

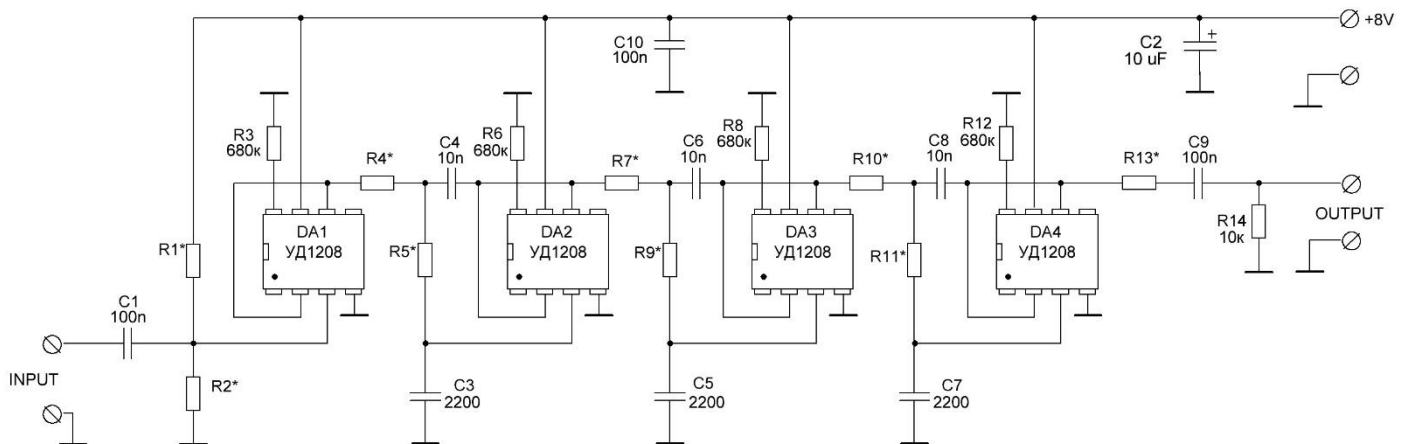
The Active Low-Pass Audio Filter for Receiver (SSB 2.4 KHz or CW 1 KHz)

To significantly improve the electrical characteristics of the receiver or transceiver you may supplement its circuit by active low-pass filter. There are many variants of circuit solutions of active filters based on operational amplifiers. The higher the order of circuit construction of the active filter, the steeper the resulting characteristics of the rays. However, this is associated with the emergence of problems of stability of the gain in the entire bandwidth and the presence of the so-called effect of "ringing", which is a consequence of not well-established transients in the circuit at audio frequencies.

The proposed version of the active low-pass filter has no these disadvantages. The design of the filter has been repeated many times, and its stable and comfortable operation constantly pleases the listener.

Attention! The filter scheme for SSB (2.4 KHz) or CW (1 KHz) is proposed below. The KiT contains all the elements for assembling one of the Filter. The difference between the circuits-the nominal resistors R1, R2, R4, R5, R7, R9, R10, R11, R13 - 15K (for SSB) or 33K (for CW). Resistors on the circuit are marked with an asterisk without indicating the nominal value.

The Active Low-Pass Filter



Main Features

- Current consumption is about 2 mA.
- The supply voltage can be in the range of 7-13 Volts.
- At the upper limit, by increasing the gain of operational amplifiers, the resulting amplitude-frequency response will have steeper slopes. At the same time, the attenuation outside the transparency band is not less than: **-36dB**.
- Filter line gain: **+1.2 times**.

Assembly Details

- The filter is built on Board with dimensions 74x23 mm. The active filter is electrically engaged at the end of the pre-amplification stage of the LF receiver or directly after the detector. Ballast resistor R14 is used to eliminate self-excitation when switching without load.
- When the values in the resistor 15 kOhm in SSB-mode, the filter bandwidth will be 2.4 kHz.
- When the values in the resistor 33 kOhm in CW-mode, the filter cutoff frequency will be 1 kHz.
- By changing the nominal value of the entire group of identical resistors, the resulting bandwidth can be varied. This does not apply to the rest of the circuit resistors.

No adjustment is required.

This filter was installed and has proven itself in radios: KARLSON, WAVE-K, R-250, direct conversion; transceivers: RA3AO and FT-840.

It is useful to temporarily organize the switching "to bypass" this filter to ensure the high efficiency of this device.

