

## The Application Notice for NY9A001A/001B Using PWM Amplifier

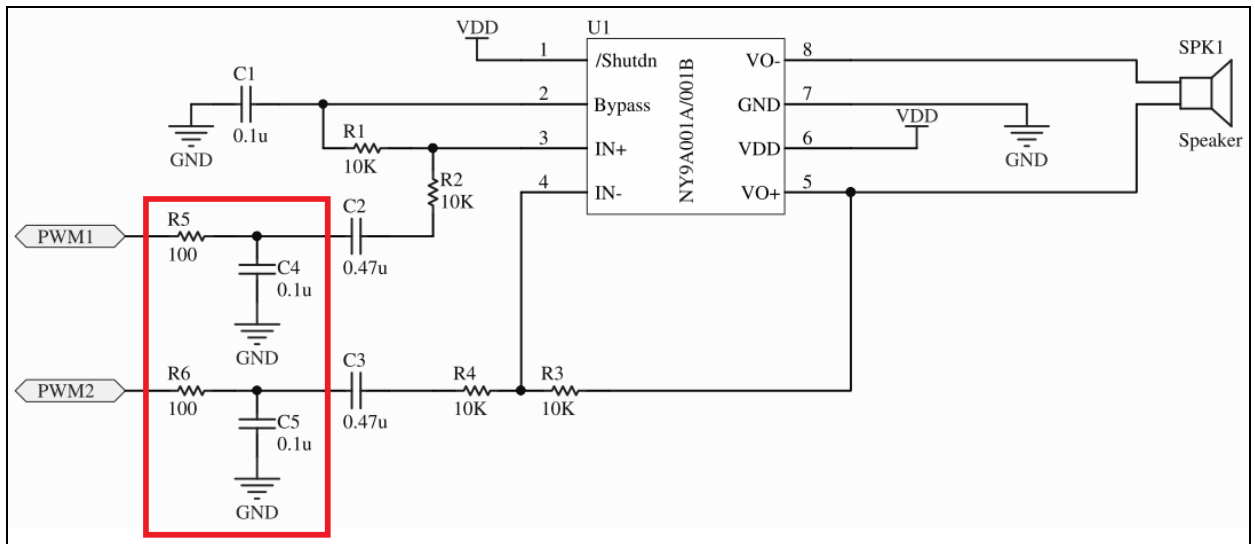
**Description:** When executing the PWM amplifier through NY9A001A/001B, it's recommended to add RC low-pass filter on PWM to avoid the waveform distortion and noise.

**Reason:** The signal bandwidth of NY9A001A/001B is DC~20KHz, but the PWM signal bandwidth exceeds the range, which will cause PWM signal distortion and noise. Users can filter the high-frequency carrier through the RC low-pass filter and amplify the PWM signals.

**Solution:** Add the RC low-pass filter between the PWM signal and NY9A001A/001B amplifying circuit as the red box shown below. Set the cutoff frequency between 15KHz~20KHz, slightly lower than the bandwidth of NY9A001A/001B.

The cutoff frequency formula is  $f_c = 1/(2\pi RC)$ , if the RC low-pass filter uses  $100\Omega$  and  $0.1\mu F$  respectively, the cutoff frequency is about 16KHz as the red box shown below.

Illustration: Execute the differential amplifier when the PWM signals pass the RC low-pass filter.



**Note:** NY9A001A/001B is not suitable for differential amplification of PWM signals without RC low-pass filtering, otherwise distortion will easily occur and affect the sound quality.