

功放电路CheckList

大纲

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1、概述

功放功率：-3dB输入信号，8欧姆负载，700mW ($V_{out} = 6.69V_{pp}$)

截止频率：Fs = 150Hz

功放供电：5V

喇叭模式：单，双喇叭

输入幅度：A23&33 单喇叭-3dB时2.828Vpp

A23&33 双喇叭-3dB时1.414Vpp

AC100 -3dB时2.24Vpp

功放类型：D类带反馈电阻，反馈阻值查看Datasheet

D类固定增益，输入阻值和增益查看Datasheet，输入幅度软件配置

AB类

阻容选择：据计算结果，选择常规容值最靠近值

术语说明：G --> 增益

Rf --> 反馈电阻

Rin --> 输入阻抗

Cin --> 输入电容

Vout --> 输出电压

Vinmax --> 功放输入最大电压

适用范围：AXP813参照AC100

2、A23&33-D类单喇叭

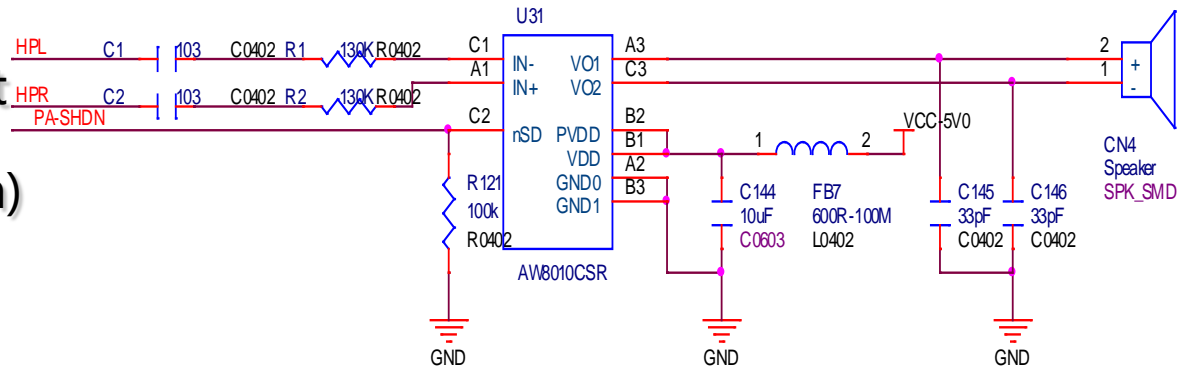
•D类功放带反馈电阻:

• $R_{in} = R_{1,2} = (2 * R_f * V_{in}) / V_{out}$

• $\approx 130K$

• $C_{in} = C_{1,2} = 1 / (2 * \pi * F_s * R_{in})$

• $\approx 10nF$



•D类功放固定增益:

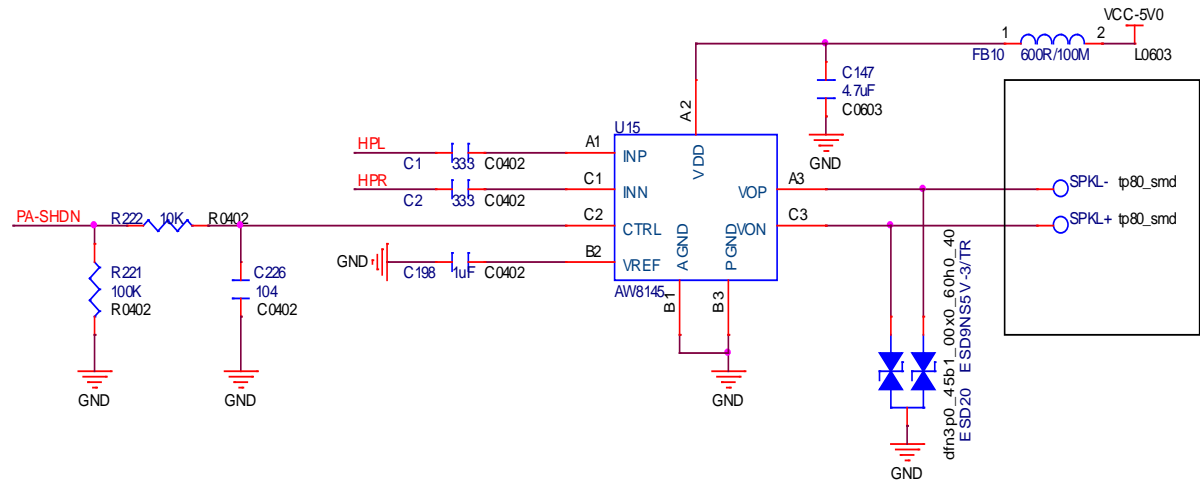
• $C_{in} = C_{1,2} = 1 / (2 * \pi * F_s * R_{in})$

• $\approx 33nF$

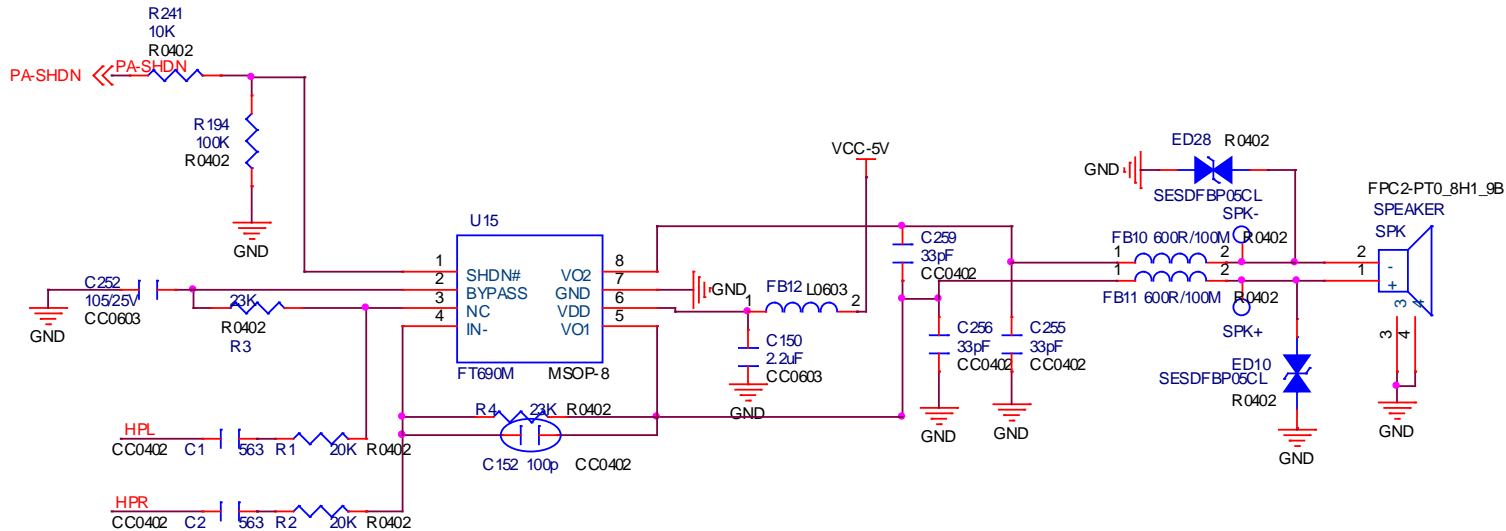
• $V_{inmax} =$

$V_{out} / (G * 0.707 * 2)$

• $\approx 0.8V_{pp}$ (软件设置)

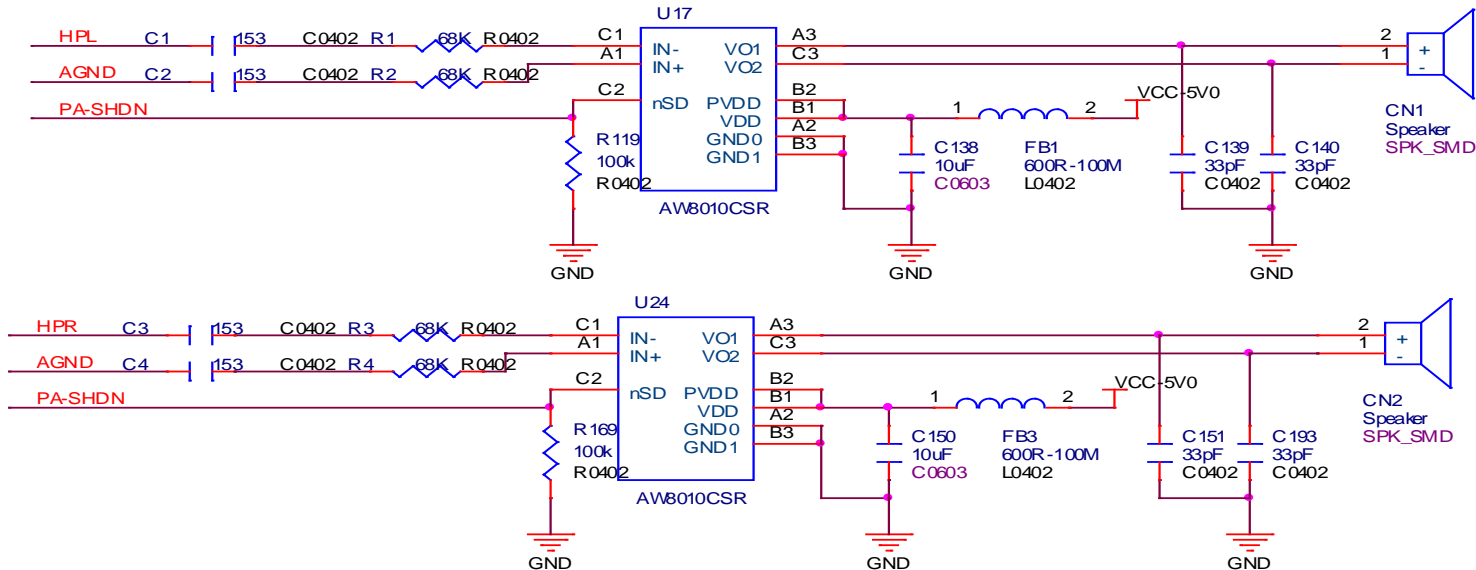


2、A23&33-AB类单喇叭



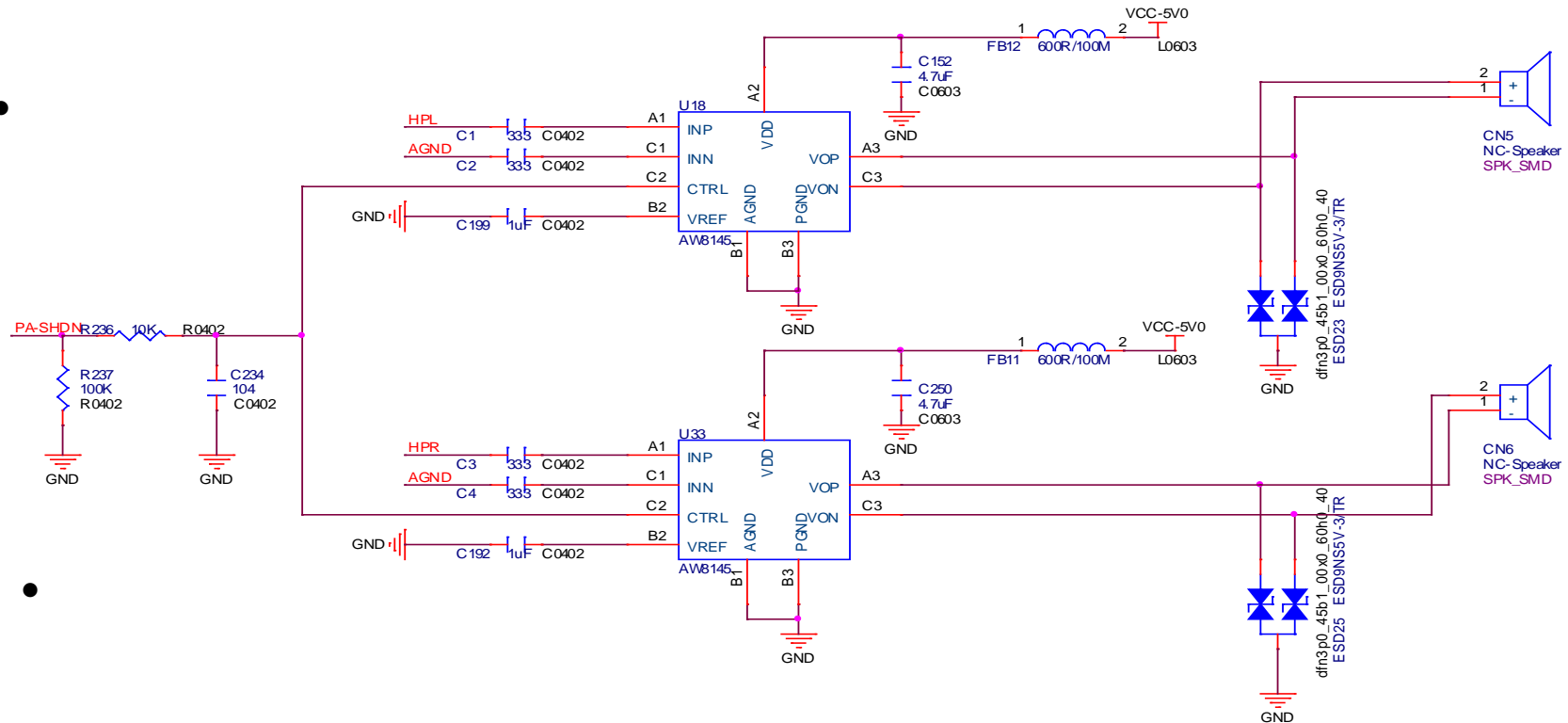
- AB类:
- $R_f = R_{3,4} = (2 \cdot R_{in} \cdot V_{out}) / V_{in} \approx 23K$
- $C_{in} = C_{1,2} = 1 / (2 \cdot \pi \cdot F_s \cdot R_{in}) \approx 56nF$

2、A23&33-D类带反馈双喇叭



- D类功放带反馈电阻:
- $R_{in} = R_{1,2} = (2 \cdot R_f \cdot V_{in}) / V_{out} \approx 68K$
- $C_{in} = C_{1,2} = 1 / (2 \cdot \pi \cdot F_s \cdot R_{in}) \approx 15nF$

2、A23&33-D类固定增益双喇叭

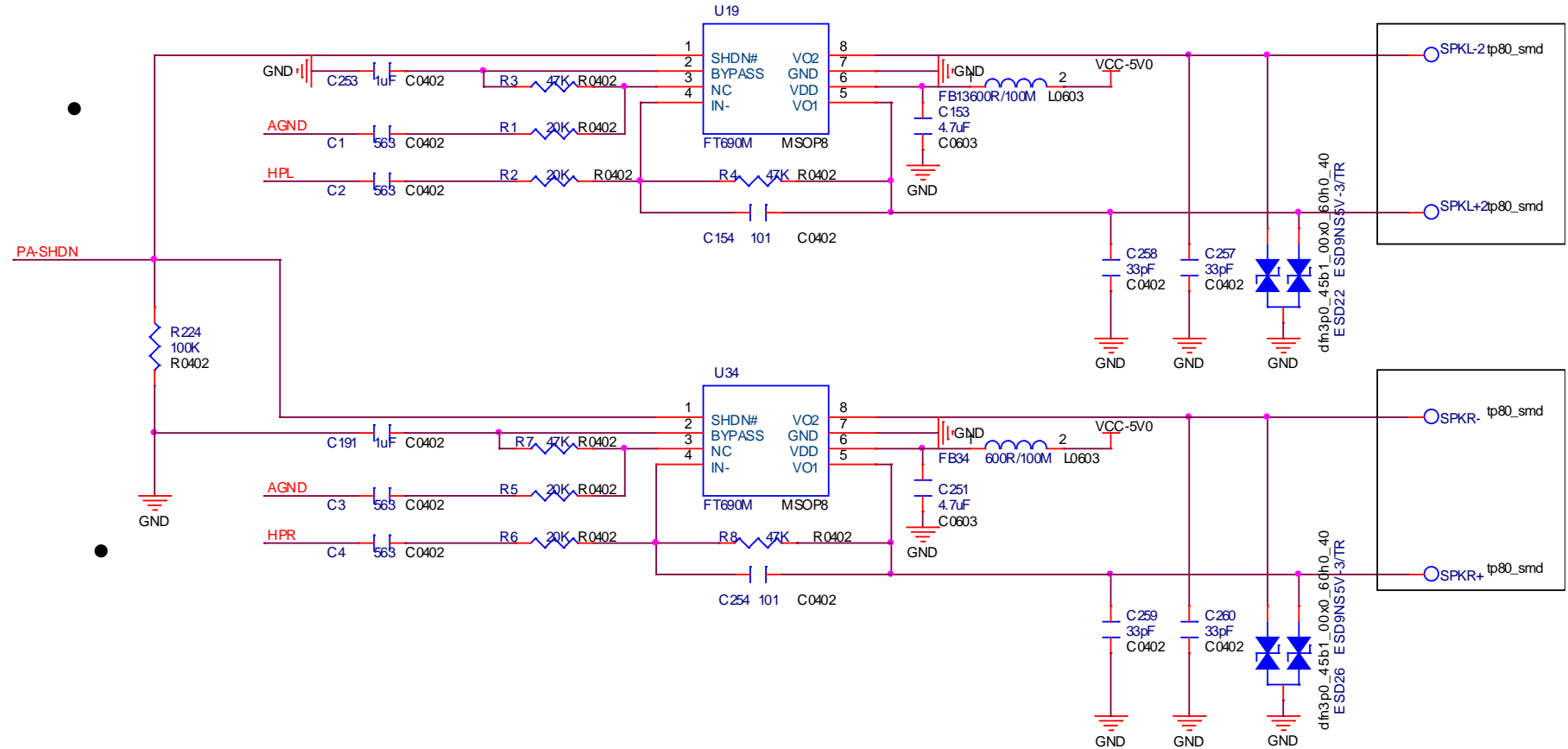


•D类功放固定增益:

• $C_{in} = C_{1,2} = 1/(2 \cdot \pi \cdot F_s \cdot R_{in}) \approx 33\text{nF}$

• $V_{inmax} = V_{out}/(G \cdot 0.707) \approx 1.6\text{Vpp}$ (软件设置)

2、A23&33-AB类双喇叭



- AB类:
- $R_f = R_{3,4} = (R_{in} \cdot V_{out}) / V_{in} \approx 47K$
- $C_{in} = C_{1,2} = 1 / (2 \cdot \pi \cdot F_s \cdot R_{in}) \approx 56nF$

3、AC100-D类单喇叭

•D类功放带反馈电阻:

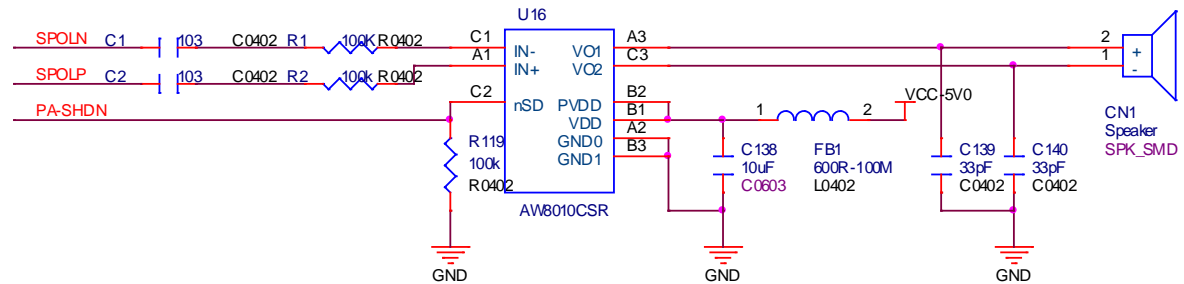
• $R_{in} =$

$$R_{1,2} = (2 * R_f * V_{in}) / V_{out}$$

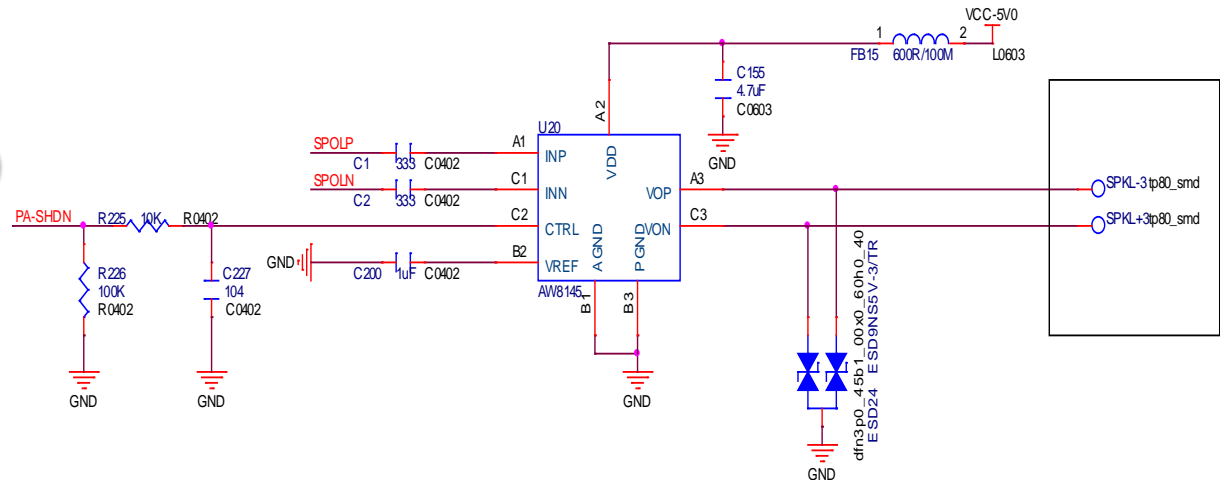
• $\approx 100K$

$$C_{in} = C_{1,2} = 1 / (2 * \pi * F_s * R_{in})$$

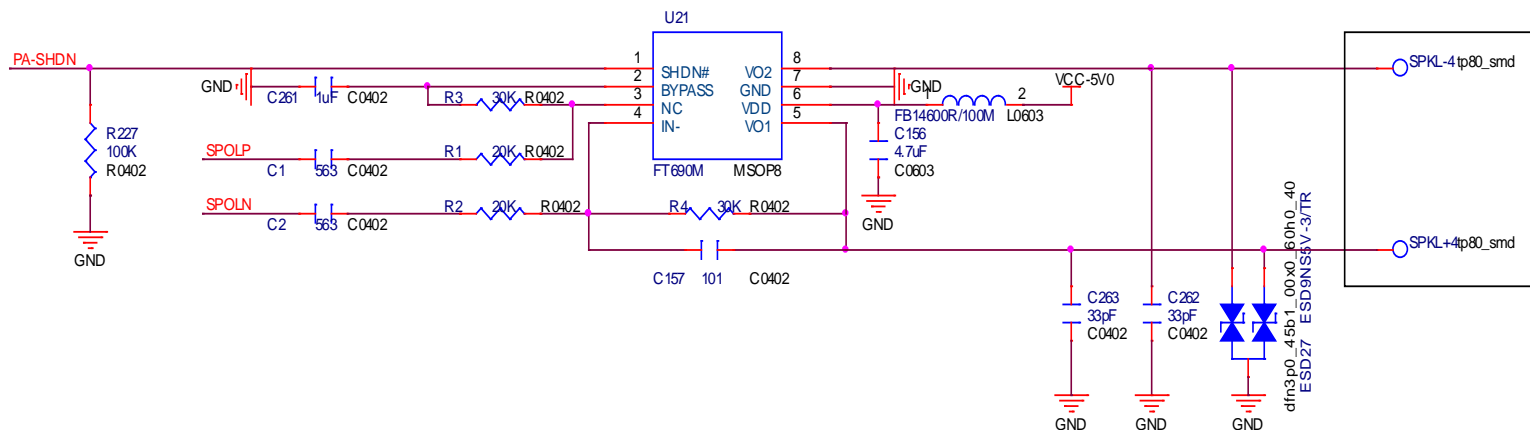
• $\approx 10nF$



- D类功放固定增益:
- $C_{in} = C_{1,2} = 1 / (2 * \pi * F_s * R_{in})$
- $\approx 33nF$
- $V_{inmax} =$
- $V_{out} / (G * 0.707 * 2)$
- $\approx 0.8V_{pp}$ (软件设置)

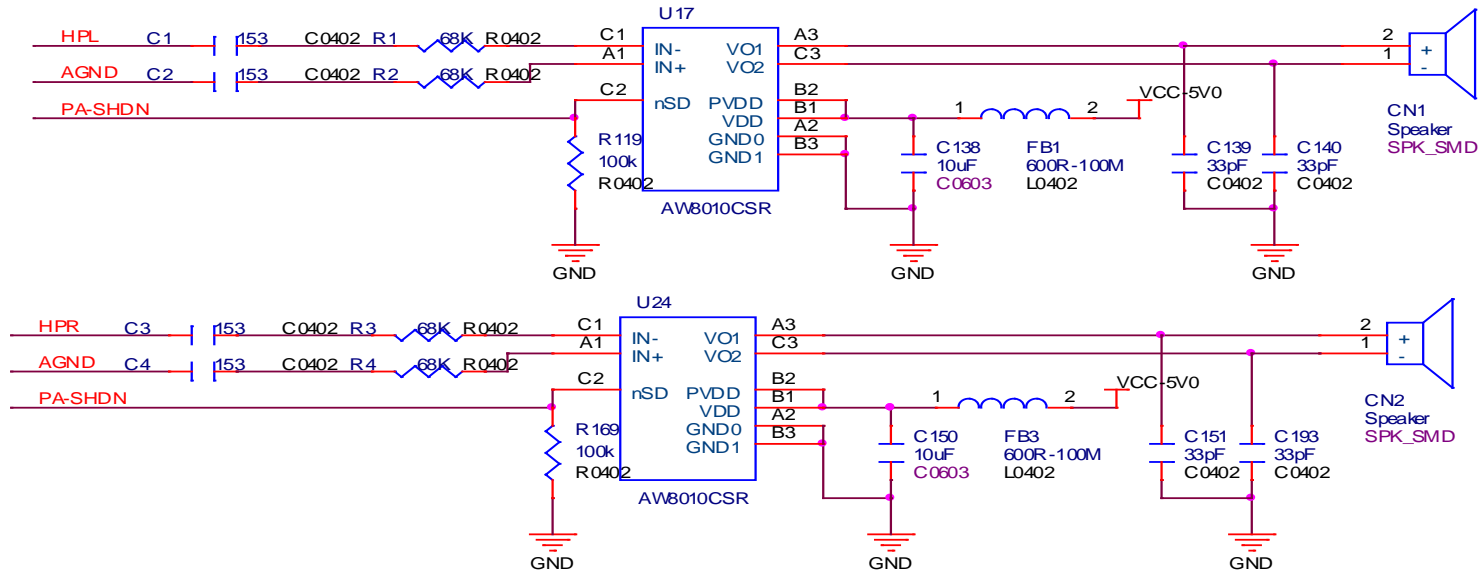


• 3、AC100-AB类单喇叭



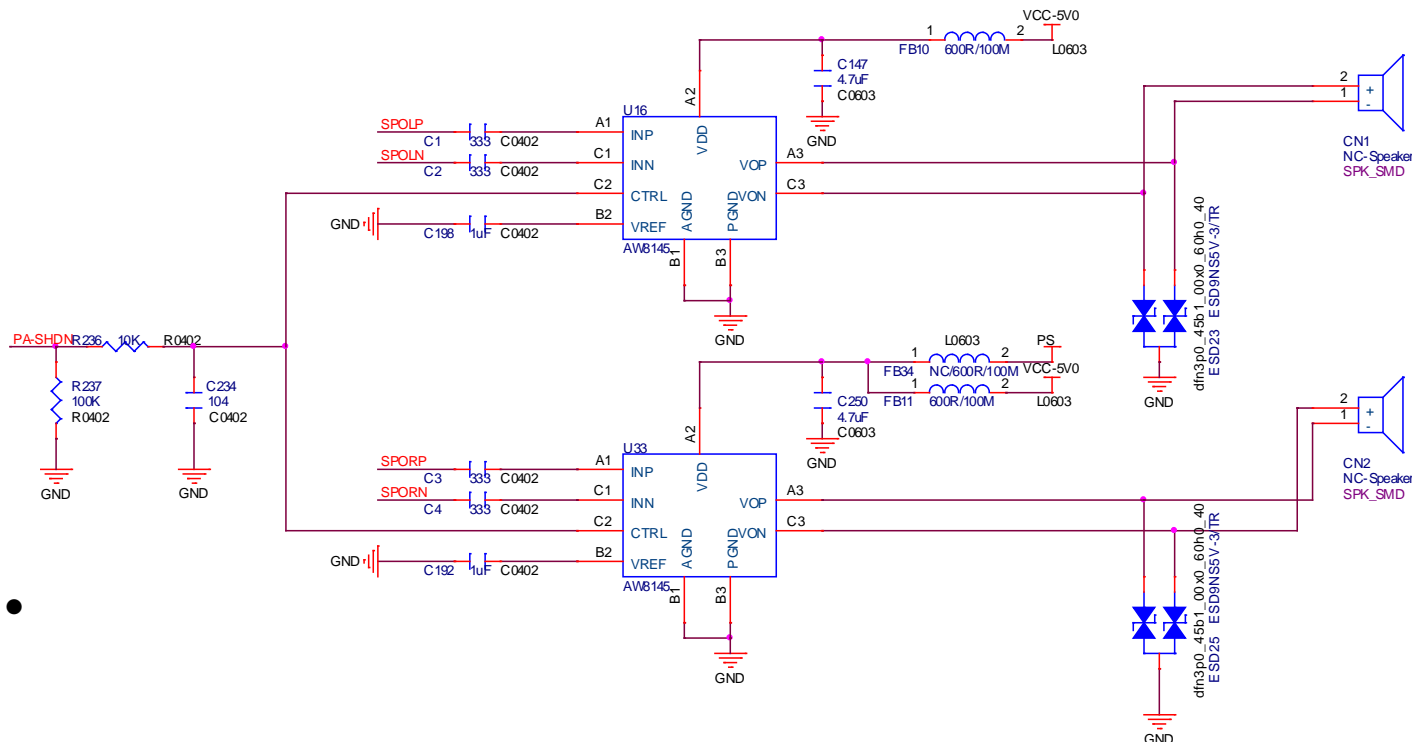
- AB类:
- $R_f = R_{3,4} = (2 \cdot R_{in} \cdot V_{out}) / V_{in} \approx 30K$
- $C_{in} = C_{1,2} = 1 / (2 \cdot \pi \cdot F_s \cdot R_{in}) \approx 56nF$

3、AC100-D类带反馈双喇叭



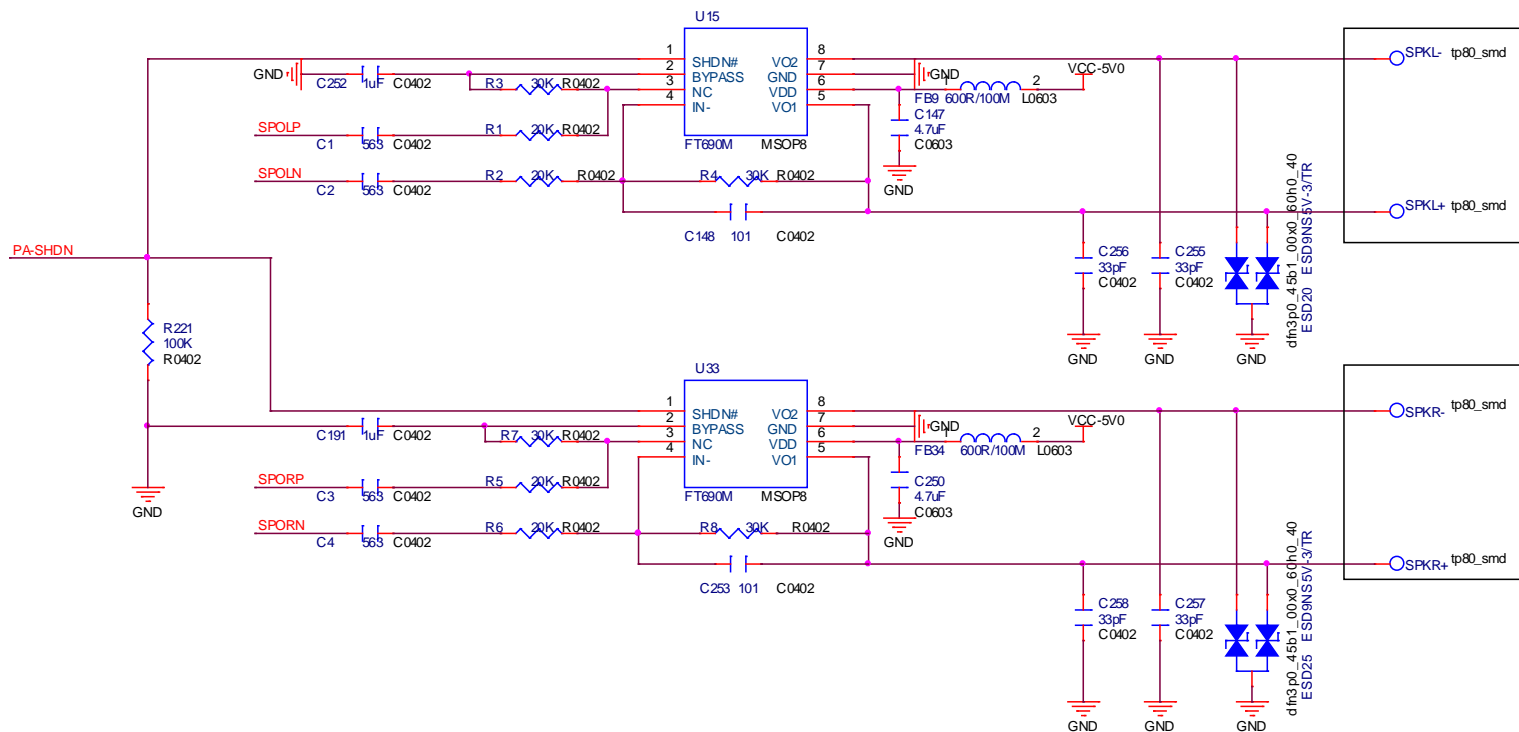
- D类功放带反馈电阻:
- $R_{in} = R_{1,2} = (2 \cdot R_f \cdot V_{in}) / V_{out} \approx 68K$
- $C_{in} = C_{1,2} = 1 / (2 \cdot \pi \cdot F_s \cdot R_{in}) \approx 15nF$

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- D类功放固定增益:
- $C_{in} = C_{1,2} = 1/(2 \cdot \pi \cdot F_s \cdot R_{in}) \approx 33\text{nF}$
- $V_{inmax} = V_{out}/(G \cdot 0.707) \approx 1.6\text{V}_{pp}$ (软件设置)

3、AC100-AB类双喇叭



- AB类:
- $R_f = R_{3,4} = (R_{in} \cdot V_{out}) / V_{in} \approx 30K$
- $C_{in} = C_{1,2} = 1 / (2 \cdot \pi \cdot F_s \cdot R_{in}) \approx 56nF$



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