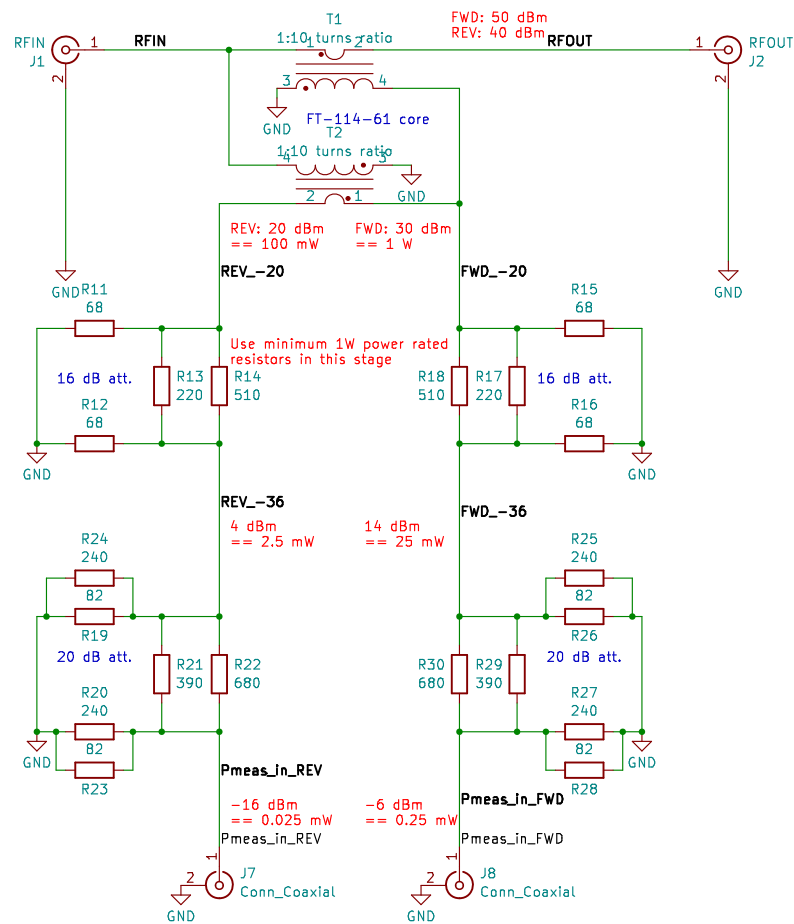


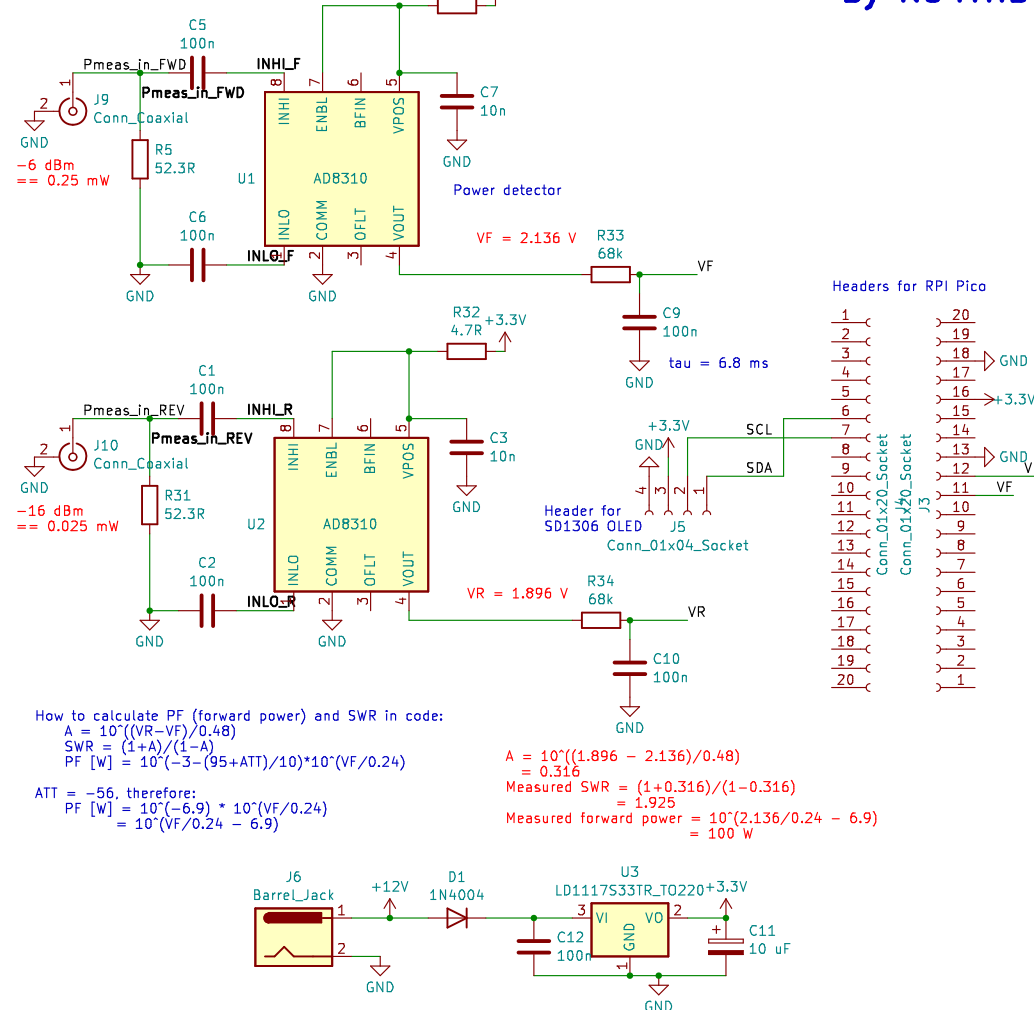
Directional Coupler Board By KO4THB

Power level analysis.
RF input: 100W (200 Vp2p, 1.4 Arms, 50 dBm).
10dB return loss, SWR 1.9.



$V_{meas} [V] = 0.024 * (P_{in} [dBm] + 95)$
Pin must not exceed 10 dBm. Ideally -0dBm

Power Detection Board By KO4THB



Shown here is 100 W model:
10 turns -> 1.0 W out of coupler
36 dB of attenuation (16dB + 20dB)

Alternative 1 kW model (untested):
26 turns -> 1.5 W out of coupler
26 dB of attenuation (16dB + 10dB)

How wide should the traces be?

50 Ohm microstrip line on 1mm thick FR4, 1 oz/ft² copper is 1.8 mm wide.
Ref: <https://www.digikey.com/en/resources/conversion-calculators/conversion-calculator-pcb-trace-impedance>

This is sufficient for our power levels: If power level is 50 dBm == 1.4A RMS,
we need at least 0.5 mm trace width if copper thickness is 1 oz/ft².

Ref: <https://www.4pcb.com/trace-width-calculator.html>

Credit to G3TXQ for design inspiration