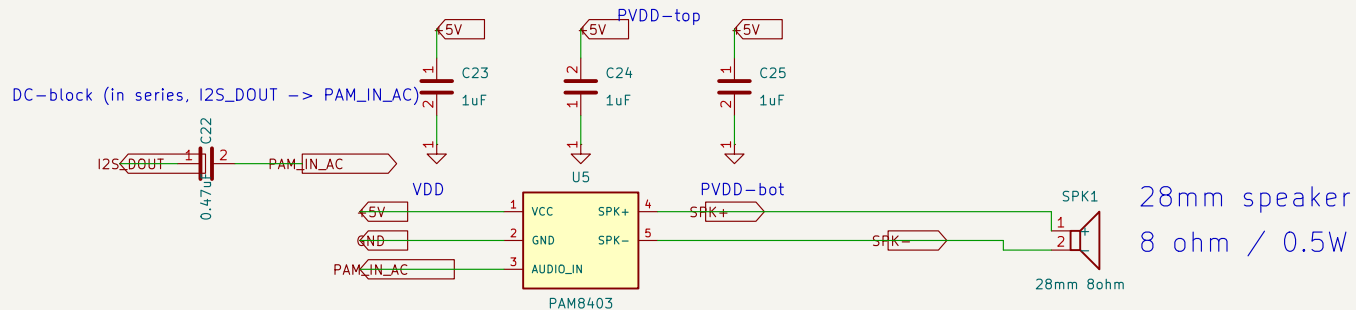


AUDIO OUTPUT

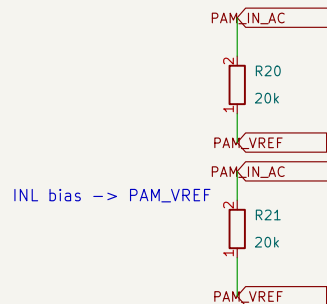
I2S DAC -> PAM8403 Class-D Amplifier -> 28mm 8ohm Speaker

I2S Bus (PDM TX mode – DOUT only):

I2S_BCLK GPIO15 – Bit Clock (UNUSED – PDM mode, v2 free)
I2S_LRCK GPIO16 – L/R Word Select (UNUSED – PDM mode, v2 free)
I2S_DOUT GPIO17 – PDM sigma-delta out @ 32kHz -> C22 -> PAM_IN_AC



PAM8403 Passives:



INR bias -> PAM_VREF
R20/R21 bias the amplifier inputs to PAM_VREF (R4-HIGH-3).

Design Notes:

- PAM8403: filterless Class-D stereo amplifier (3W per channel max)
- Only one channel used for mono audio
- No external DAC needed: ESP32-S3 has built-in I2S with DMA
- Powered from +5V rail for max headroom (3.3V limits volume)
- DMA-driven audio streaming for low CPU overhead

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ESP32 Emu Turbo – Handheld Retro Console

Sheet: /
File: 04-audio.kicad_sch

Title: Audio – I2S -> PAM8403 -> Speaker

Size: A4

Date:

KiCad E.D.A. 10.0.5

Rev:

Id: 4/1