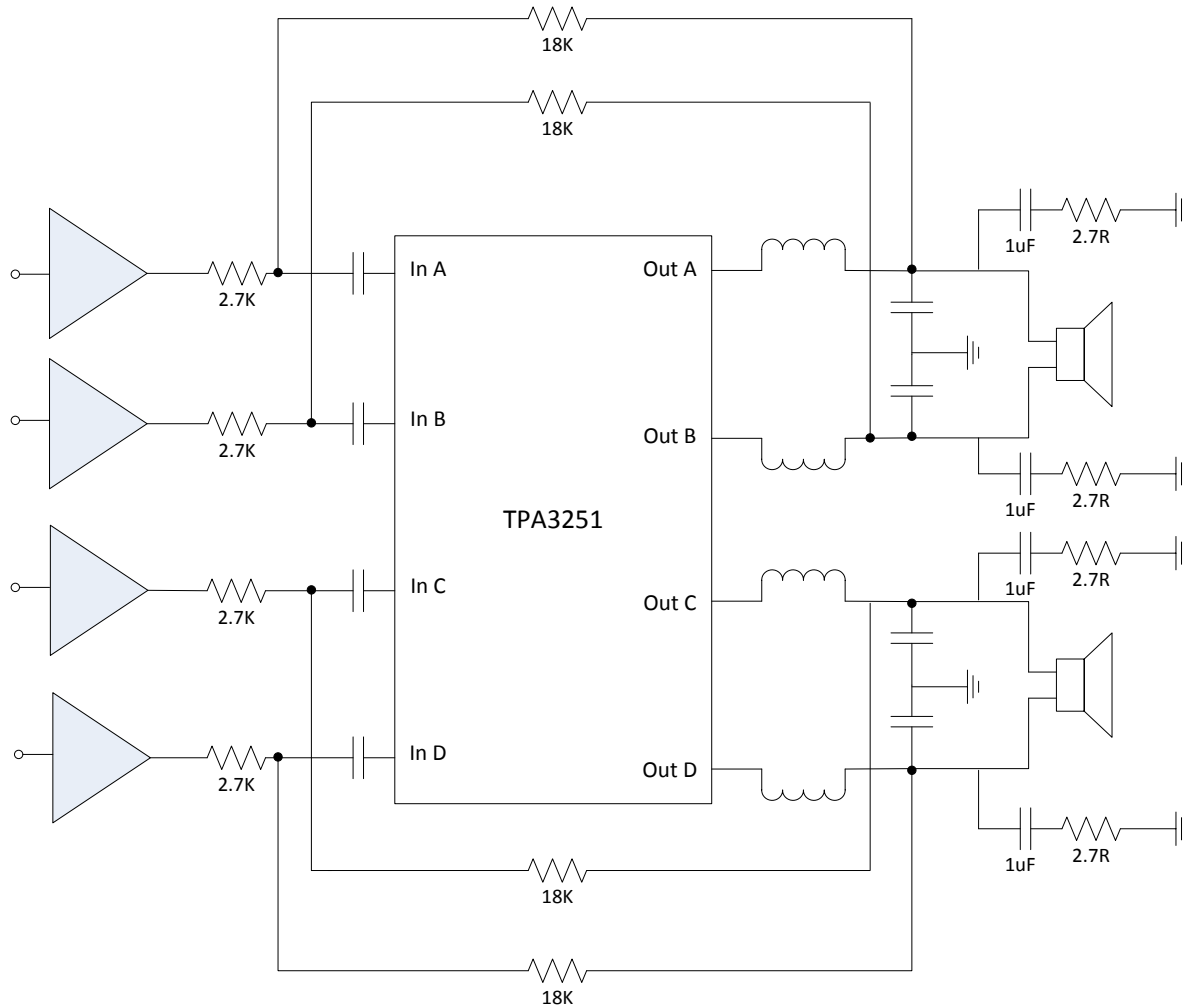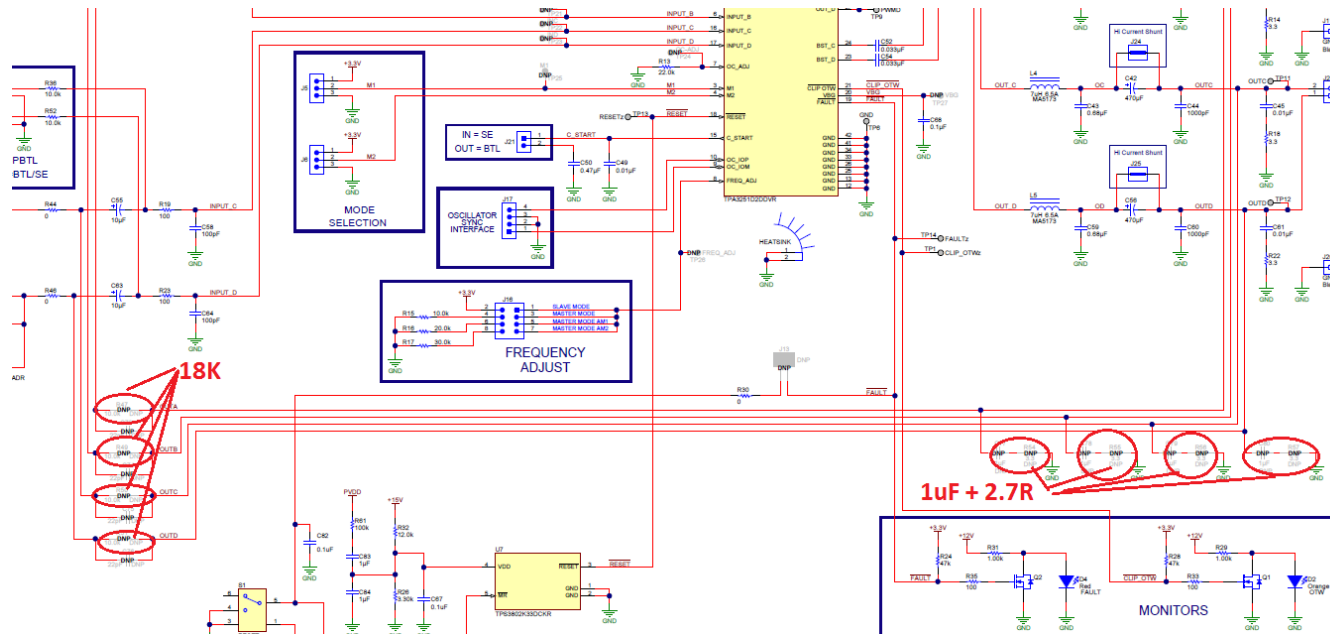# Intro to PFFB

TPA3251

PFFB Implementation (TPA3251)

PFFB Implementation (TPA3251)

The components are as follows:

- Input Resistors R4 R12 R44 R46 = 2.7KΩ
- Feedback Resistors R47 R49 R50 R51 = 18KΩ
- Zobel Resistors R54 R55 R56 R57 = 2.7Ω
- Zobel Capacitors C77 C78 C79 C80 = 1uF
- Op-Amp Feedback Pole C18 C23 C57 C65 = 330pF

Gain Parameters

$$A_f = \frac{A_0}{(1 + A_0\beta)}$$

$$A_0 = 20 \text{ dB} = 10 \qquad \beta = \frac{2.7\text{k}}{(2.7\text{k} + 18\text{k})} = 0.13$$

$$A_f = \frac{10}{\left(1 + (10 \times 0.13)\right)} = 4.35 = 12.8 \text{ dB}$$

Gain	TPA3251 (PVDD = 36 V, Fpwm = 600 kHz)	TPA3255 (PVDD = 51 V, Fpwm = 450 kHz)
Measured Gain PFFB	11	12.2
Ideal Gain Compensation	9	9.3
Restored System Gain	20	21.5

Feedback Parameters	TPA3251 (PVDD = 36 V, Fpwm = 600 kHz)	TPA3255 (PVDD = 51 V, Fpwm = 450 kHz)
Gain Ao (dB)	20	21.5
Feedback Factor β	0.13	0.119
PFFB Gain Af (dB)	12.8	13.8
Negative Feedback (dB)	7.2	7.7

Stability

- Stability is measured by % overshoot

$$\text{Overshoot}(\%) = \left(\frac{(V\_peak) - V\_ideal}{V\_ideal} \right) \times 100$$