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STEVAL-IPP002V1

IEC 61334-5-1 compliant smart meter system for AMI applications based on STM32, ST7570 PLM, and STPMC1/STPMS1 chipset

Data brief

Features

- Energy measurement by an external metrology board
- S-FSK Power line communication up to 2.4 kbps
- Data communication compliant with DLMS/COSEM specification
- LCD display to show energy consumption information
- USB and RS232/IrDA connectivity
- Optional ZigBee® communication capability
- Optional MEMS module support
- Expansion capability for smartcard interface
- RoHS compliant

STEVAL-IPP002V1

Description

The STEVAL-IPP002V1 demonstration board can be used as a guideline to designing a typical energy meter board for smart metering applications compliant with the IEC 61334-5-1 standard. It was designed to include advanced features as well as to fit the requirements for next generation energy meters. These extra features can be included in the board by modules for easy customizing.

1 Circuits schematic

Figure 1. STEVAL-IPP002V1 circuit schematic - top

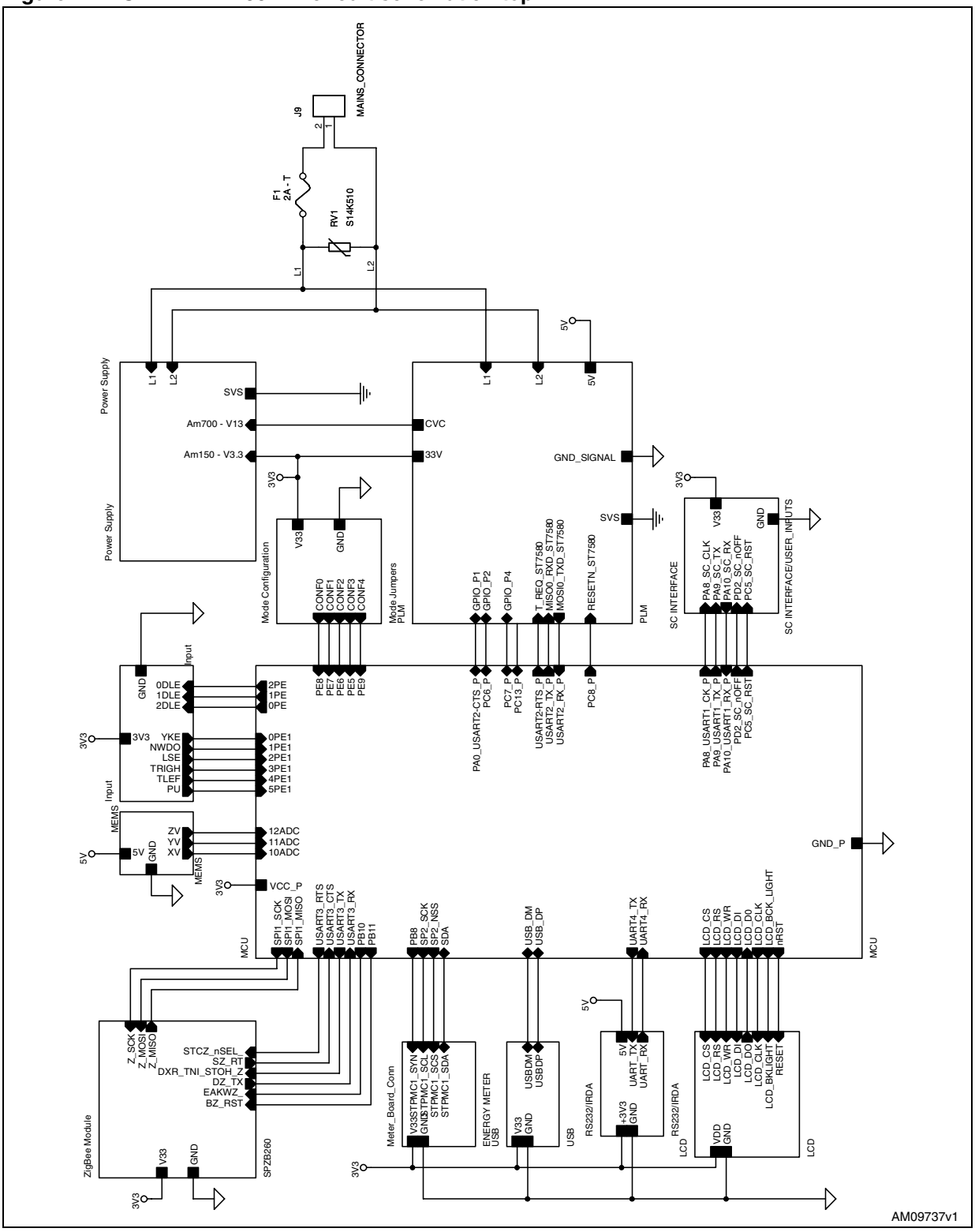


Figure 2. Energy meter board connector section

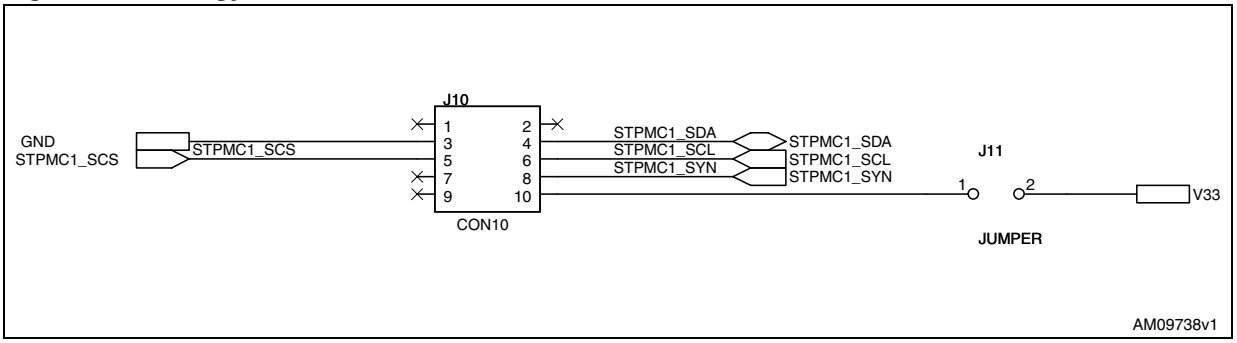


Figure 3. Joystick and LEDs section

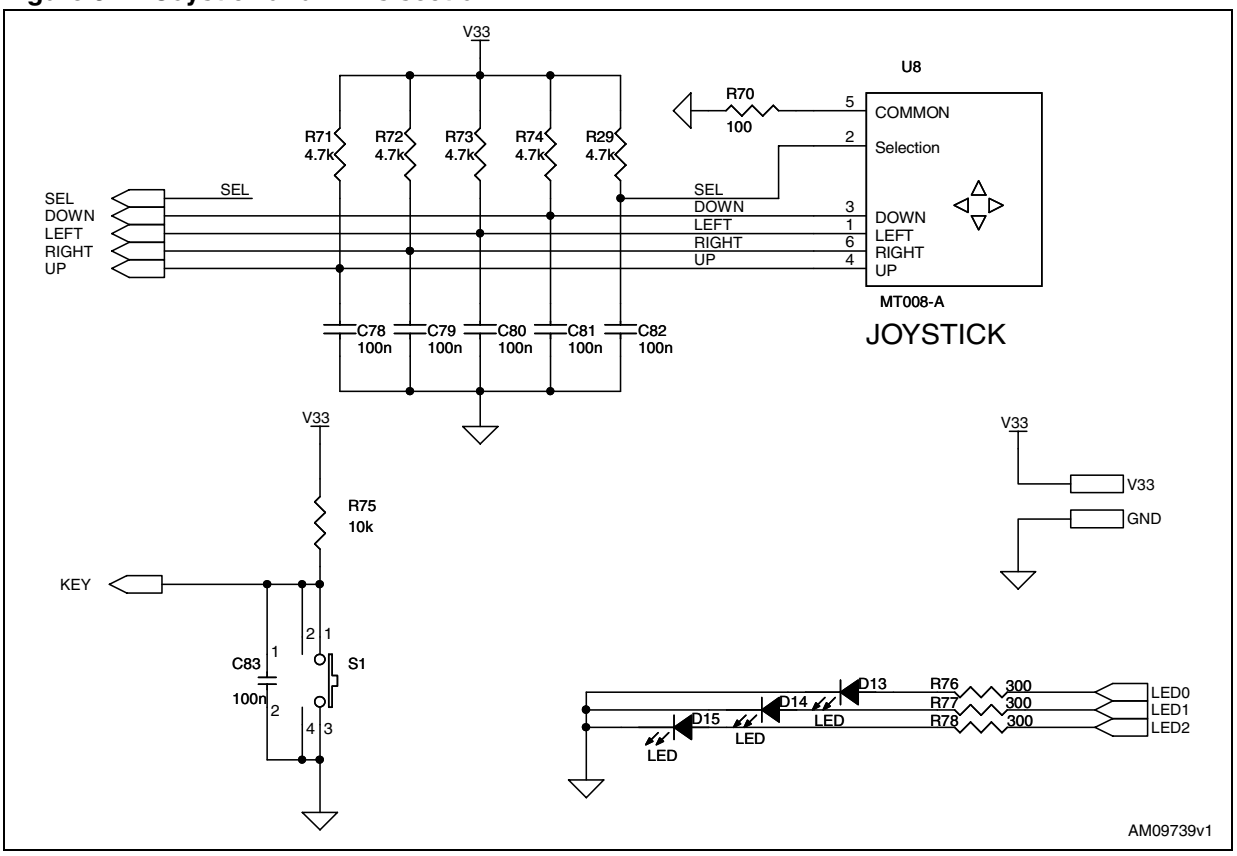


Figure 4. LCD color display connectors

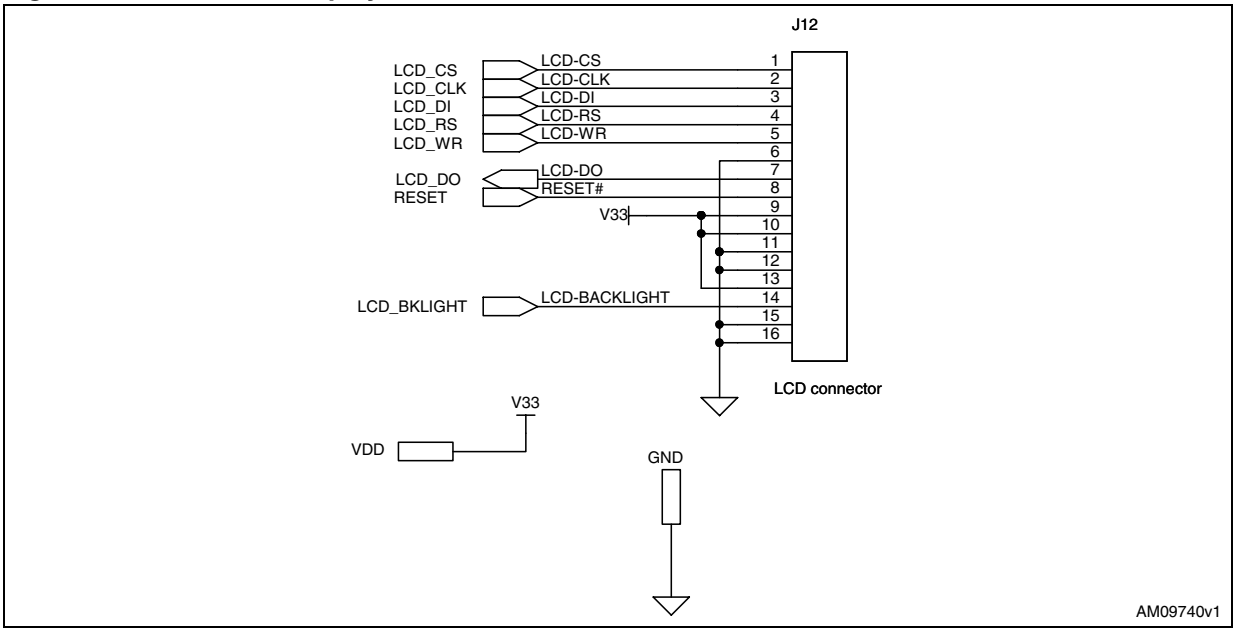


Figure 5. MCU section

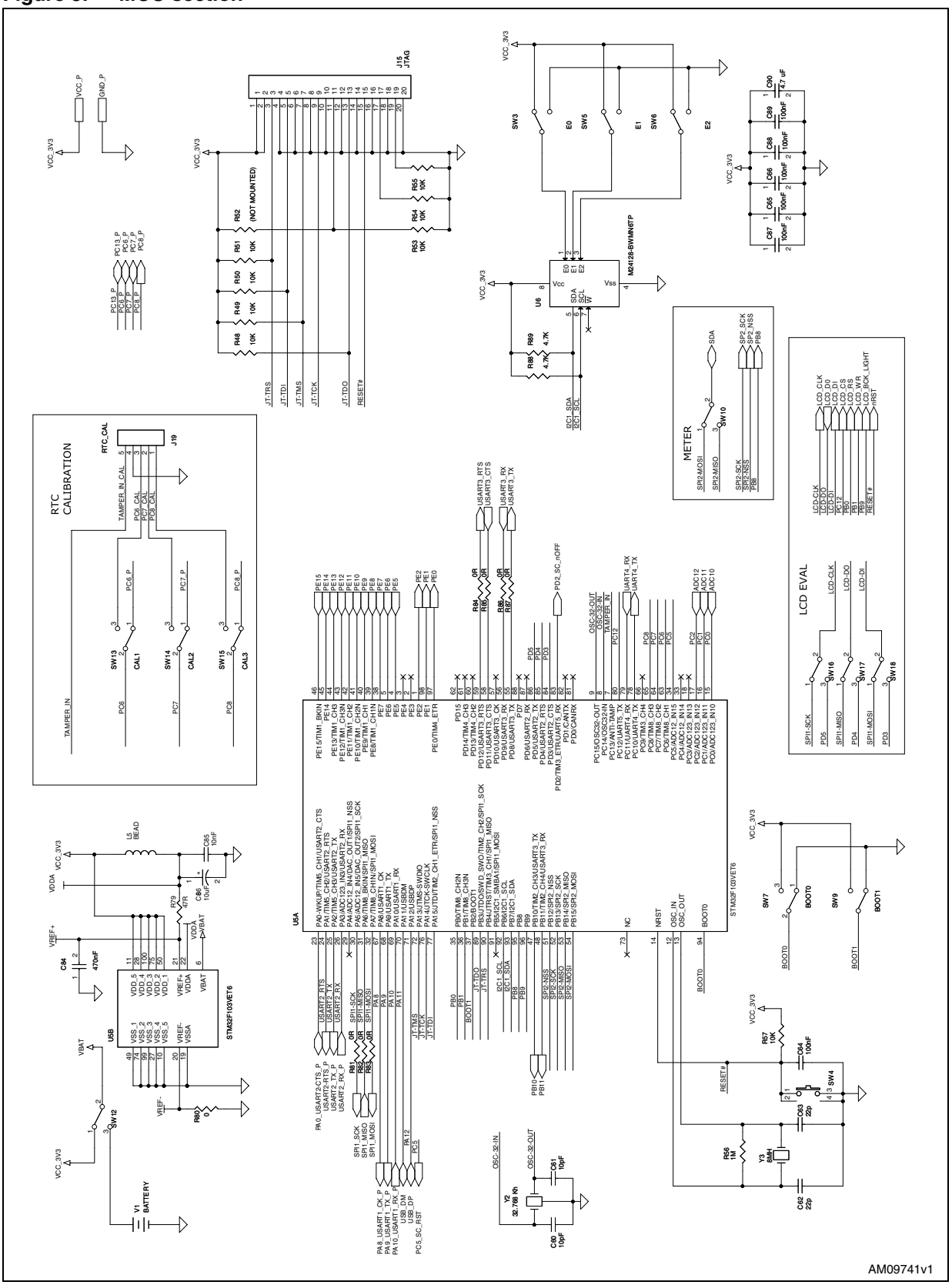


Figure 6. MEMS section

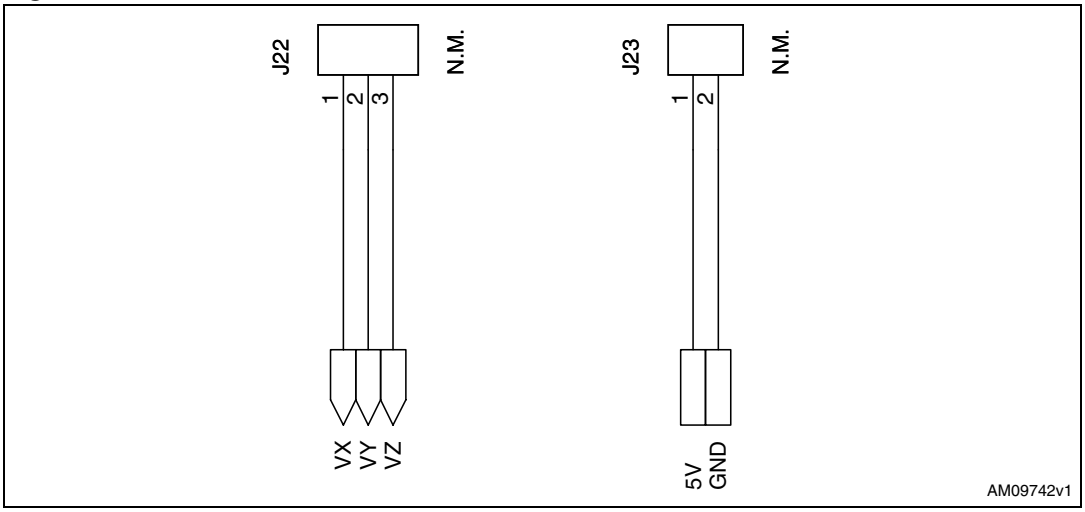


Figure 7. Mode configuration section

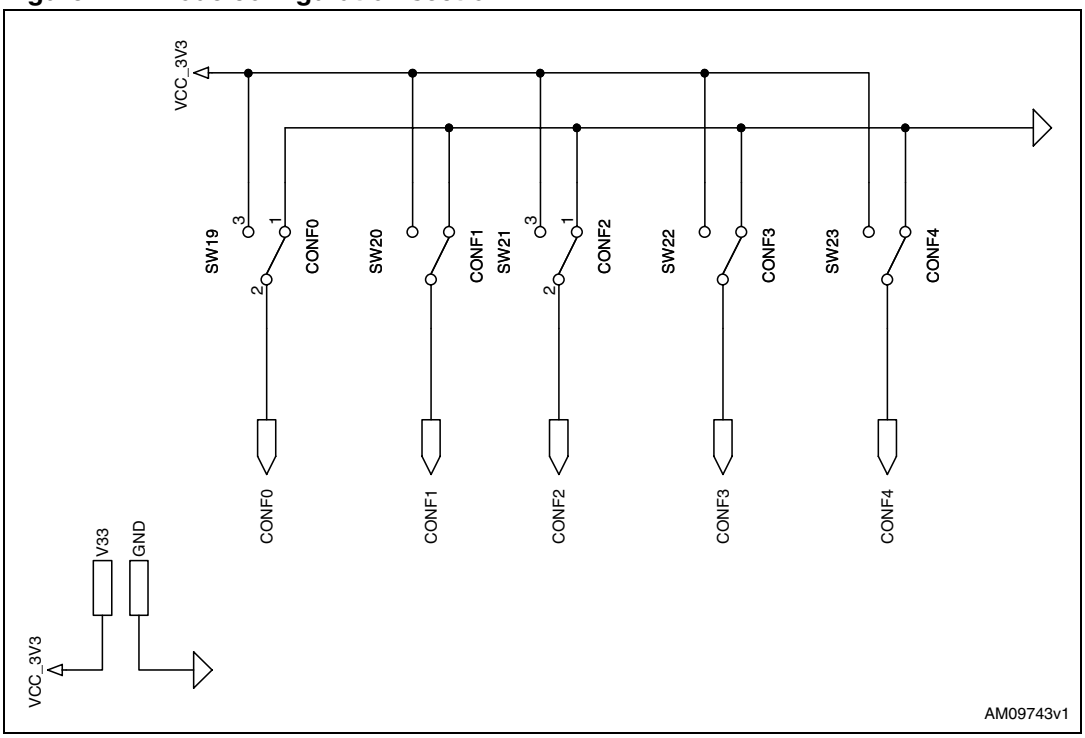


Figure 8. Power line modem section

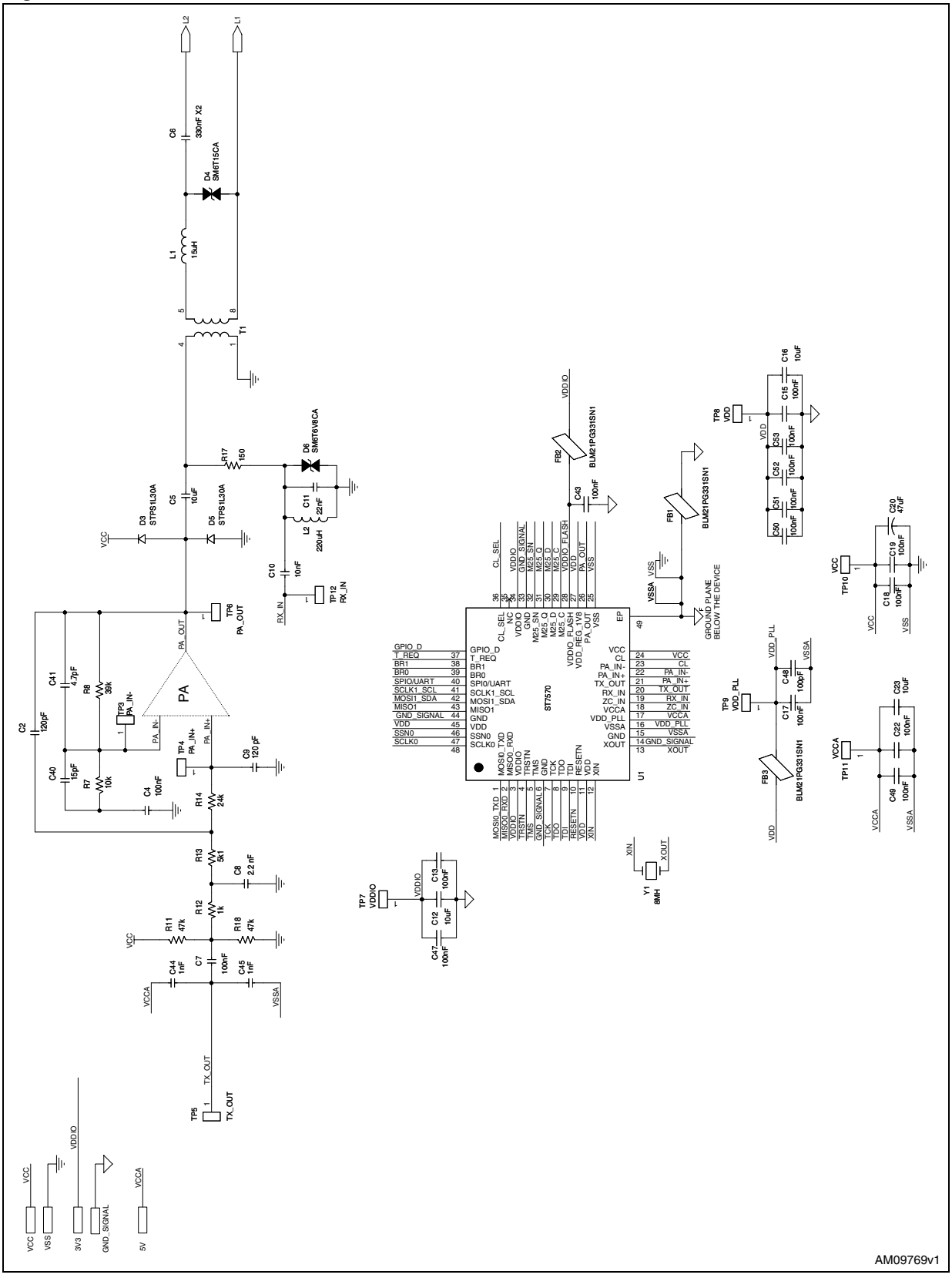


Figure 9. Microcontroller connection

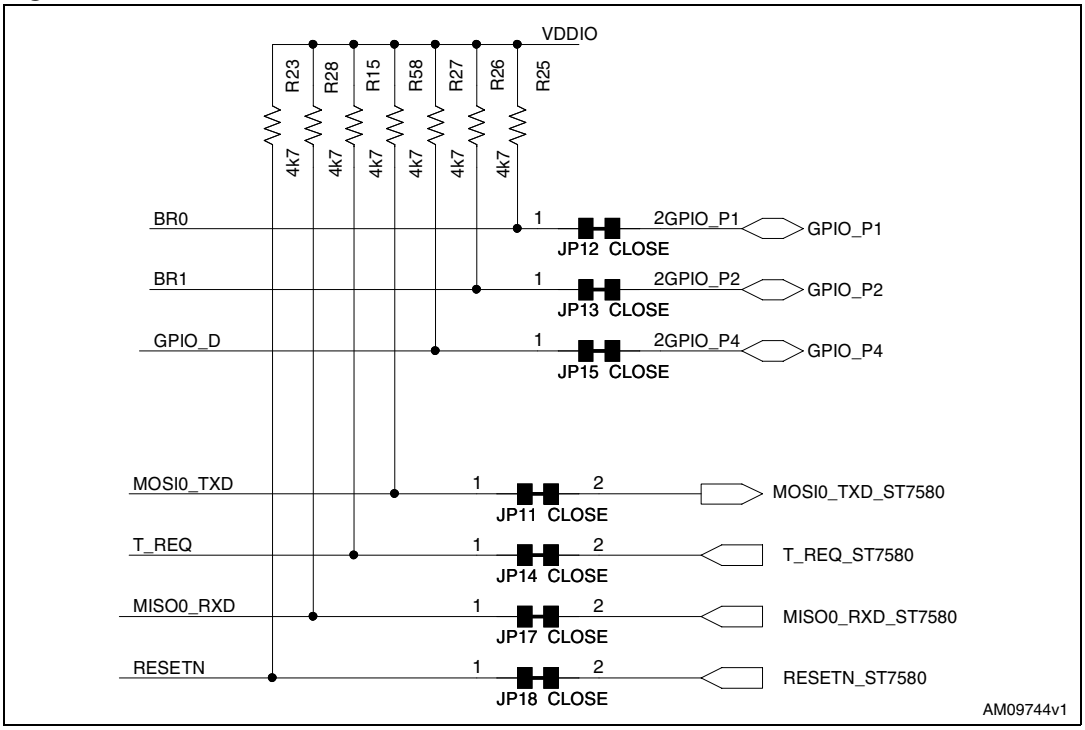


Figure 10. ST7580 reset button

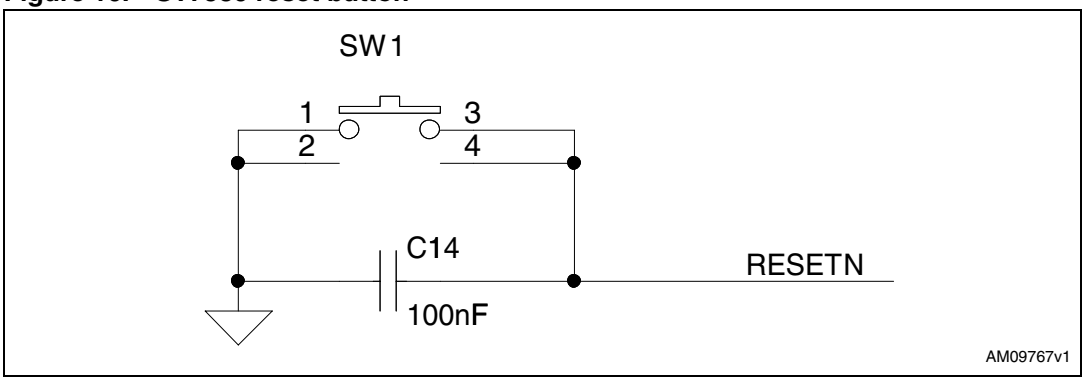


Figure 11. Current limit setting

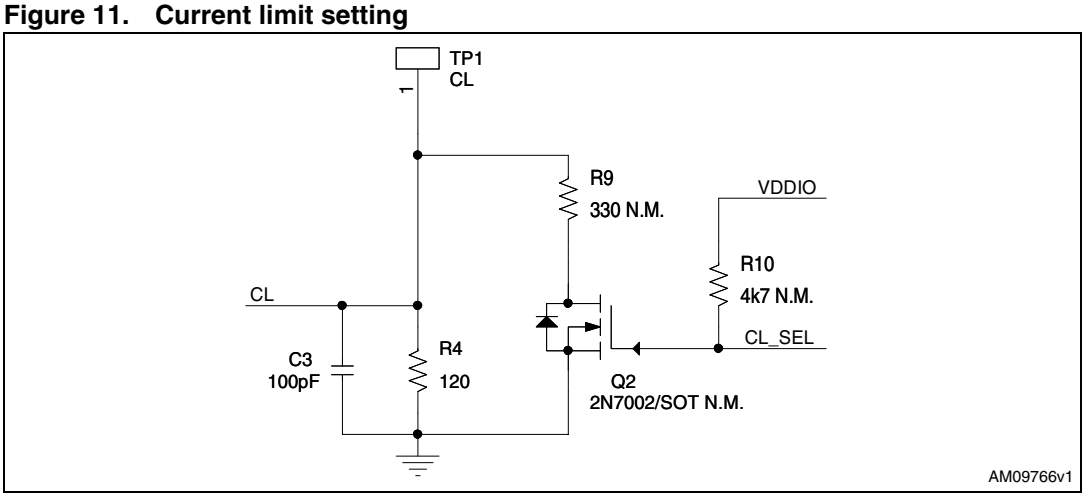


Figure 12. Non-isolated zero crossing

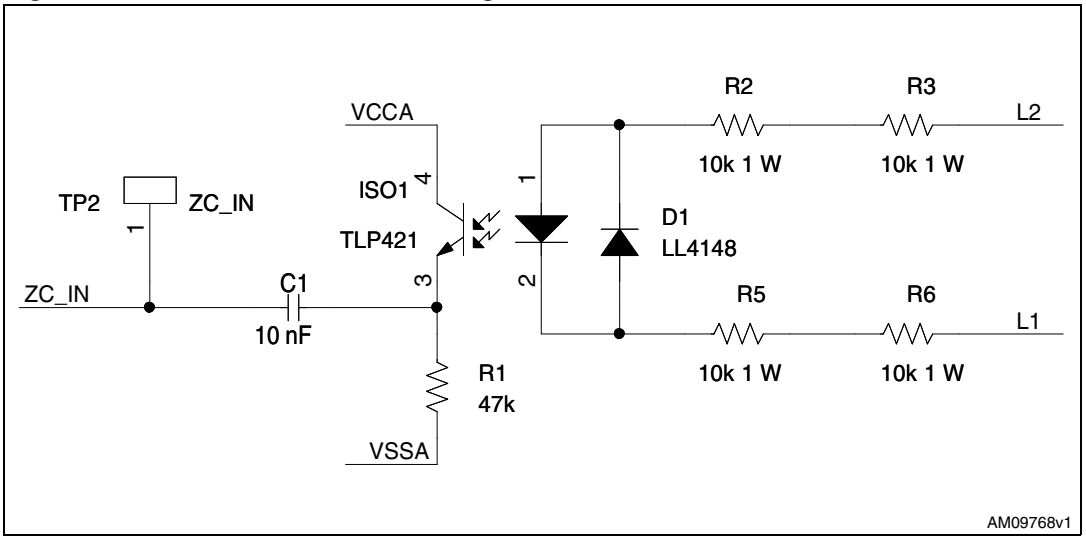


Figure 13. System JTAG connector

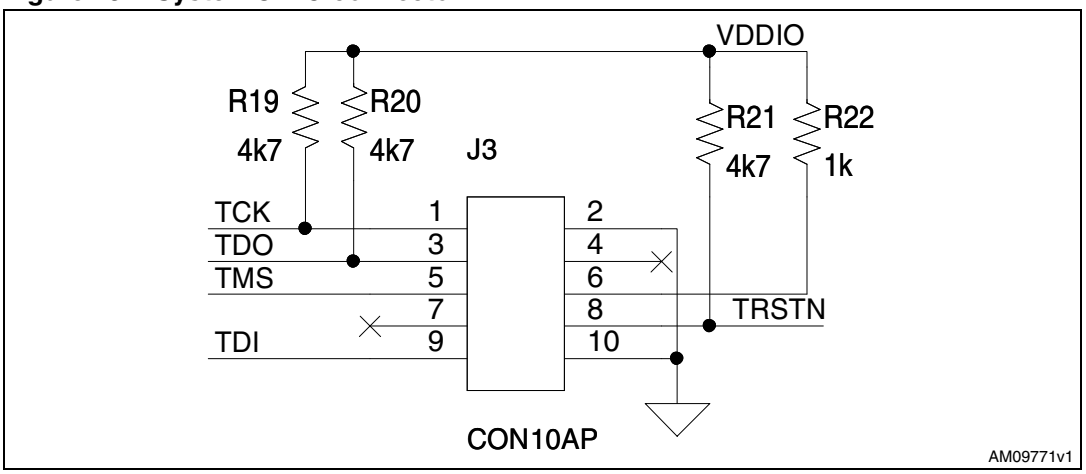


Figure 14. ST7580 UART interface

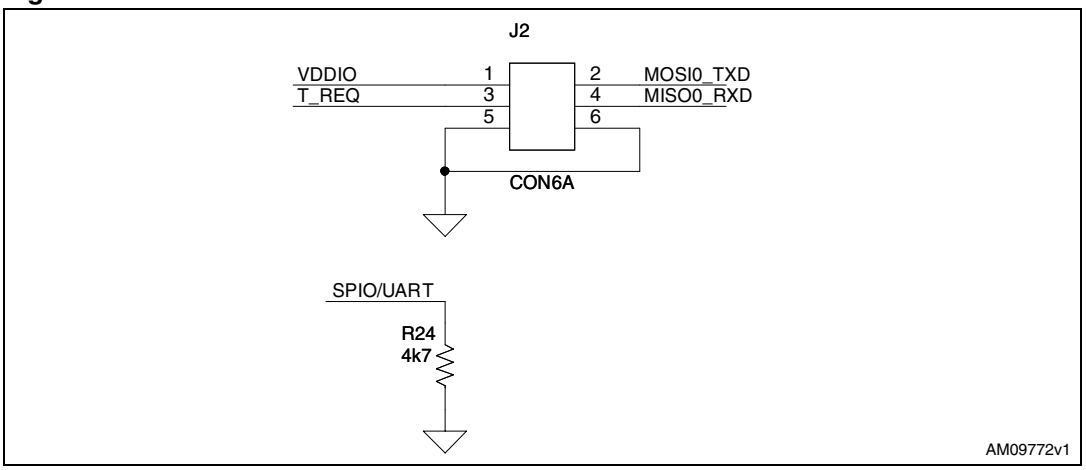


Figure 15. 8051 program Flash memory

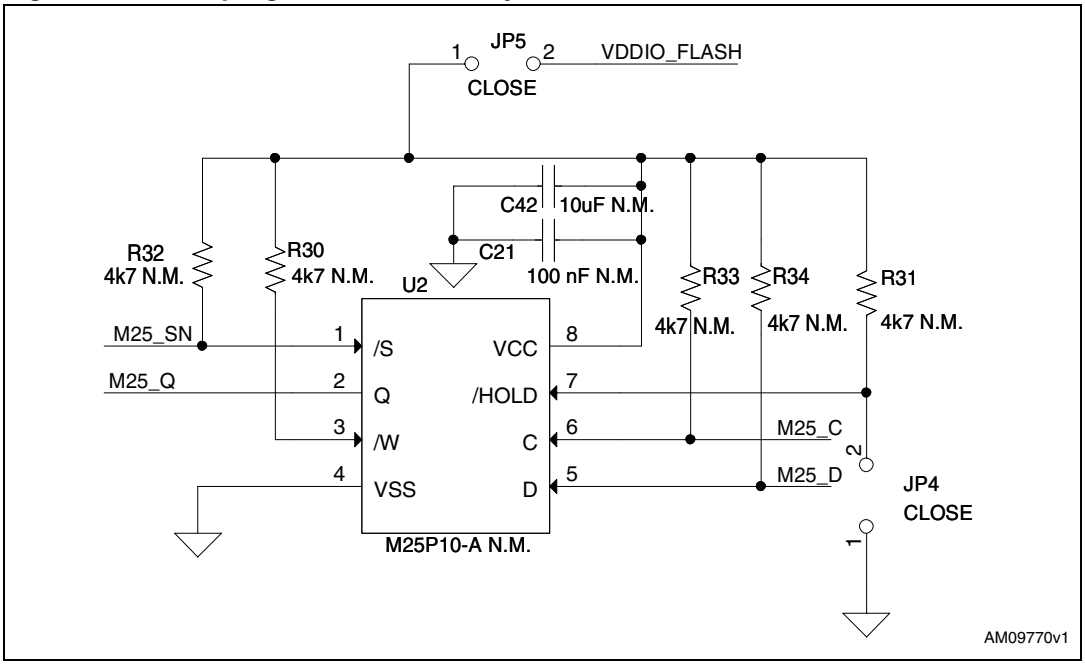


Figure 16. Power supply section

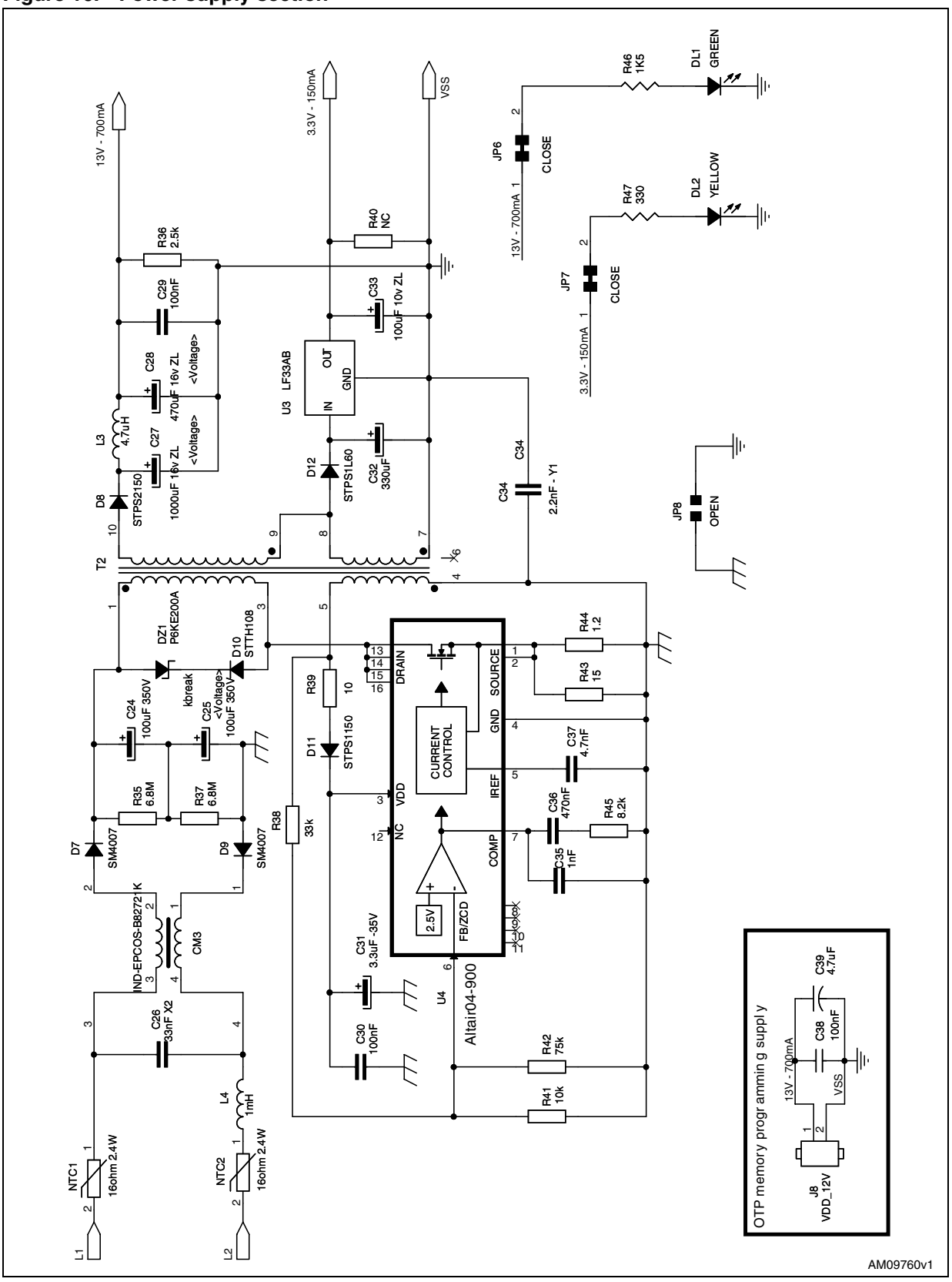


Figure 17. RS232/IRDA section

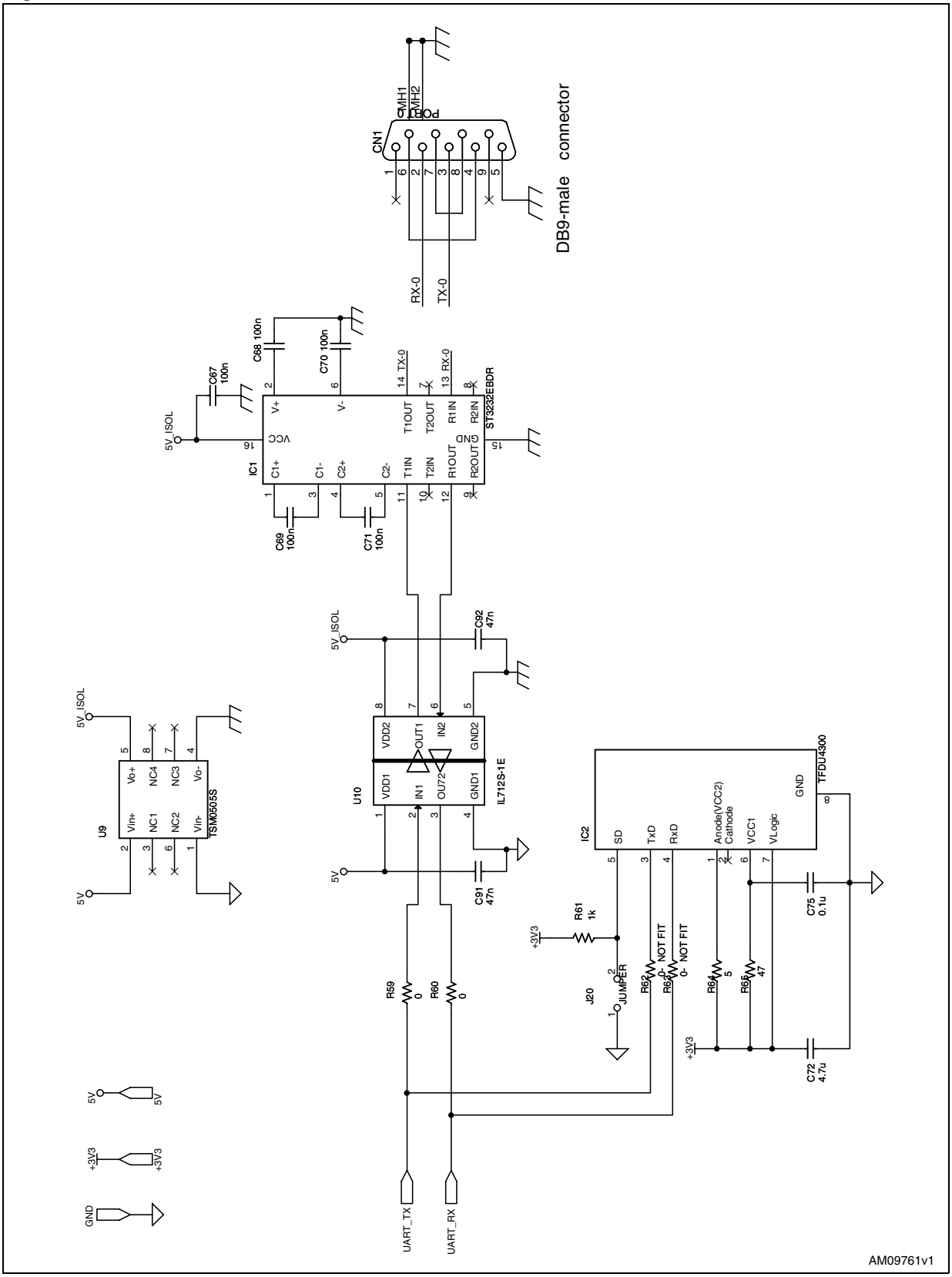


Figure 18. SC interface/user inputs section

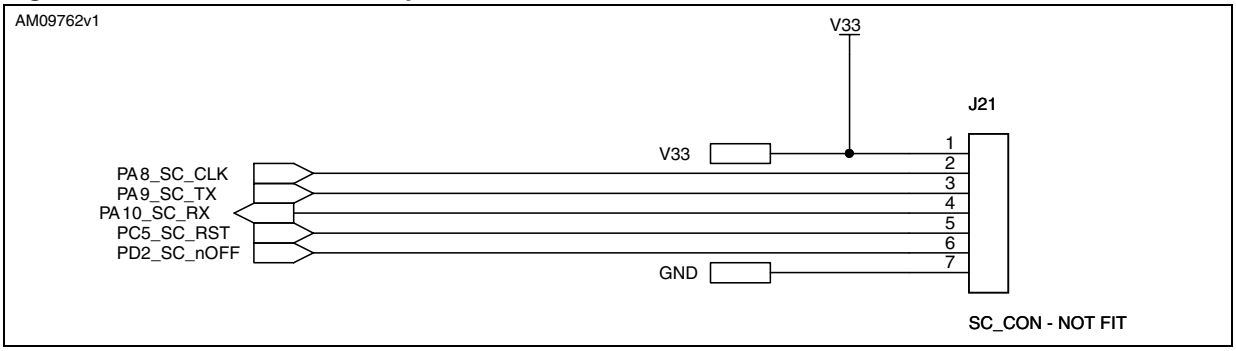


Figure 19. ZigBee® module section

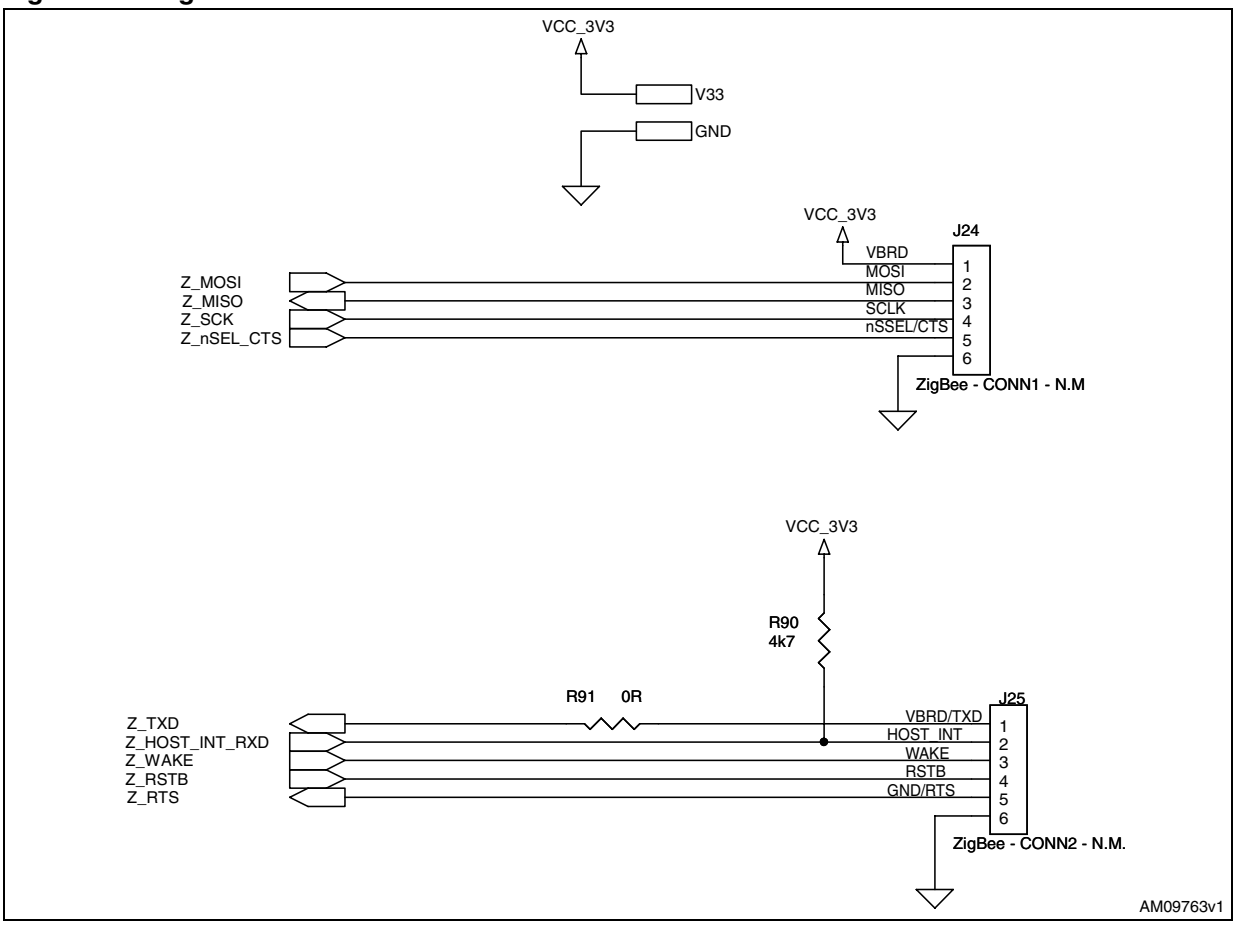
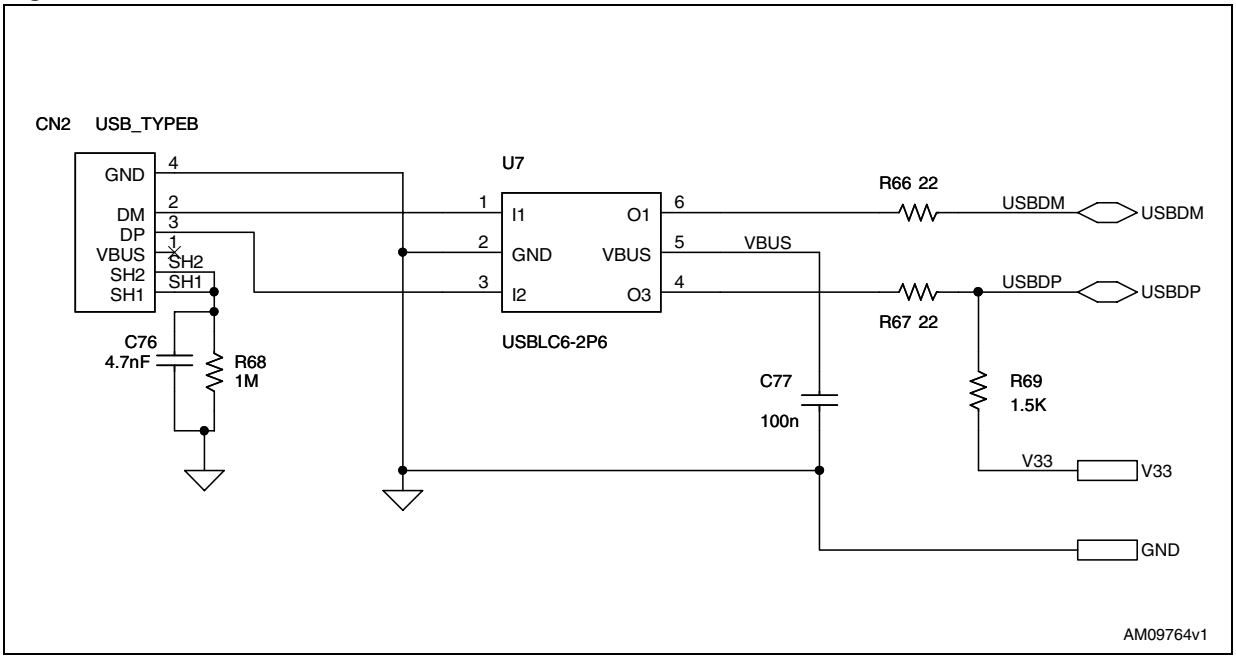


Figure 20. USB section



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
12-May-2011	1	Initial release.
24-Aug-2011	2	Updated *Figure 16: Power supply section* with a new controller.

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