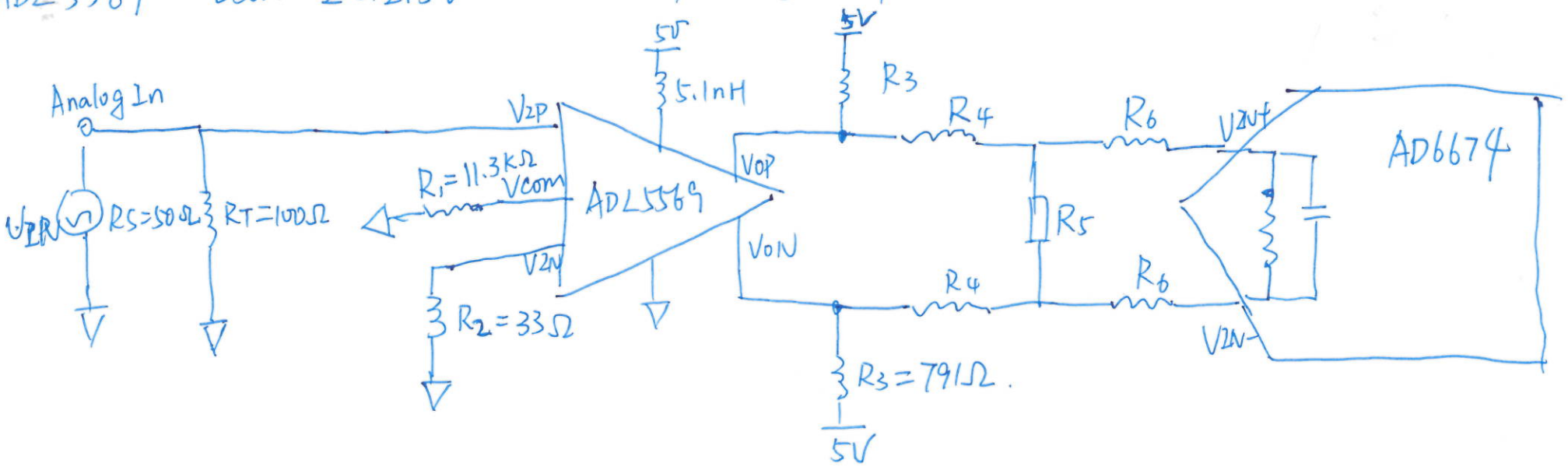
Condition

AD6674 V_{com} = 2.05V V_{INP-P} = 1.7V

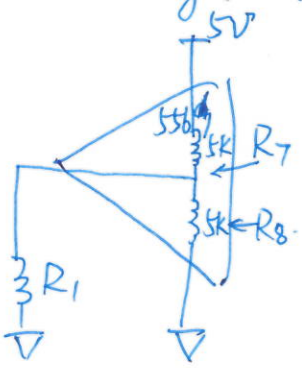
ADL5569 V_{com} 2 ~ 2.5V

R_G = 500Ω R_F = 500Ω.

Single End → R_{IN} = 91.7Ω.



Step 1. R_1 for Vcom Setting to 2.05V.

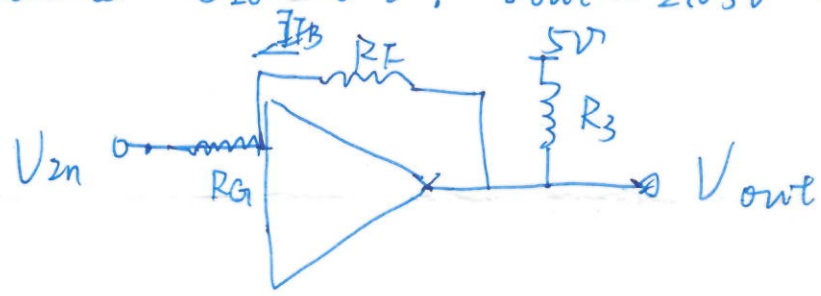


$R_\alpha = R_1 // R_8$

$$\frac{R_\alpha}{R_\alpha + R_7} = \frac{2.05}{5} \qquad R_\alpha = 3.47K\Omega.$$

$\therefore R_1 \simeq 11.34K\Omega.$

Step 2. Assume $V_{LO} = 0V$, $V_{out} = 2.05V$.



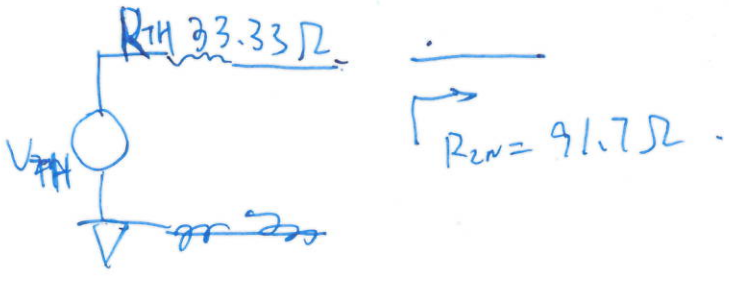
$$I_{FB} = \frac{V_{out} - V_{in}}{R_G + R_F} = \frac{2.05}{550} = 3.73\,mA.$$

$$R_3 = \frac{AV_{DD} - V_{com}}{I_{FB}} = \frac{5 - 2.05}{3.73mA} = 791\Omega$$

step 3. As R_{IN} of ADL6674 is 91.7Ω. per data sheet. To match 50Ω Rs

$R_{IN} // R_T = 50\Omega$ Solve R_T = 109.95.

make the R_T = 100Ω. the Thevenin equivalent of Input. is.



Vin in series with a 33.33Ω Resistor.

Connect R_2 = 33Ω in V_{IN} to balance the two Input.

Step 4. Gain. Adjustment.

$$\frac{1.7}{V_{TH}} = \frac{R_F}{R_G + R_{TH}}$$

$$\frac{1.7}{V_{TH}} = \frac{500}{50+33.}$$

Assume the Vout desire = $1.7V_{P-P}$

Solve V_{TH} = 282 mV_{P-P}.

with Single to DIF Attenuation of -3.5dB.

Gain = $20\log(\frac{500}{83}) = 15.6dB$. 15.6 - 3.5 = 12.1dB

To get a $1.7V_{PP}$ Sig, the Input V_{in} should be. $0.43V_{P-P}$