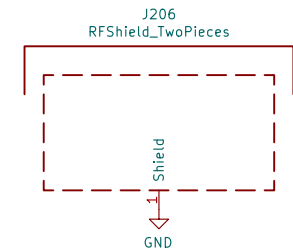
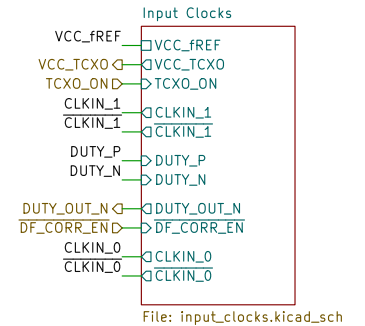
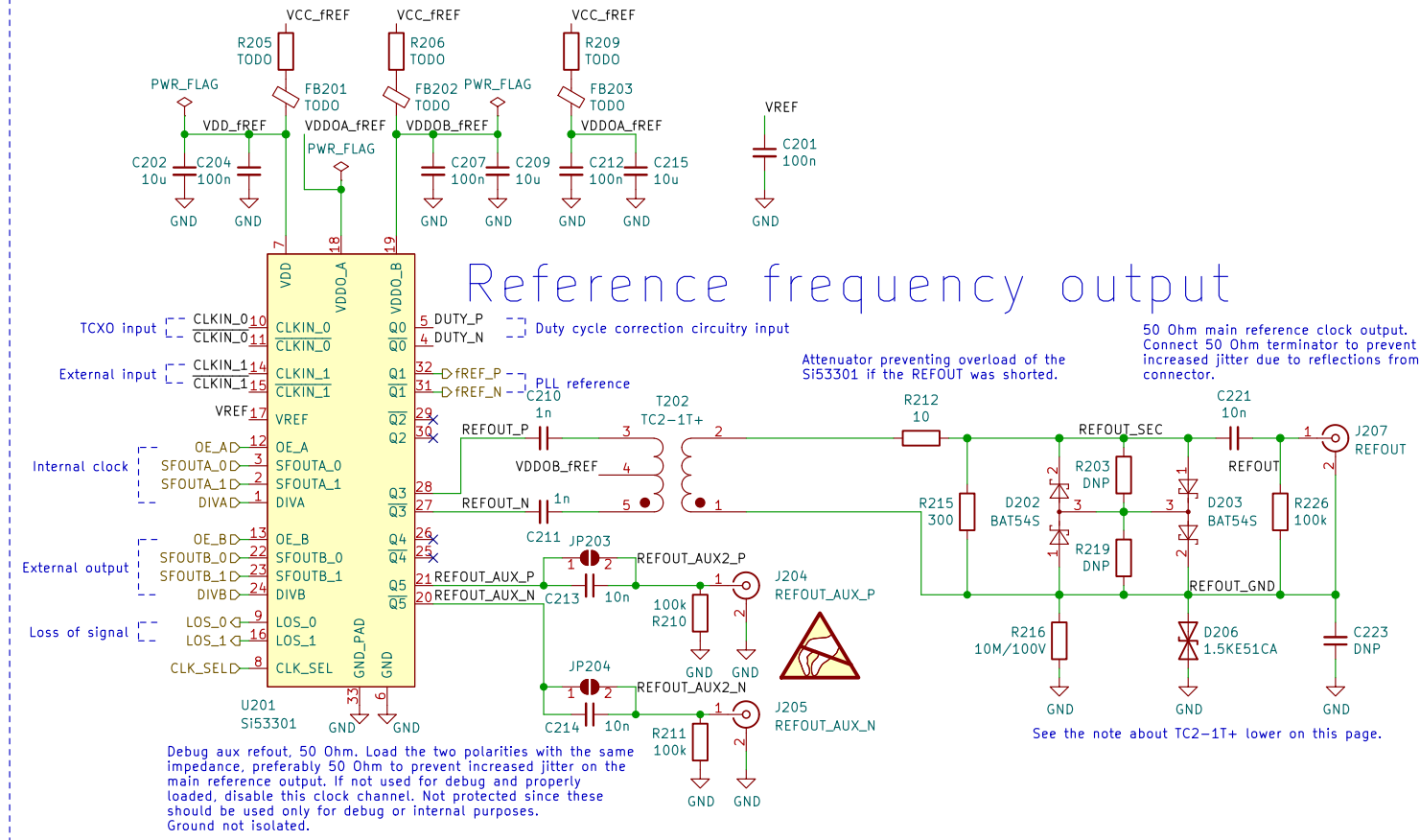
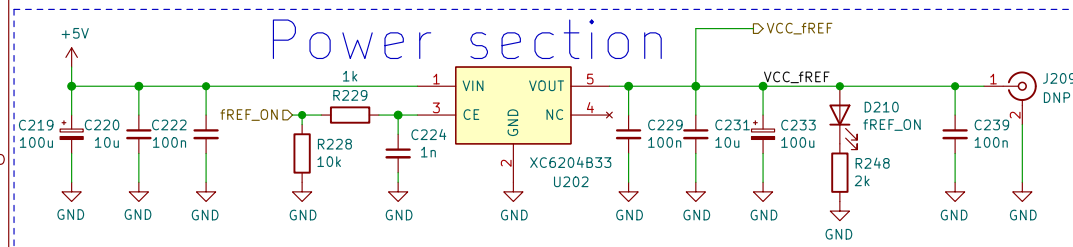


Multiplexer / buffer



Power section



Dual channel symmetric outputs
TCXO / external input, LMX2572/LMX2592
001, 2021-11-13 09:38

Petr Polasek

Sheet: /Clock reference/
File: clock_reference.kicad_sch

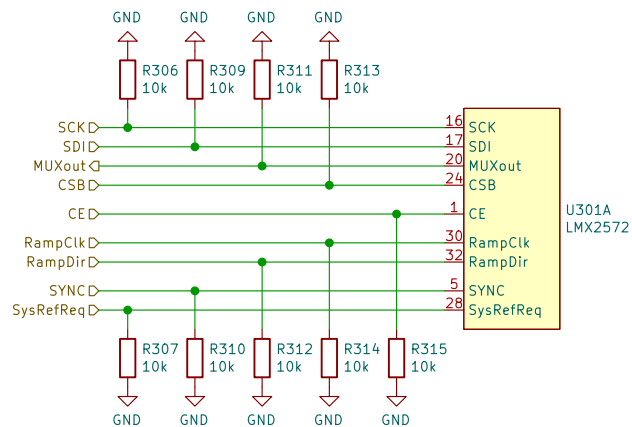
Title: Generator 0.0125 - 6.4 GHz (0.02 - 9.8 GHz)

Size: A4 Date: 2021-11-13

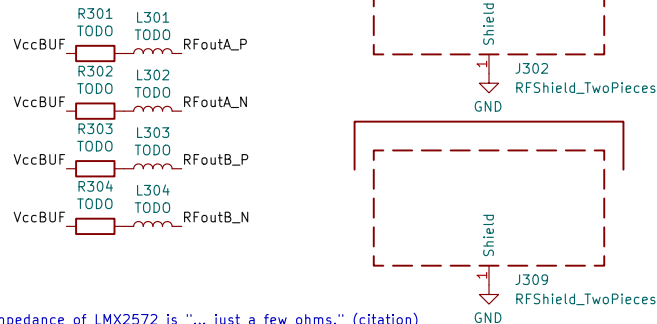
Rev: 211113-001

KiCad E.D.A. kicad 6.0.0-rc1-unknown-3180764309~144~ubuntu21.10 1 Id: 2/5

Communication section

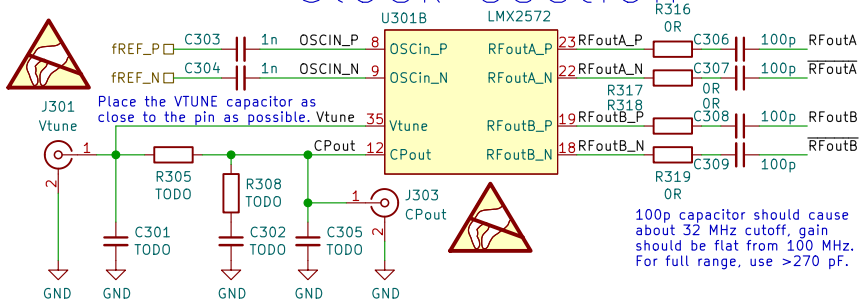


Place these pullups only in case LMX2592 is used.
Do not place them when LMX2572 is used!

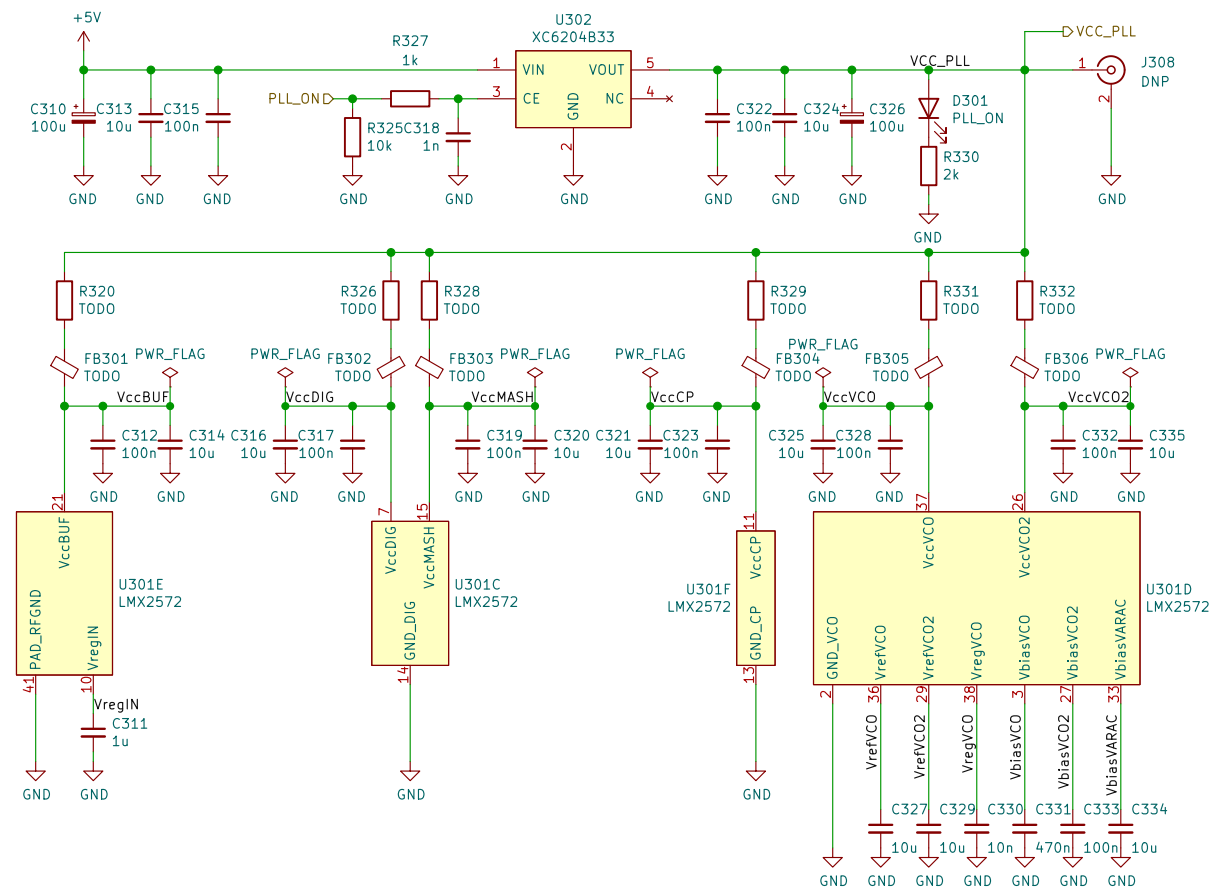


The output impedance of LMX2572 is "... just a few ohms." (citation)
The impedance should be measured and according series resistors should be placed to get 50R output. Place the resistors as close as possible to the PLL.
<https://e2e.ti.com/support/clock-and-timing/f/48/t/833789?LMX2572-LMX2572-RF-output-impedance-For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

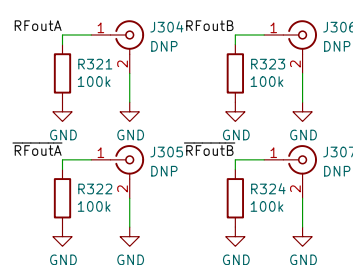
Clock section



Power section



Be careful as the outputs have no protections and can be sensitive to ESD or devices with DC offset.
Before connecting anything, first be sure to discharge any charge present on the core of the connecting cable and on the connected device!



Dual channel symmetric outputs
TCXO / external input, LMX2572/LMX2592
001, 2021-11-13 09:38

Petr Polasek

Sheet: /PLL/
File: PLL.kicad_sch

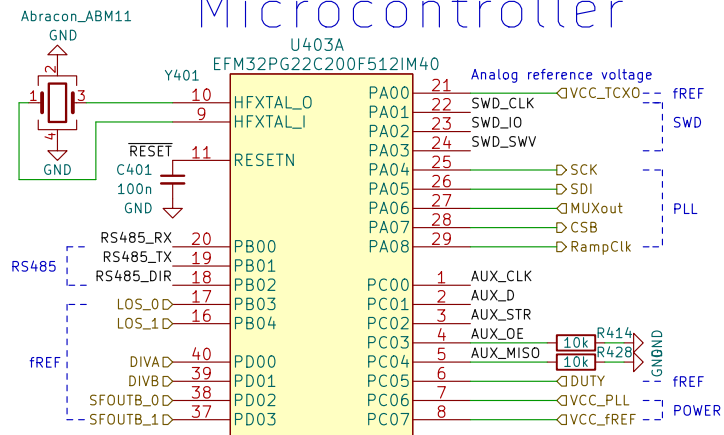
Title: Generator 0.0125 - 6.4 GHz (0.02 - 9.8 GHz)

Size: A4 Date: 2021-11-13

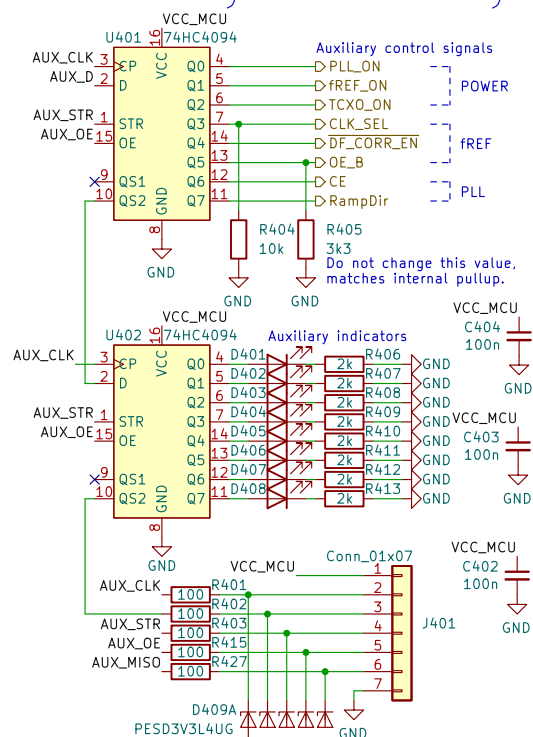
Rev: 211113-001

KiCad E.D.A. kicad 6.0.0-rc1-unknown-3180764309*144*ubuntu21.10 1 Id: 3/5

Microcontroller

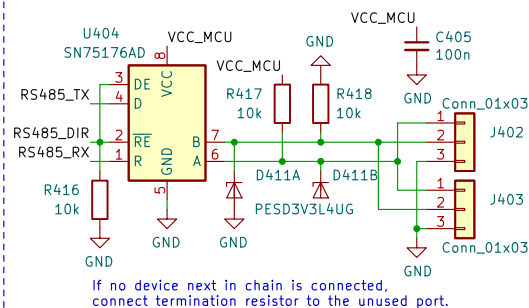


Auxiliary circuitry

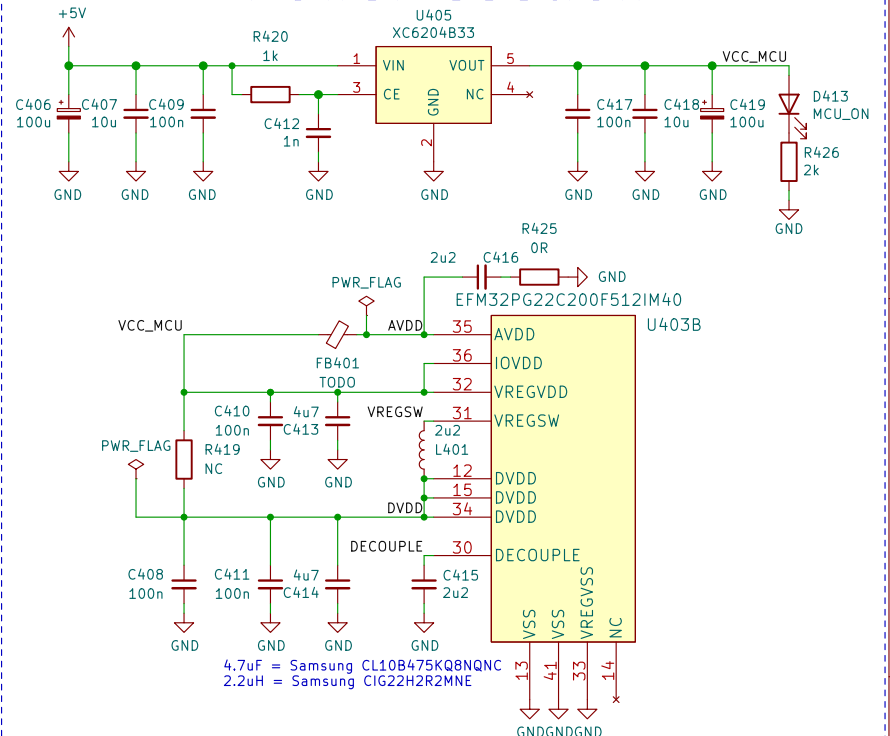


Expansion port

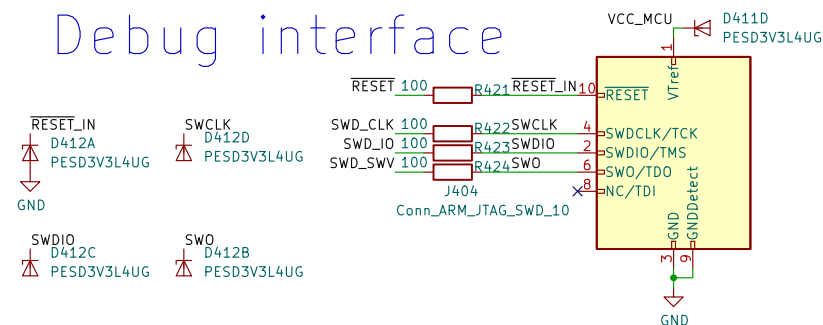
RS485 interface



Power section



Debug interface



Dual channel symmetric outputs
TCXO / external input, LMX2572/LMX2592
001, 2021-11-13 09:38

Petr Polasek

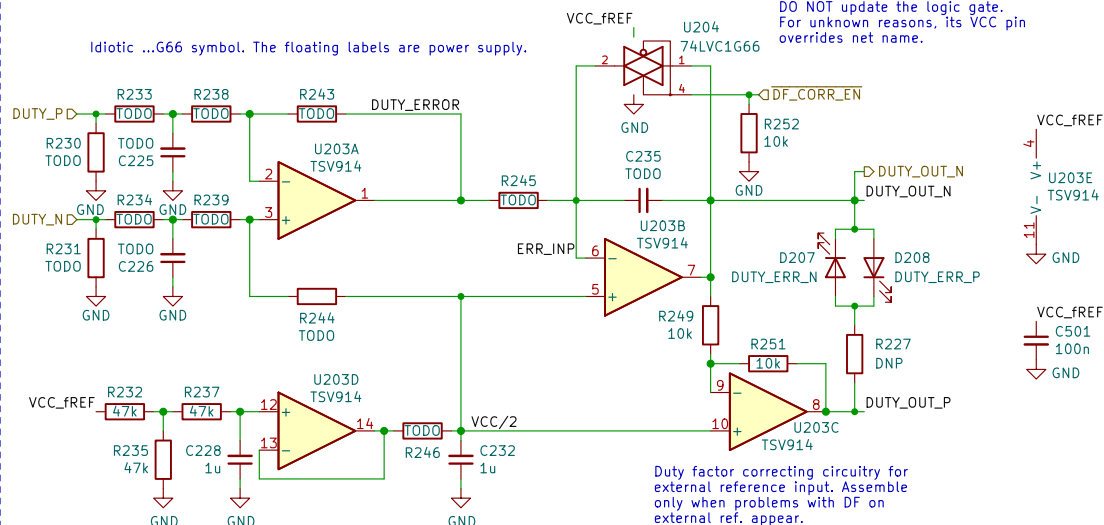
Sheet: /MCU/
File: MCU.kicad_sch

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

Size: A4 Date: 2021-11-13 Rev: 211113-001
KiCad E.D.A. kicad 6.0.0-rc1-unknown-3180764309~144~ubuntu21.10 1 Id: 4/5

Duty factor / DC corrector

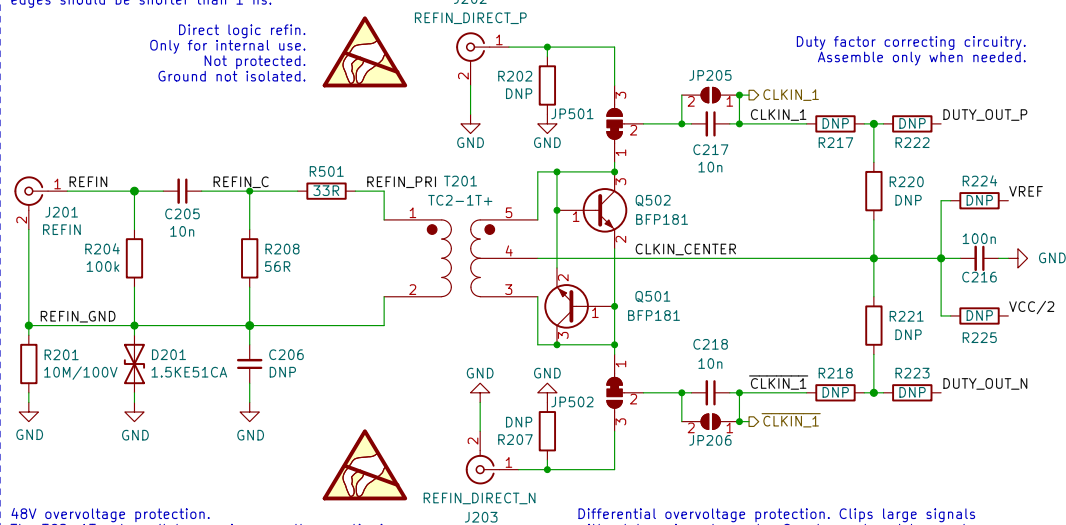
Idiotic ...G66 symbol. The floating labels are power supply.



Reference frequency input

The Si53301 requires slew rate at least 750 V/us to meet 50 fs additive jitter. This would require 5.5 Vpk-pk @ 10 MHz or 1.45 Vpk-pk at 40 MHz for sine wave. Therefore, clipped sine wave or rectangle is required for best jitter performance. The clipped sine should have slew rate at least 400 V/us and voltage at least 150 mVpp. edges should be shorter than 1 ns.

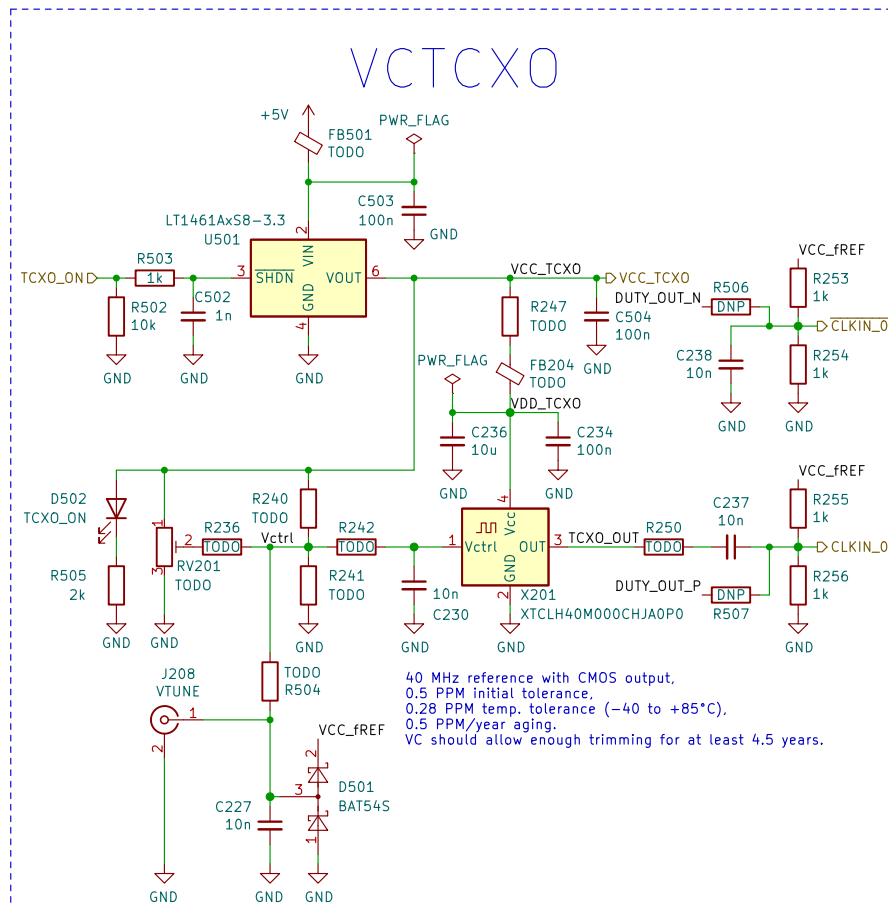
Direct logic ref.
Only for internal use.
Not protected.
Ground not isolated.



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 for one minute (before assembly).

Differential overvoltage protection. Clips large signals without lowering slew rate. Can be replaced by most microwave NPN transistors. Do not use diodes as these tend to be too slow or have high capacitance except for special types.

VCTCXO



40 MHz reference with CMOS output.
0.5 PPM initial tolerance.
0.28 PPM temp. tolerance (-40 to +85°C).
0.5 PPM/year aging.
VC should allow enough trimming for at least 4.5 years.

Dual channel symmetric outputs
TCXO / external input, LMX2572/LMX2592
001, 2021-11-13 09:38

Petr Polasek

Sheet: /Clock reference/Input Clocks/
File: input_clocks.kicad_sch

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

Size: A4 Date: 2021-11-13

Rev: 211113-001

KiCad E.D.A. kicad 6.0.0-rc1-unknown-3180764309~144~ubuntu21.10 1 Id: 5/5