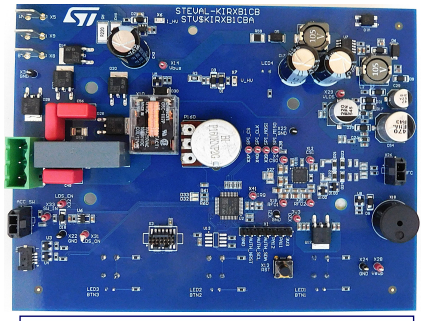
# STEVAL-KIRXB1CB

Data brief

## Ki cordless kitchen receiver (blender) evaluation board




The picture shown is for illustration purpose only.
Actual product may vary depending on buyer's selection and availability.

## Features

- Designed for Ki cordless kitchen receiver (blender)
- Dynamic power transfer with Ki control type 0
- NFC based communication between transmitter and receiver
  - Enables auxiliary power and bidirectional data path
  - Essential for interoperability and safety
- Comprehensive safety mechanisms
- Market-proven BOM, adopted in Ki certified products currently available on the market

## Description

The STEVAL-KIRXB1CB is a Ki cordless kitchen receiver, specifically designed for blender appliances to be powered and controlled via a Ki wireless power transmitter (STEVAL-KITXCB).

Ki cordless kitchen is a relatively new standard for wireless power initiated by the Wireless Power Consortium (WPC). This standard targets to replace traditional kitchen appliances using power cords (for example, mixer, toaster, rice cooker, coffeemakers) and to combine eventually with induction cooktop with efficiency > 90% of equivalent corded devices required up to 2.2 kW.

Thanks to the ST25R3918 multipurpose NFC transceiver, the system ensures seamless communication and power negotiation with the base station (PTx) to optimize power transfer in static mode and ensure safety compliance.

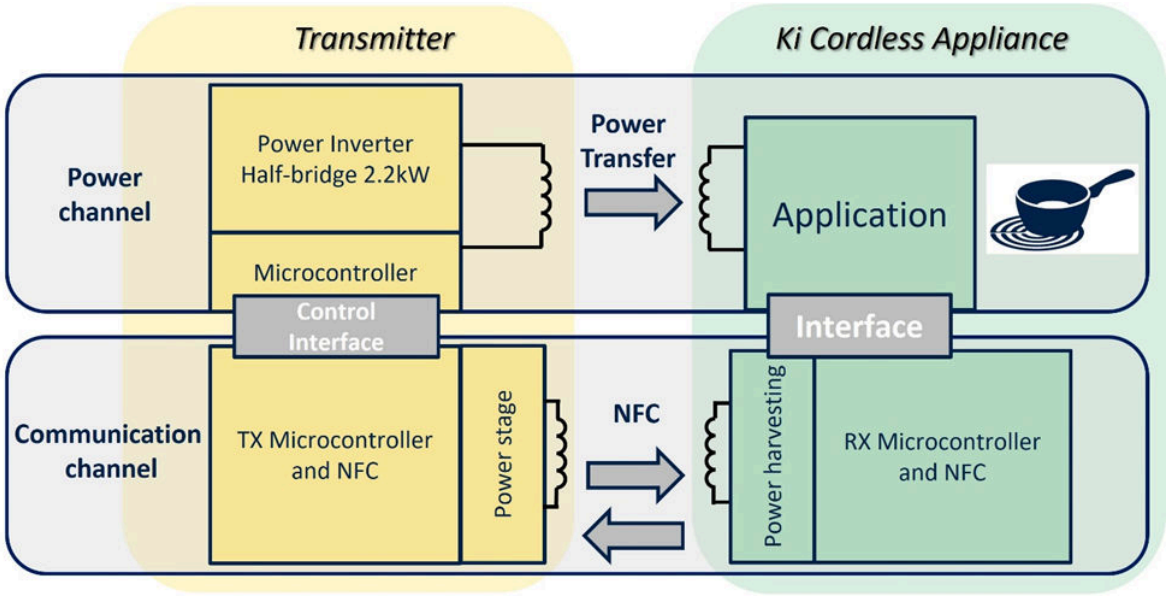
The STEVAL-KIRXB1CB also integrates energy harvesting to power up the user interface, minimize standby energy consumption, and support low-power functions independently of the main power transfer.

Secure device authentication and pairing with the PTx is achieved using the STSAFE secure element, providing reliable verification.

| Product summary | |
|---|---|
| Ki cordless kitchen receiver (blender) evaluation board | STEVAL-KIRXB1CB |
| Ki cordless kitchen transmitter evaluation kit | STEVAL-KITXCB |
| Multi-purpose NFC transceiver | ST25R3918-AQET |
| Mainstream Arm Cortex-M0+ MCU with 128 Kbytes of Flash memory, 36 Kbytes RAM, 64 MHz CPU, 4x USART, timers, ADC, DAC, comm. I/F, 1.7-3.6V | STM32G071CBT6 |
| VIPerPlus family: Low voltage energy saving fixed frequency high voltage converter | VIPER013HS |
| 600 V, 5 A Ultrafast Diode | STTH506B-TR |
| Applications | Induction cooking |

# 1 Ki cordless kitchen architecture block diagram

Figure 1. **Ki cordless kitchen architecture**



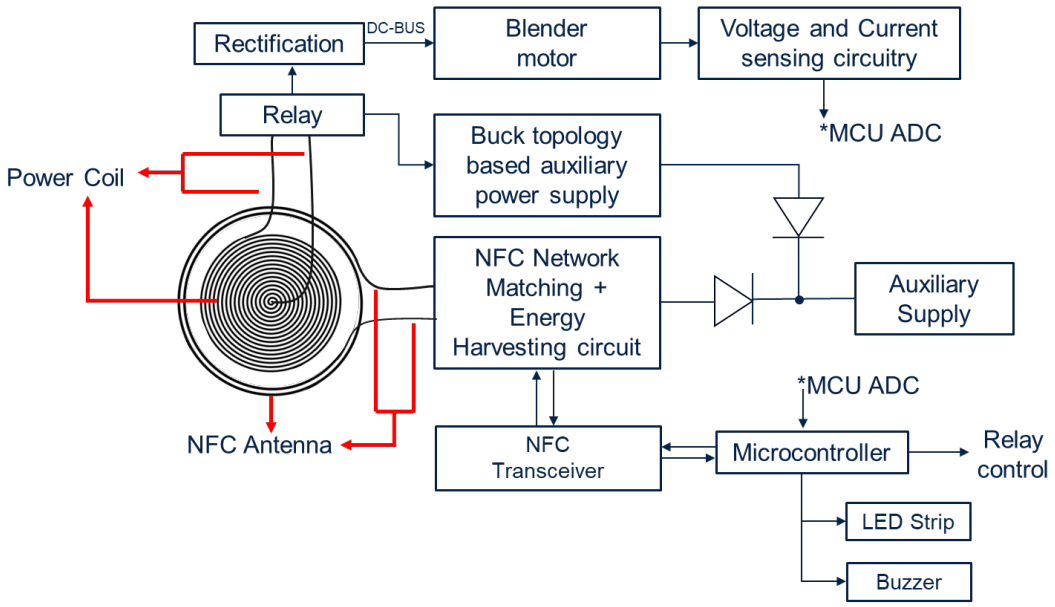

The architectural block diagram has been highlighted in Figure 1.

The blender receives power wirelessly through inductive coupling, eliminating the need for direct electrical contacts, enhancing safety (no cords, liquids spilled) and convenience in kitchen environments.

The communication between transmitter and ki appliances is based on NFC.

# 2 STEVAL-KIRXB1CB block diagram

**Figure 2. STEVAL- KIRXB1CB ki cordless kitchen receiver (blender) block diagram**




In addition to efficient power reception, the STEVAL-KIRXB1CB evaluation board features an integrated NFC section—including front-end circuitry and matching network—along with an NFC energy harvester, a high-voltage auxiliary power supply, and a load disconnect switch to support essential protection functions.

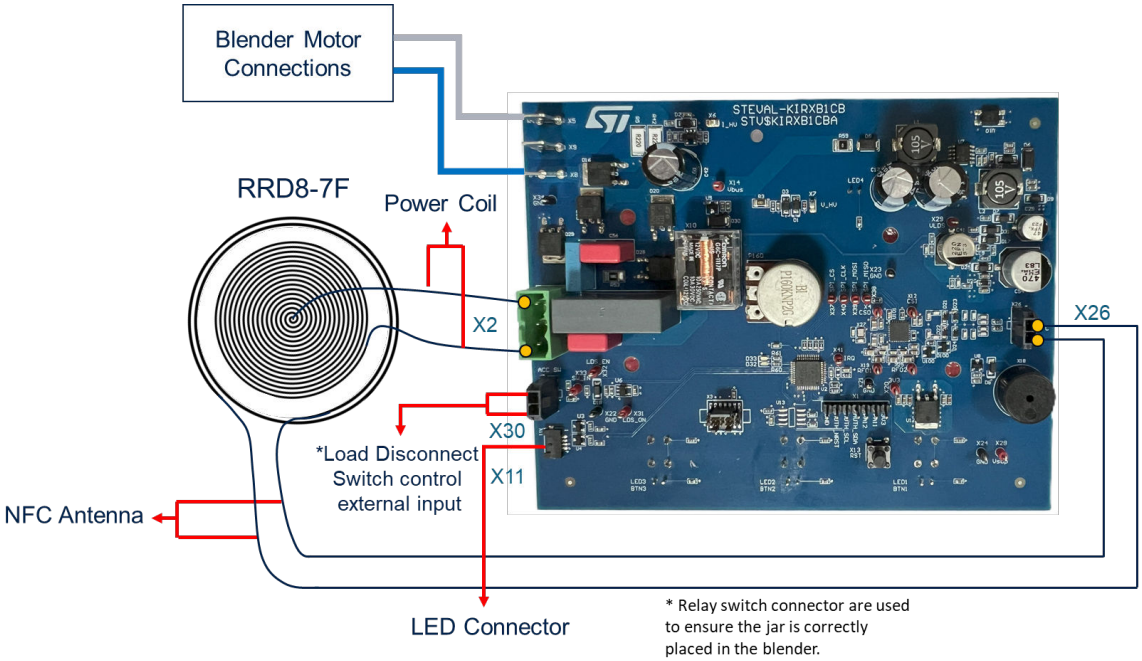
The STEVAL-KIRXB1CB features a rectification stage, to provide DC bus to the motor, along with RMS voltage sensing to control motor speed.

During connected mode, the user interface of the receiver is supplied by NFC energy harvesting (limited to 200 mW) and during power mode the NFC energy harvesting stops and auxiliary power supply is supplied by the buck topology-based circuitry.

To evaluate the performance, the connections of the evaluation board with the blender have been highlighted in Figure 3.

The power coil used is RRD8 (You can refer to the ki standard) and the STEVAL-KIRXB1CB has been tested and validated on blender with model "PHILIPS blender HR7776/90R1 7000 series food processor".

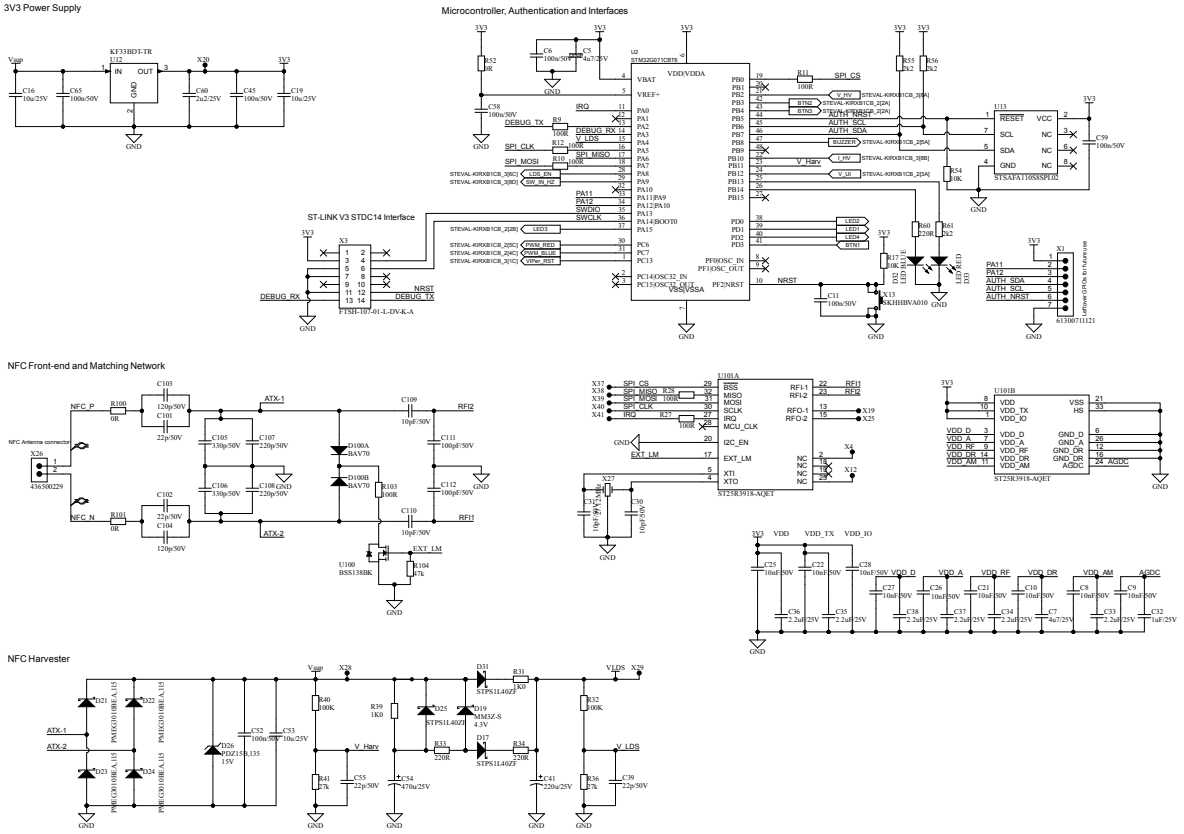
**Figure 3. STEVAL- KIRXB1CB connection diagram**



# 3 Schematic diagrams

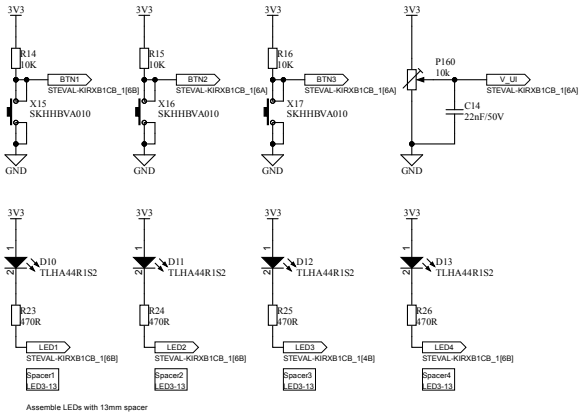
*Notice: These schematics are for illustration purpose only. Actual product may vary depending on buyer's selection and availability.*

**Figure 4. STEVAL-KIRXB1CB - Circuit schematic (1 of 3)**

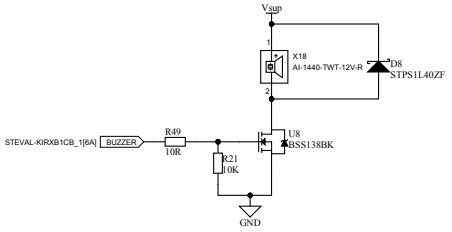


## Figure 5. STEVAL-KIRXB1CB - Circuit schematic (2 of 3)

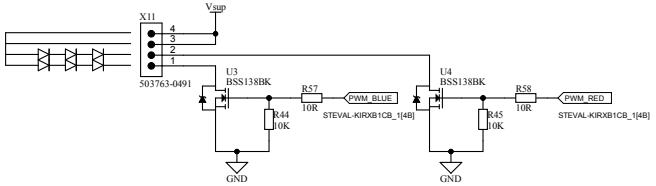
UI



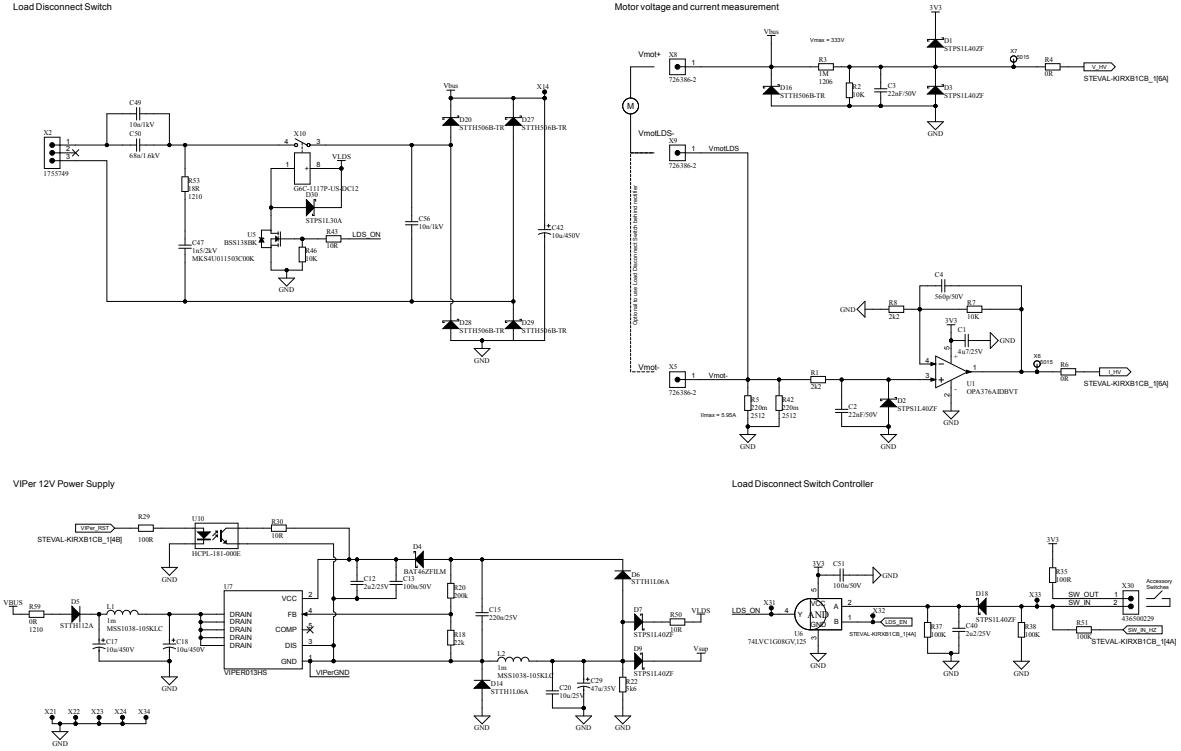

BUZZER




LED Strip PWM



## Figure 6. STEVAL-KIRXB1CB - Circuit schematic (3 of 3)



# 4 Custom evaluation boards information

*Notice:* *These evaluation boards are custom designed and built, in small quantities, according to specific requests from customers and are destined for evaluation and testing of ST products in a research and development setting. Please contact ST to provide your specific requests and get your custom built board(s).*

# Revision history

Table 1. **Document revision history**

| Date | Revision | Changes |
|---|---|---|
| 22-Dec-2025 | 1 | Initial release. |

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