

1 W wearable wireless power transmitter based on STWBC-WA

Data brief



- Foreign Object Detection (FOD) optional
- Graphical interface for monitoring behavior
- Total reference design
- RoHS compliant
- STWLC04 wireless power receiver
 - Output voltage: 5 V regulated voltage
 - Integrated high efficiency synchronous rectifier
 - Li-Ion/Li-Pol charger functionality
 - 4-layer PCB for easy design

Description

STEVAL-ISB038V1T is the wireless battery charger transmitter module in the STEVAL-ISB038V1 Reference Design Kit.

The STEVAL-ISB038V1 is a wireless battery charger evaluation kit designed for ultra-compact battery operated devices such as wearable gear, smartwatches, Internet Of Things sensors, medical devices, etc.

The kit supports wireless power transfer of 1 Watt over an 11 mm coil on the receiver side and 20 mm on transmitter side.

The kit configuration delivers 1 Watt of power at the receiver side.

While the Kit is configured to support low power (1 W) applications, it can support up to 3 W applications with wider coils or by switching to full-bridge configuration on the transmitters (documentation available on KIT webpage at www.st.com).

The STWBC-WA transmitter is based on a cost-effective half bridge topology (full-bridge optional) offering the flexibility of a powerful software API allowing LED and GPIO control, as well as adding external interfaces via I²C and UART communication ports.

Features

- STWBC-WA based wireless power transmitter
 - Additional transmitter module compatible with the STEVAL-ISB038V1 reference kit
 - Cost effective Half Bridge topology with integrated drivers
 - Optional Full Bridge configuration for 3 W applications
 - Active presence detector
 - 2-layer PCB for easy design
 - Turnkey solution or customizable via APIs
 - Parametric customization via graphical interface
- Full KIT characteristics:
 - 11 mm coil on Receiver
 - 20 mm coil on Transmitter
 - 1 Watt delivered on Receiver side
 - USB 5 V input

1 Continued description

The STWLC04 receiver can deliver the output power in the following modes:

1. as a power supply with configured output voltage
2. as a CC/CV battery charger with configurable charging current and voltage

The full kit provides the STWBC-WA demo board, the STWLC04 demo board, a graphical interface to monitor the transmitter behavior, schematics, layout files and bill of materials.

Tools for the STEVAL-ISB038V1 are available on www.st.com and allow users to access runtime information such as the power delivered or the protocol status, as well as adjust certain parameters.

2 Schematic diagrams

Figure 1: STEVAL-ISB038V1T transmitter control stage

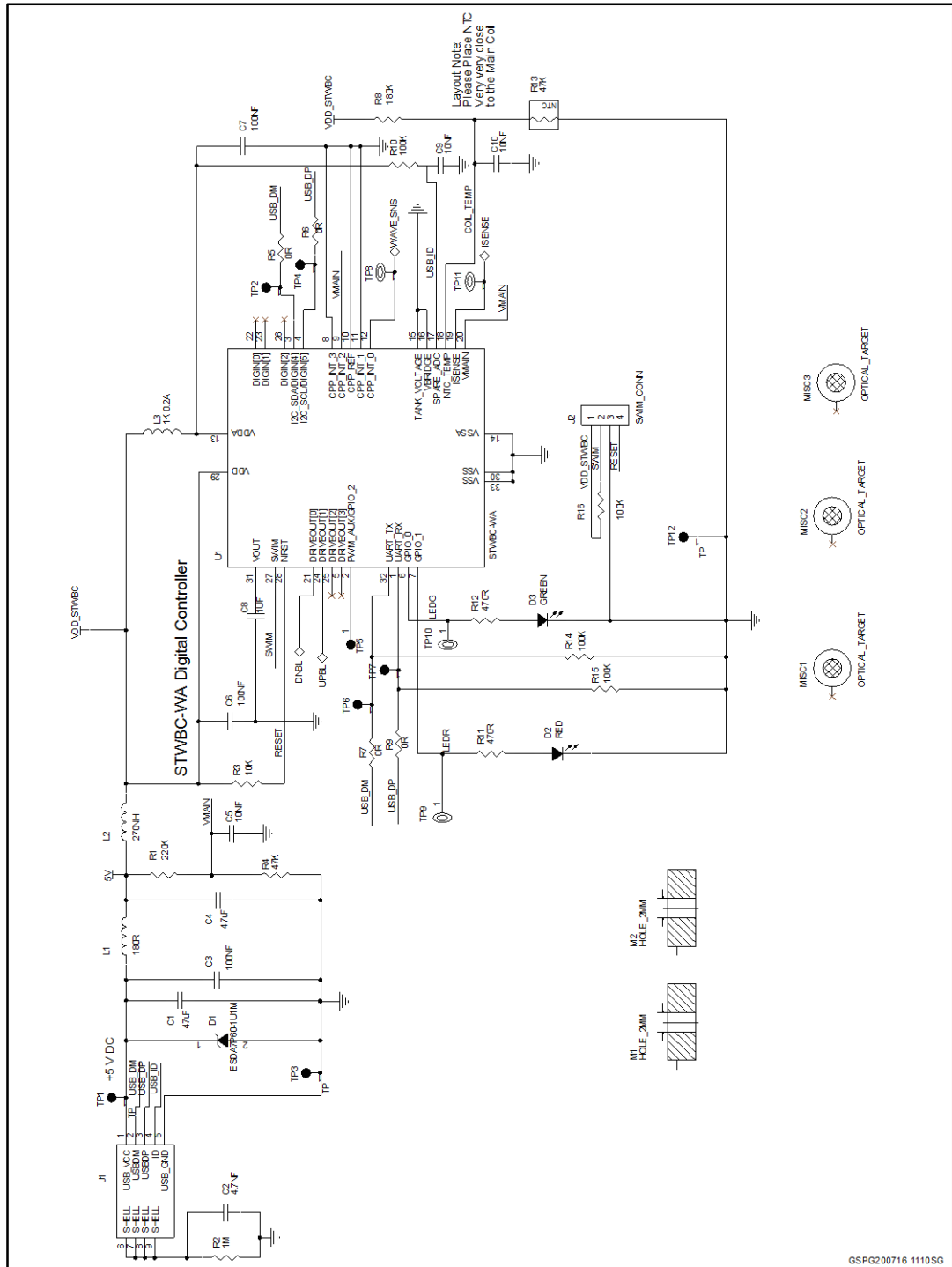


Figure 2: STEVAL-ISB038V1T transmitter power stage

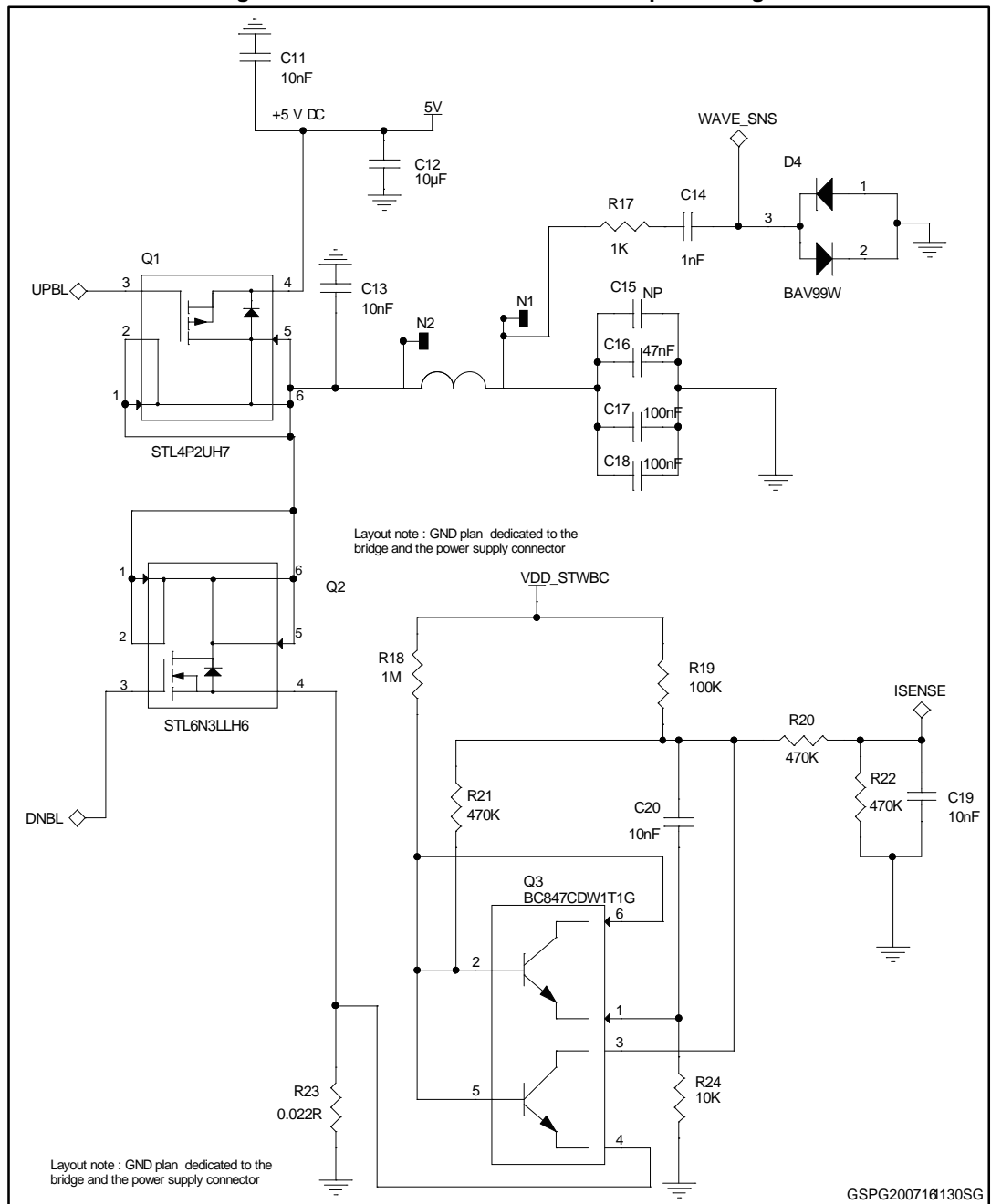
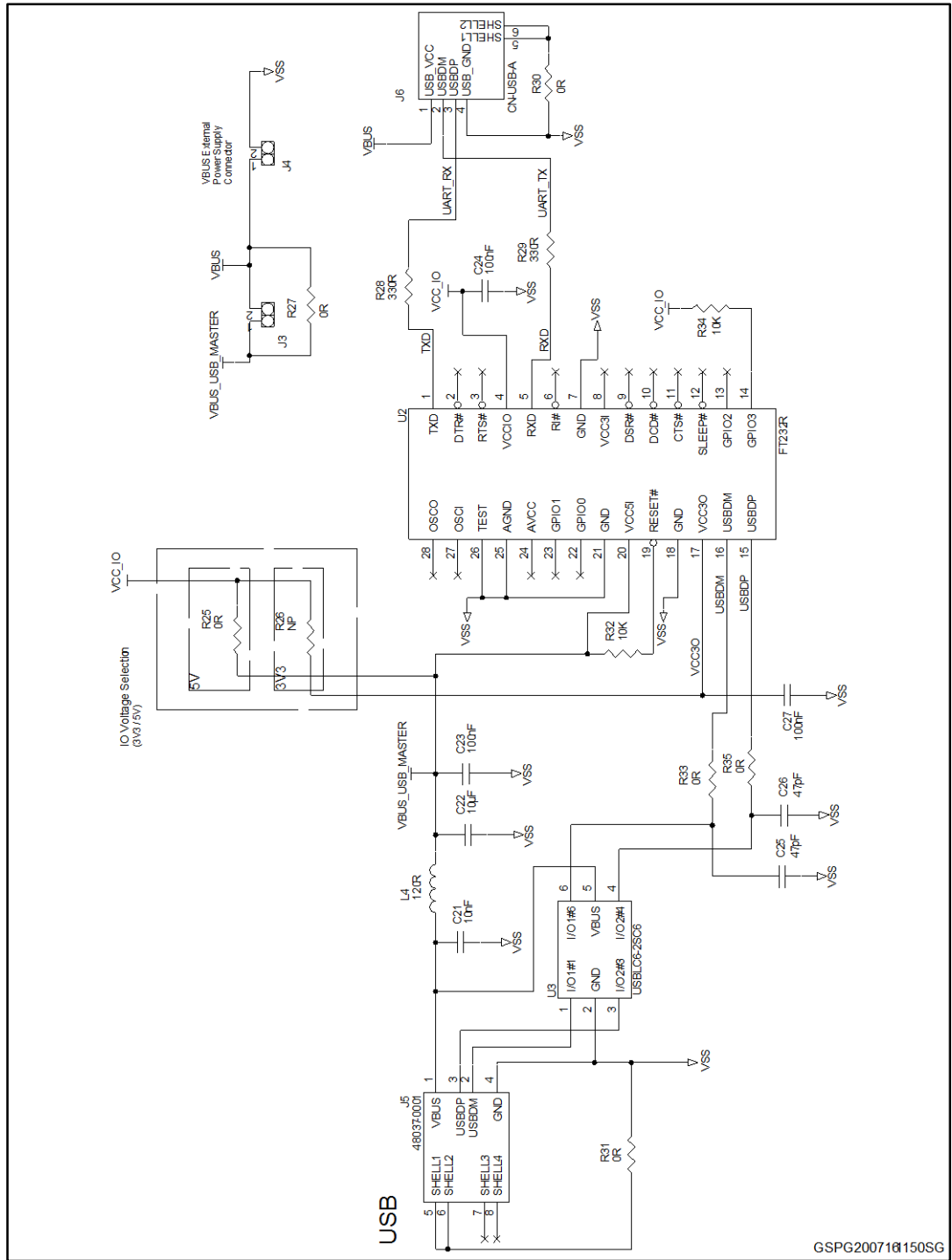


Figure 3: STEVAL-ISB038V1T USB to UART dongle



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3 Revision history

Table 1: Document revision history

Date	Version	Changes
03-Aug-2016	1	Initial release.

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