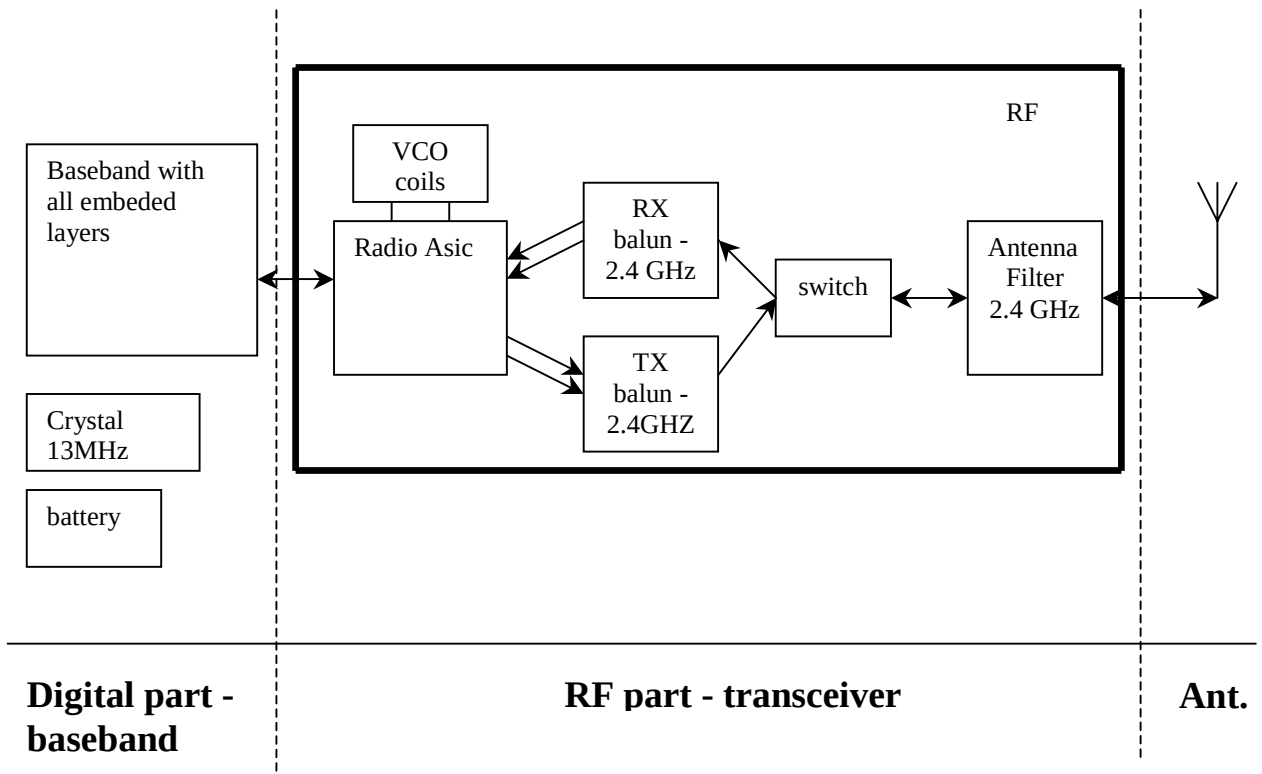


## 1) FUNCTIONAL BLOCK DIAGRAM

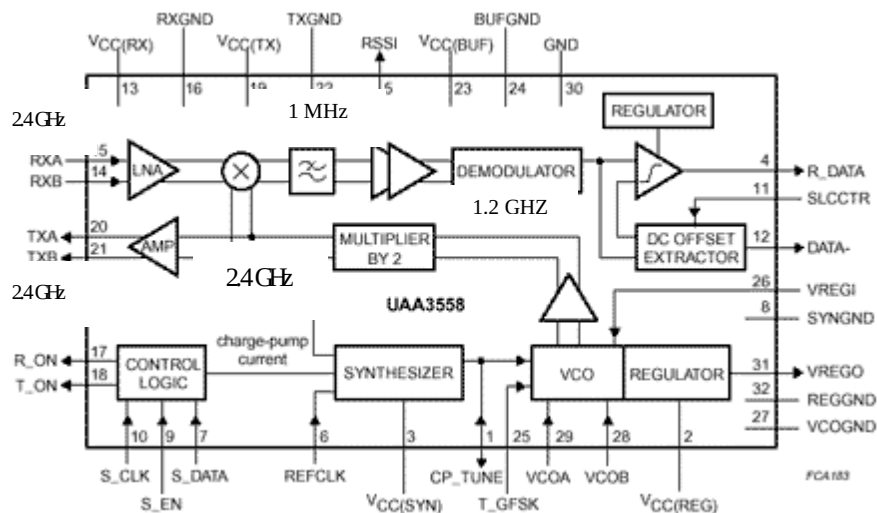


The Blueharp module can be divided in 3 parts:

- the antenna.
- the radio module. The radio part have to be connected to the antenna.
- The baseband controller. This part manage the radio and all embeded software layers.

## 2) RADIO ASIC DETAILED BLOCK DIAGRAM

The Radio asic is a state-of-the-art near-zero IF single-chip transceiver providing a low cost solution for Bluetooth applications. This advanced device features a fully integrated high sensitivity receiver, channel filtering suitable for Bluetooth implementations, a symmetrical 1.2 GHz VCO, and a transmitter preamplifier to drive the switch to the antenna .



| <b>symbol</b> | <b>number</b> | <b>description</b>                                                                                                                    |
|---------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------|
| VTUNE         | 1             | Vco Tuning input                                                                                                                      |
| VCC(reg)      | 2             | Regulator positive supply voltage                                                                                                     |
| VCC(syn)      | 3             | Synthesizer positive supply voltage                                                                                                   |
| R_DATA        | 4             | Digital received data output                                                                                                          |
| RSSI          | 5             | Received signal strength intensity voltage output                                                                                     |
| REFCLK        | 6             | Reference frequency input (13 MHz)                                                                                                    |
| S_DATA        | 7             | 3-wires bus data control input                                                                                                        |
| SYNGND        | 8             | Synthesizer ground                                                                                                                    |
| S_EN          | 9             | 3 wires bus digital signal control input                                                                                              |
| S_CLK         | 10            | 3 wires bus clock signal input                                                                                                        |
| SLCCTR        | 11            | Receiver output slicer control input                                                                                                  |
| DATA          | 12            | Receiver data analog decision voltage output                                                                                          |
| VCC(rx)       | 13            | Receiver positive voltage supply                                                                                                      |
| RXB           | 14            | Received signal input B                                                                                                               |
| RXA           | 15            | Received signal input A                                                                                                               |
| RXGND         | 16            | Receiver ground                                                                                                                       |
| R_ON          | 17            | Receiver pin diode control digital output                                                                                             |
| T_ON          | 18            | Transmitter control digital I/O                                                                                                       |
| VCC(tx)       | 19            | Transmitter positive voltage supply                                                                                                   |
| TXA           | 20            | Transmitted signal output A (RF 2.4 GHz)output applied to the TX balun<br>The signal from the VCO is frequency doubled and amplified  |
| TXB           | 21            | Transmitted signal output B(RF 2.4 GHz) output applied to the TX balun<br>The signal from the VCO is frequency doubled and amplified. |
| TXGND         | 22            | Transmitter ground                                                                                                                    |
| VCC(buf)      | 23            | Buffer positive voltage supply                                                                                                        |
| BUFGND        | 24            | Buffer ground                                                                                                                         |
| T_GFSK        | 25            | Modulation input                                                                                                                      |
| VREGI         | 26            | Regulator input voltage                                                                                                               |
| VCOGND        | 27            | VCO ground                                                                                                                            |
| VCOB          | 28            | VCO coil input B                                                                                                                      |
| VCOA          | 29            | VCO coil input A                                                                                                                      |
| GND           | 30            | ground                                                                                                                                |
| VREGO         | 31            | Regulator output voltage                                                                                                              |
| REGGND        | 32            | Regulator ground                                                                                                                      |