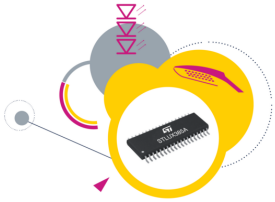
STEVAL-ILL066V2

100 W LED street lighting evaluation board using the STLUX385A digital controller



Features

- based on STLUX385A digital controller
- high efficiency (92%)
- primary side controlled
- up to 100 W (100 V at 1 A or 200 V at 0.5 A)
- single isolated output suitable for LED connection
- wide input voltage range: 90 V to 265 V AC
- adjustable LED current and dimming
- output resolution: 11-bit equivalent
- IDLE mode power consumption: < 250 mW
- real-time fault detection and protection (short-circuit or open circuit)
- remote control via:
  - DALI ed.2.0
  - 0 - 10 V
  - UART
- RoHS compliant

Product summary	
STEVAL-ILL066V2 evaluation board	STEVAL-ILL066V2
STLUX385A digital controller for lighting and power conversion applications	STLUX385A
STSW-ILL066V2 firmware	STSW-ILL066V2

Description

The STEVAL-ILL066V2 evaluation board is a complete and configurable solution that efficiently controls a single, dimmable, high-brightness LED string using the STLUX385A digital controller.

The LED efficiency is high during all stages of dimming: the STEVAL-ILL066V2 can achieve a 92% efficiency at full load while maintaining a low < 250 mW power consumption in idle periods and less than 500mW during failure (open or short).

The STLUX385A device handles a primary side regulated power conversion stage as well as all the supported communication links.

The power conversion stage consists of a PFC regulator followed by a “Zero Voltage Switching” (ZVS) LC resonant stage. The high precision dimming is adjusted using a primary side regulation (PSR) control technique.

The LED brightness can be dimmed by controlling the LED current down to a very low level.

The STEVAL-ILL066V2 evaluation board provides DALI, insulated 0-10 and UART physical communication interfaces, with all communication managed by the STLUX385A device.
The flexibility of the STLUX385A device and the UART interface allow quick connection of the STEVAL-ILL066V2 to various interfaces such as Wi-Fi, power line modems, NFC, Bluetooth® and Zigbee®.

1 Overview

Figure 1. **STEVAL-ILL066V2 evaluation board**

Table 1. **Connector J8 pinout - AC-DC input**

Name	Type	Function
ACIN	Power	Main AC/DC input
ACIN	Power	Main AC/DC input
EARTH	Power	Protective earth connection

Table 2. **Connector J4 pinout - DC output**

Name	Type	Function
“+”	Power	Positive load connection
“-“	Power	Negative load connection

Table 3. **Connector J3 pinout - DALI interfaces**

Name	Type	Function
DALI	DALI signal	DALI signal for isolated DALI interfaces - without polarization
DALI	DALI signal	DALI signal for isolated DALI interfaces - without polarization

Table 4. **Connector J9 pinout - 0 - 10 V**

Name	Type	Function
“+”	Positive reference	Positive reference for isolated 0 - 10 V interfaces
“-”	Negative reference	Negative reference for isolated 0 - 10 V interfaces

Table 5. Connector J48 pinout - USB - serial interfaces

Name	Type	Function
1	VBUS	Power to USB interfaces area
2	USBDN	Negative USB data signal
3	USBDP	Positive USB data signal
4	ID	Not connected
5	GND	Ground reference to USB interfaces area

Table 6. Connector J1 pinout - SWIM interfaces

Name	Type	Function
1	VCC_SWIM	power reference from board
2	SWIM	SWIM signal to/from STLUX
3	GND_SWIM	Directly connected to primary GND
4	RESn	Connected to STLUX NRST pin

2 Schematic diagrams

Figure 2. **Schematic - STLUX385A - top**

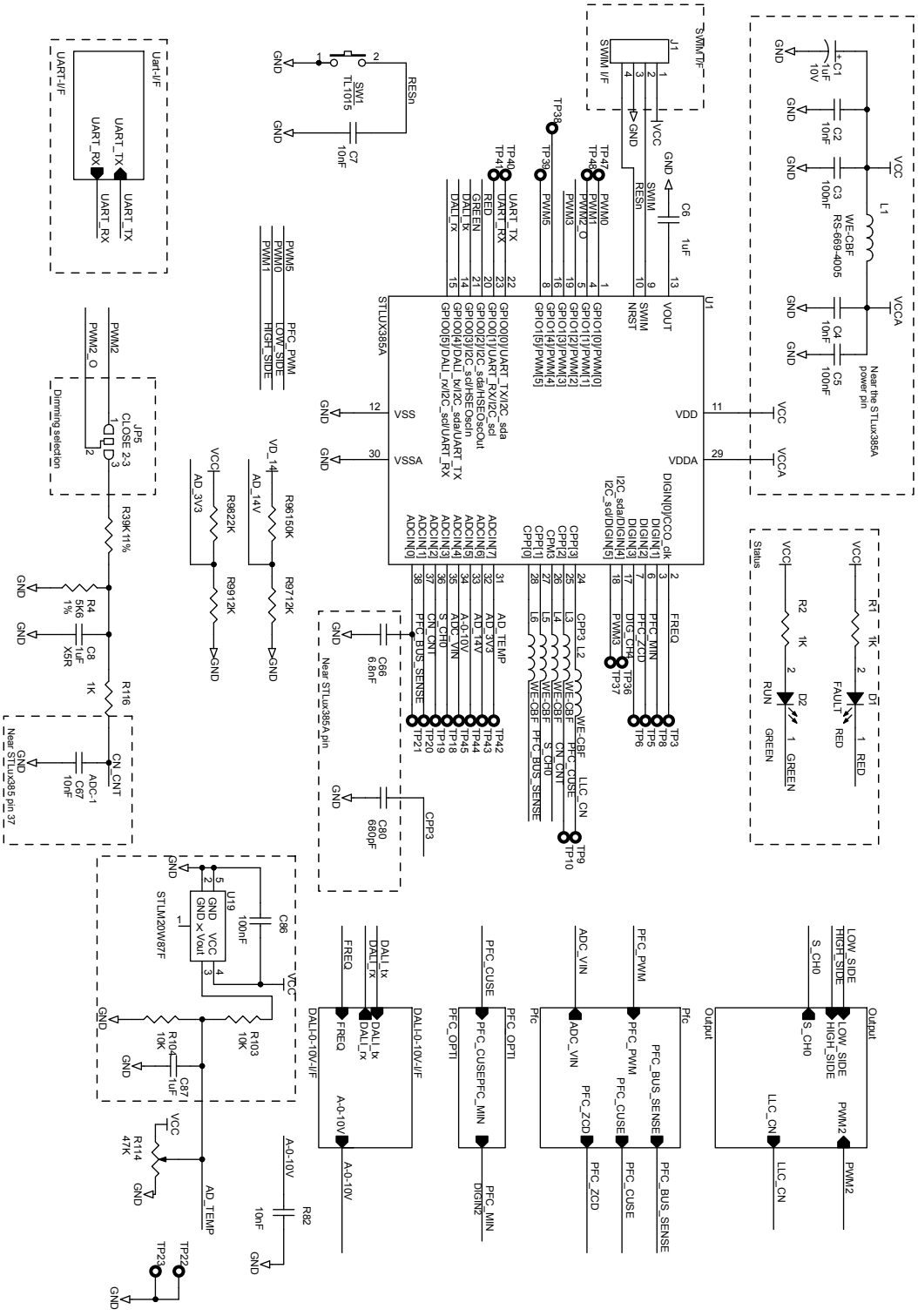


Figure 3. **Schematic - PFC and DC/DC zone**

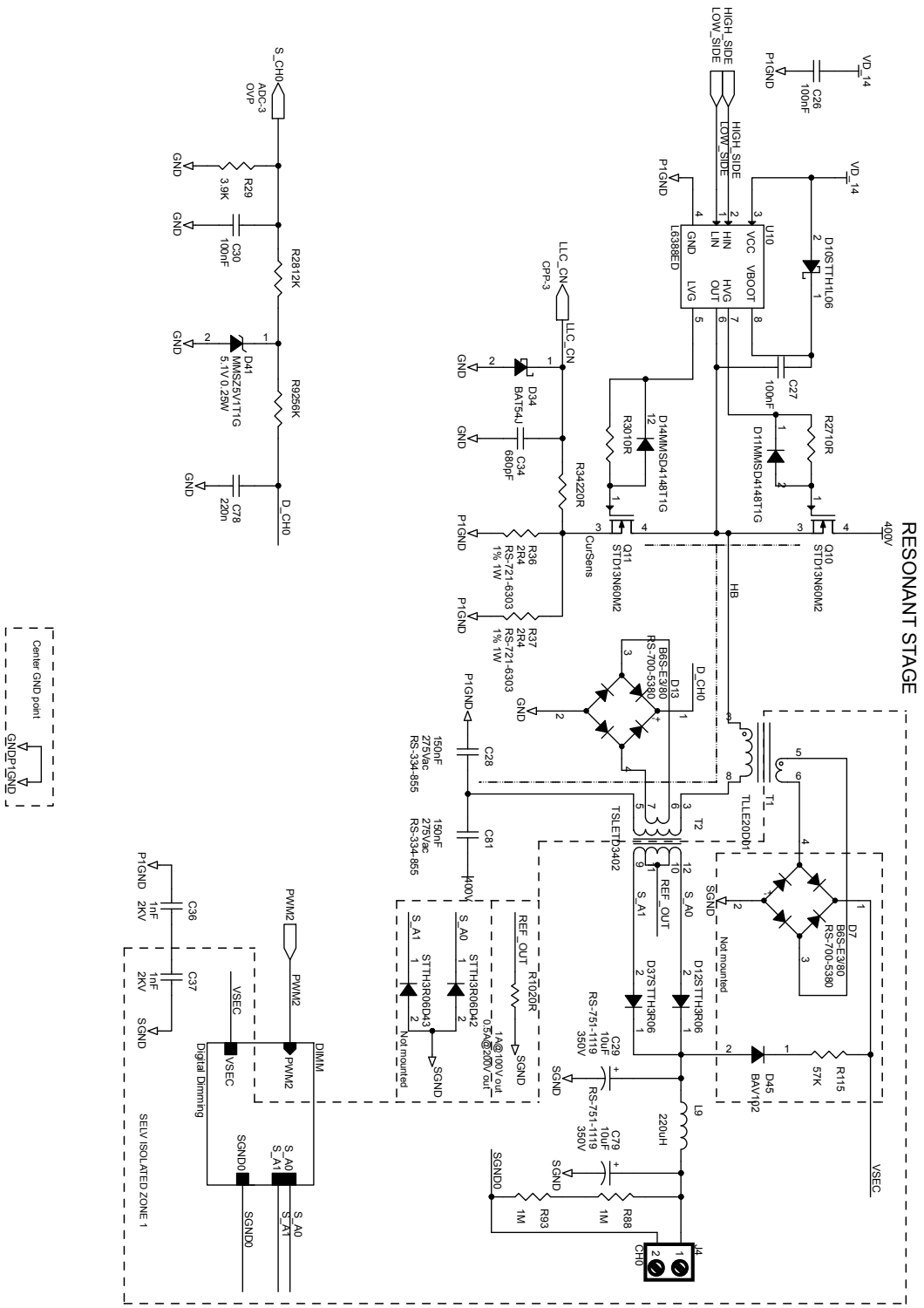


Figure 4. Schematic - PSR-ZVS stage

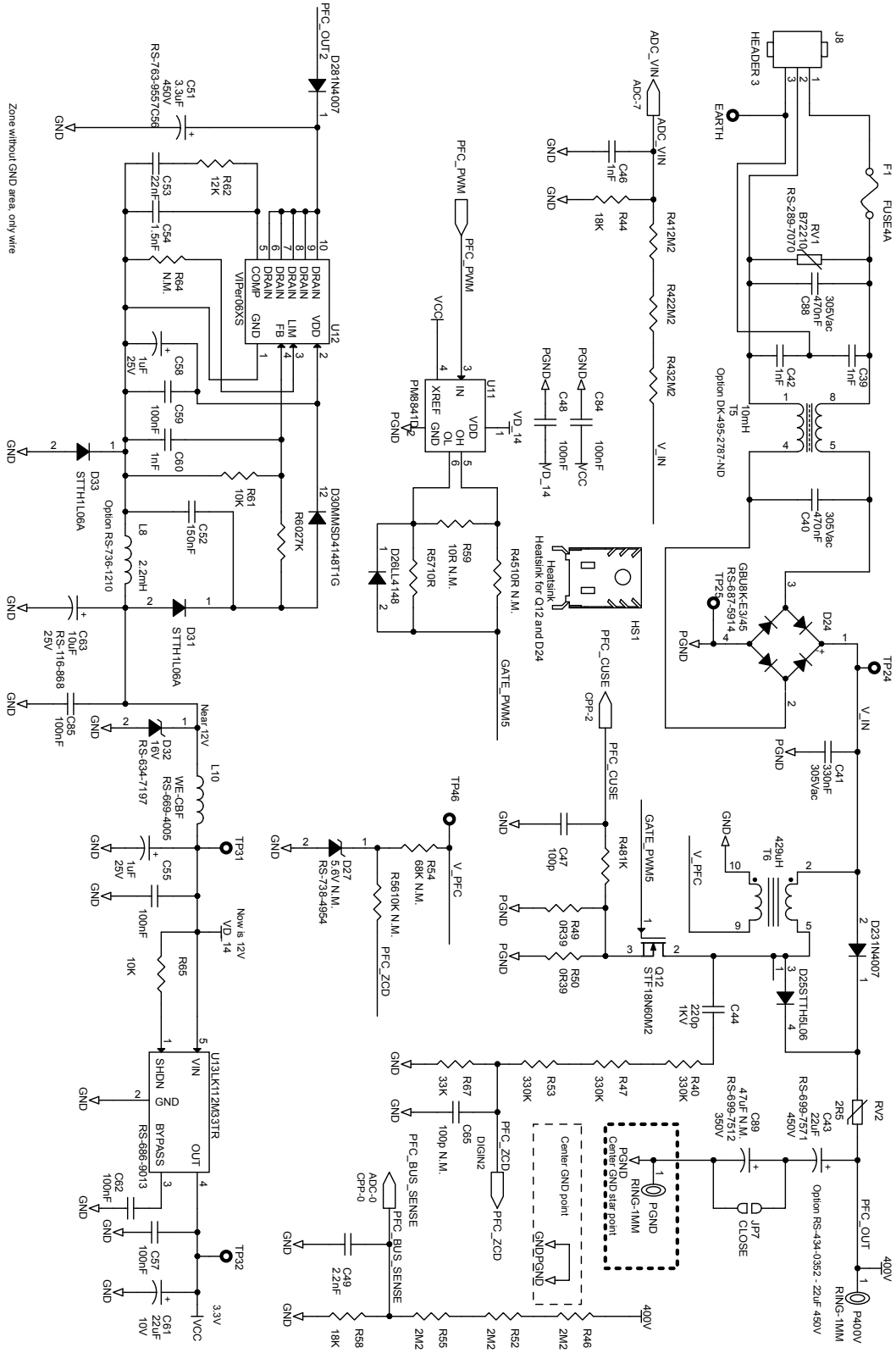


Figure 5. Schematic - digital dimming stage

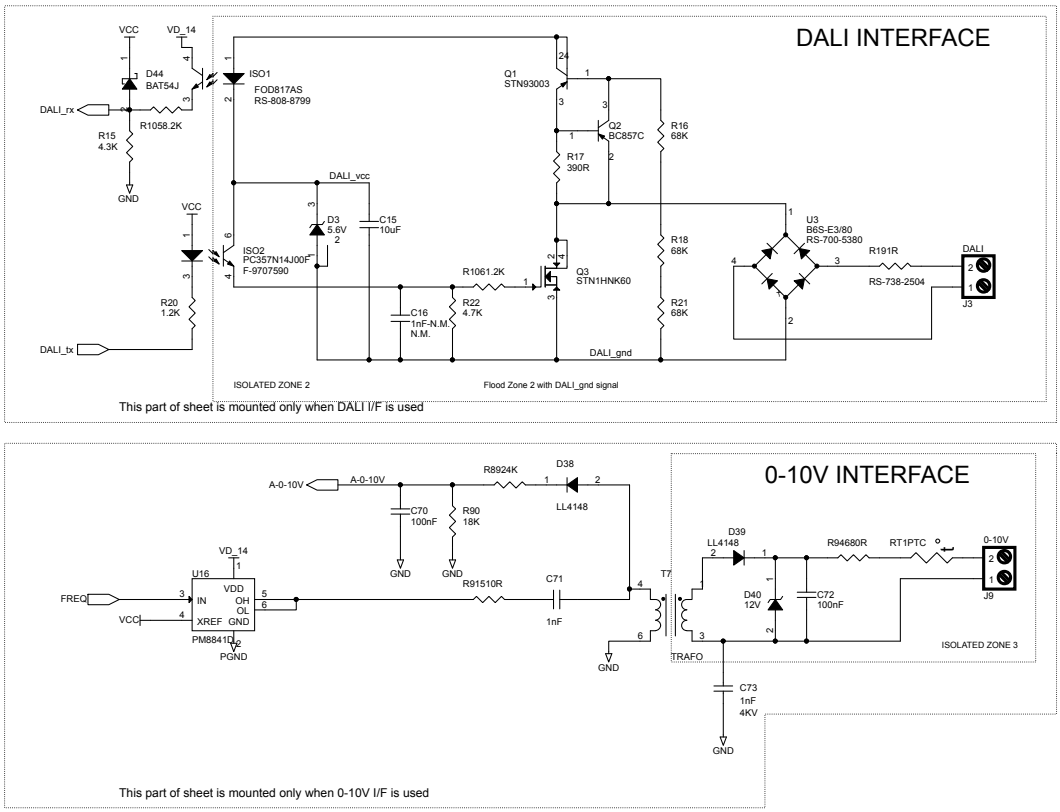


Figure 6. Schematic - THD optimizer

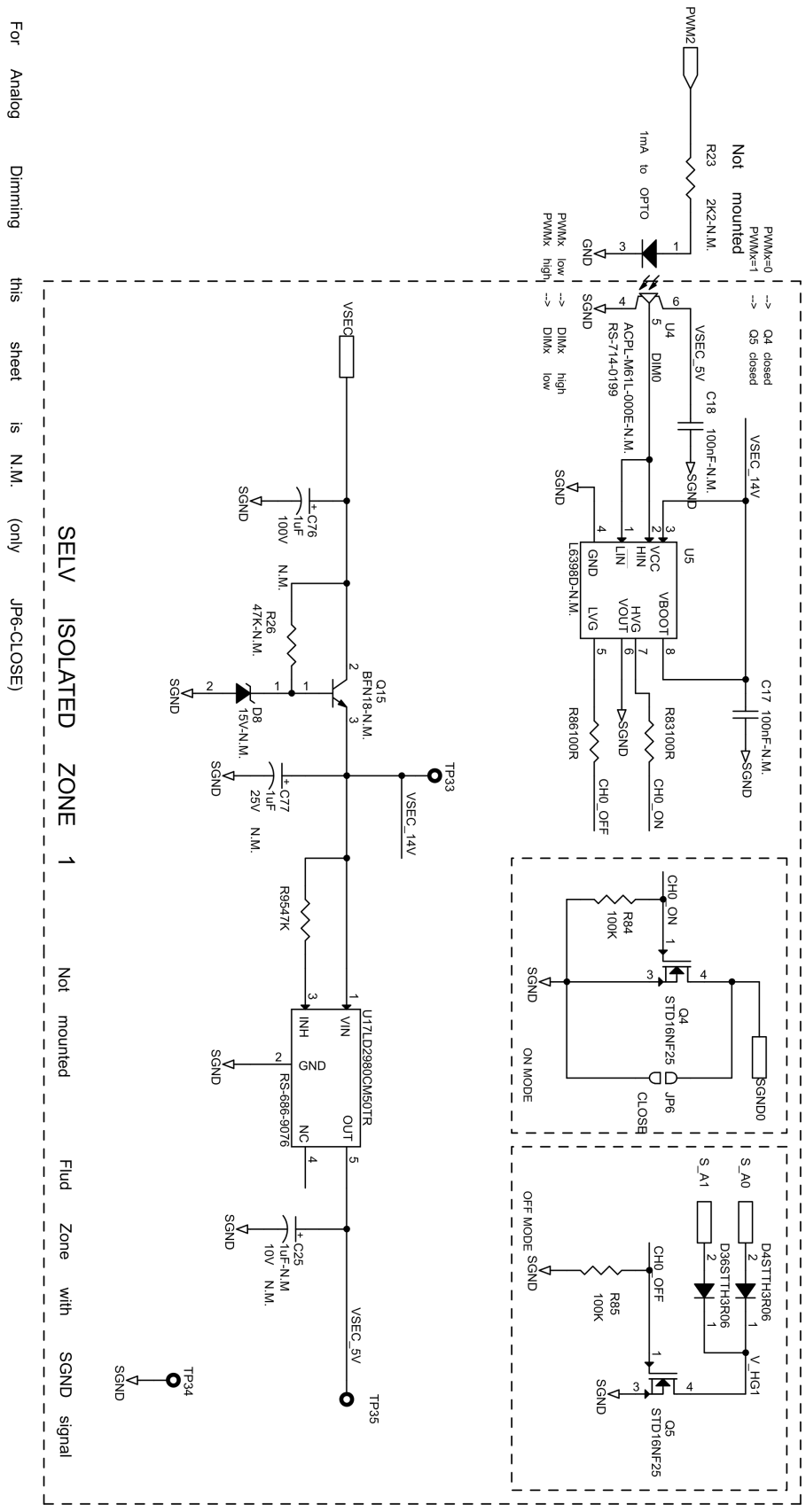
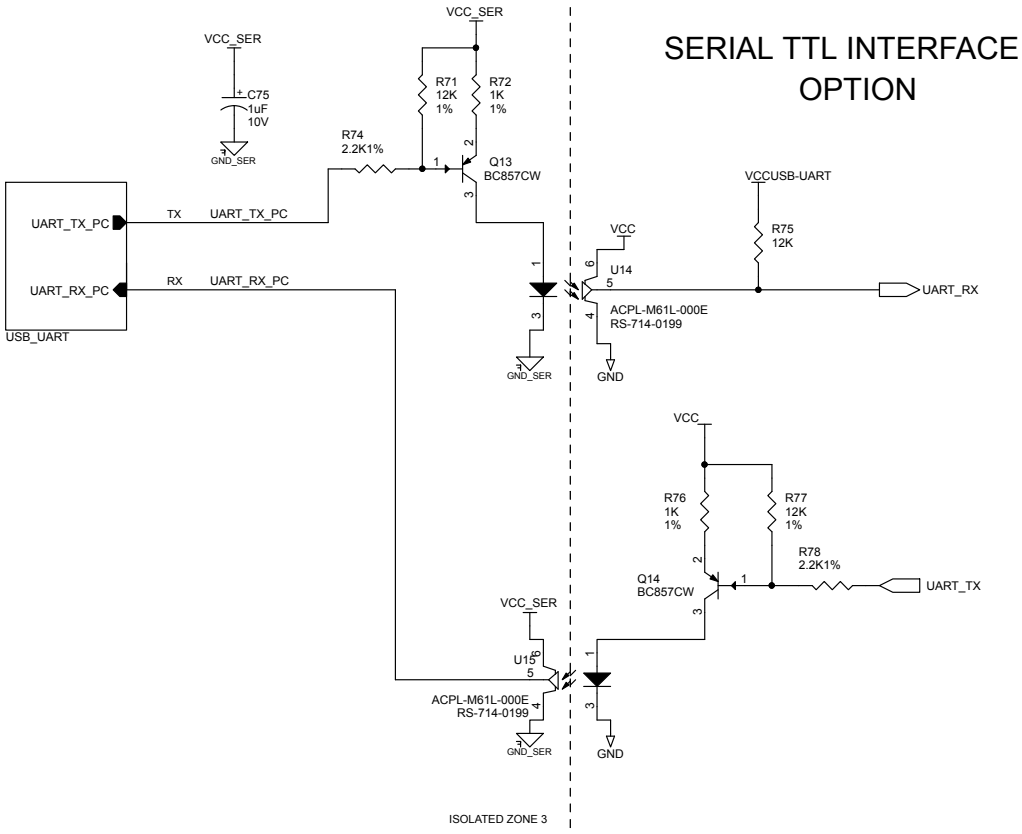


Figure 7. Schematic - DALI and 0 - 10 interfaces



This sheet is mounted only when UART I/F is used (only R75 is always mounted)

Figure 8. Schematic - serial interfaces

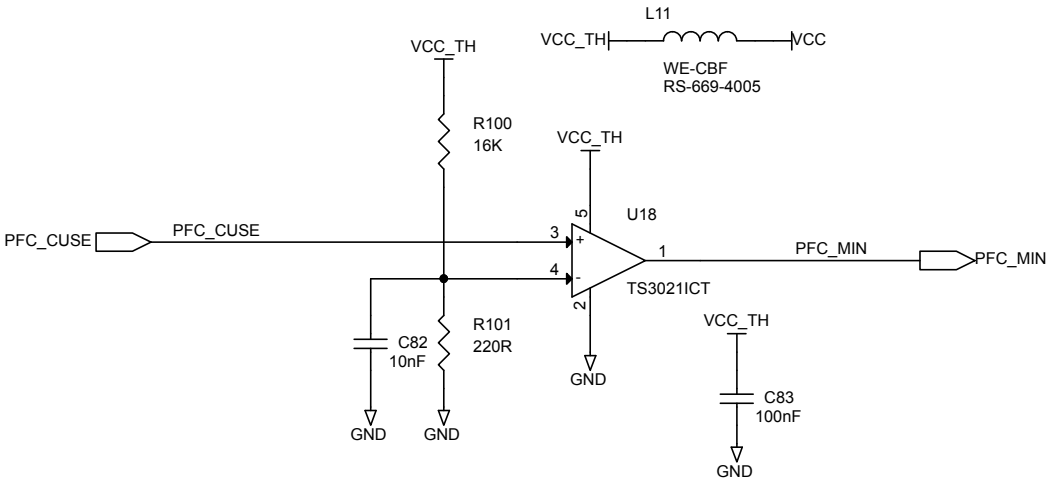
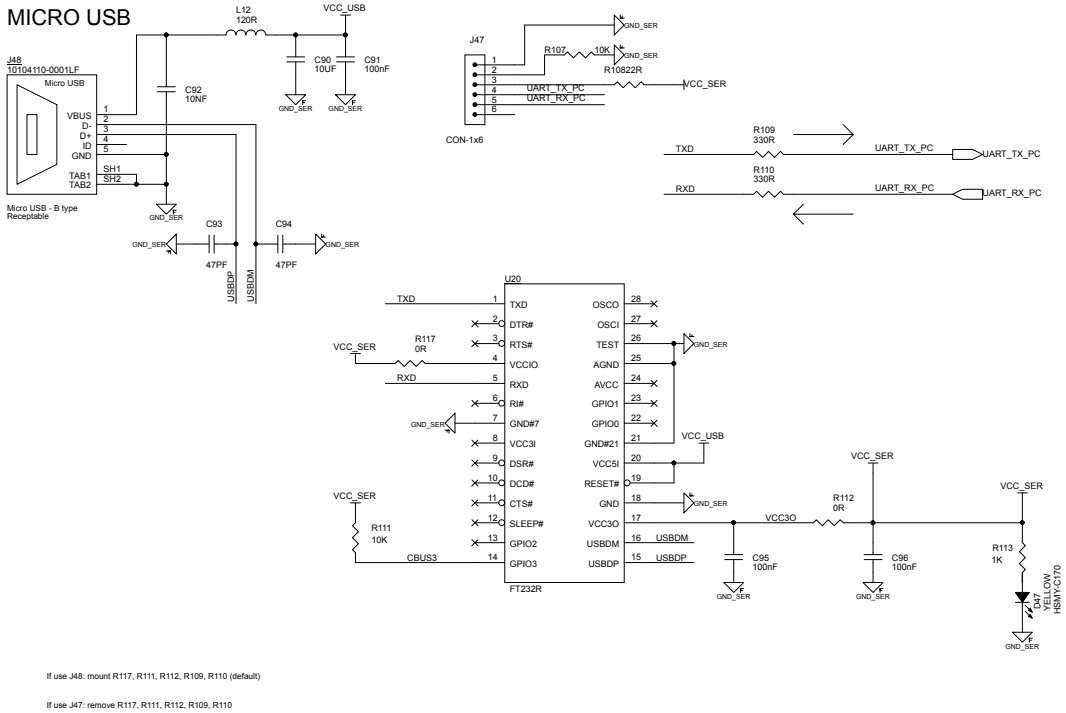


Figure 9. Schematic - USB interfaces



If use J48: mount R117, R111, R112, R109, R110 (default)

If use J47: remove R117, R111, R112, R109, R110

Revision history

Table 7. **Document revision history**

Date	Version	Changes
09-Mar-2018	1	Initial release.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for LED Lighting Development Tools ***category:***

Click to view products by STMicroelectronics ***manufacturer:***

Other Similar products are found below :

MIC2870YFT EV ADP8860DBCP-EVALZ LM3404MREVAL ADM8843EB-EVALZ TDGL014 ISL97682IRTZEVALZ LM3508TLEV EA6358NH MAX16826EVKIT MAX16839EVKIT+ TPS92315EVM-516 MAX6956EVKIT+ OM13321,598 DC986A DC909A DC824A STEVAL-LLL006V1 IS31LT3948-GRLS4-EB PIM526 PIM527 MAX6946EVKIT+ MAX20070EVKIT# MAX21610EVKIT# MAX6951EVKIT MAX20090BEVKIT# MAX20092EVSYS# PIM498 AP8800EV1 ZXLD1370/1EV4 MAX6964EVKIT TLC59116EVM-390 1216.1013 TPS61176EVM-566 TPS61197EVM TPS92001EVM-628 1270 1271.2004 1272.1030 1273.1010 1278.1010 1279.1002 1279.1001 1282.1000 1293.1900 1293.1800 1293.1700 1293.1500 1293.1100 1282.1400 1282.1100