UM12413

SR250-ARD development board user manual

Rev. 1.0 — 4 March 2026 User manual

Document information

Information	Content
Keywords	SR250-ARD, SR250, UWB, Arduino, shield
Abstract	This document is the user manual for the SR250 development board.

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2 Introduction

The present document describes the **SR250 development board**, a flexible platform for integrating UWB ranging and radar into consumer and industrial IoT solutions.

Compatible with Arduino® headers on boards like i.MX, LPC, MCX, and Kinetis®, it enables an easy integration of **Trimension SR250** for presence, location, and motion detection, helping improve efficiency and safety.

This document presents first an overview of the board, then it gives printed circuit boards details.

Board design files, along with getting-started information, can be found on the dedicated **SR250**-**ARD** webpage https://www.nxp.com/SR250UWBSHIELD.

3 SR250-ARD board overview

The **SR250-ARD** is a fully UWB-compliant expansion board designed to demonstrate the SR250's capabilities in both **UWB ranging** and **UWB radar** applications.

It features an **L-shaped antenna** for 3D Angle-of-Arrival (AoA) measurements and includes a **remote Tx antenna** to ensure optimal radar performance. The antennas are tuned for **channel 9**, so even though the SR250 UWB controller supports channels 5 and 9, the SR250-ARD must be operated on **channel 9 only**.

With **Arduino-compatible connectors**, the board enables seamless integration with a wide range of MCU/MPU platforms, making it ideal for SR250 demonstrations and prototyping.

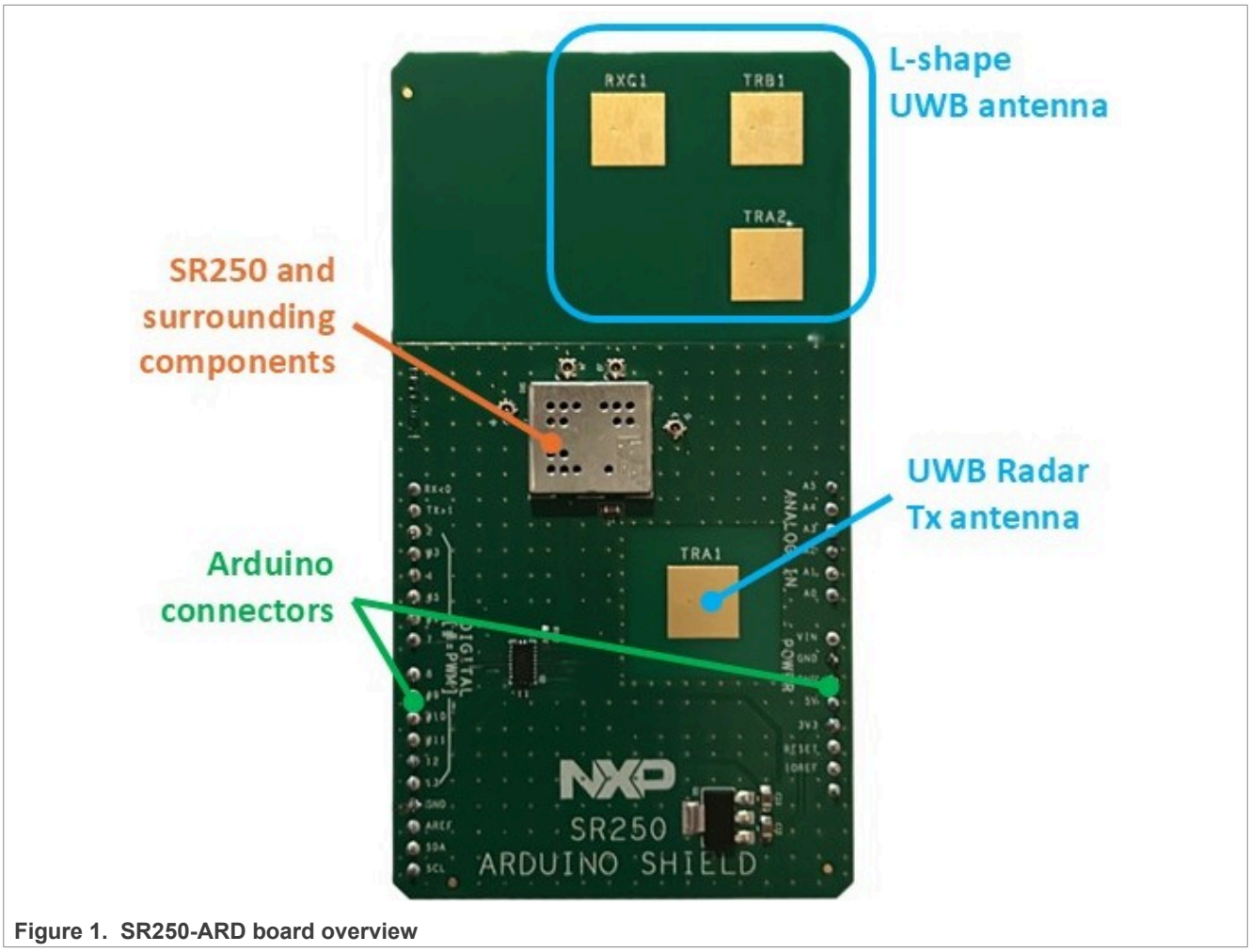

Figure 1. SR250-ARD board overview

4 SR250-ARD board details

4.1 Schematics

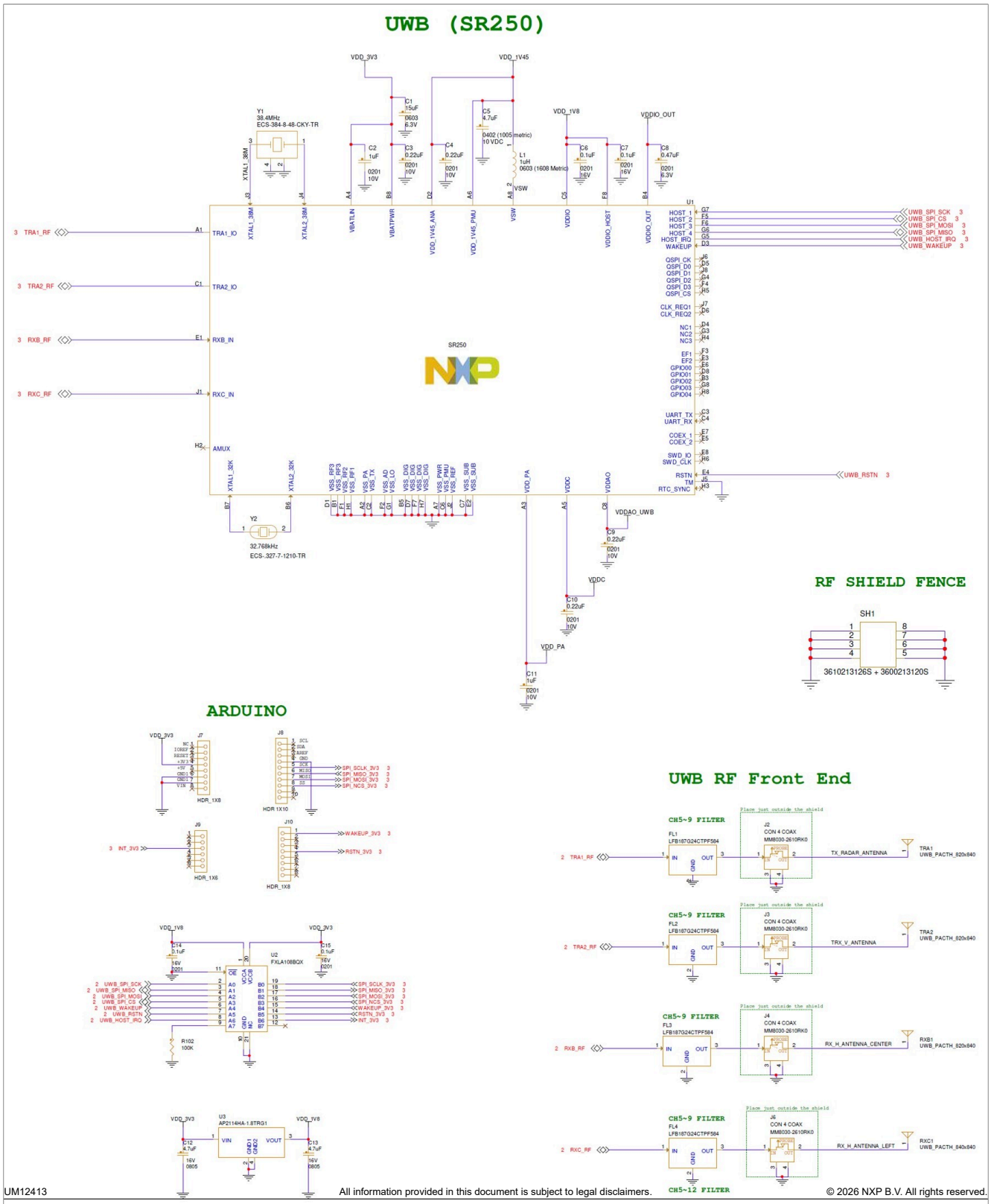

Figure 2. SR250-ARD board schematics

4.2 Layout

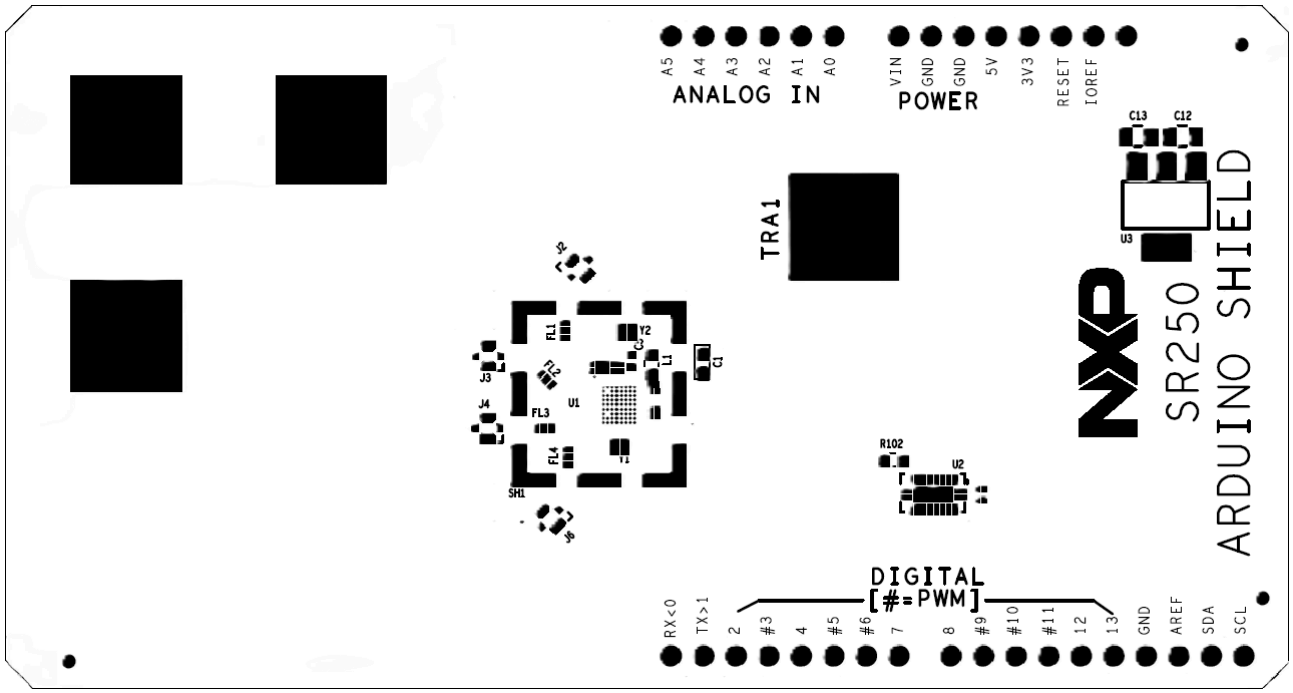

Figure 3. Components layer layout

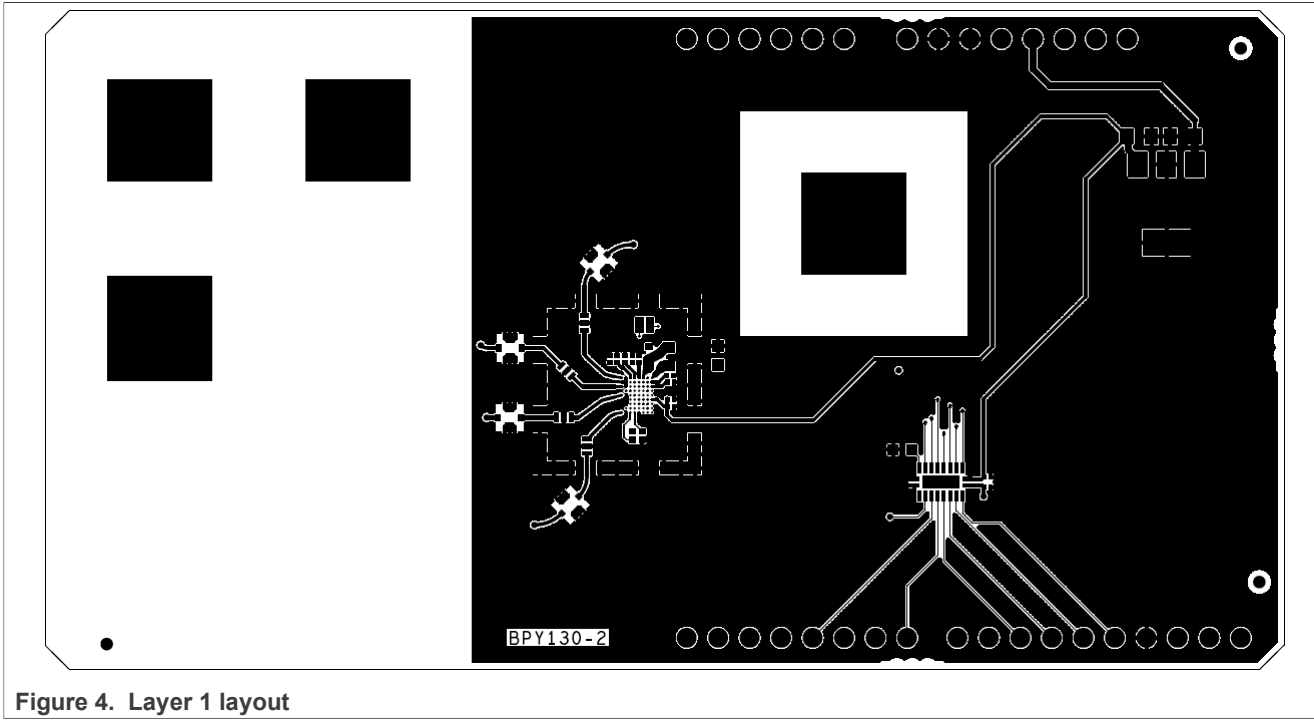

Figure 4. Layer 1 layout

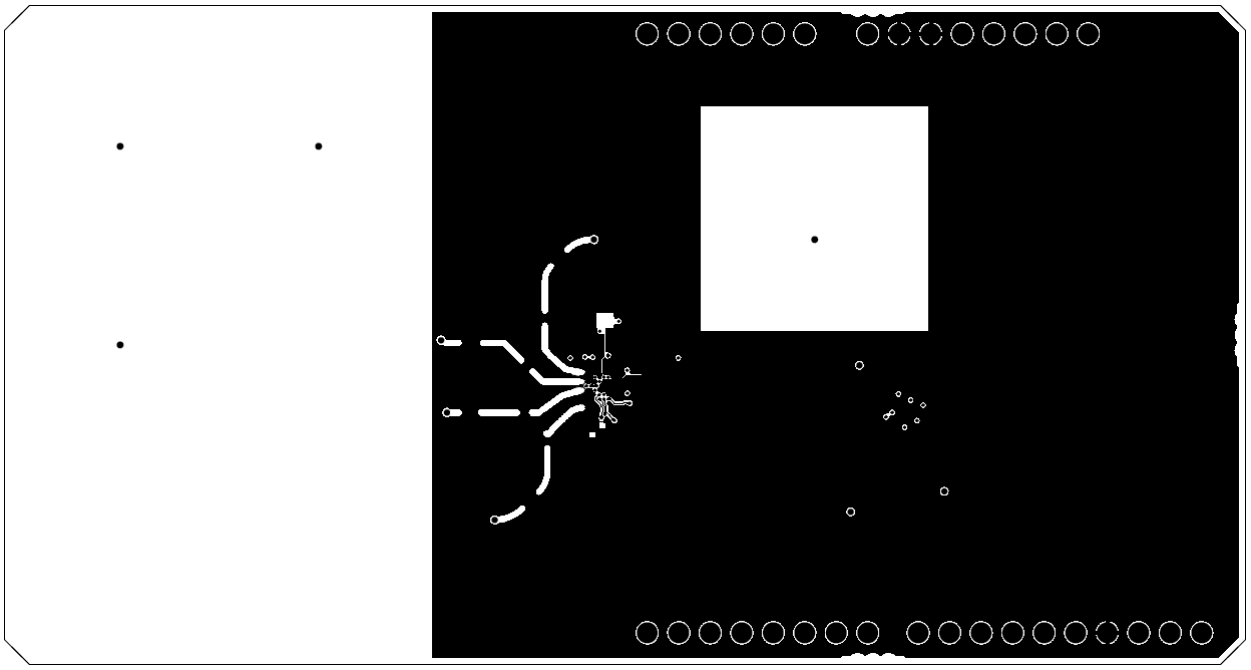

Figure 5. Layer 2 layout

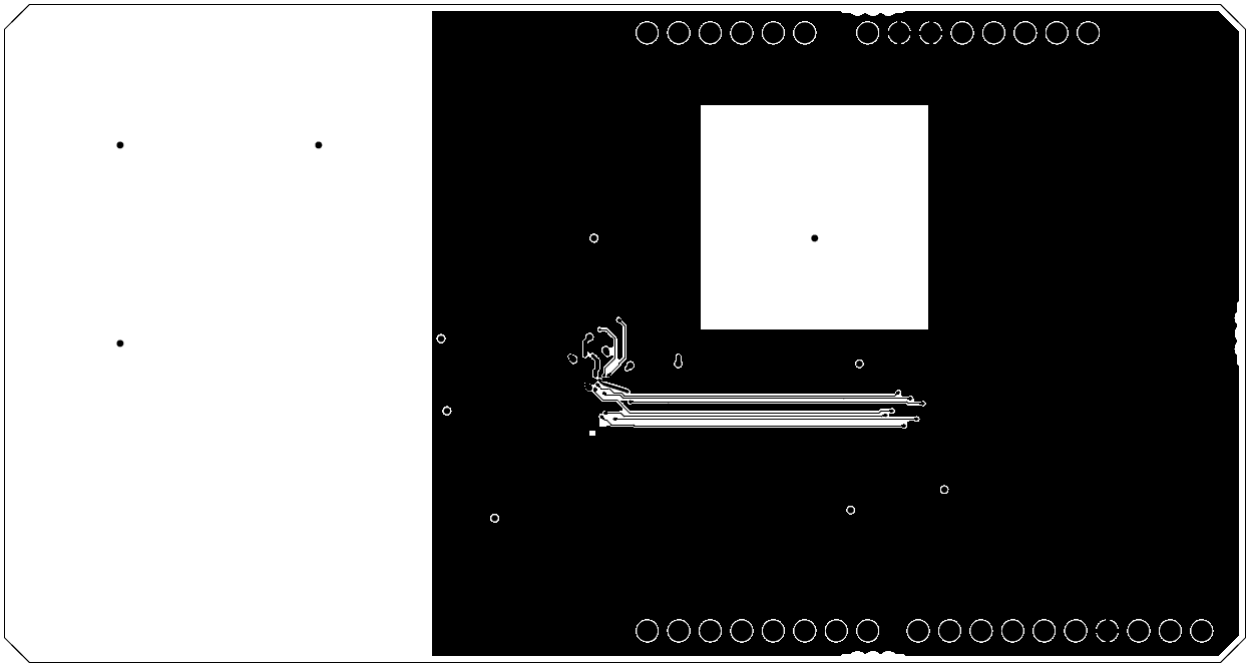

Figure 6. Layer 3 layout

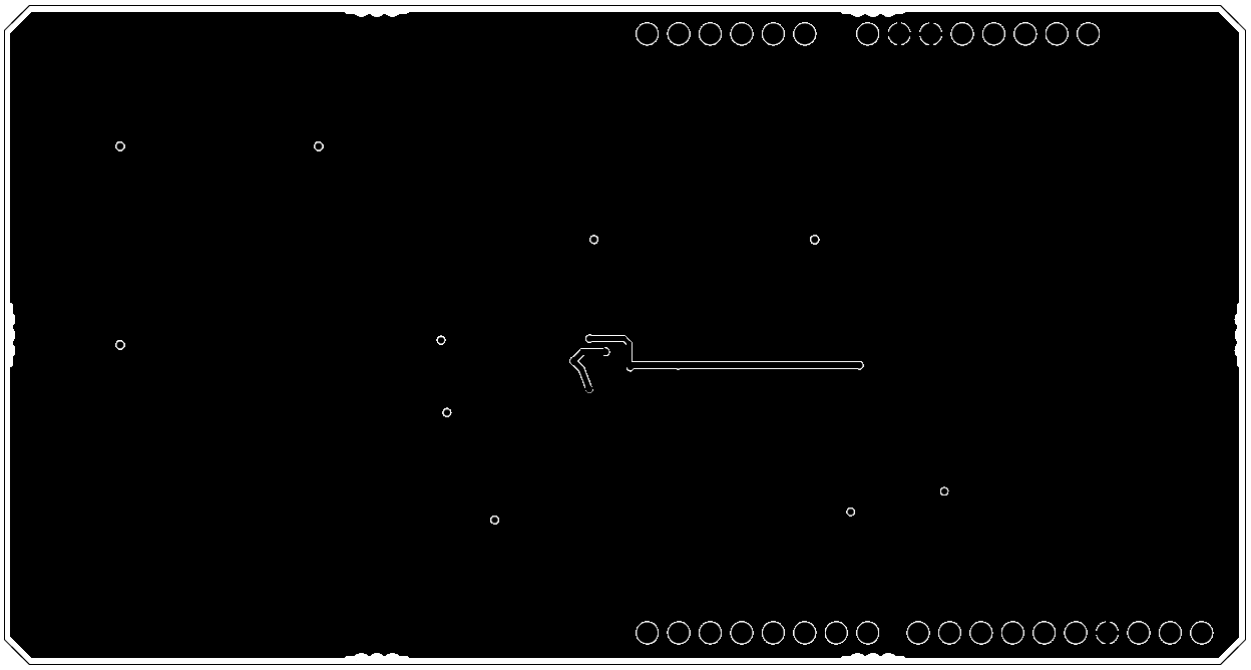

Figure 7. Layer 4 layout

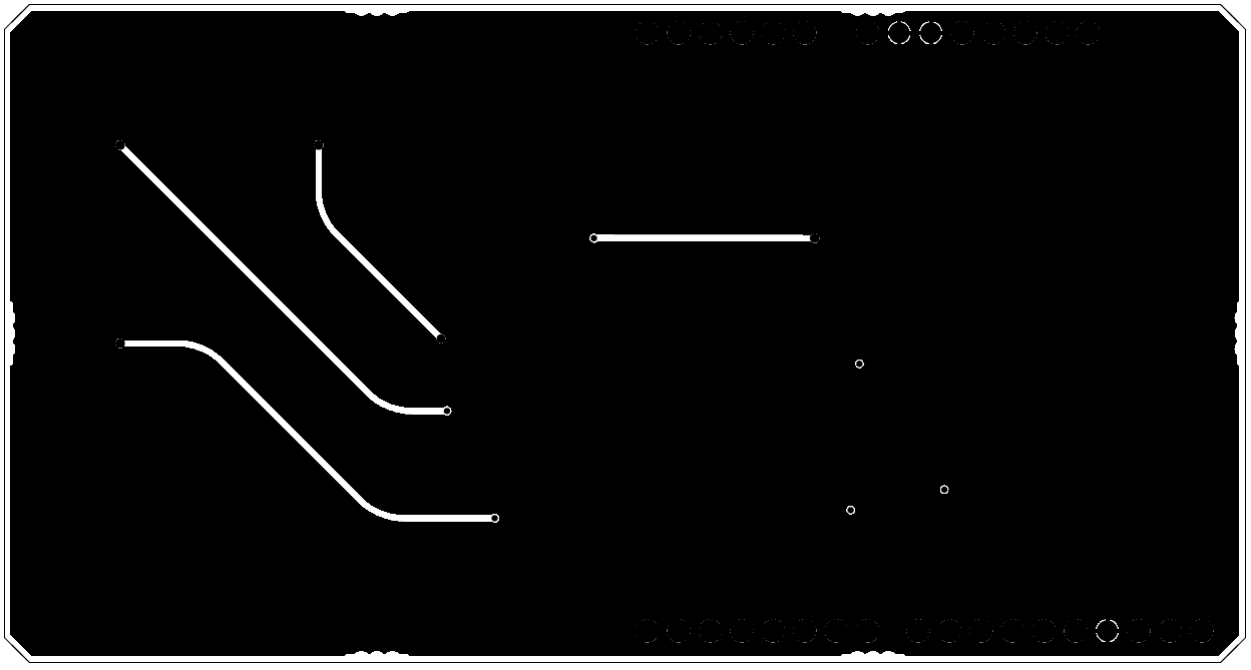

Figure 8. Layer 5 layout

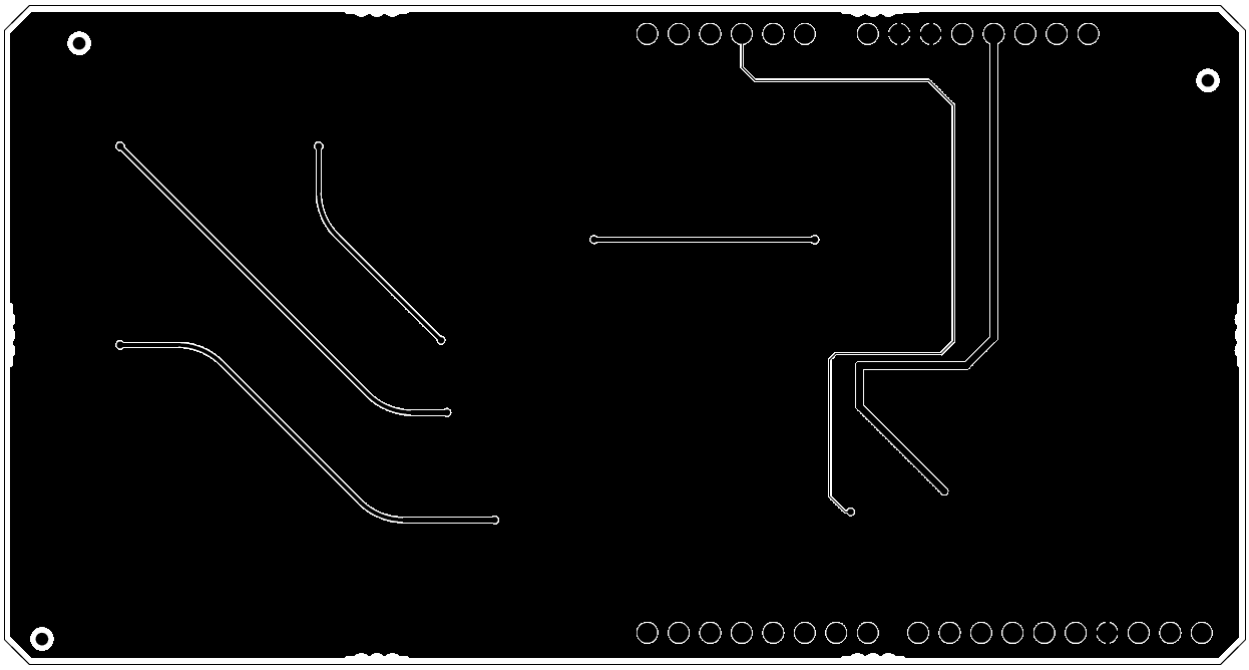

Figure 9. Layer 6 layout

5 SR250-ARD board interfaces

5.1 RF interface

The SR250-ARD board includes several antennas as depicted in figure below:

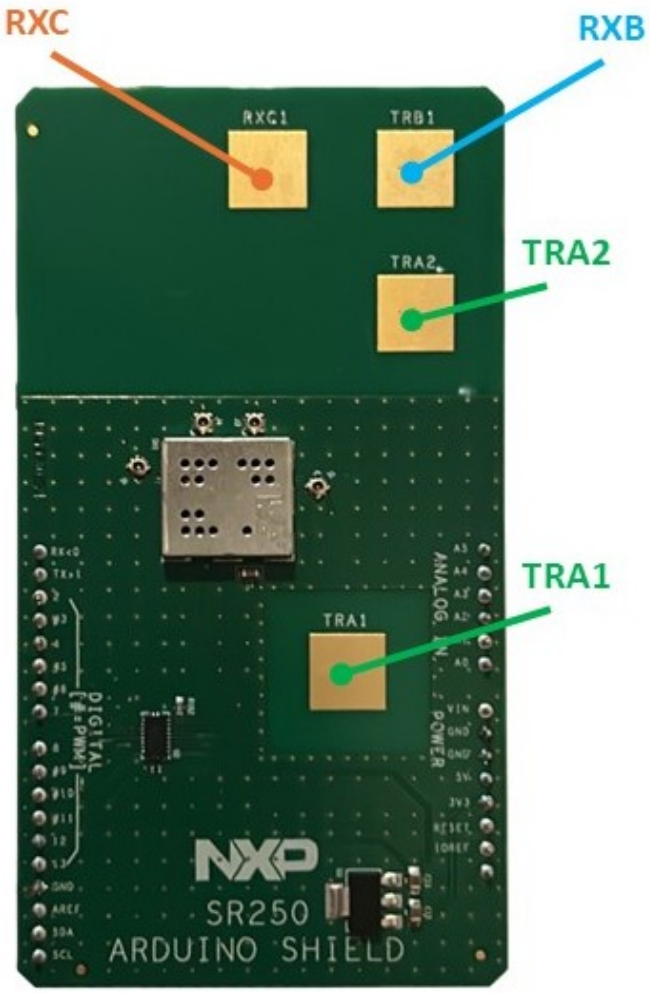

Figure 10. Antennas

Table 1. Antennas connections

SR250-ARD Antenna	Purpose
TRA1	Radar Tx antenna (higher isolation to RXB and RXC)
TRA2	Ranging Tx antenna and bottom antenna of the elevation Rx pair
RXB	Right antenna of the azimuth Rx pair and top antenna of the elevation Rx pair
RXC	Left antenna of the azimuth Rx pair

5.2 Host interface

The Arduino connector provides the SR250 with a **host interface** via SPI and GPIOs, as well as **power supply**

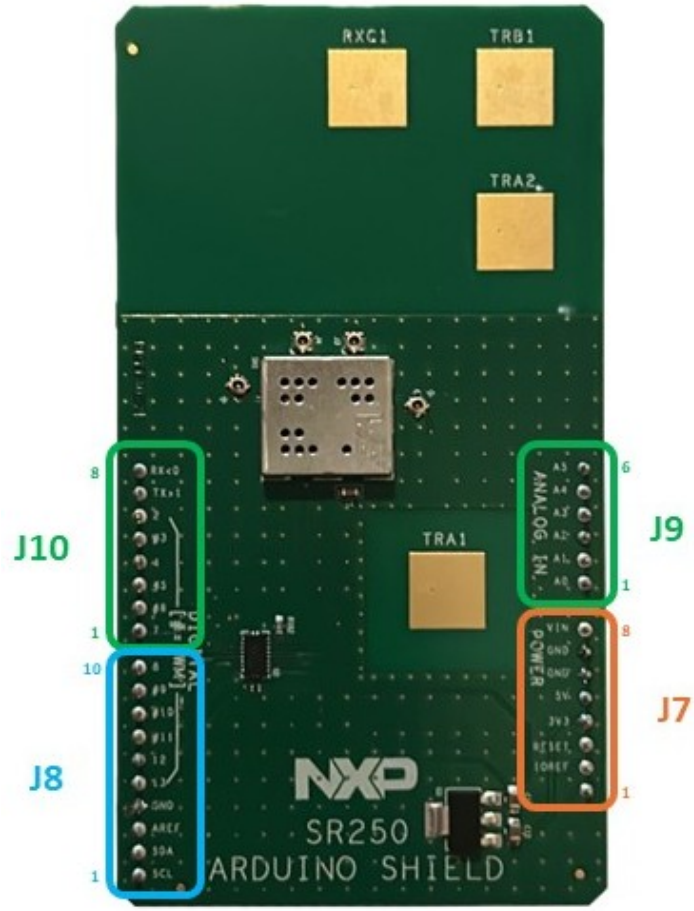

Figure 11. Arduino connectors

Table 2. Arduino connectors pinout

Arduino connector	Pin	Purpose
J7	4	3V3 supply
	6	Ground
	7	Ground
J8	4	Ground
	5	SPI SCK line
	6	SPI MISO line
	7	SPI MOSI line
	8	SPI SS line
J9	3	SR250 Host IRQ
J10	1	SR250 Wake up
	4	SR250 ResetN

6 Revision history

Table 3. Revision history

Document ID	Release date	Description
UM12413 v.1.0	4 March 2026	• Initial version

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