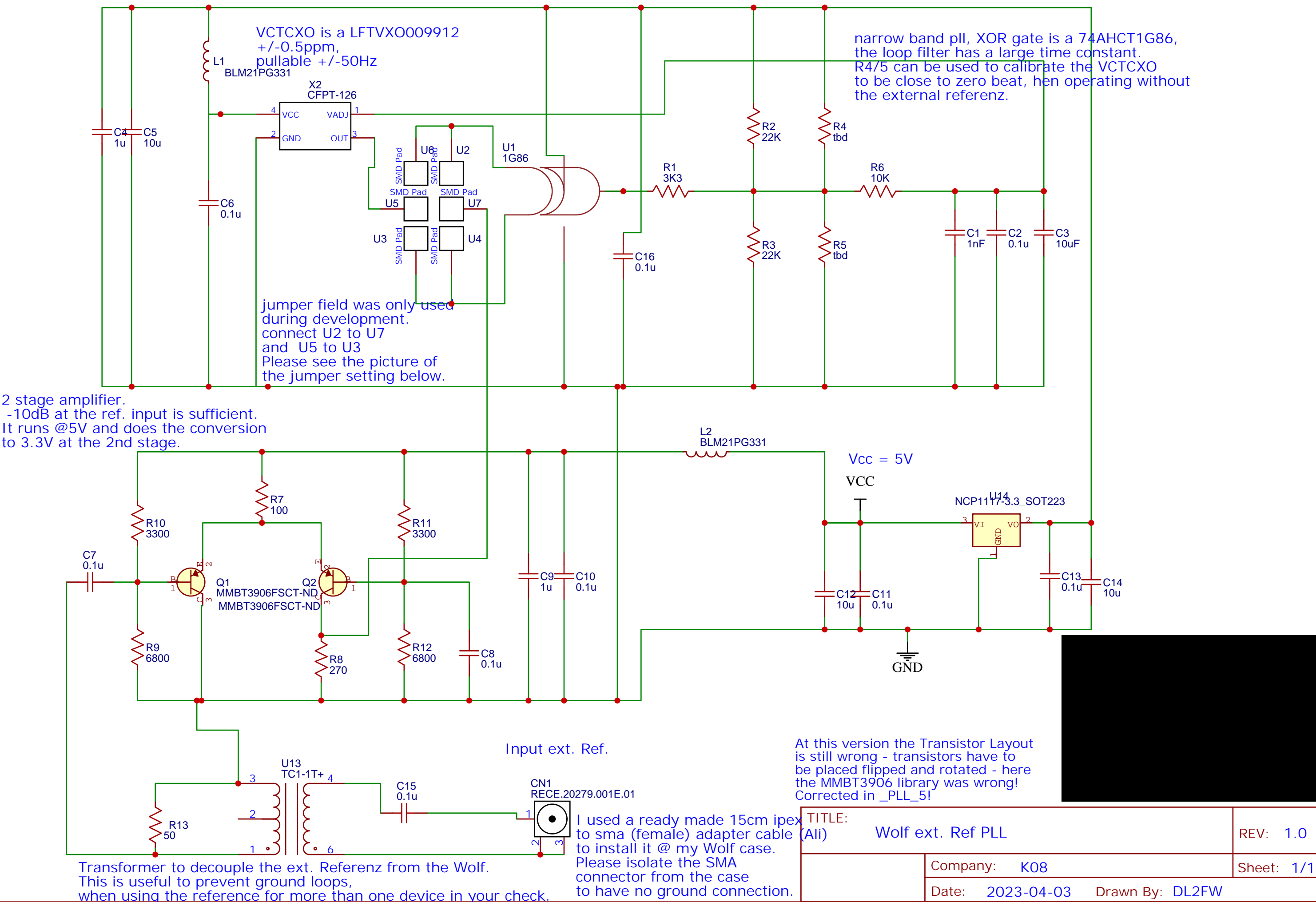


Please use PCB\_WOLF\_PLL\_5. This one has the corrected Transistor layout



2 stage amplifier.  
-10dB at the ref. input is sufficient.  
It runs @5V and does the conversion  
to 3.3V at the 2nd stage.

narrow band pll, XOR gate is a 74AHCT1G86,  
the loop filter has a large time constant.  
R4/5 can be used to calibrate the VCTCXO  
to be close to zero beat, hen operating without  
the external referenz.

jumper field was only used  
during development.  
connect U2 to U7  
and U5 to U3  
Please see the picture of  
the jumper setting below.

Input ext. Ref.

At this version the Transistor Layout  
is still wrong - transistors have to  
be placed flipped and rotated - here  
the MMBT3906 library was wrong!  
Corrected in \_PLL\_5!

Transformer to decouple the ext. Referenz from the Wolf.  
This is useful to prevent ground loops,  
when using the reference for more than one device in your check.

I used a ready made 15cm ipex  
to sma (female) adapter cable (Ali)  
to install it @ my Wolf case.  
Please isolate the SMA  
connector from the case  
to have no ground connection.

TITLE: Wolf ext. Ref PLL		REV: 1.0
Company: K08		Sheet: 1/1
Date: 2023-04-03		Drawn By: DL2FW