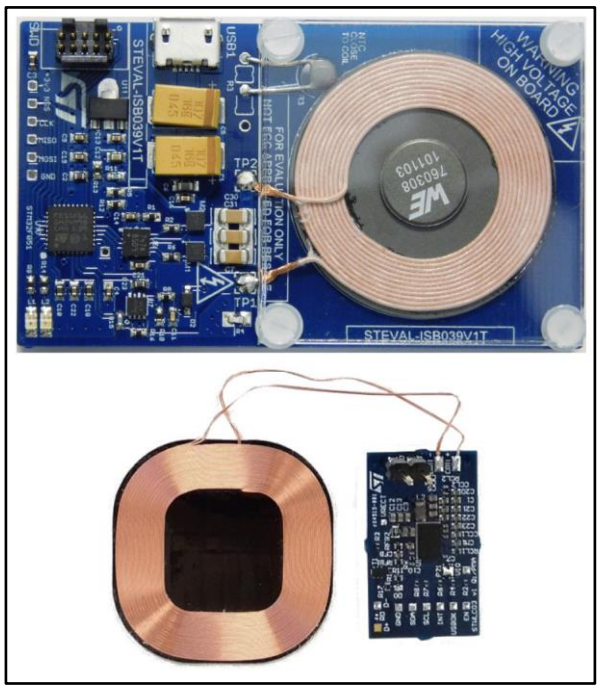
STEVAL-ISB039V1

1 W wireless charger system Tx/Rx based on STM32F0 and STWLC03

Data brief



Features

- STM32F0 for wireless power transmitter and STWLC03 for wireless power receiver
- 1 W output power
- WPC 1.1 based communication protocol
- Main features of transmitter:
  - high efficiency N-channel Half Bridge architecture with adaptive dead-time control
  - synchronous digital demodulation of power carrier, reduces BoM considerably
  - standard or enhanced power transmitter coil
  - coil temperature monitoring through NTC
  - MCU firmware open for customization
  - built-in USB connector for input supply voltage
- Main features of receiver:
  - integrated high efficiency synchronous rectifier
  - integrated 1 MHz programmable buck converter with input current and input voltage regulation loops
  - Simplified Li-Ion/Polymer charger function
- RoHS compliant

Description

The STEVAL-ISB039V1 is a wireless battery charger evaluation kit based on the STM32F0 microcontroller for wireless battery charger transmitters and the STWLC03 integrated wireless power receiver.

The STEVAL-ISB039V1 solution is primarily designed for small systems up to 1 W that can be recharged easily, and can be adjusted for 2.5 W.

For the wireless power transmitter, the firmware consists of a single STM32CubeMX platform-independent library providing a simple and easily customizable solution for the design of wireless power transmitters with proprietary features.

The STWLC03 receiver can deliver the output power in two modes: as a power supply with configured output voltage or as a simple CC-CV battery charger with configurable charging current, charging voltage and termination current.

The I²C interface allows the customization of parameters in the device and and the storage of configurations in the embedded non-volatile memory.

1 Schematic diagrams

Figure 1: STEVAL-ISB039V1 circuit schematic of transmitter (1 of 3)

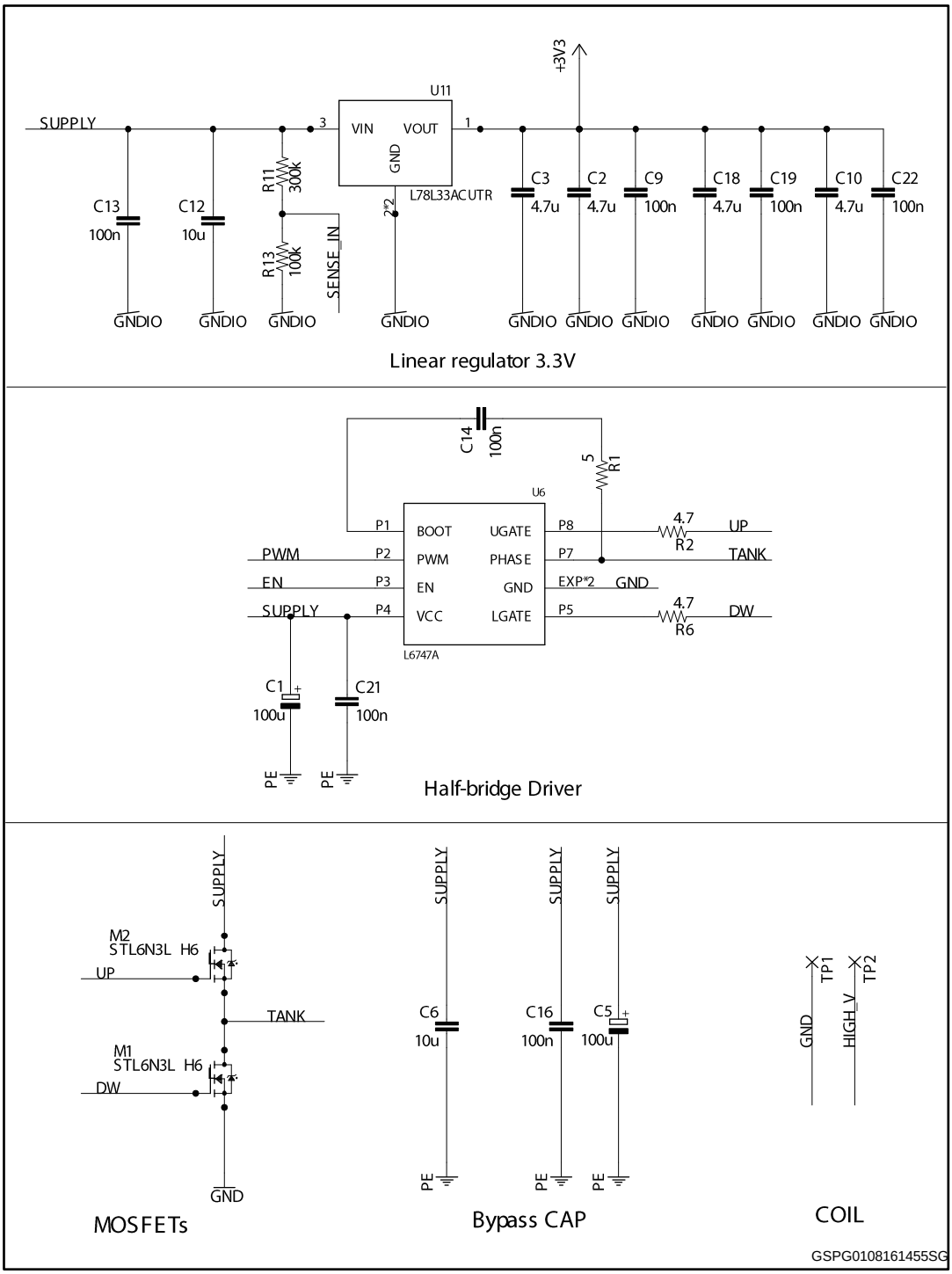


Figure 2: STEVAL-ISB039V1 circuit schematic of transmitter (2 of 3)

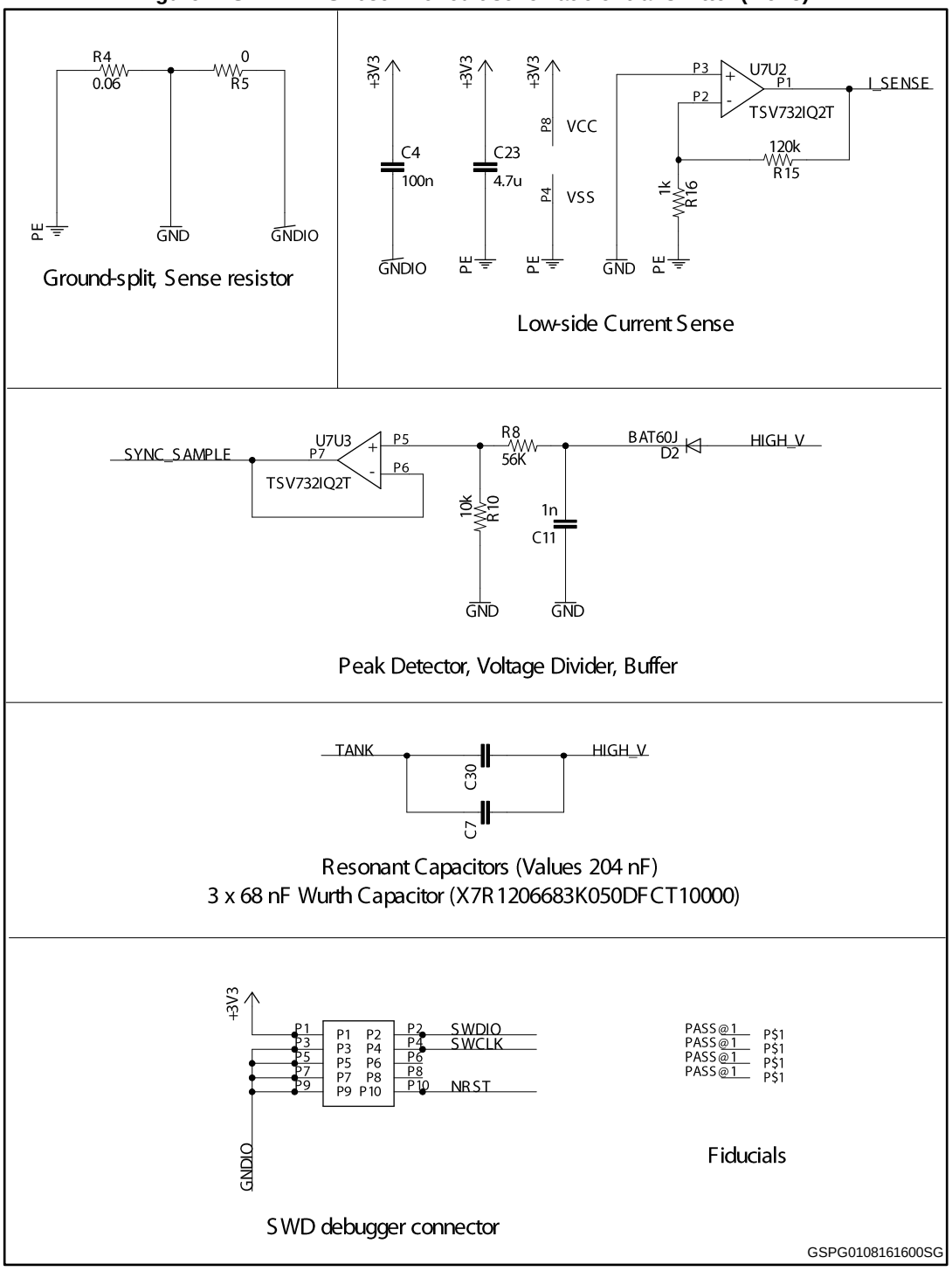


Figure 3: STEVAL-ISB039V1 circuit schematic of transmitter (3 of 3)

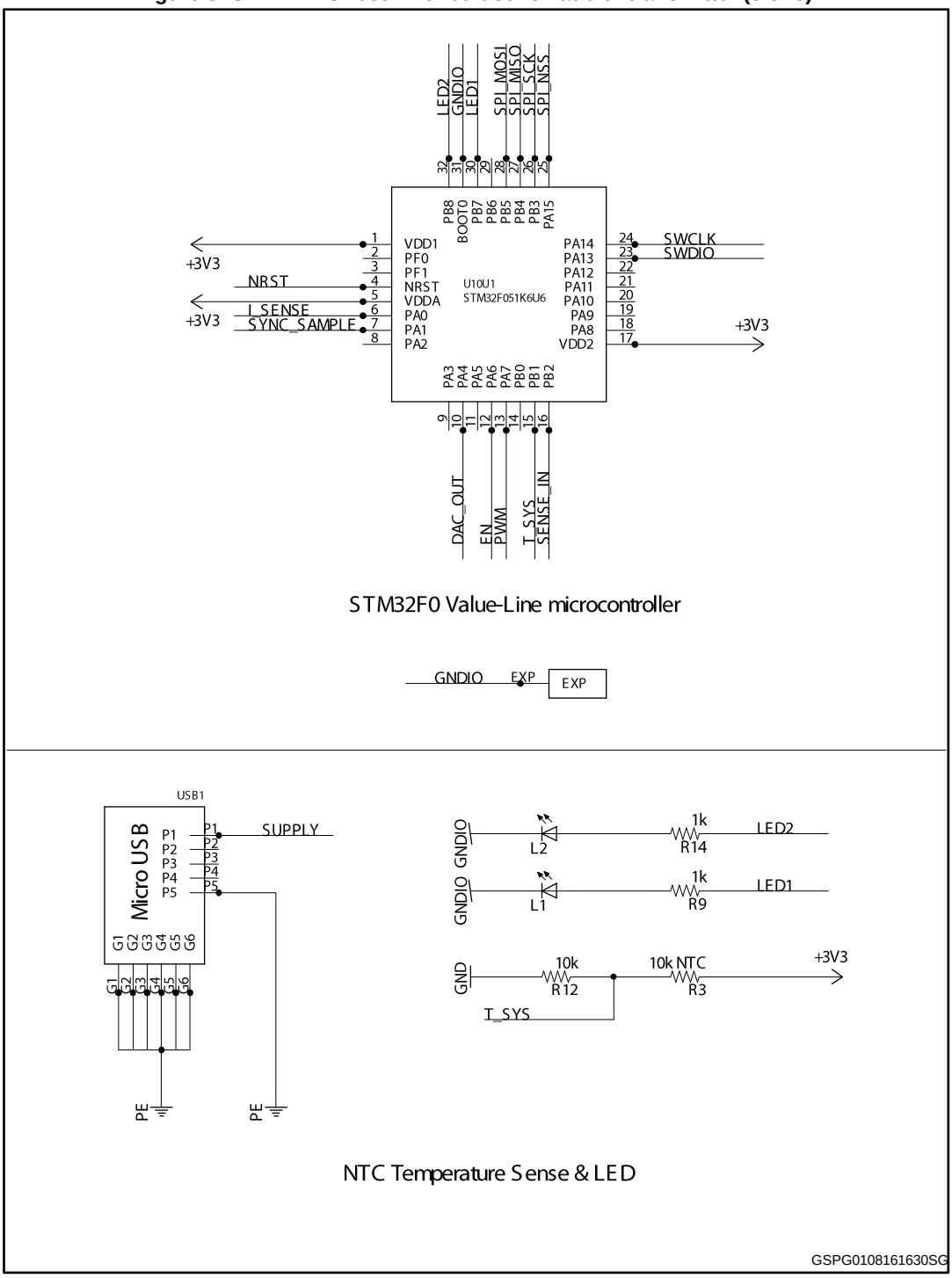
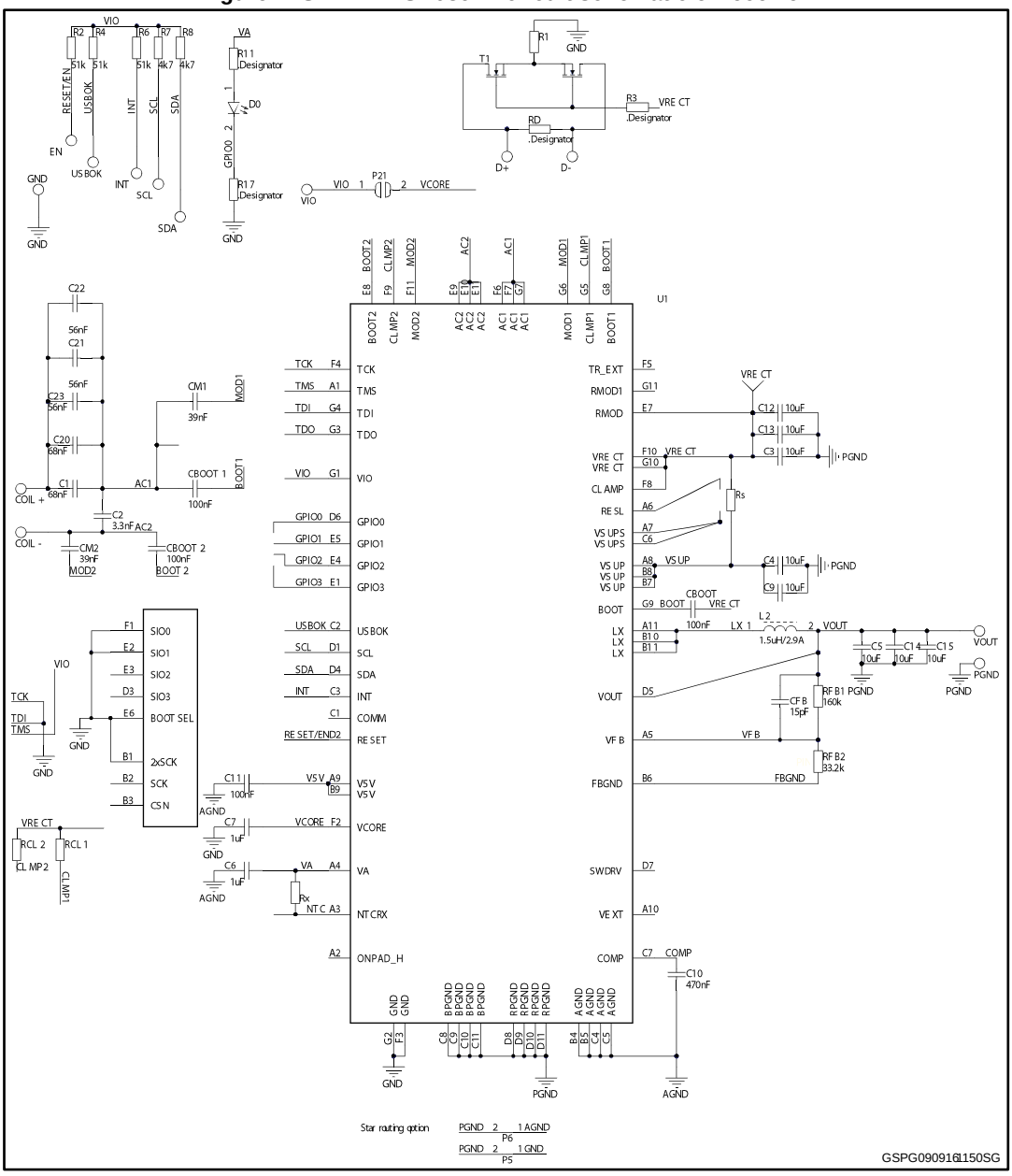


Figure 4: STEVAL-ISB039V1 circuit schematic of receiver



2 Revision history

Table 1: Document revision history

Date	Version	Changes
15-Sep-2016	1	Initial release.

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