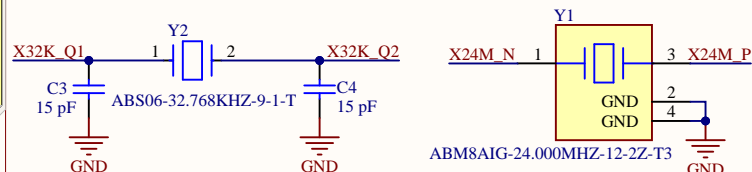
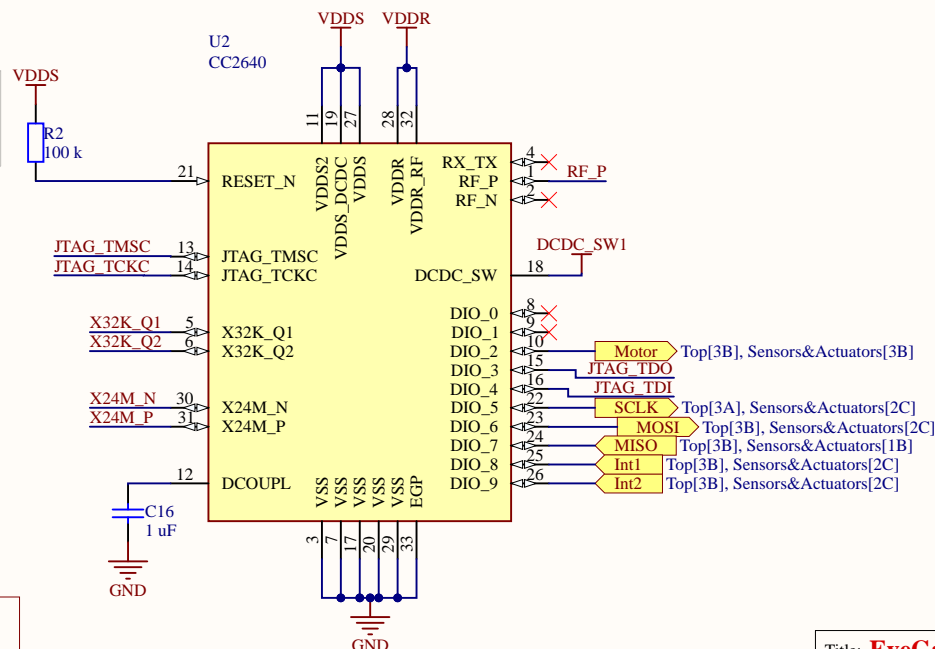


With this formula for the capacitors of the crystals: $C = 2 * CL - 2 * C_{stray}$, we suppose a C_{stray} of 5 pF. Capacitors of the 32 kHz crystal [CL=12.5pF, C_{stray} =]: $C32=15pF$



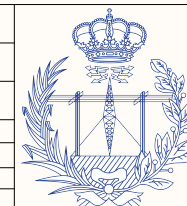
△ We set the reset signal high because the on/off function of the system is delegated to the on/off switch connected to the linear regulator.



We have decided to implement the 'single-ended operation' model. However, it has less SNR and more interference than the 'differential operation' mode. We have decided that the lower complexity and fewer components are more important for our design. We have also confirmed that this model has the required range for our application. Lastly, we choose to use the internal bias because it reduces the number of components needed.

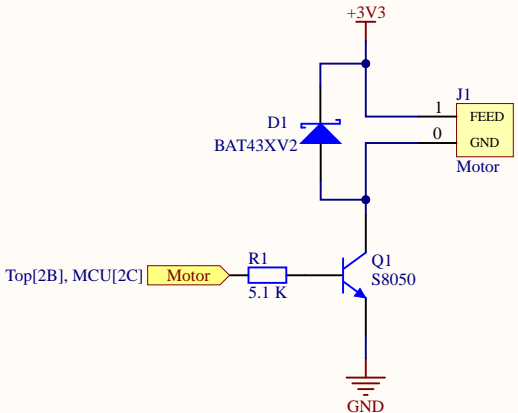
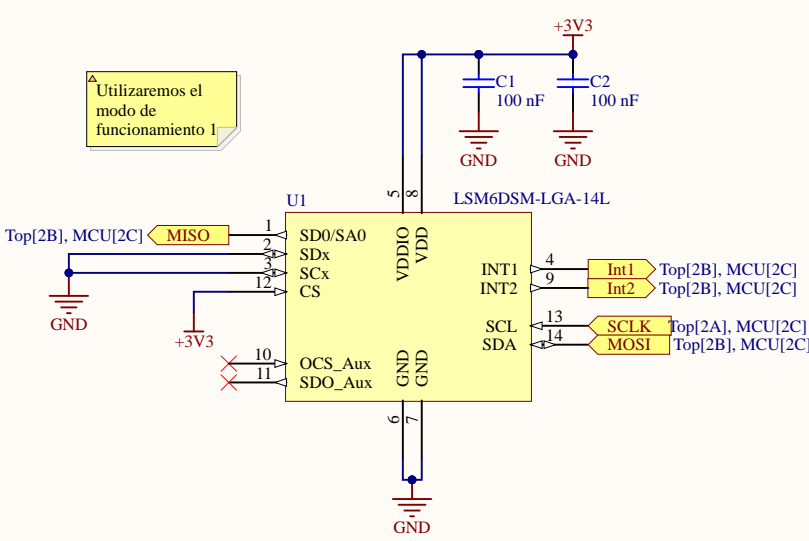
The diagram shows the JTAG connector pinout for the Conn2x3 connector. The pins are numbered 1 through 6. Pin 1 is connected to +3V3. Pin 2 is labeled JTAG_TCKC. Pin 3 is labeled JTAG_TMSC. Pin 4 is connected to GND. Pin 5 is labeled JTAG_TDO. Pin 6 is labeled JTAG_TDI.

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Date: 20/03/2024		Sheet 2 of 4
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SENSORS

ACTUATORS



Δ To calculate the polarization resistance of a transistor we have to take into account the current that will flow through the collector and the hfe of the transistor.

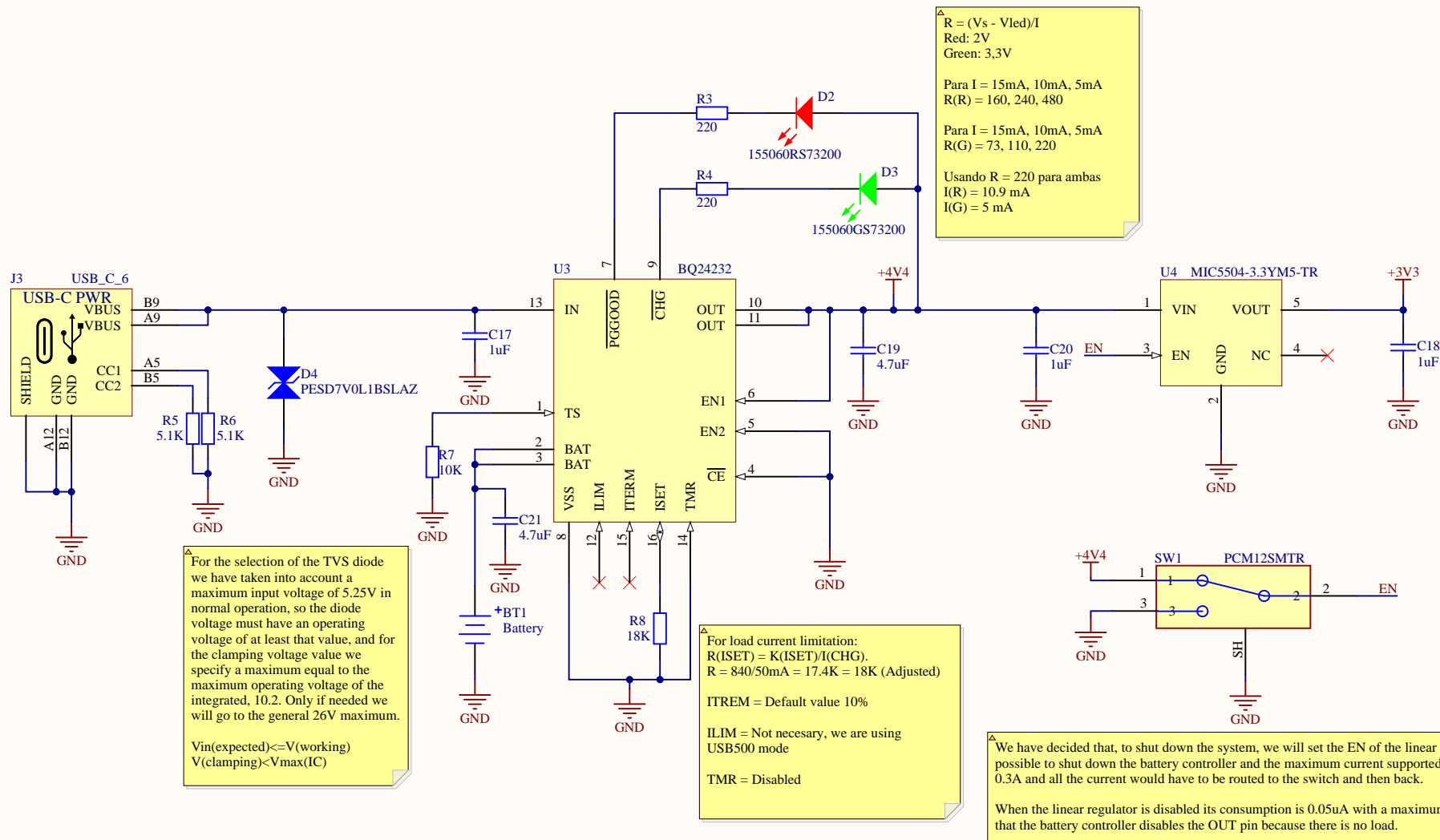
In our case the I_c will be about 50mA and the hfe a minimum of 120.

In order to be sure to be in the saturation zone, the value of hfe is reduced to 100, to maintain a balance between ensuring saturation and reducing consumption to the maximum.

Applying $R = (V_{cc} - V_{be}) / (I_c / h_{fe})$ we obtain an R of 5.2K, so adapting it to the nearest 5%, we select 5.1K.

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