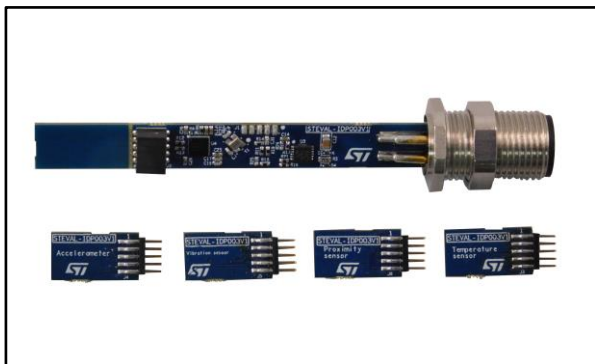


IO-Link industrial modular sensor board based on L6362A

Data brief



Description

The STEVAL-IDP003V1 kit includes the STEVAL-IDP003V1D evaluation board based on the L6362A IO-Link device transceiver and STM32L071CZ microcontroller for data processing, and the following sensor daughter boards: temperature sensor STTS751 hosted on the STEVAL-IDP003V1T, MEMS sensor IIS2DH hosted on the STEVAL-IDP003V1TV, MEMS sensor IIS328DQ hosted on the STEVAL-IDP003V1A and proximity sensor VL6180X hosted on the STEVAL-IDP003V1P.

The evaluation board is equipped with an industrial M12 connector (required by the standard) for connection with a single master IC using a 20-meter cable. The wire is a normal three-pole wire: one for IO-Link data, one for the L+ line (positive supply voltage pole) and one for the L- line (negative supply voltage pole).

The layout is designed to meet IEC61000-4-2/4 and EN60947 requirements for the industrial sector.

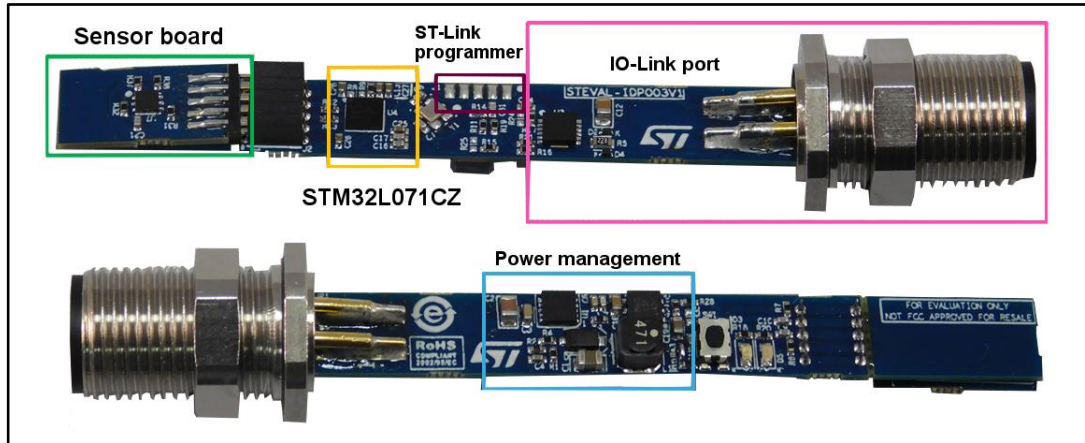
Features

- Main supply voltage: 32 V maximum
- STM32L071CZ microcontroller
- IO-Link PHY using the L6362A device for data communication with host unit
- DC-DC converter and linear regulator on board
- Integrated reverse polarity protection on L6362A ICs
- Multi-sensor connection
- 400 kHz I²C communication
- PCB designed to accept real industrial sensors (8 mm x 70 mm, with 0.8 mm thickness)
- Designed to meet IEC industrial standard requirements
- RoHS compliant

1 Block identification

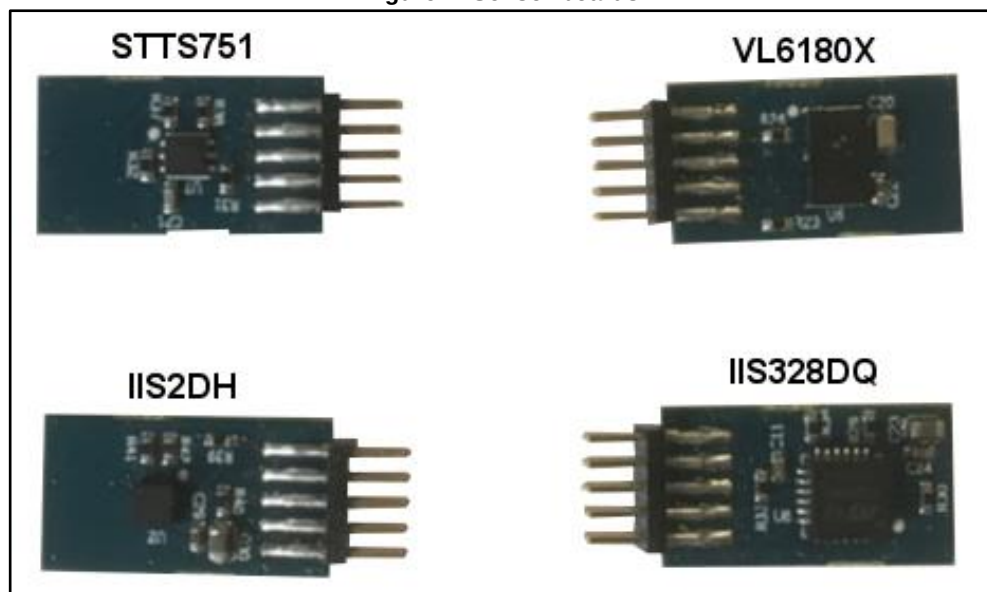
In the kit, the main board is the STEVAL-IDP003V1.

Figure 1: STEVAL-IDP003V1 block identification



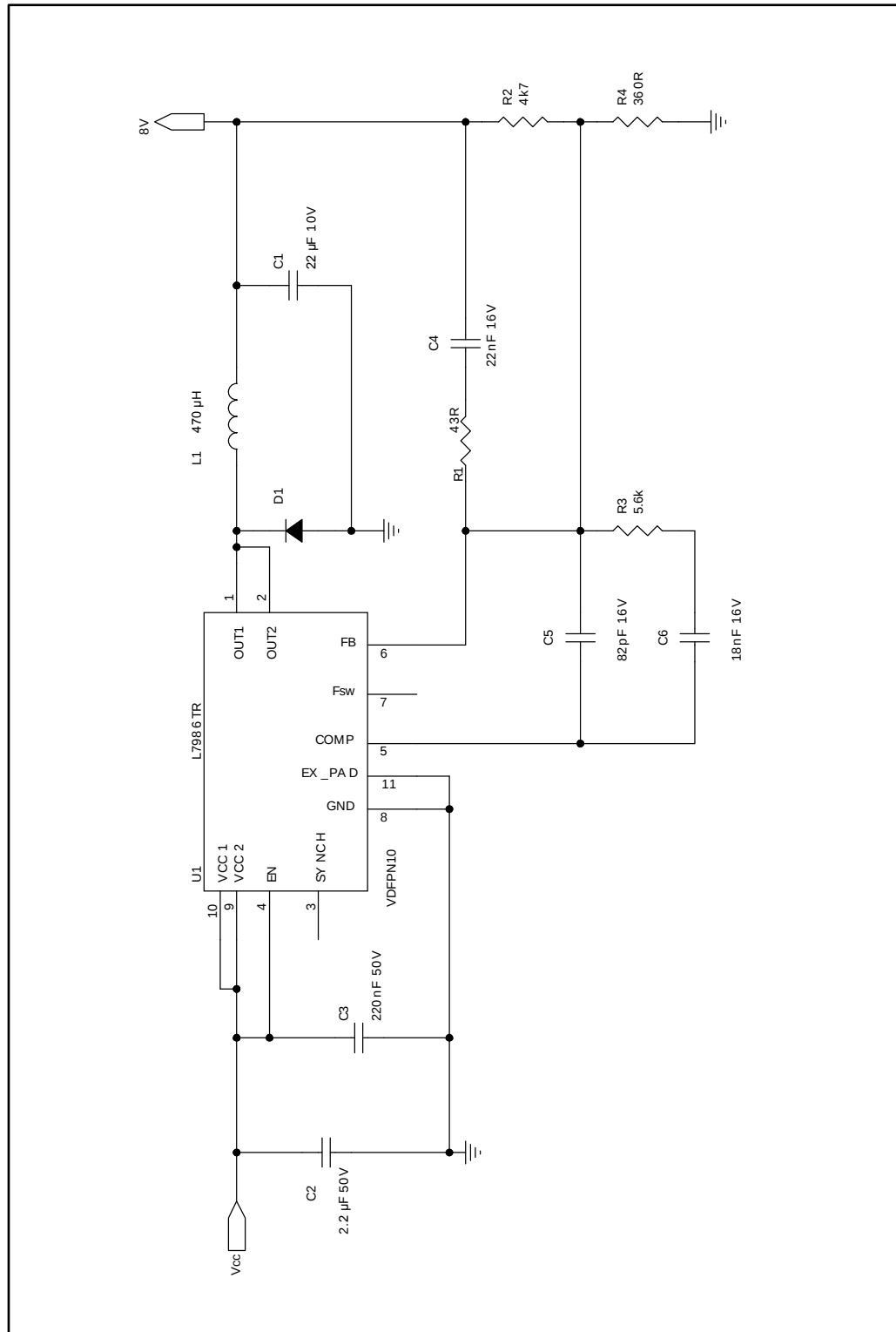
The picture below shows the sensor daughter boards, from the top left corner in a clockwise direction: STEVAL-IDP003V1T, STEVAL-IDP003V1P, STEVAL-IDP003V1A and STEVAL-IDP003V1TV. The corresponding sensor part numbers are also shown.

Figure 2: Sensor boards



2 Schematic diagrams

Figure 3: STEVAL-IDP003V1 circuit schematic (1 of 6)



Vibration sensor

The diagram illustrates the electrical connections for a vibration sensor system. The sensor module, labeled U2, is connected to a multi-pin connector J5 (CON10A). The connector pins are numbered 1 through 10, with corresponding labels: 1 (I2C_SCL_MEMS_Ax), 2 (GND_Ax), 3 (I2C_SDA_MEMS_Ax), 4 (GND_Ax), 5 (I2C_SCL_Ax), 6 (I2C_SDA_Ax), 7 (GND_Ax), 8 (GND_Ax), 9 (Interrupt1_Ax), and 10 (3V3_Ax). The sensor module U2 has pins 1 through 12: 1 (I2C_SCL_MEMS_Ax), 2 (GND_Ax), 3 (I2C_SDA_MEMS_Ax), 4 (GND_Ax), 5 (I2C_SCL_Ax), 6 (I2C_SDA_Ax), 7 (GND_Ax), 8 (GND_Ax), 9 (Vdd), 10 (Vdd_IO), 11 (INT2), and 12 (INT1). The module is powered by a 3V3_Ax supply through a 100nF capacitor (C29) and a 10uF 6.3V capacitor (C30). The module's INT1 pin is connected to a 3V3_Ax supply through a 10k resistor (R39) and a 10k resistor (R40). The module's INT2 pin is connected to a 3V3_Ax supply through a 10k resistor (R41) and a 10k resistor (R42). The module's RES pin is connected to GND_Ax. The module's CS pin is connected to GND_Ax. The module's SA0 pin is connected to GND_Ax. The module's I2C_SCL_Ax and I2C_SDA_Ax pins are connected to a 3V3_Ax supply through 10k resistors (R39 and R40). The module's I2C_SCL_MEMS_Ax and I2C_SDA_MEMS_Ax pins are connected to a 3V3_Ax supply through 10k resistors (R41 and R42).

Figure 5: STEVAL-IDP003V1 circuit schematic (3 of 6)

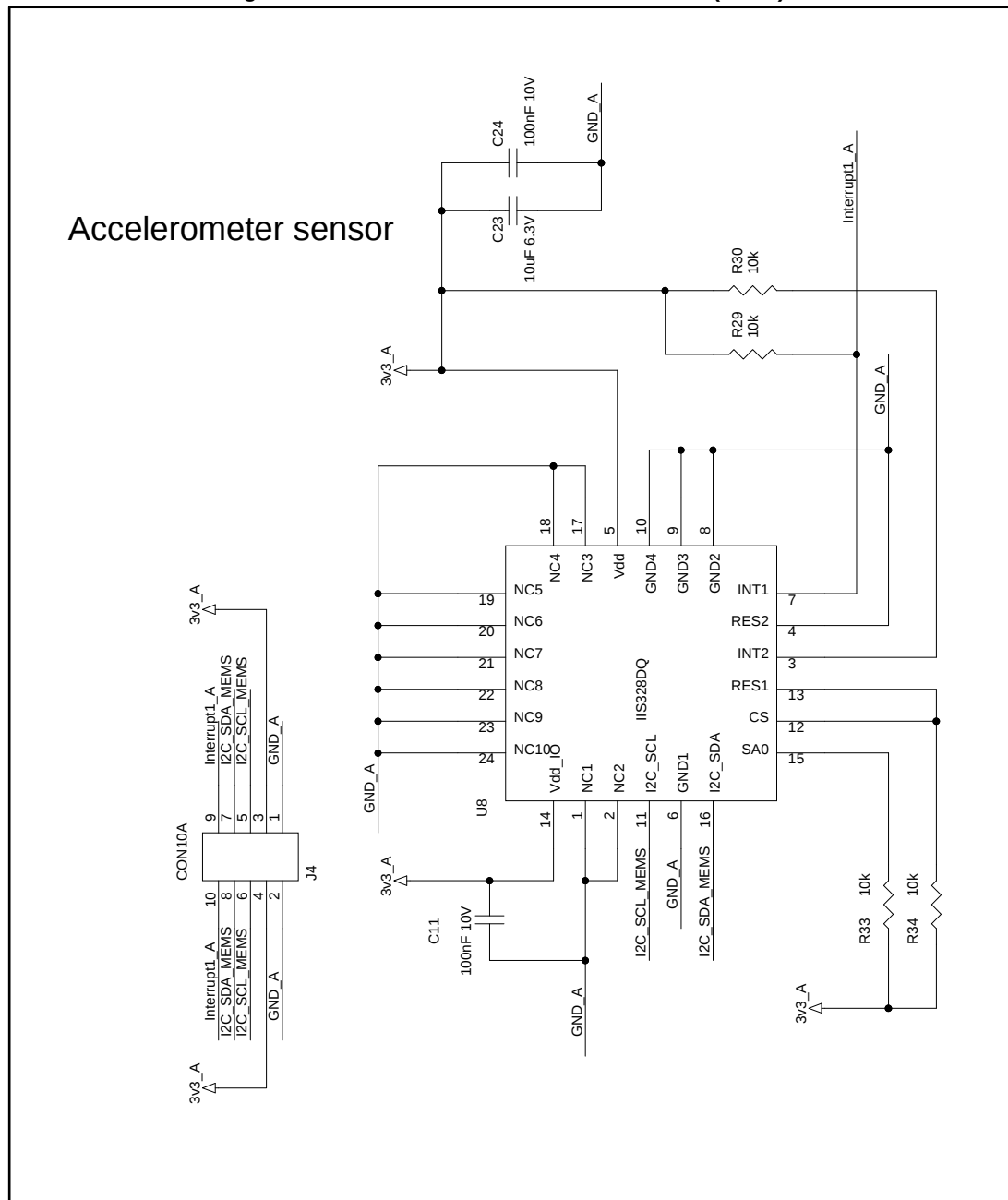


Figure 6: STEVAL-IDP003V1 circuit schematic (4 of 6)

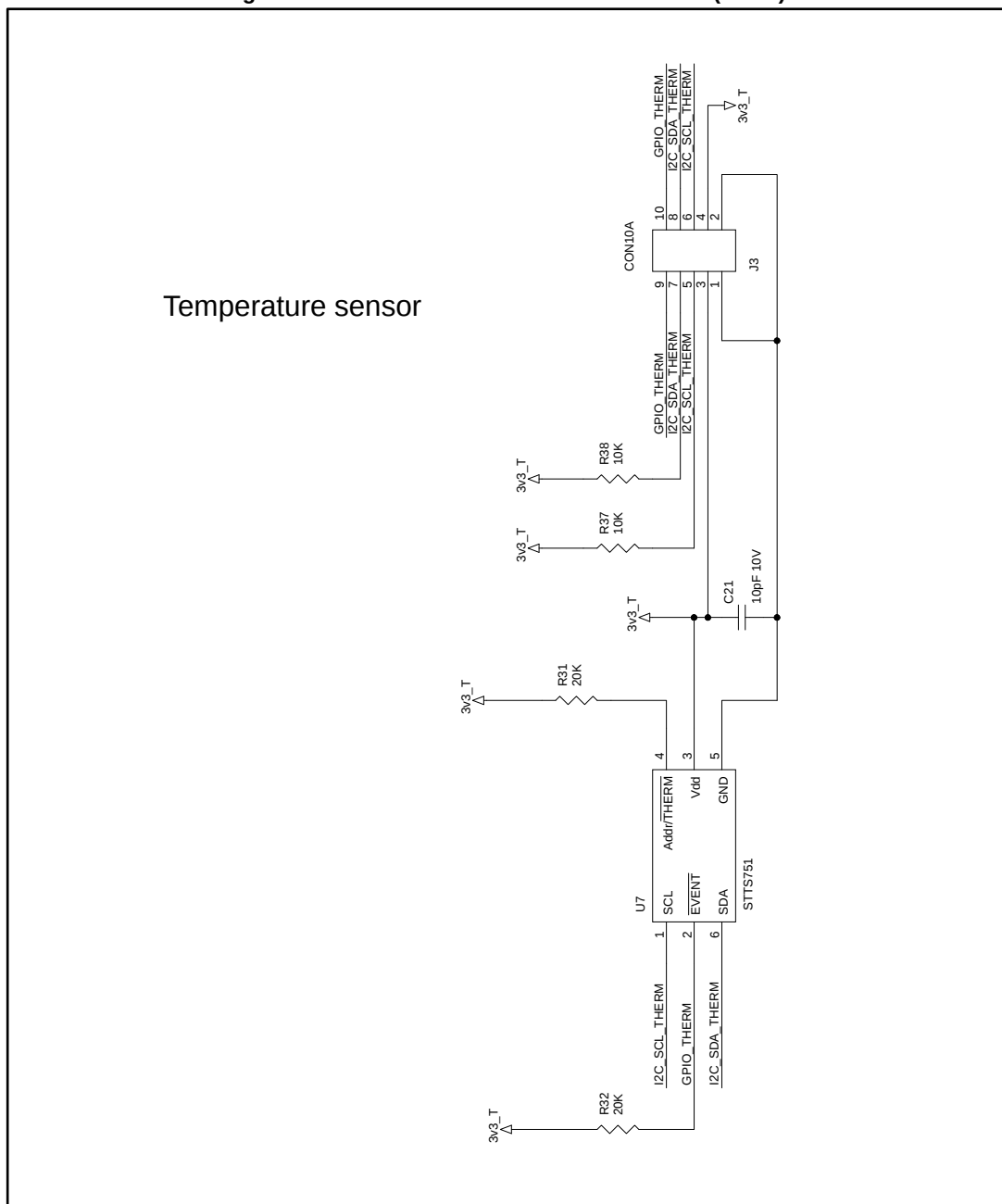


Figure 7: STEVAL-IDP003V1 circuit schematic (5 of 6)

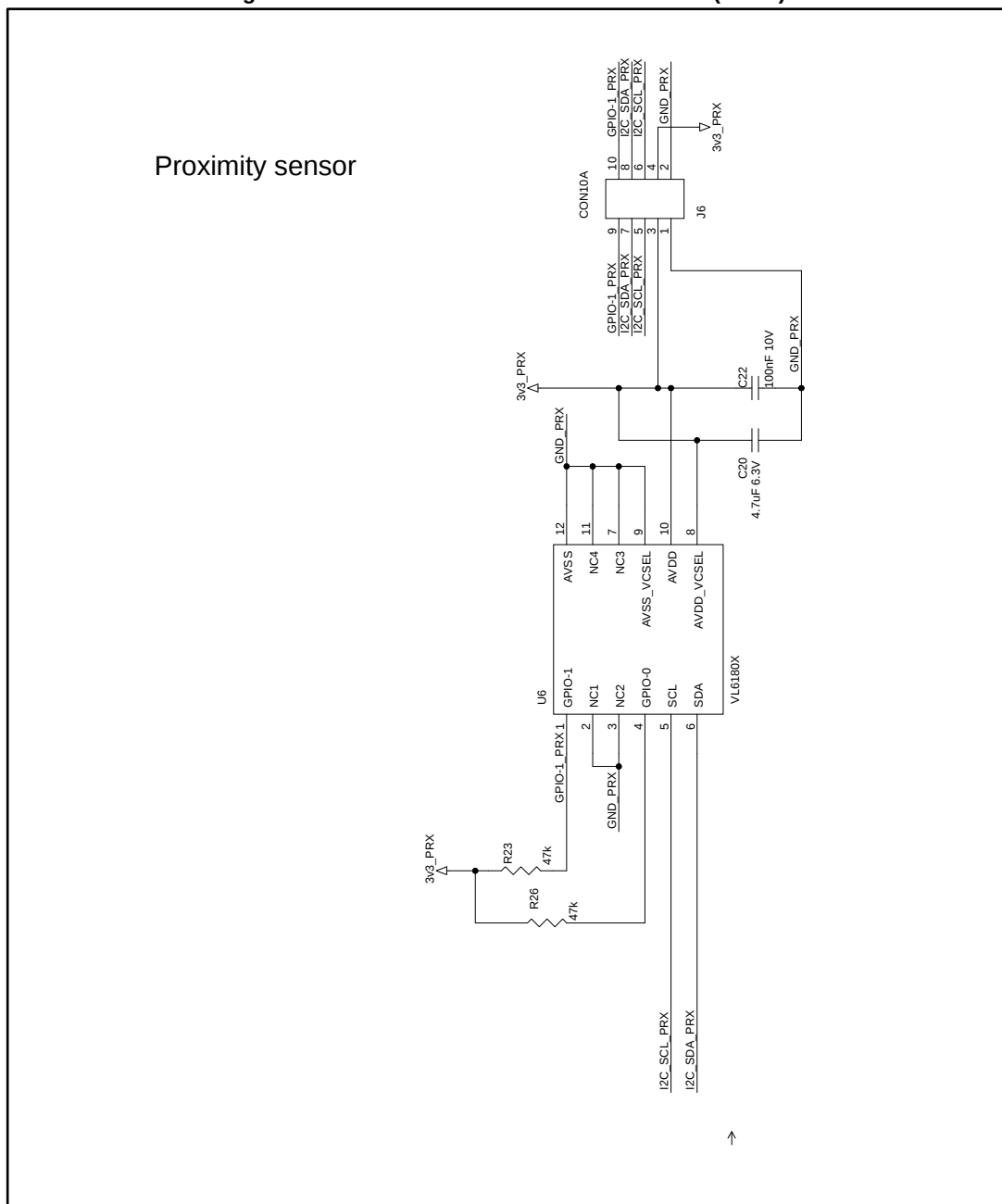
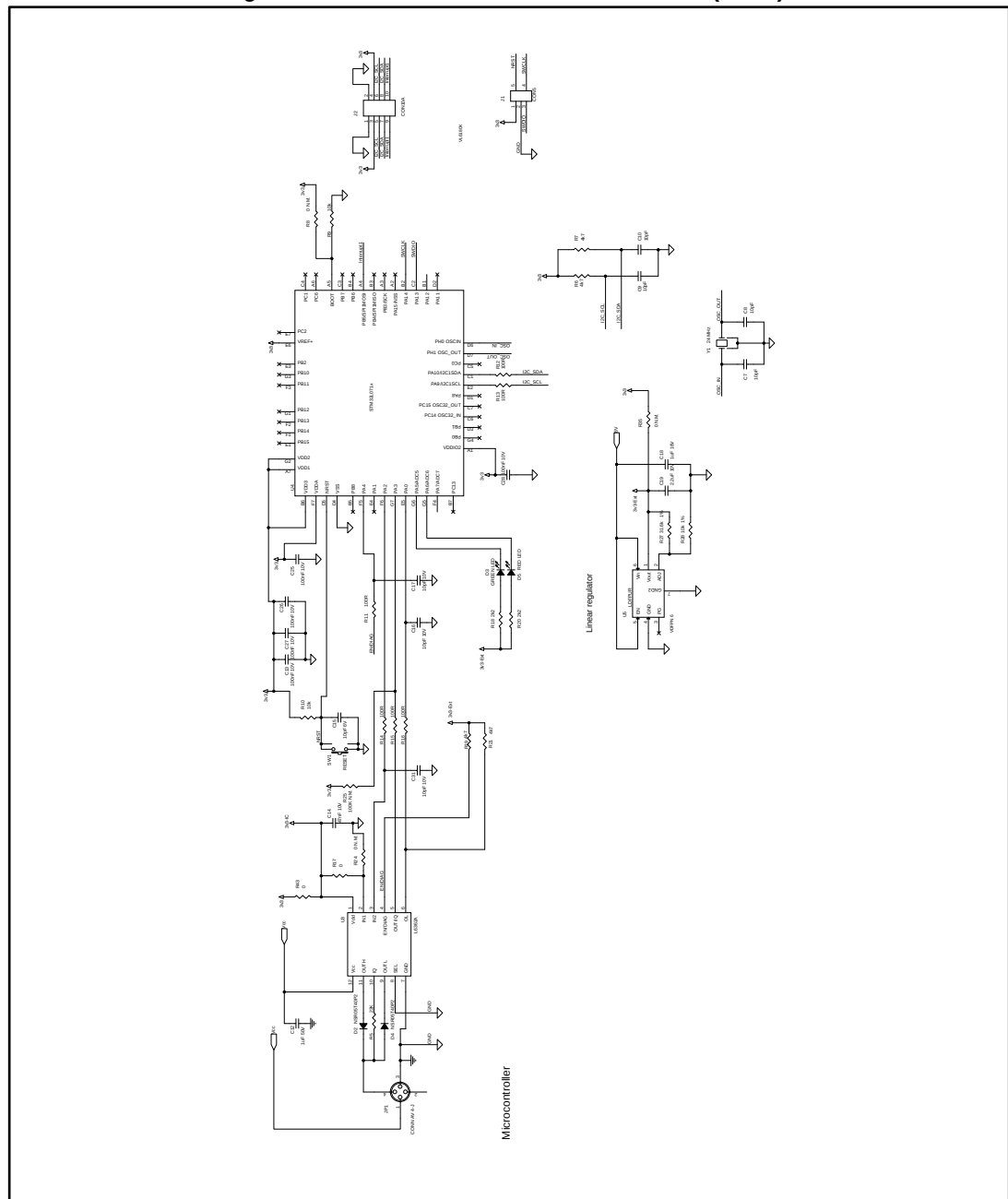


Figure 8: STEVAL-IDP003V1 circuit schematic (6 of 6)



3 Revision history

Table 1: Document revision history

Date	Version	Changes
09-Jun-2017	1	Initial release.
25-Oct-2017	2	Updated Figure 3: "STEVAL-IDP003V1 circuit schematic (1 of 6)" . Minor text changes.

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