

[illegible]

The image contains four circuit diagrams:

- 5V SENSE:** A voltage divider circuit. A green line labeled "USB" is connected to a red box labeled "2K" (resistor R14). The other end of R14 is connected to a green line labeled "IO34". Below R14 is a red box labeled "3K3" (resistor R15), which is connected to a green line labeled "GND".
- LIGHT SENSOR:** A circuit featuring a red component labeled "U2 ALS-PT19" with a red arrow pointing towards it. The component has two pins: "VDD-SPI" and "IO4". The "VDD-SPI" pin is connected to a green line labeled "GND". The "IO4" pin is connected to a red box labeled "100K" (resistor R17), which is then connected to a green line labeled "GND".
- RESET (Left):** A reset circuit for a component labeled "B" (in a red box). Pin "A" of component B is connected to a green line labeled "GND". Pin "B" of component B is connected to a green line labeled "IO0".
- RESET (Right):** A reset circuit for a component labeled "B" (in a red box). Pin "A" of component B is connected to a green line labeled "GND". Pin "B" of component B is connected to a green line labeled "RESET".

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The schematic diagram illustrates the external components connected to the ESP32-S3 module. Key components include:

- Antenna Matching Network:** Consists of a U-FL Connector (ANT1) connected to the RF2 pin, followed by a series of matching components (L2, TBA, C24) leading to the ANT\_ONBOARD pin. A separate antenna (ANT2) is connected to the ANT\_FREQ pin via a matching network (L3, TBA).
- RF Components:** The BGS12WN6E6327XTSA1 RF component is connected to the ANT\_ONBOARD pin (RF1) and the ANT\_PRE\_SWITCH pin (RFIN). The CTRL pin is connected to the RF\_CTL\_ONBOARD pin via a 100K resistor (R24).
- Power Supply:** The VDD pin is connected to the VDD\_SPI pin. The GND pin is connected to the GND pin. The VDDA-1 and VDDA-2 pins are connected to the 3.3V supply. The VDDA3P3\_1 and VDDA3P3\_2 pins are connected to the 3.3V supply. The RESET pin is connected to the CHIP\_PU pin.
- External Crystal:** An external crystal (Y1) is connected to the XTAL\_P and XTAL\_N pins via capacitors C8 and C9.
- Other Connections:** The LNA\_IN pin is connected to the LNA\_IN pin. The LNA\_OUT pin is connected to the LNA\_OUT pin. The MTMS pin is connected to the MTMS pin. The MTDO pin is connected to the MTDO pin. The MTCK pin is connected to the MTCK pin. The MTCK pin is connected to the MTCK pin. The MTCK pin is connected to the MTCK pin.

The schematic diagram illustrates the SPI interface for two memory components: a W25Q128VSIQ Flash (U5) and a PSRAM (U6). Both components are connected to a common VDD\_SPI supply and a common ground (GND).

**W25Q128VSIQ Flash (U5):**

- VDD\_SPI:** Connected to pin 8 (VCC).
- GND:** Connected to pin 4 (GND).
- SPISQ (1):** Connected to pin 1 (CS).
- SPIWP (3):** Connected to pin 3 (SO(D1)).
- SPIWP (4):** Connected to pin 4 (WP(D2)).
- SPIWP (5):** Connected to pin 5 (SI(D0)).
- SPIWP (6):** Connected to pin 6 (SCK).
- SPIWP (7):** Connected to pin 7 (HOLD(D3)).
- SPIWP (8):** Connected to pin 8 (VCC).

**PSRAM (U6):**

- VDD\_SPI:** Connected to pin 8 (VCC).
- GND:** Connected to pin 4 (GND).
- SPIWP (1):** Connected to pin 1 (CE).
- SPIWP (2):** Connected to pin 2 (SI01).
- SPIWP (3):** Connected to pin 3 (SI02).
- SPIWP (4):** Connected to pin 4 (GND).
- SPIWP (5):** Connected to pin 5 (SI00).
- SPIWP (6):** Connected to pin 6 (SCLK).
- SPIWP (7):** Connected to pin 7 (SI03).
- SPIWP (8):** Connected to pin 8 (VCC).

Both components are connected to a common VDD\_SPI supply and a common ground (GND). The SPI signals are shared between the two components, with the SPISQ signal connected to the CS pin of the Flash and the CE pin of the PSRAM. The SPIWP signals are connected to the SO(D1), WP(D2), SI(D0), SCK, and HOLD(D3) pins of the Flash, and the SI01, SI02, SI00, SCLK, and SI03 pins of the PSRAM.

VERTICAL STEMMA  
CONNECTED TO LDO2

STEMMA2

SCL	1	I015
SDA	2	I016
VCC	3	3V3_2
GND	4	GND

SCL	1	I09
SDA	2	I08
VCC	3	3.3V
GND	4	GND

USB-C

J1

IP3

Pin	Signal
16	RESET
15	3.3V
14	I00
13	GND
12	I017
11	I018
10	I014
9	I012
8	I06
7	I05
6	I036
5	I035
4	I037
3	U0RXD
2	U0TXD
1	3V3_2

Pin	Signal
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	