

## Evaluation kit for Robotics applications



Product status link

[STEVAL-ROBKIT1](#)

### Features

- Modular design for different Robotics applications
- Based on High-Performance STM32H7 MCU
- DC Motor + STM32G0 Controller for navigation
- TOF sensor for Obstacle, Cliff detection
- Monochrome Camera
- On board external Flash and PSRAM memories
- Mobile App to control using phone
- 6-axis IMU sensor for Odometer
- Magnetometer for position accuracy
- Audio signal sensing using Low-distortion digital microphone
- Sound indication using Buzzer
- BLE Connectivity using certified BlueNRG-M2SA module
- LEDs & Keys for User interface
- 40 pin Raspberry Pi compatible GPIO Connector

### Description

**STEVAL-ROBKIT1** is a comprehensive robotics evaluation kit designed as a platform for the development of robotic technology and its applications.

The kit has a modular design, which consists of three boards: main board, motor control board, and imaging board.

The main board is powered by an STM32H725 MCU, which integrates various functionalities and controls the motor board and the imaging board.

The motor board is based on a STM32G071 microcontroller, dedicated for motor control and actuation using motor drivers to regulate the speed and direction of the robot's movements.

The imaging board is equipped with a Time-of-Flight (ToF) sensor and a camera module enabling it to perceive and interact with its surroundings intelligently.

Inertial measurement unit (IMU) and magnetometer enriches the board's capabilities by providing precise orientation and motion sensing, crucial for navigation and stability in dynamic environments.

Bluetooth® Low Energy (BLE) module facilitates seamless wireless communication, enabling the control using a mobile interface.

A dedicated firmware allows the robot to move autonomously and users to run different AI algorithms.



### Figure 1. STEVAL-ROBKIT1-1 schematic (1 of 12)

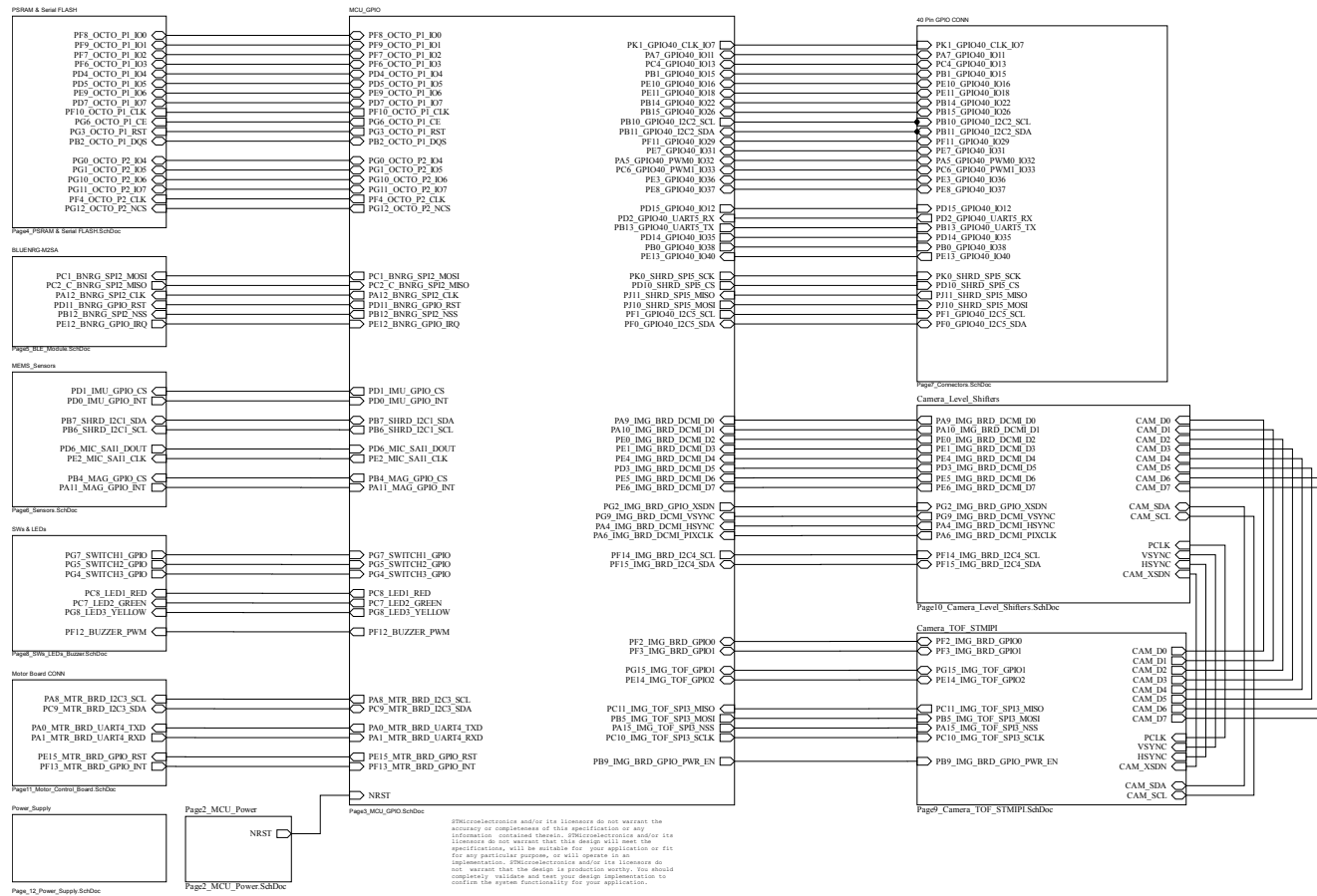
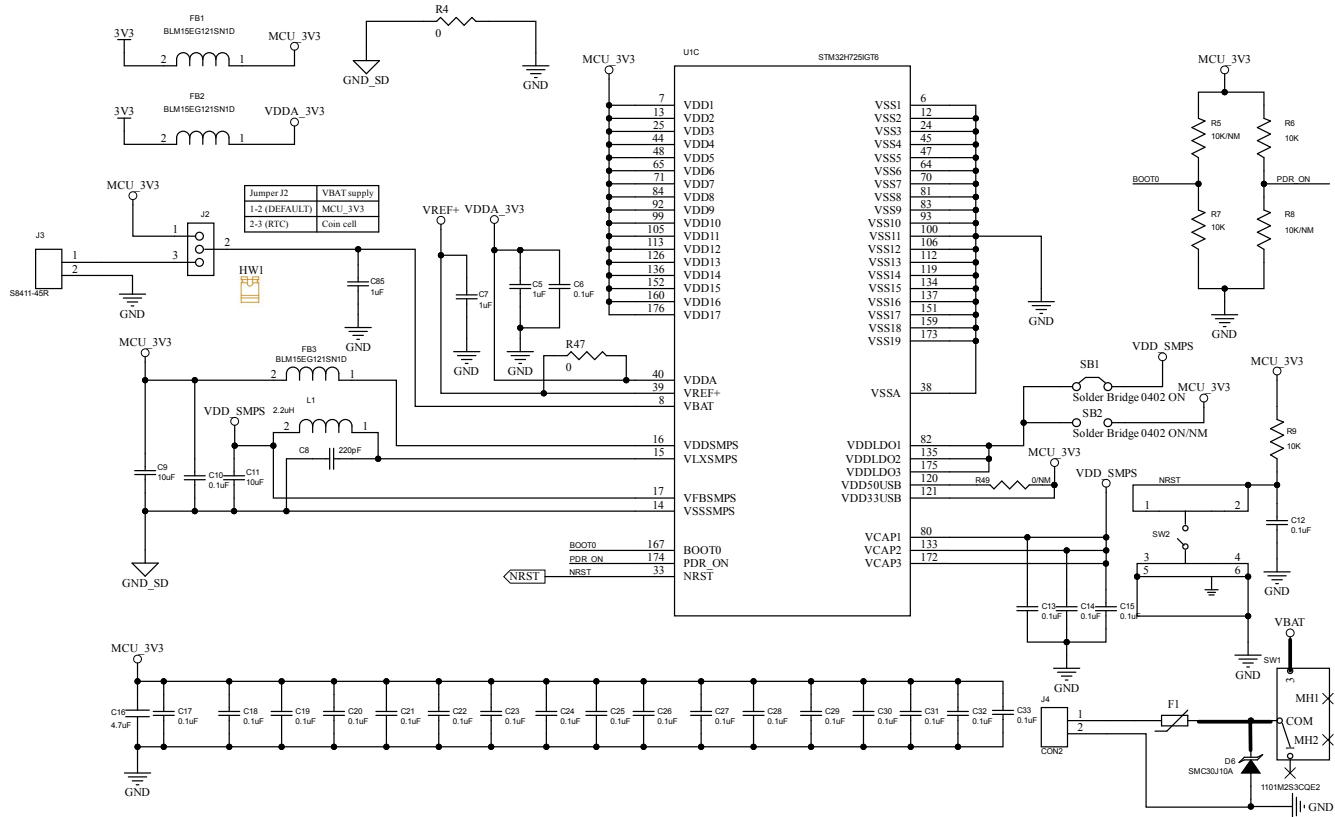


Figure 2. STEVAL-ROBKIT1-1 schematic (2 of 12)



FIDUCIAL1	FIDUCIAL2	FIDUCIAL3
Fiducial	Fiducial	Fiducial
Not Mounted	Not Mounted	Not Mounted
FIDUCIAL4	FIDUCIAL5	FIDUCIAL6
Fiducial	Fiducial	Fiducial
Not Mounted	Not Mounted	Not Mounted

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Figure 3. STEVAL-ROBKIT1-1 schematic (3 of 12)

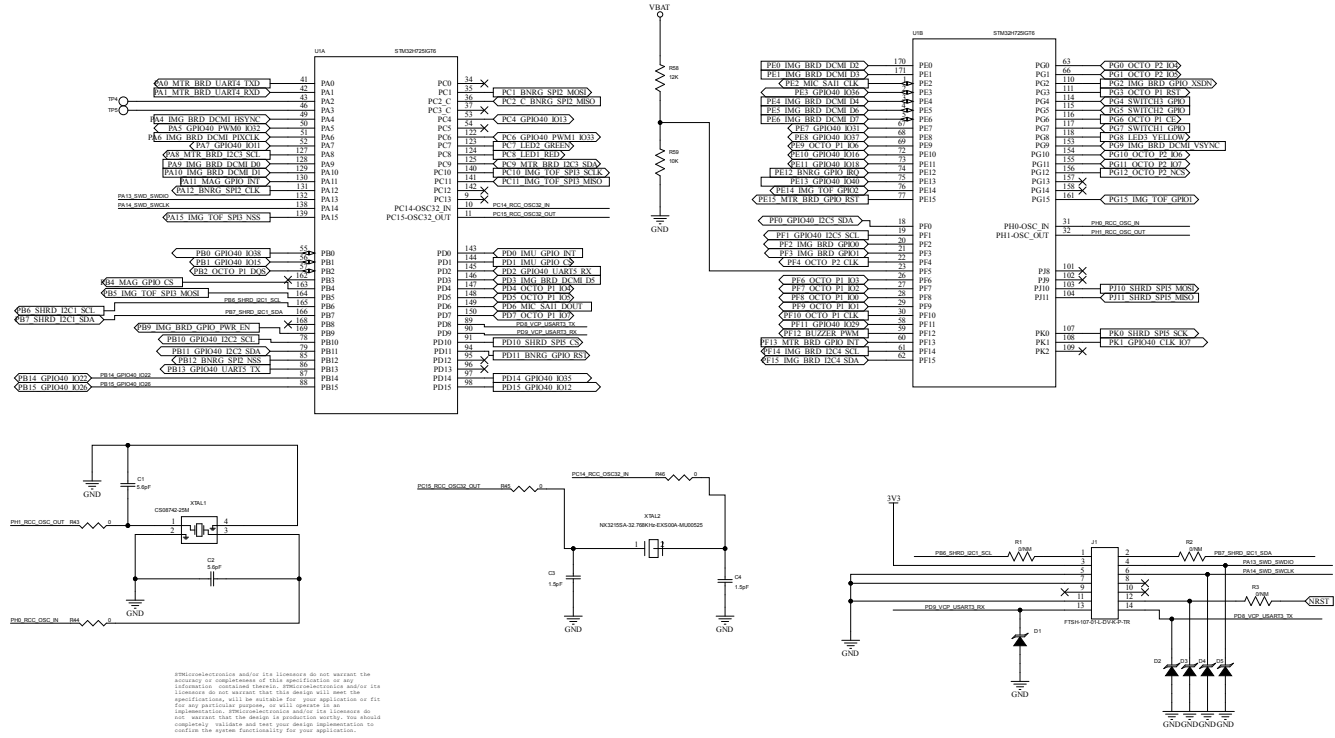
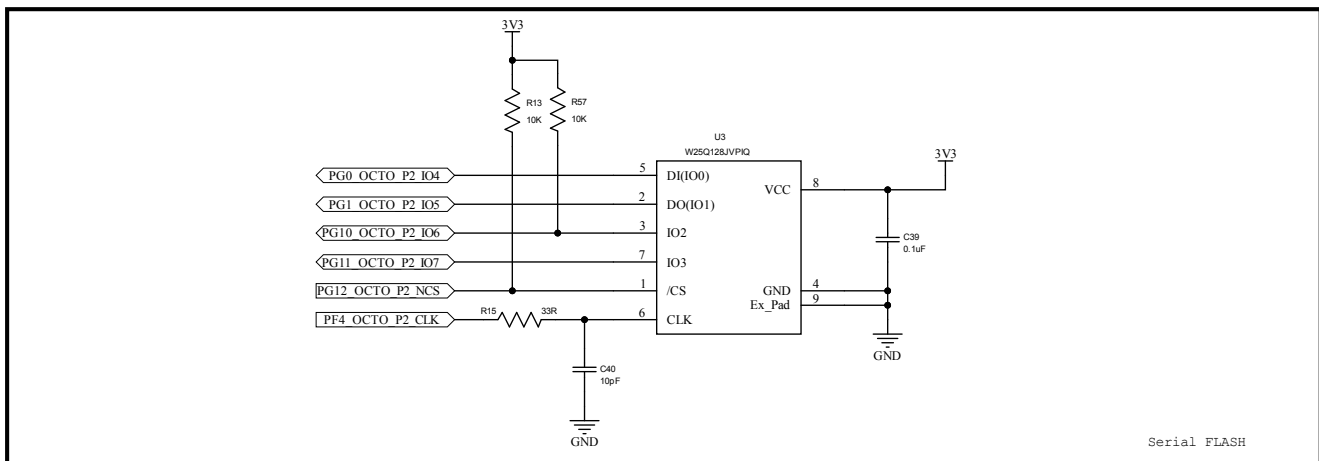
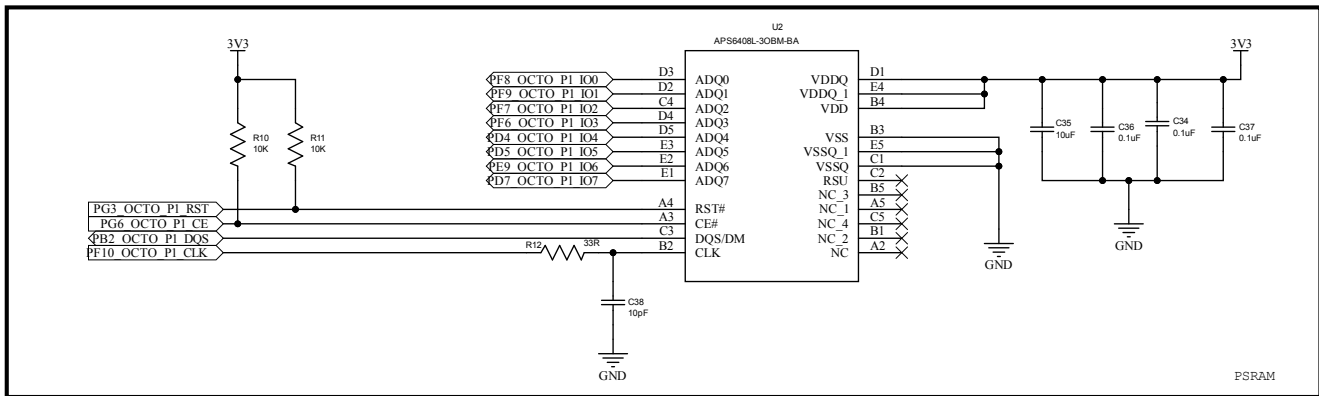


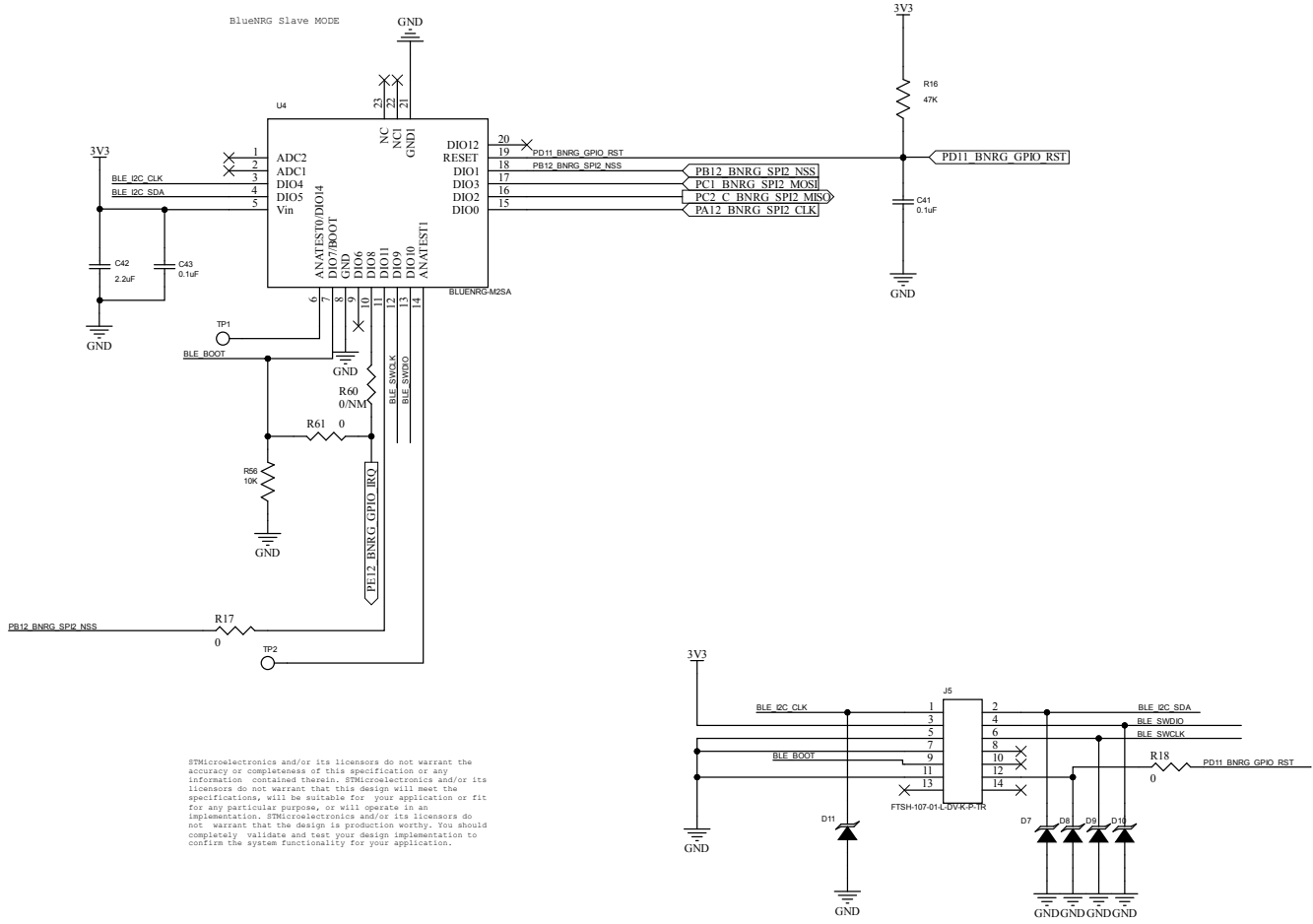
Figure 4. STEVAL-ROBKIT1-1 schematic (4 of 12)



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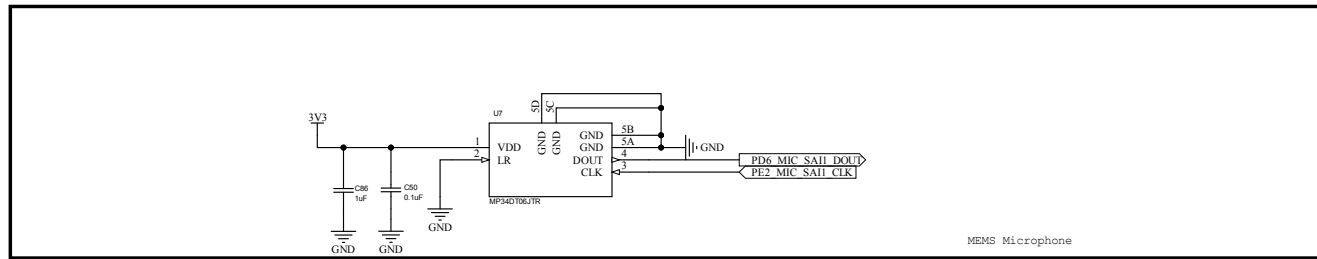
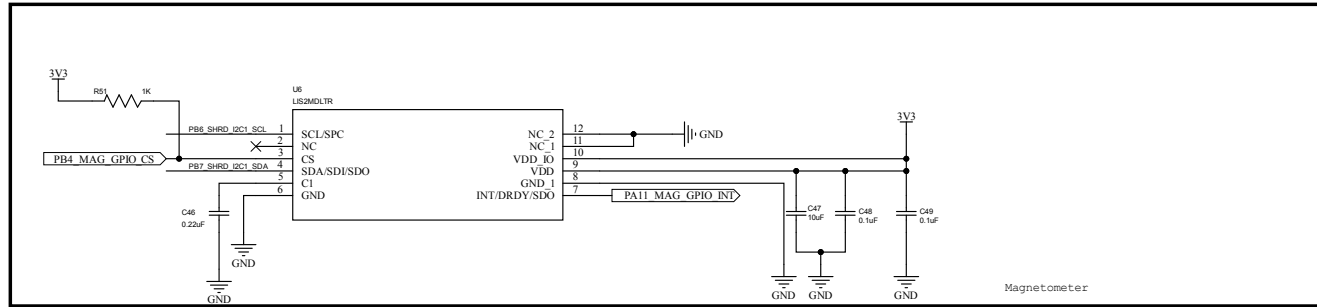
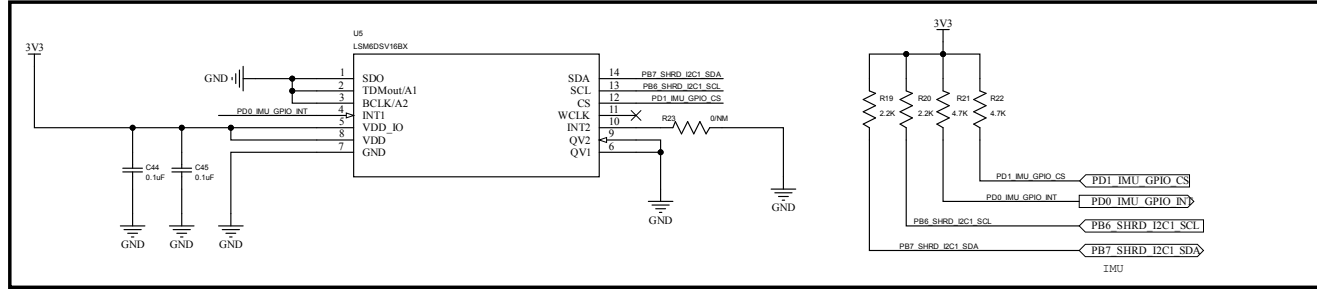
Figure 5. STEVAL-ROBKIT1-1 schematic (5 of 12)



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Figure 6. STEVAL-ROBKIT1-1 schematic (6 of 12)



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Figure 7. STEVAL-ROBKIT1-1 schematic (7 of 12)

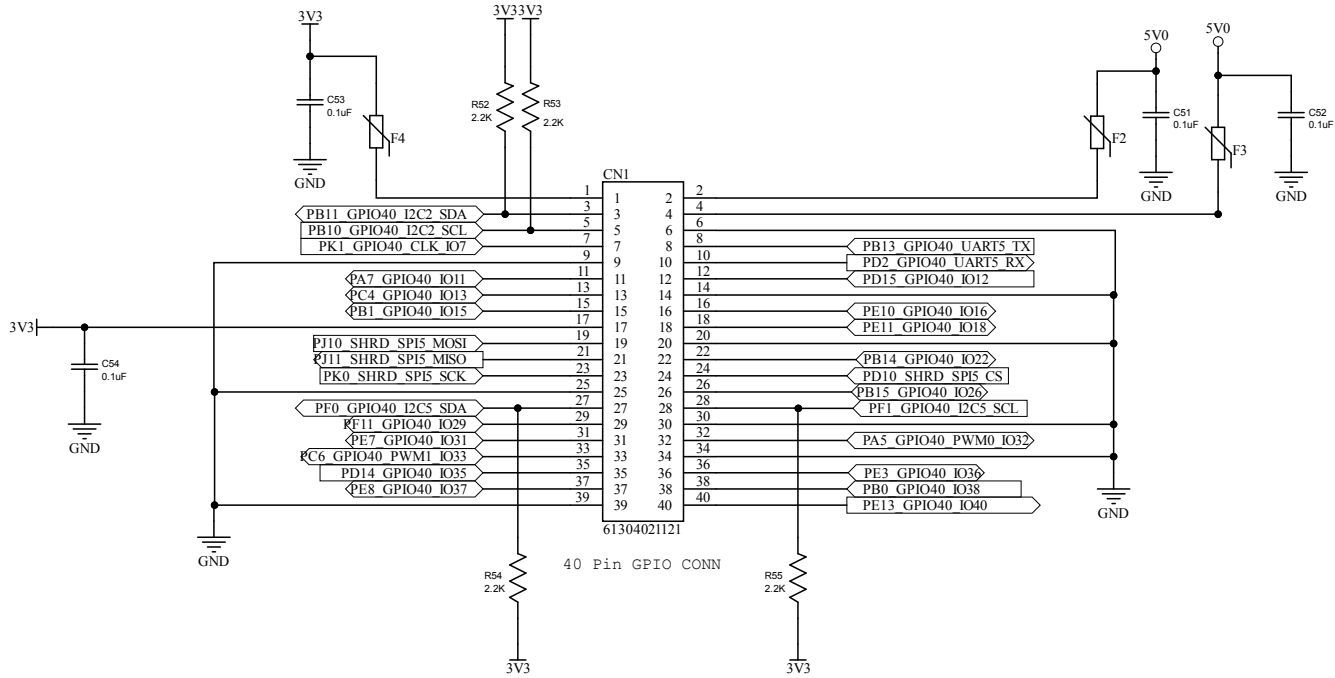


Figure 8. STEVAL-ROBKIT1-1 schematic (8 of 12)

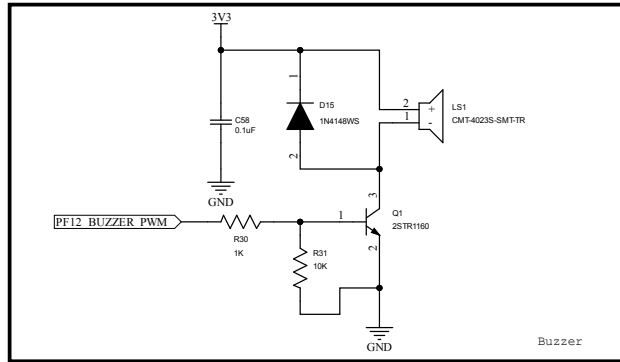
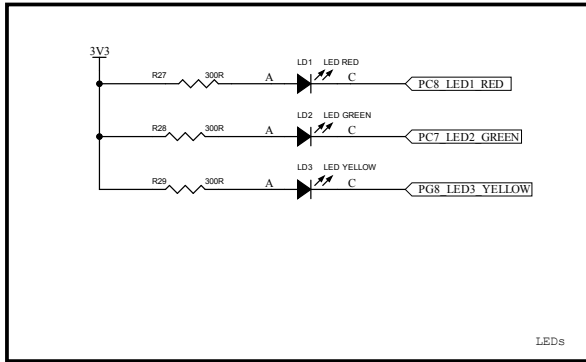
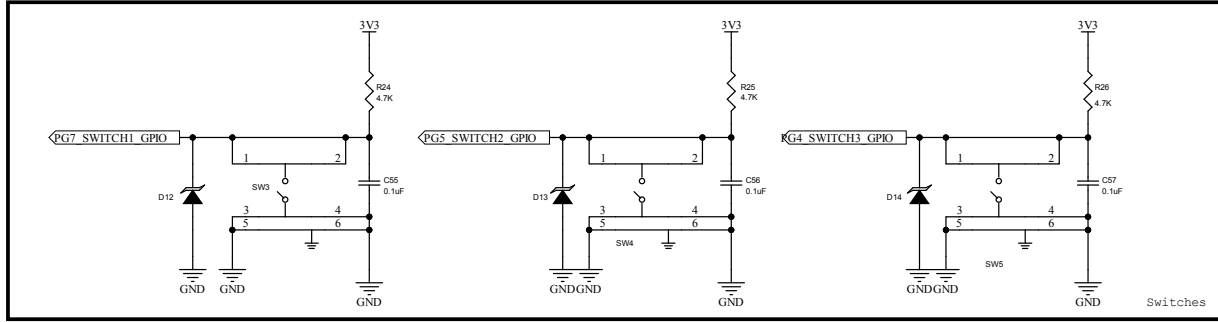
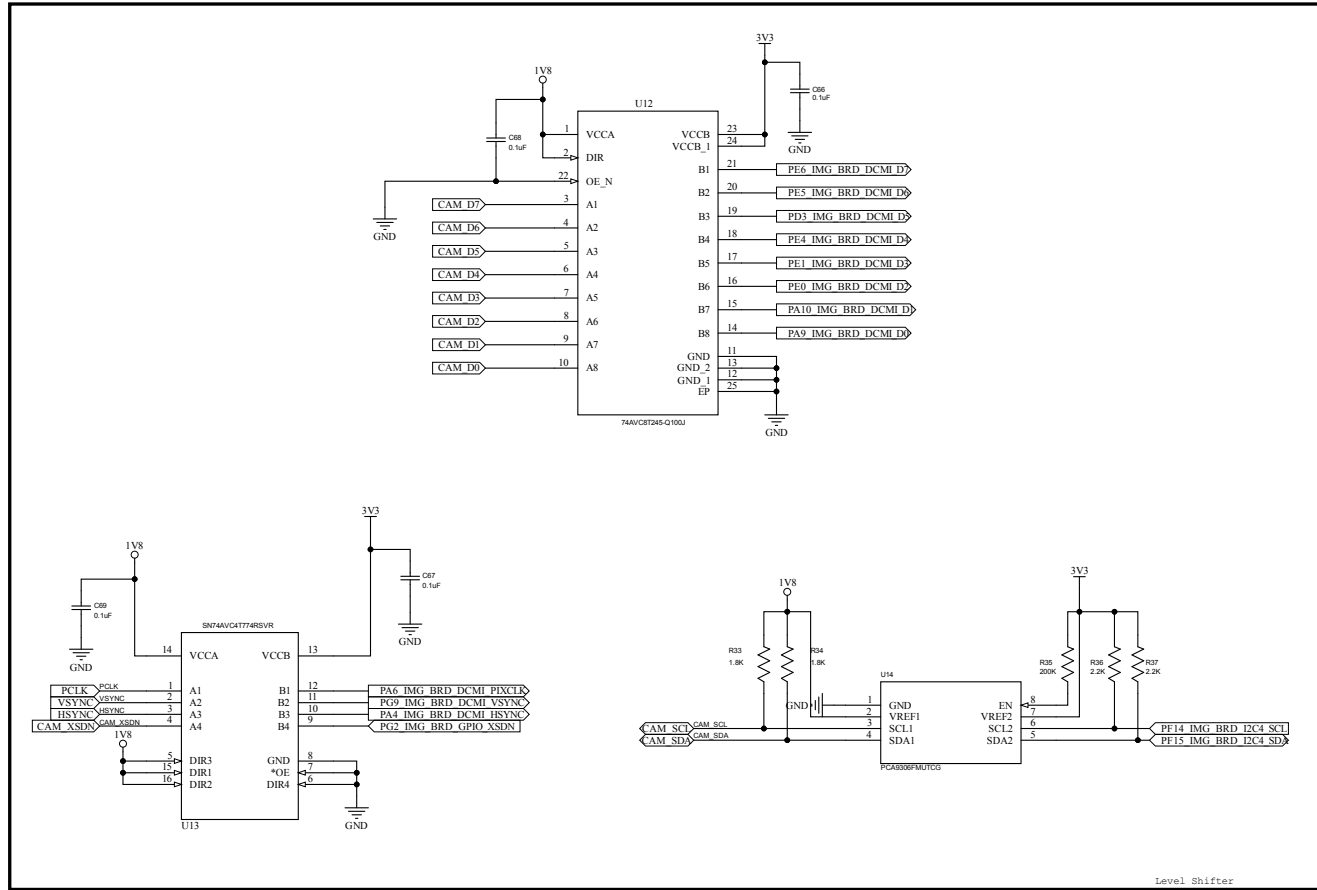




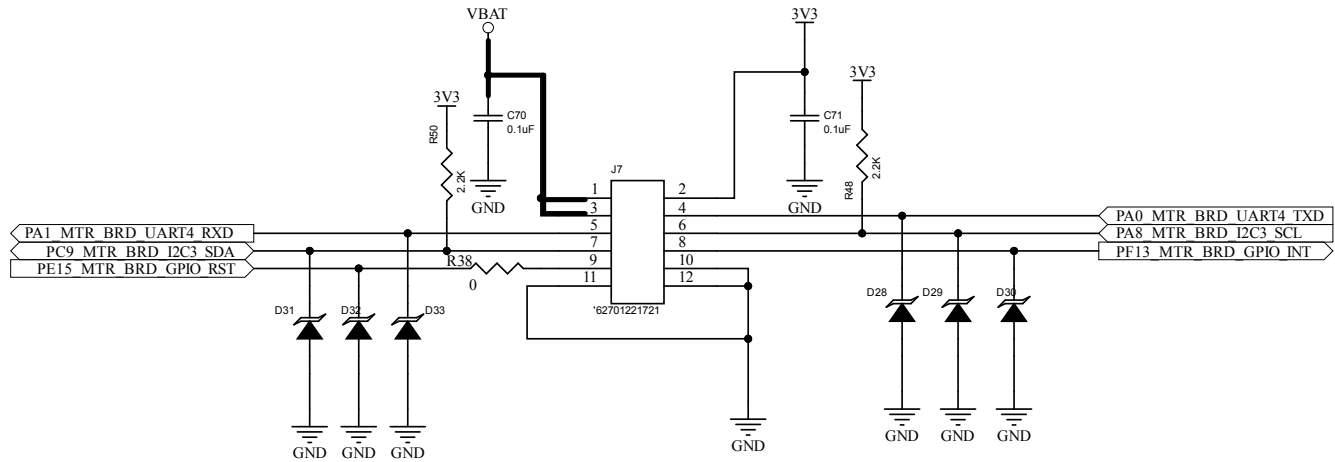
Figure 10. STEVAL-ROBKIT1-1 schematic (10 of 12)



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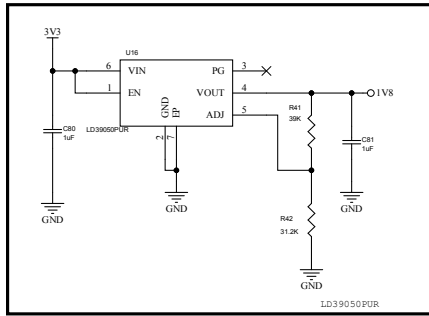
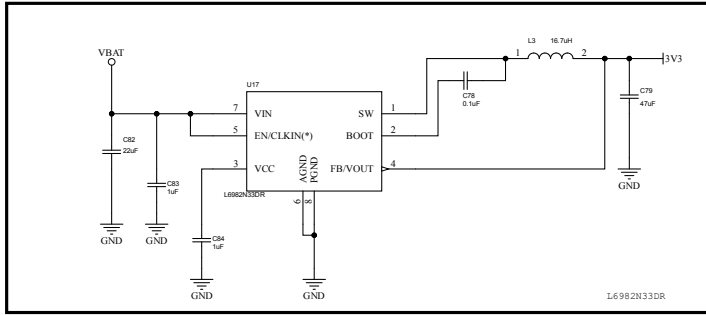
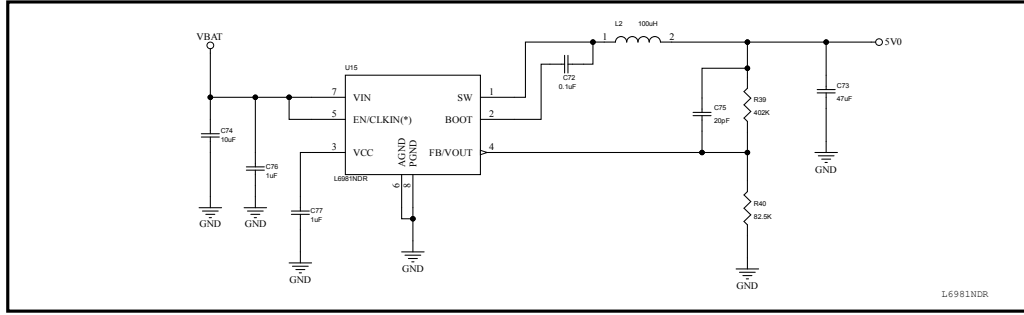
Figure 11. STEVAL-ROBKIT1-1 schematic (11 of 12)



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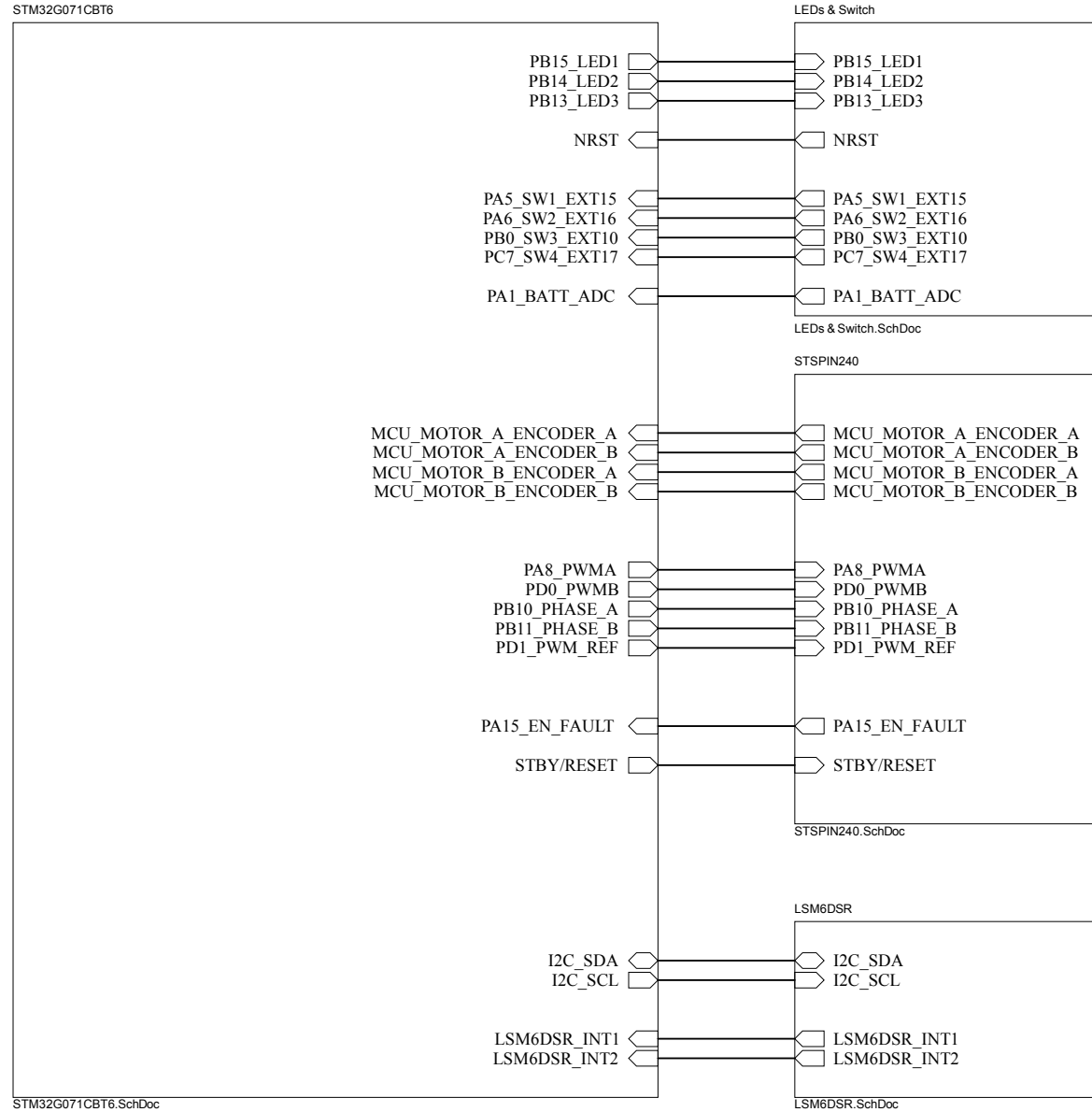
Figure 12. STEVAL-ROBKIT1-1 schematic (12 of 12)



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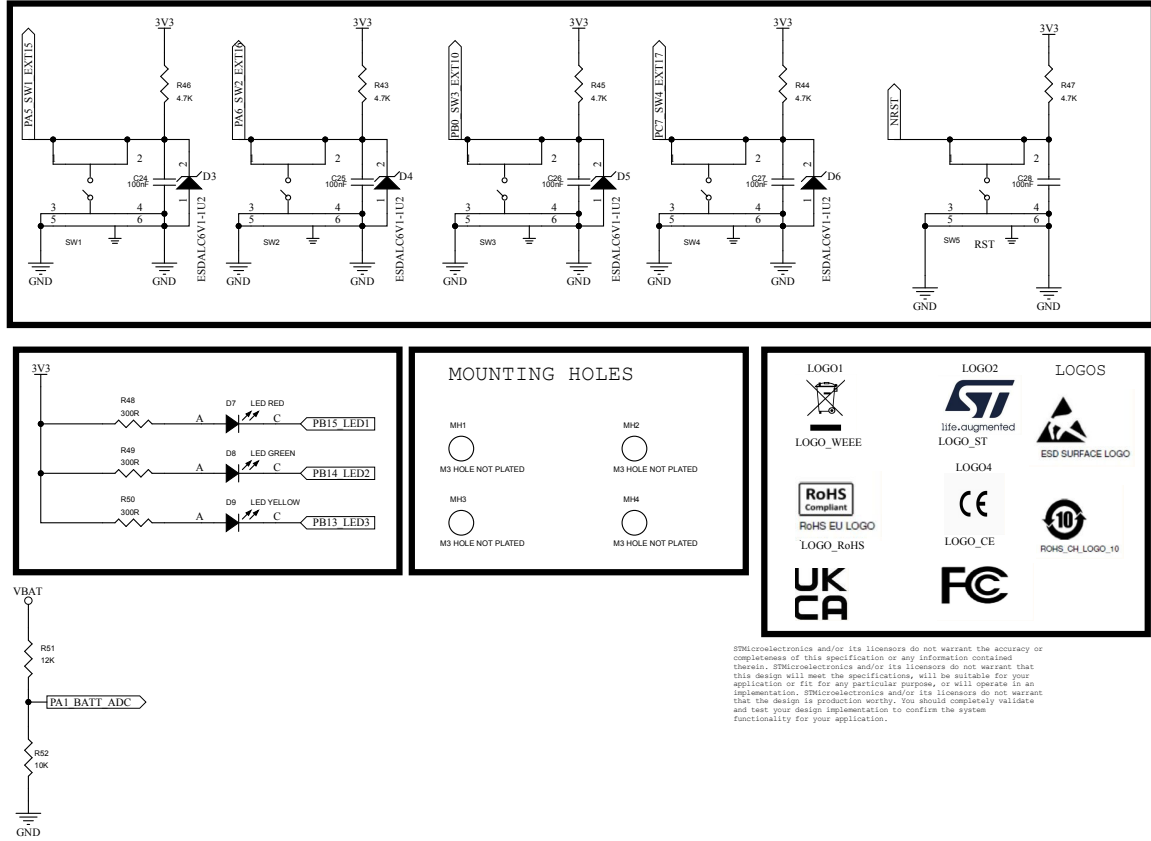
Figure 13. STEVAL-ROBKIT1-2 schematic (1 of 5)



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Figure 14. STEVAL-ROBKIT1-2 schematic (2 of 5)



MOUNTING HOLES



LOGO1 LOGO2 LOGOS

LOGO\_WEEE life.augmented LOGO\_ST ESD SURFACE LOGO

LOGO4

RoHS Compliant CE LOGO\_CE

LOGO\_RoHS ROHS\_CH\_LOGO\_10

UK CA FC

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Figure 16. STEVAL-ROBKIT1-2 schematic (4 of 5)

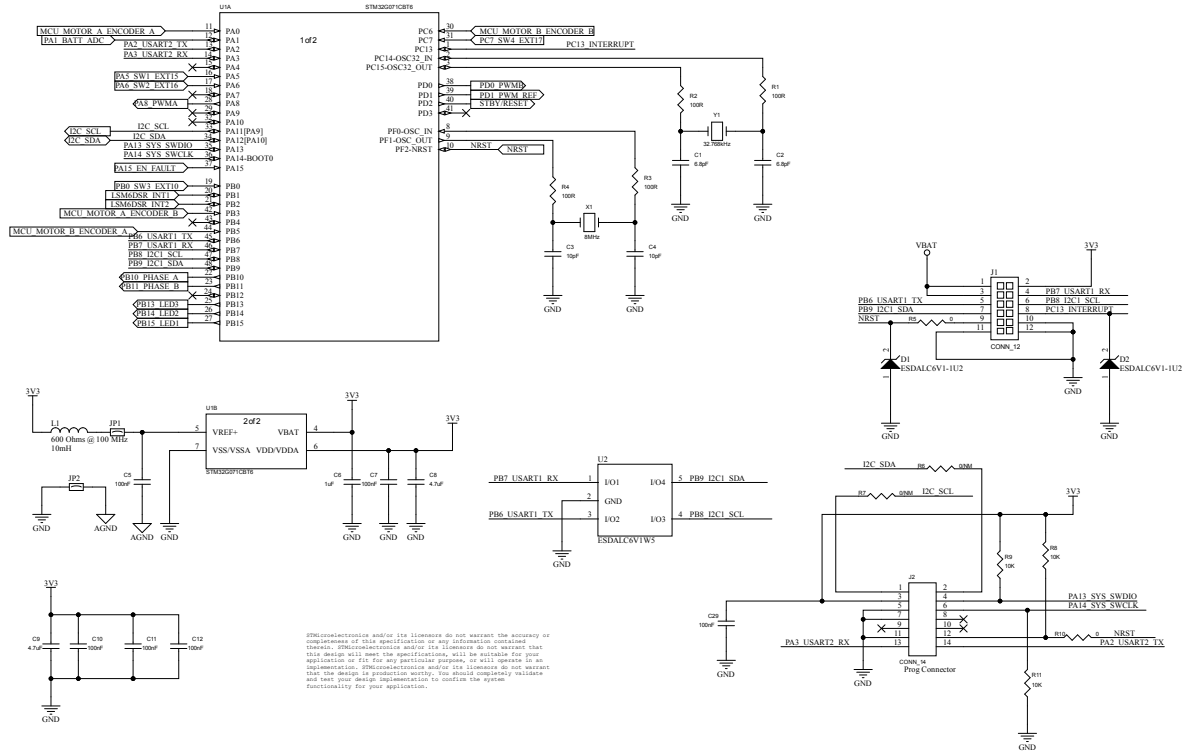
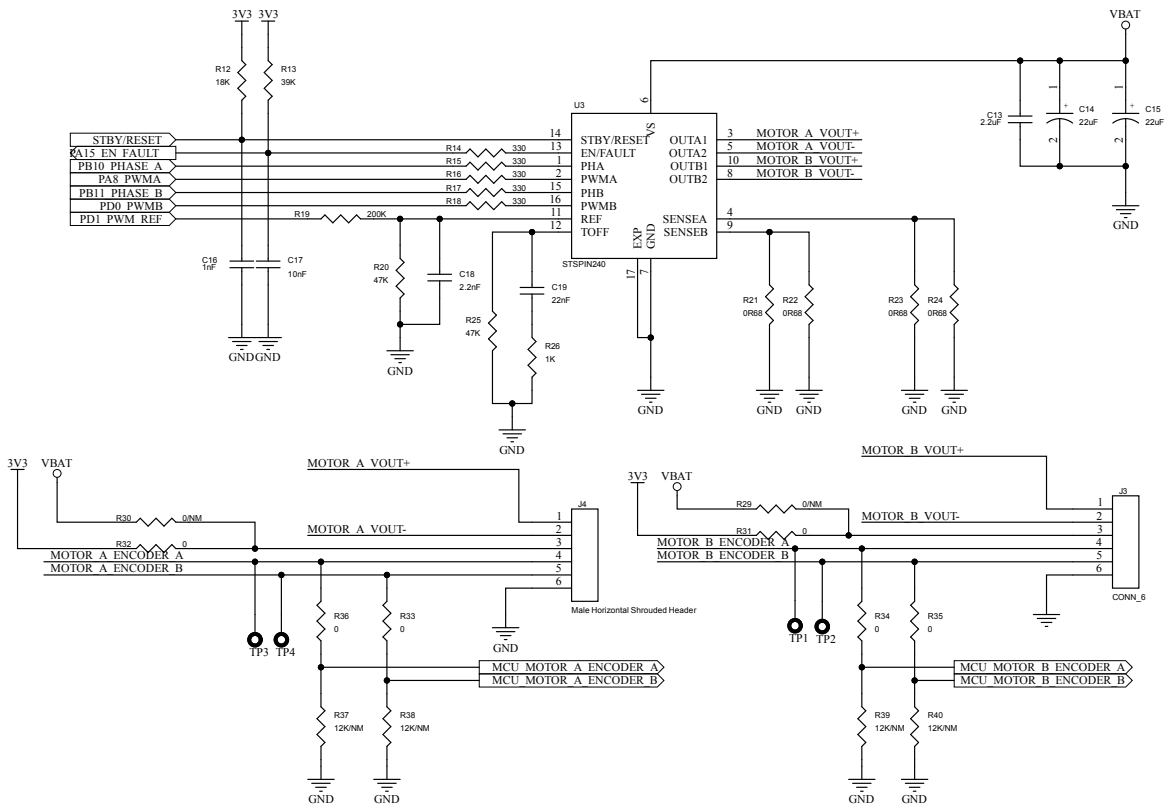


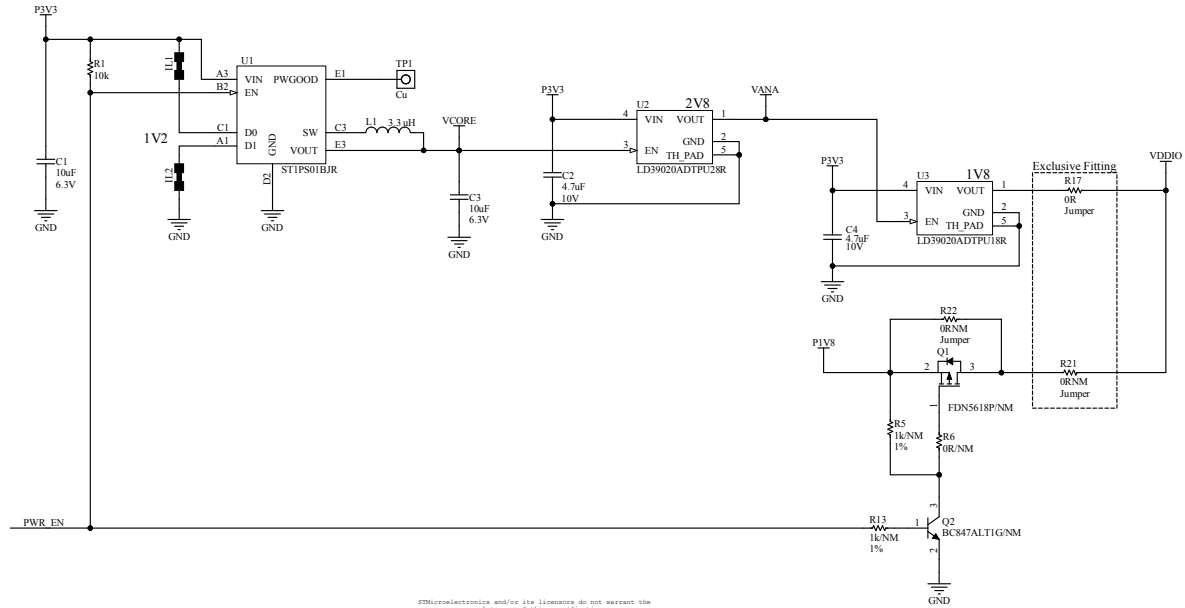
Figure 17. STEVAL-ROBKIT1-2 schematic (5 of 5)



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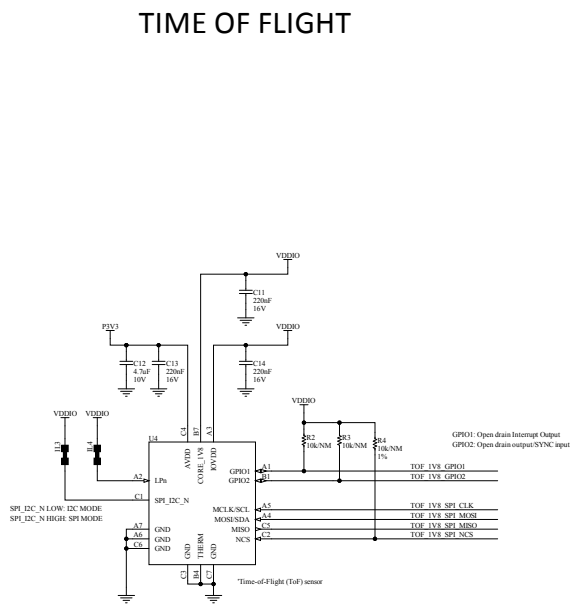
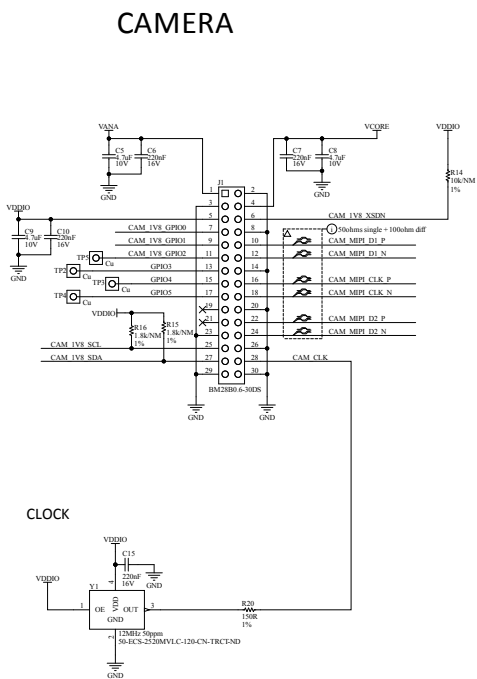
Figure 18. STEVAL-ROBKIT1-3 schematic (1 of 3)  
Power



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Figure 19. STEVAL-ROBKIT1-3 schematic (2 of 3)

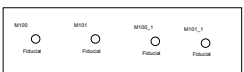
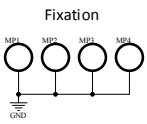
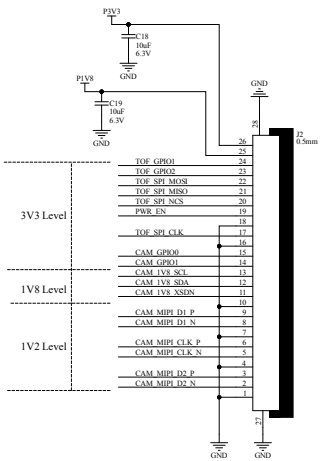


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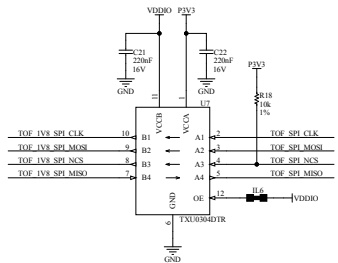
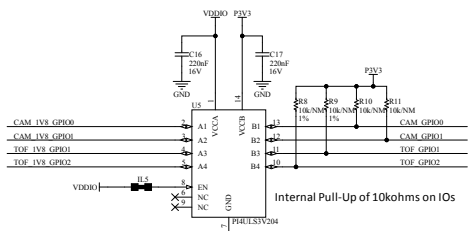


Figure 20. STEVAL-ROBKIT1-3 schematic (3 of 3)

MAINBOARD Interface



Level Shifting



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## 2 STEVAL-ROBKIT1 main blocks

Figure 21. Block details

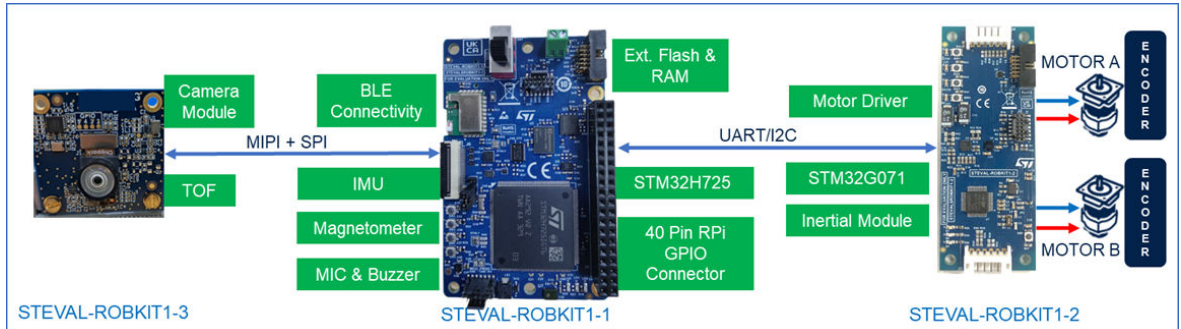


Figure 22. STEVAL-ROBKIT1 kit



### 3 Kit versions

**Table 1. STEVAL-ROBKIT1 versions**

PCB version	Schematic diagrams	Bill of materials
STEVAL\$ROBKIT1A <sup>(1)</sup>	STEVAL\$ROBKIT1A schematic diagrams	STEVAL\$ROBKIT1A bill of materials

1. This code identifies the STEVAL-ROBKIT1 evaluation kit first version. The kit consists of the STEVAL-ROBKIT1-1 mother board whose version is identified by the code STV\$ROBKIT1-1A, the STEVAL-ROBKIT1-2 daughter board whose version is identified by the code STV\$ROBKIT1-2A and the STEVAL-ROBKIT1-3 daughter board whose version is identified by the code STV\$ROBKIT1-3A .



## Revision history

Table 2. Document revision history

Date	Revision	Changes
21-Oct-2024	1	Initial release.

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