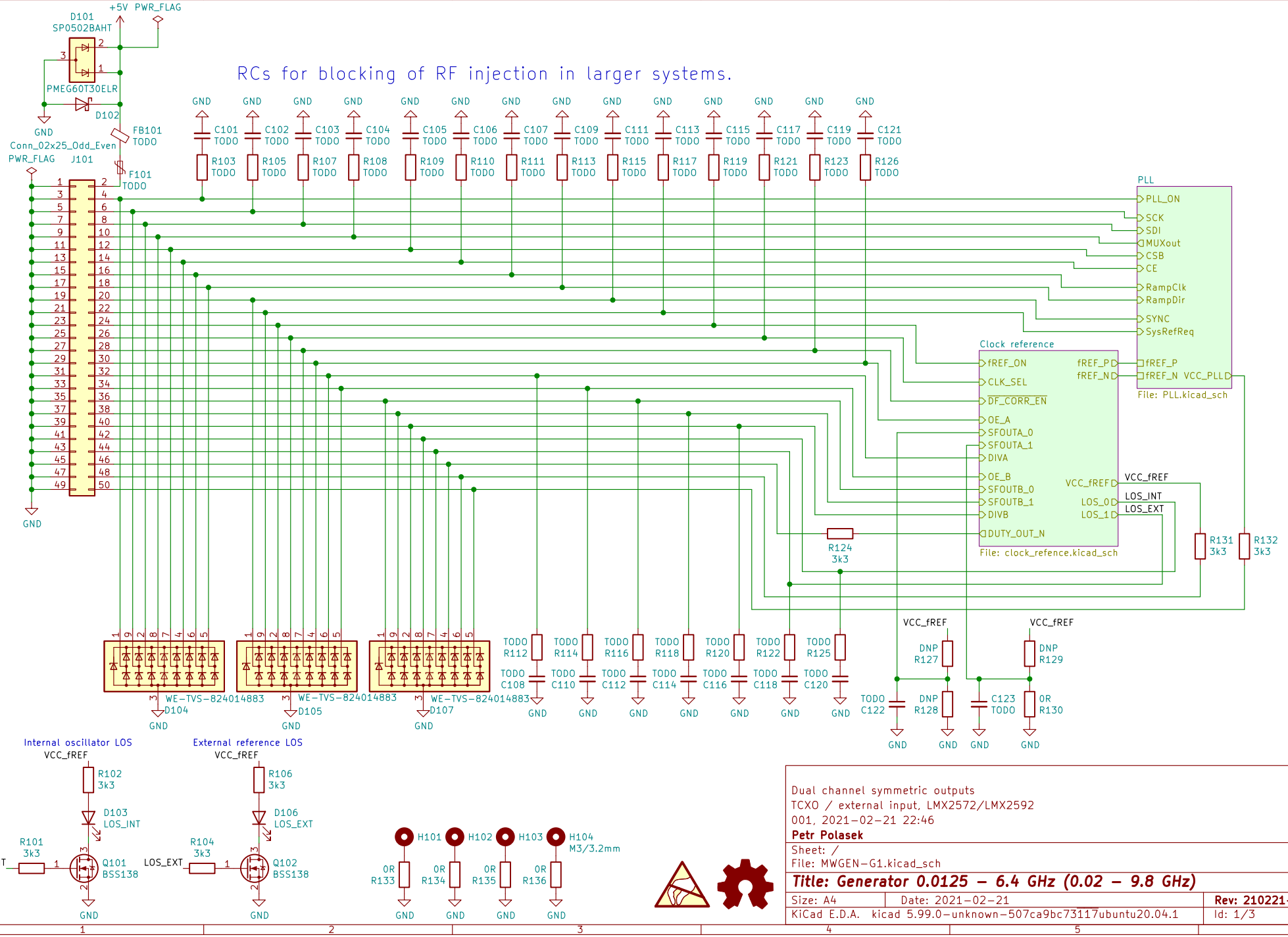


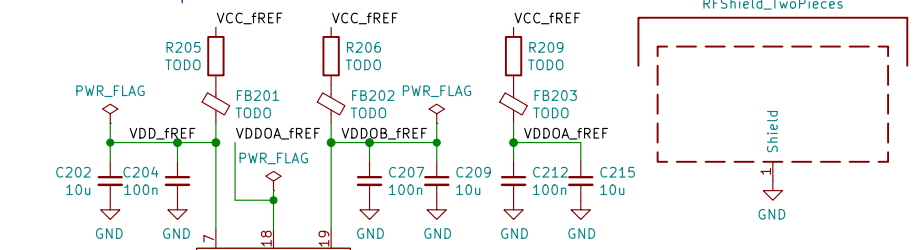
Dual channel symmetric outputs
TCXO / external input, LMX2572/LMX2592
001, 2021-02-21 22:46
Petr Polasek

Sheet: /
File: MWGEN-G1.kicad_sch

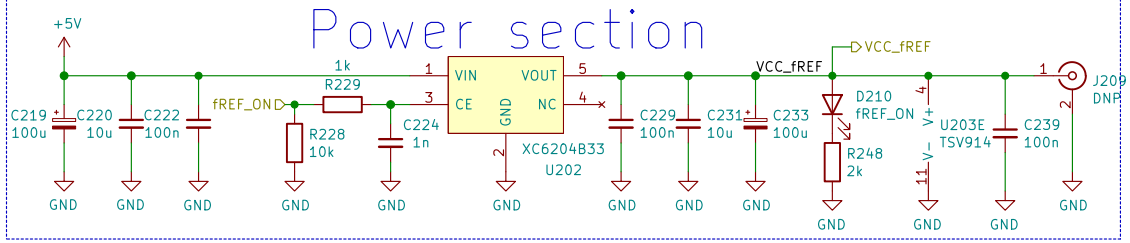
Title: Generator 0.0125 – 6.4 GHz (0.02 – 9.8 GHz)

Size: A4	Date: 2021-02-21	**Rev: 210221-001**
KiCad E.D.A. kicad 5.99.0-unknown-507ca9bc73117ubuntu20.04.1		Id: 1/3

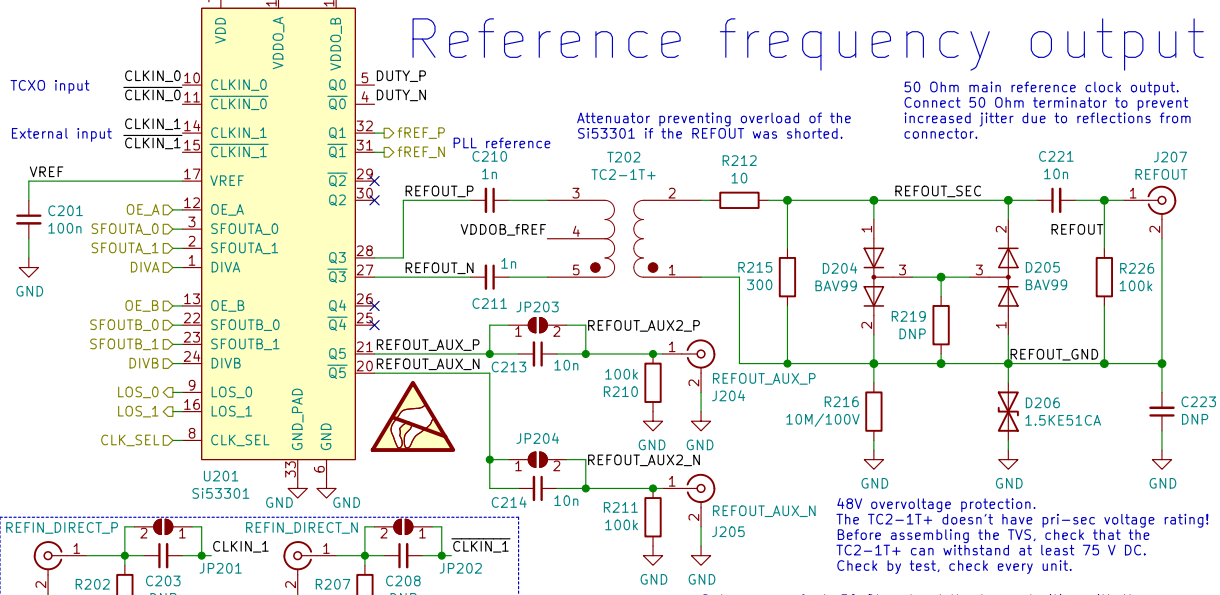
Multiplexer / buffer



Power section



Reference frequency output

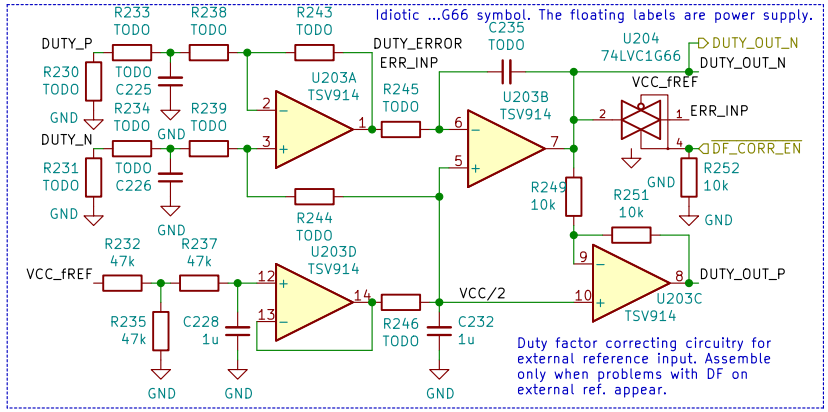


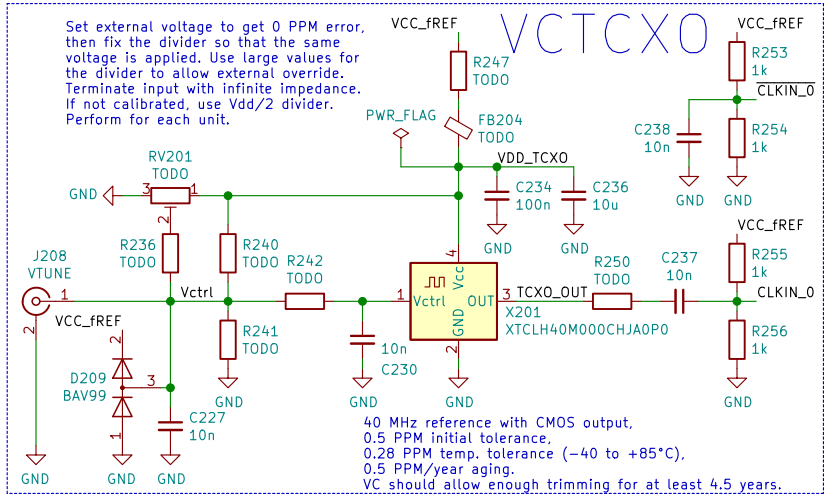
Attenuator preventing overload of the Si53301 if the REFOUT was shorted.

50 Ohm main reference clock output. Connect 50 Ohm terminator to prevent increased jitter due to reflections from connector.

48V overvoltage protection. The TC2-1T+ doesn't have pri-sec voltage rating! Before assembling the TVS, check that the TC2-1T+ can withstand at least 75 V DC. Check by test, check every unit.

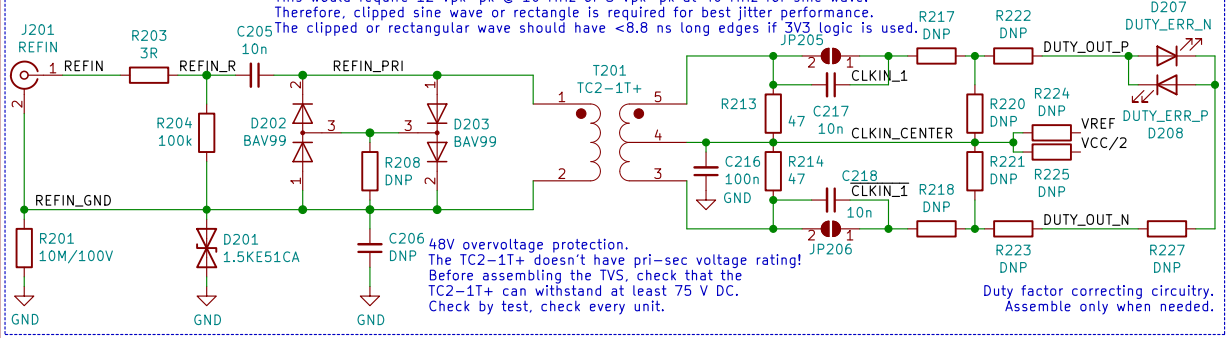
Debug aux refout, 50 Ohm. Load the two polarities with the same impedance, preferably 50 Ohm to prevent increased jitter on the main reference output. If not used for debug, replace the 100k resistors with 50 Ohm resistors. Not protected since these should be used only for debug purposes. Ground not isolated.





Reference frequency input

The Si53301 requires slew rate at least 750 V/us to meet 50 fs additive jitter.
This would require 12 Vpk-pk @ 10 MHz or 3 Vpk-pk at 40 MHz for sine wave.
Therefore, clipped sine wave or rectangle is required for best jitter performance.
The clipped or rectangular wave should have <8.8 ns long edges if 3V3 logic is used.



48V overvoltage protection. The TC2-1T+ doesn't have pri-sec voltage rating! Before assembling the TVS, check that the TC2-1T+ can withstand at least 75 V DC. Check by test, check every unit.

Duty factor correcting circuitry. Assemble only when needed.

Dual channel symmetric outputs
TCXO / external input, LMX2572/LMX2592
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Sheet: /Clock reference/
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Title: Generator 0.0125 – 6.4 GHz (0.02 – 9.8 GHz)

Size: A4	Date: 2021-02-21	**Rev: 210221-001**
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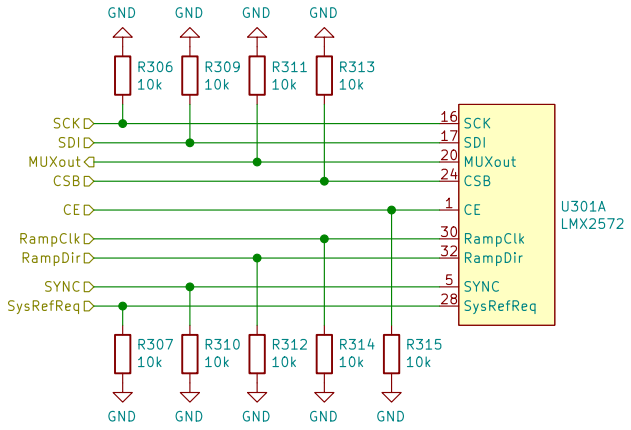
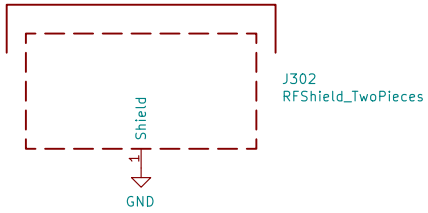
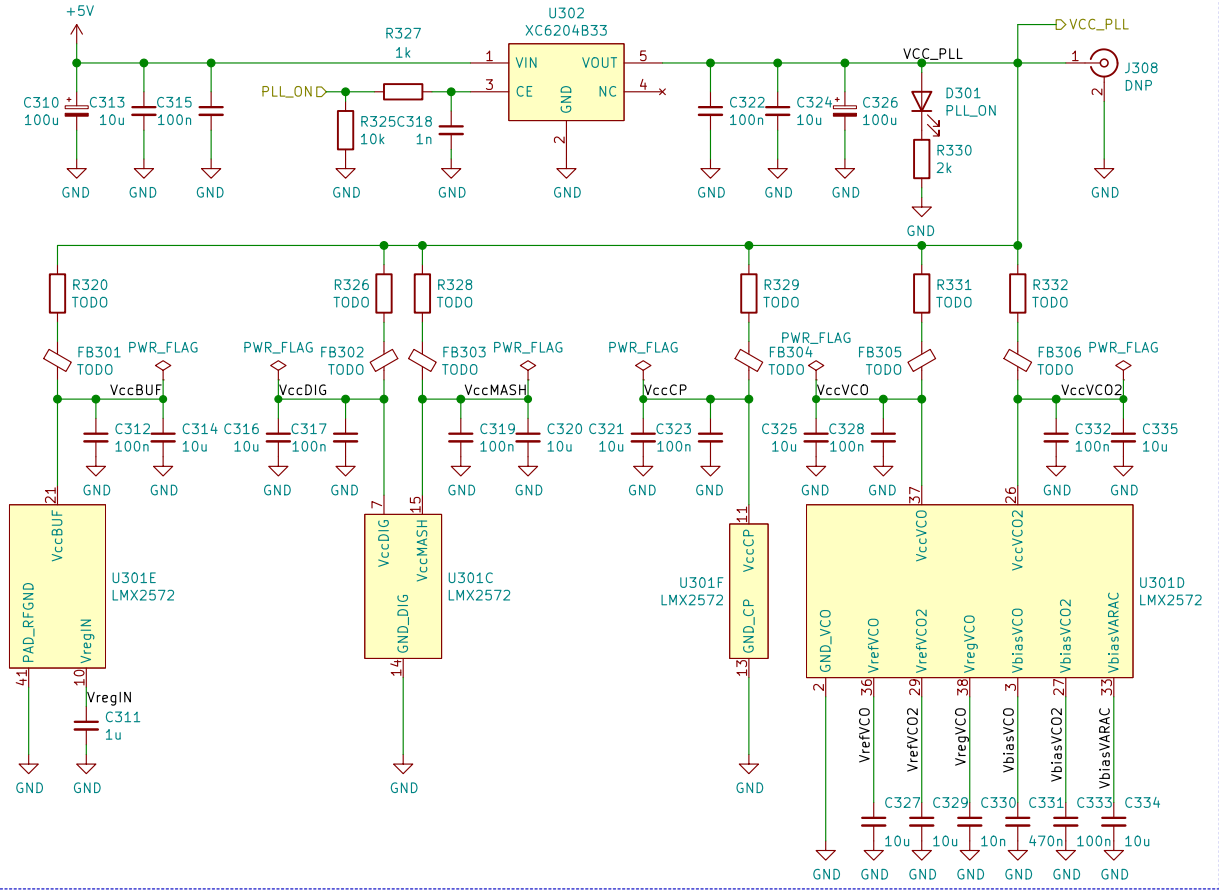
Communication section

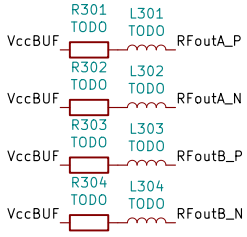




Power section

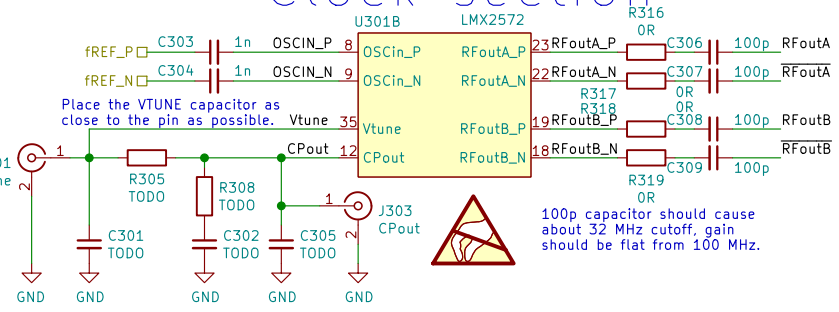


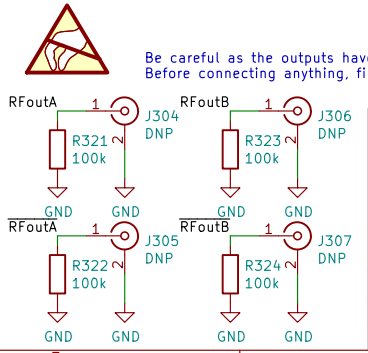
Place these pullups only in case LMX2592 is used.
Do not place them when LMX2572 is used!



The output impedance of LMX2572 is "... just a few ohms." (citation)
The impedance should be measured and according series resistors should be placed to get 50R output. Place the resistors as close as possible to the PLL.
https://e2e.ti.com/support/clock-and-timing/f/48/t/833789?LMX2572-LMX2572-RF-output-impedance-
For LMX2592, place 0R resistors.

Clock section





Dual channel symmetric outputs
TCXO / external input, LMX2572/LMX2592
001, 2021-02-21 22:46
Petr Polasek

Sheet: /PLL/
File: PLL.kicad_sch

Title: Generator 0.0125 – 6.4 GHz (0.02 – 9.8 GHz)

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