

Electronic shelf label (ESL) based on Bluetooth® LE



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

Features

- Ultralow power wireless STM32WB09KE microcontroller based on the Arm Cortex®-M0+ core, featuring 512 Kbytes of flash memory and 64 Kbytes of SRAM in a VFQFPN32 package
- Supports Bluetooth® LE SIG specification v5.4 PAwR feature
- ST25DV04KC-IE6C3 dynamic NFC/RFID tag IC with 4-Kbit EEPROM
- On-board 2.4 GHz PCB antenna
- On-board 13.56 MHz inductive antenna
- STLINK-V3SET target connector
- User LED
- User and reset push buttons
- 1.54 inches E-Ink display
- CR2032 battery holder
- Dedicated STM32 hotspot containing firmware and setup guide

Product summary

Electronic shelf label (ESL) based on Bluetooth® LE	STEVAL-ESL1KCB
Ultra-low-power, Arm Cortex-M0+ MCU 64 MHz	STM32WB09KEV6TR
Dynamic NFC/RFID tag IC with 4-Kbit EEPROM	ST25DV04KC-IE6C3
Application	Electronic shelf labels

Description

The STEVAL-ESL1KCB is a modular application example of a wireless electronic shelf label (ESL) featuring Bluetooth® LE and NFC connectivity. The kit includes two boards.

The STEVAL-ESLWB0CB with the ultralow power wireless STM32WB09KE microcontroller grants the communication with another Bluetooth® LE device acting as an access point to set the ESL display (price, text, icons) via PAwR packets.

The STEVAL-ESLST25CB with the ST25DV04KC dynamic NFC/RFID tag IC stores more product information like the address of a web page.

The STEVAL-ESLWB0CB can run the ESL application STM32WB0-BLE-PAwR-ESL.

1 Schematic diagrams

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

Figure 1. STEVAL-ESLWB0CB circuit schematic (1 of 6)

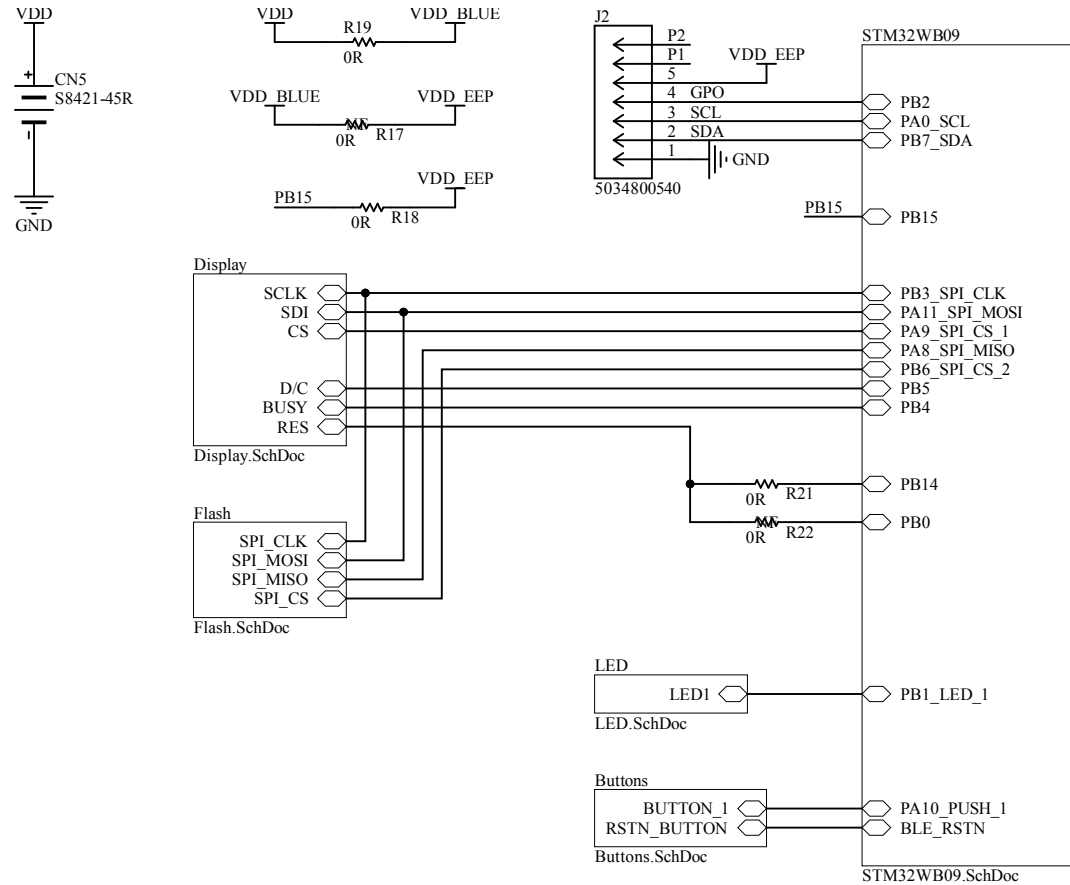


Figure 2. STEVAL-ESLWB0CB circuit schematic (2 of 6)

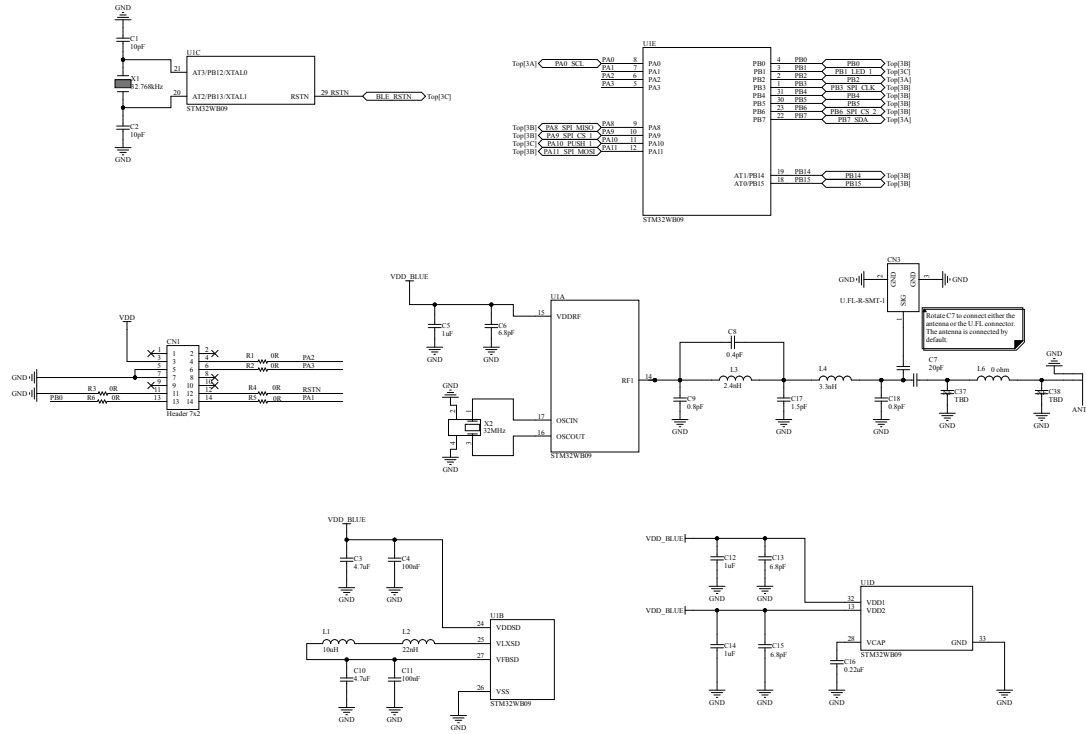


Figure 3. STEVAL-ESLWB0CB circuit schematic (3 of 6)

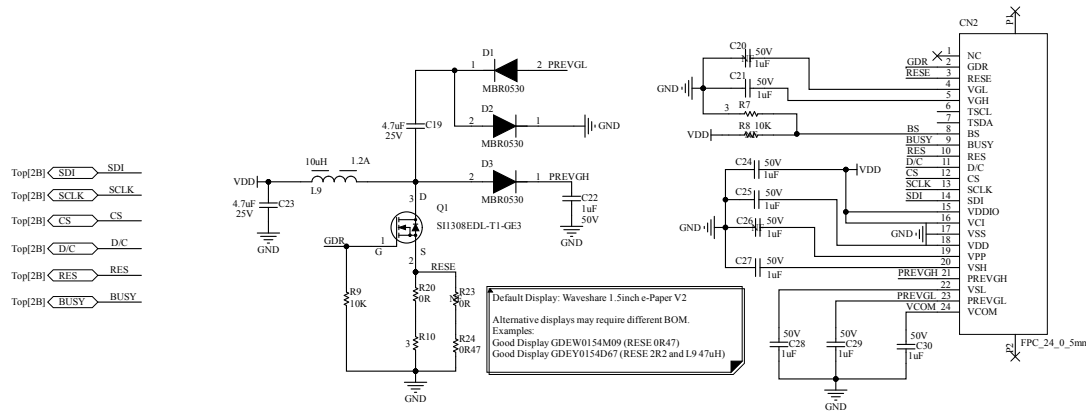


Figure 4. STEVAL-ESLWB0CB circuit schematic (4 of 6)

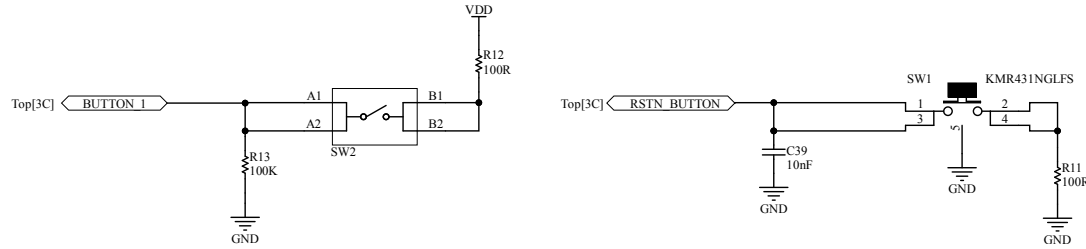


Figure 5. STEVAL-ESLWB0CB circuit schematic (5 of 6)

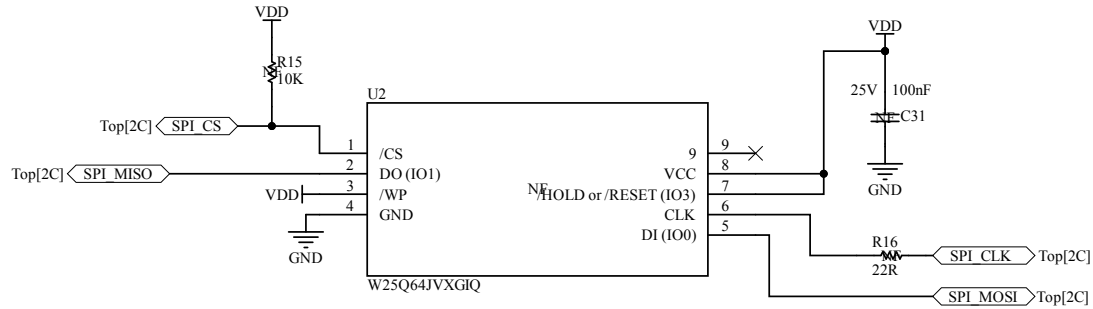


Figure 6. STEVAL-ESLWB0CB circuit schematic (6 of 6)

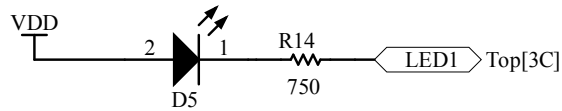
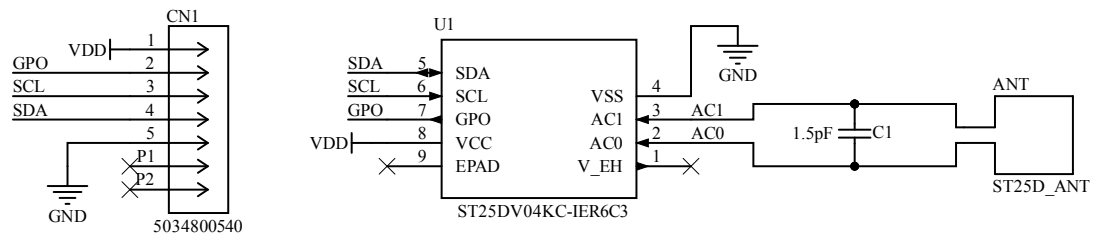


Figure 7. STEVAL-ESLST25CB circuit schematic





2 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
05-Mar-2025	1	Initial release.
08-Apr-2025	2	Updated Section 1: Schematic diagrams, Section Features and Section Description. Minor text changes.

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