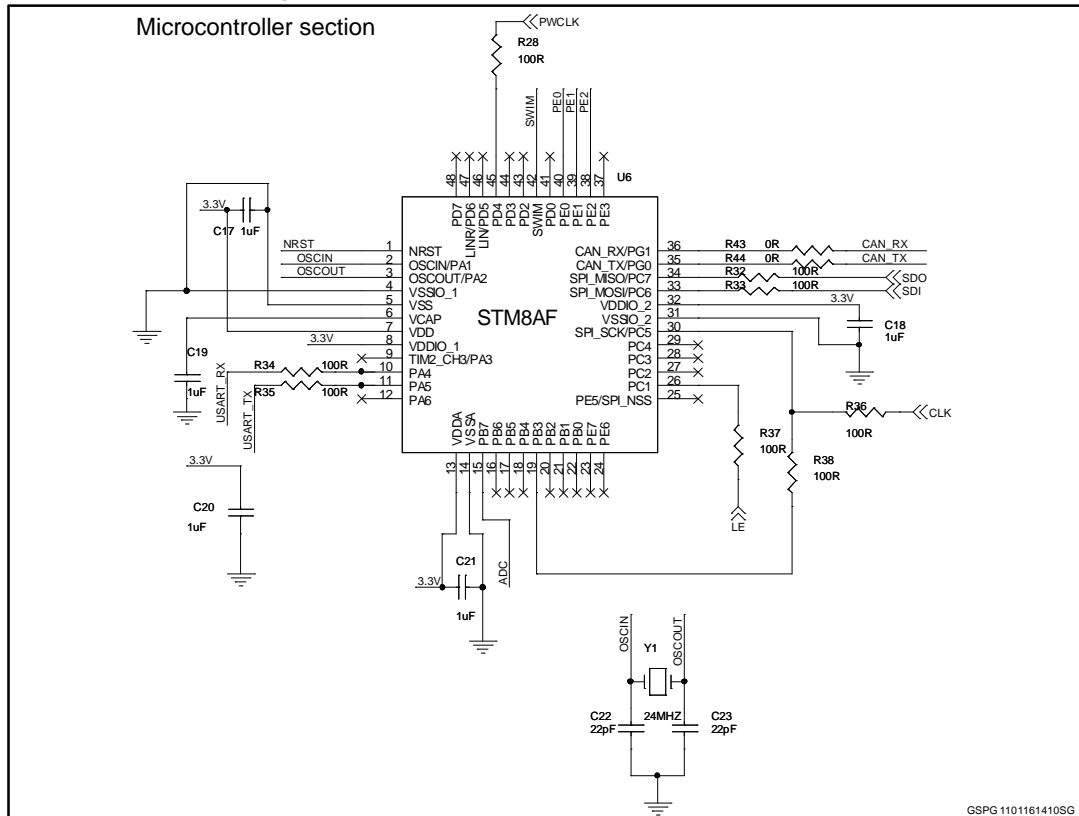**Figure 2: STEVAL-ILL073V1 circuit schematic (2/9)**

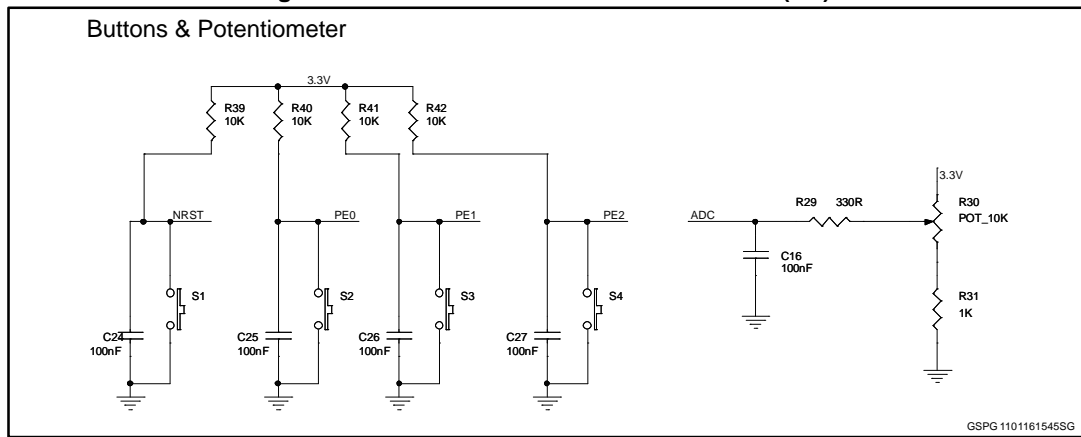**Figure 3: STEVAL-ILL073V1 circuit schematic (3/9)**

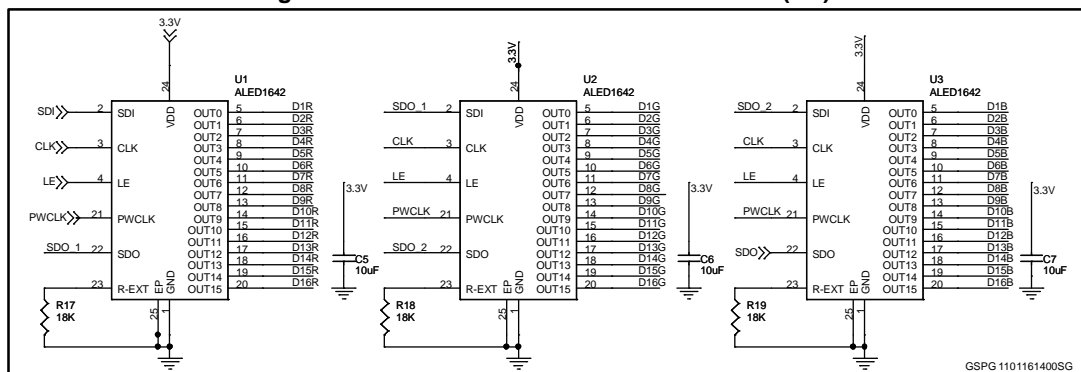**Figure 4: STEVAL-ILL073V1 circuit schematic (4/9)**

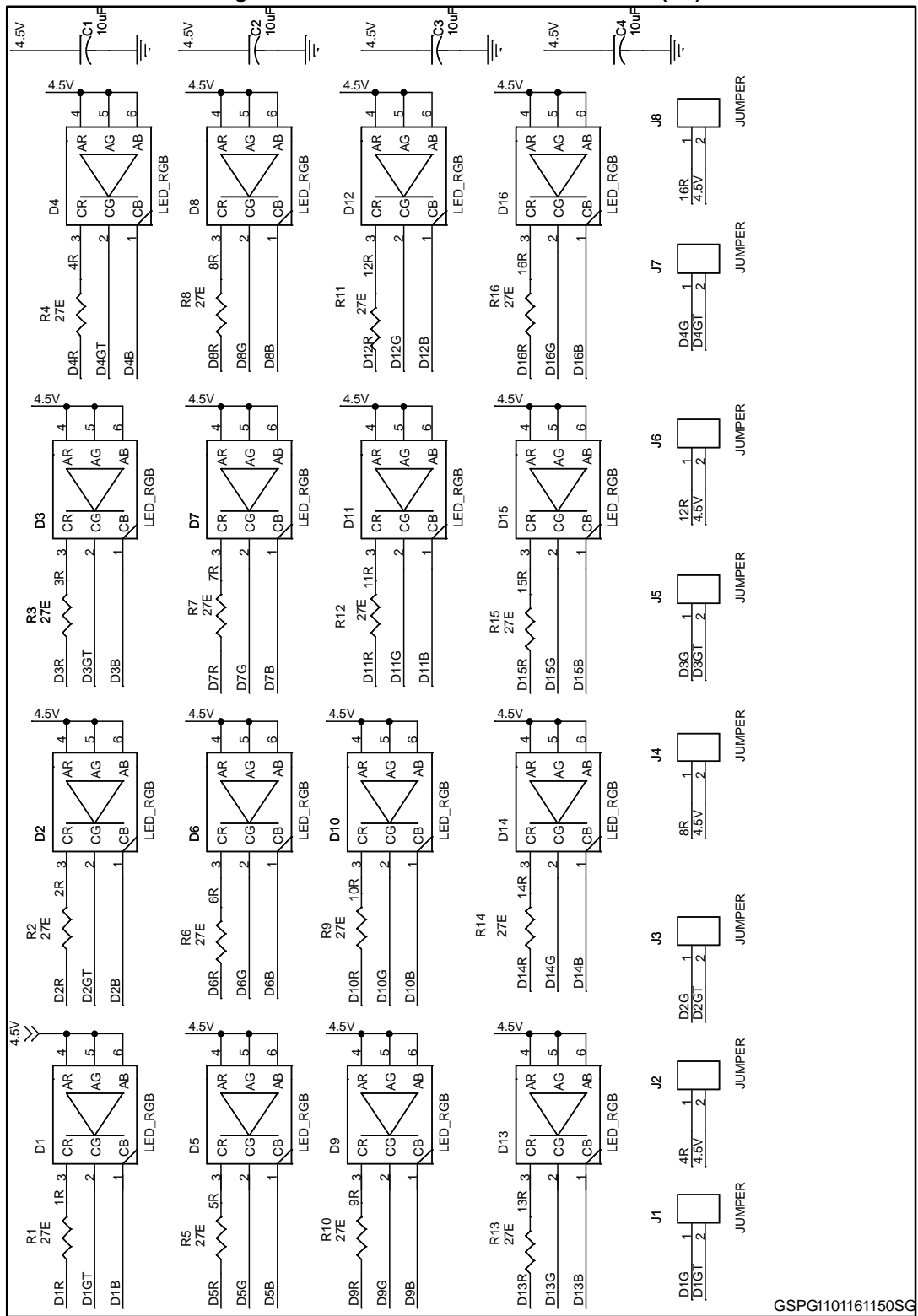**Figure 5: STEVAL-ILL073V1 circuit schematic (5/9)**

GSPG1101161150SG

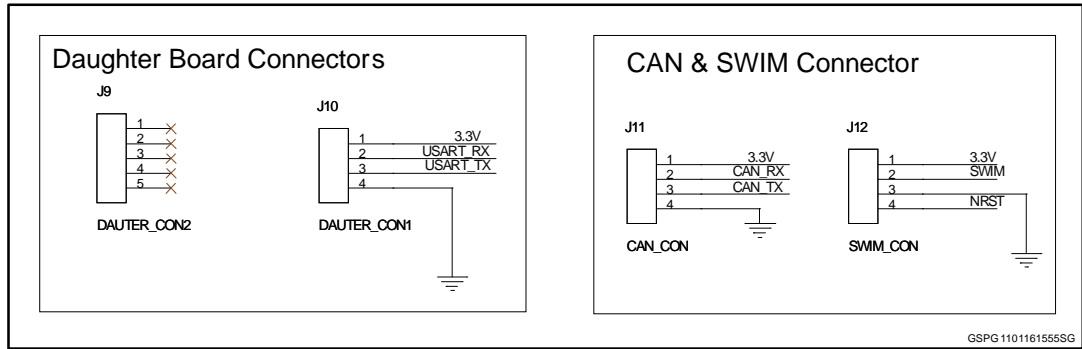**Figure 6: STEVAL-ILL073V1 circuit schematic (6/9)**

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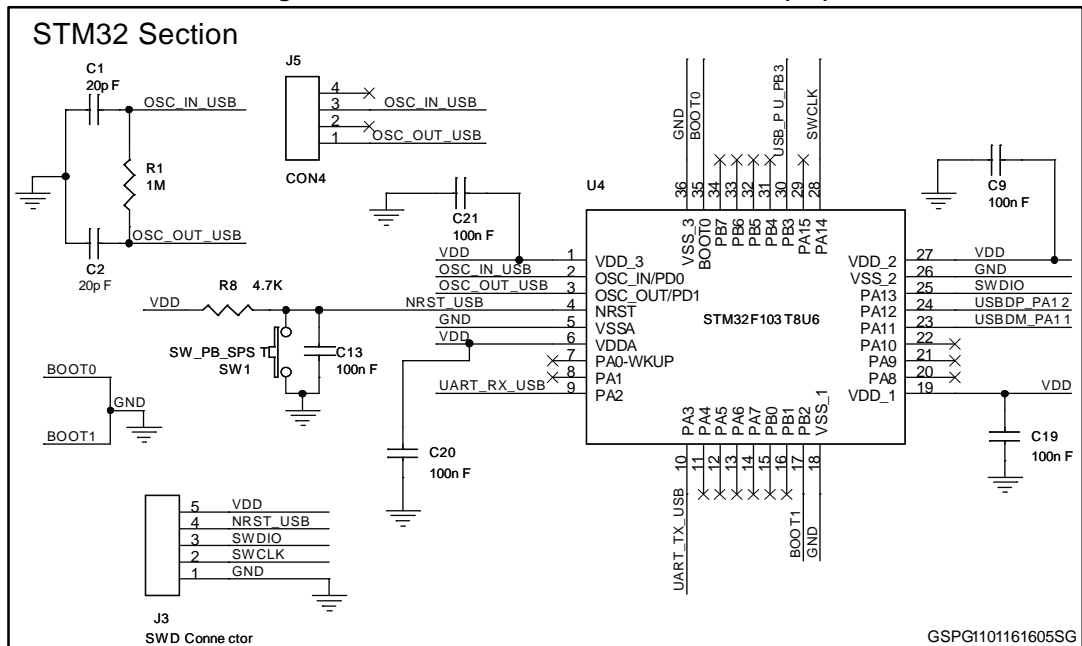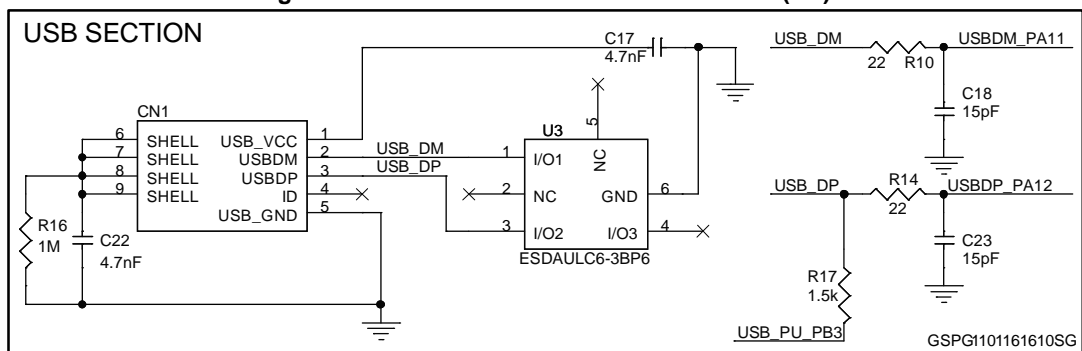

Figure 8: STEVAL-ILL073V1 circuit schematic (8/9)

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

CONNECTOR

J6

VDD   1
UART_RX_USB   2
UART_TX_USB   3
GND   4

USB_UART_Connector

GSPG1101161620SG

2   Revision history

Table 1: Document revision history

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