CO3 Three-Band Phase-Linear Crossover Filter

User Manual

Analog Metric

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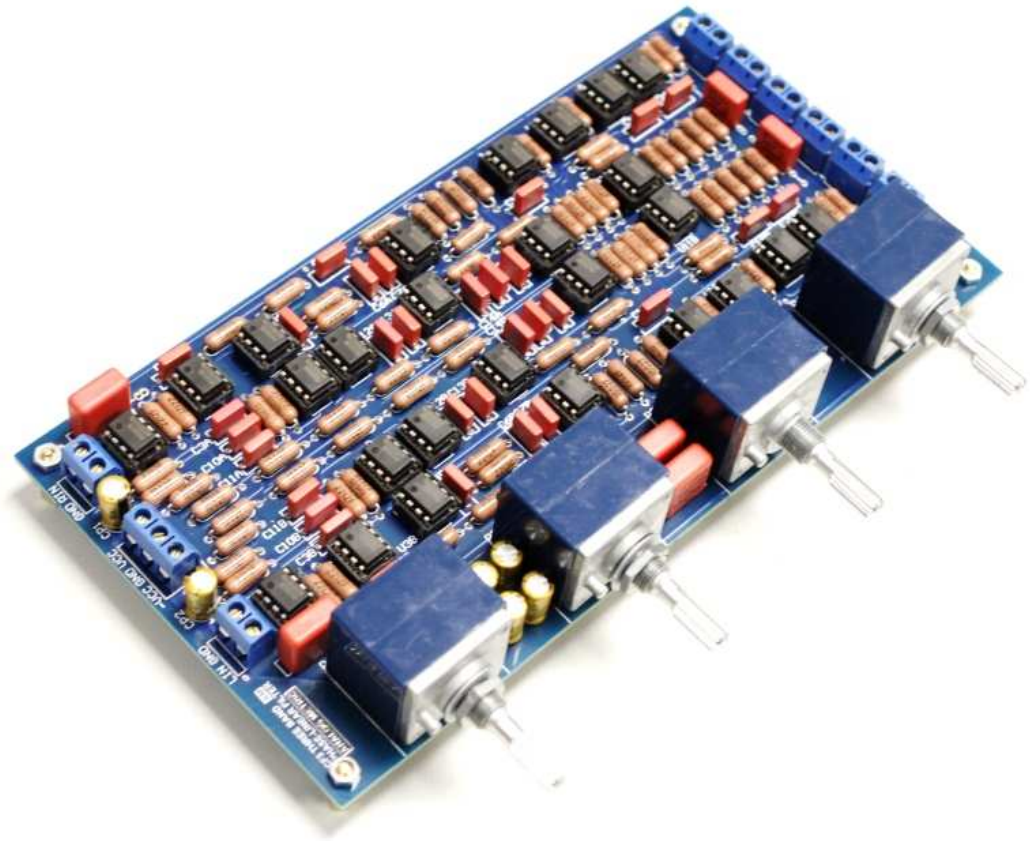

FEATURES

- Support three-band (bass, mid-range and treble frequency) linear-phase crossover filter for stereo channel. Frequency crossover frequency can be set by different resistor sets shown in the Table I.
- Either use of very low distortion high quality audio OPAMP AD797, 0.03% at f=1k Hz typical or low noise OPAMP NE5534.
- Four ALPS 50K POTs are used for the volume control: gain, bass, mid-range, and treble, for 0dB to -100dB attenuation.
- Implement with non-inductance 1% Dale resistors, WIMA film capacitors, and Nichicon FW capacitors.
- High power rejection ratio: 80dB and channels isolation: 100dB
- Symmetric PCB design for both R and L channels.
- High quality PCB, blue solder mask, double layer, 2.4mm thickness, 2oz copper. PCB dimension: 195(L) x 100(W) mm.
- Required power supply: +/-15V DC, 120mA

APPLICATIONS

- For professional bi-amp or tri-amp applications, it requires exactly the same response time for the bass, mid-range, and treble frequency components.
- Audiophile low-pass, band-pass, and high pass filters.

PROCEDURES

1. Determine the resistances for low and high frequency crossover points by Table I and Table II.
2. Solder the components according to the part list. Notice the polarities of the electrolytic capacitors C8, C8B, C9, C9B, CP1, CP2, CC1-CC52. There is no polarity of the thin film capacitors.
3. For easy of soldering, the suggested soldering sequence is as following: all resistors, DIP8 IC sockets, capacitors, connectors, and ALPS POT.
4. Apply DC voltage +15V and -15V to connector (DC) without plug in the opamp U1-13 and U1B-13B.
5. If everything is ok, plug back the opamp U1 and U2 and apply input signals.
6. The volume for the overall gain, bass, mid-range, and treble, can be changed by the four ALPS POTs (P1, P2, P3, and P4, respectively). The response curve are shown Table II (low frequency and high crossover points are 500Hz and 5KHz, respectively)
7. If you have any questions on assembly, please contact us by tech@analogmetric.com.

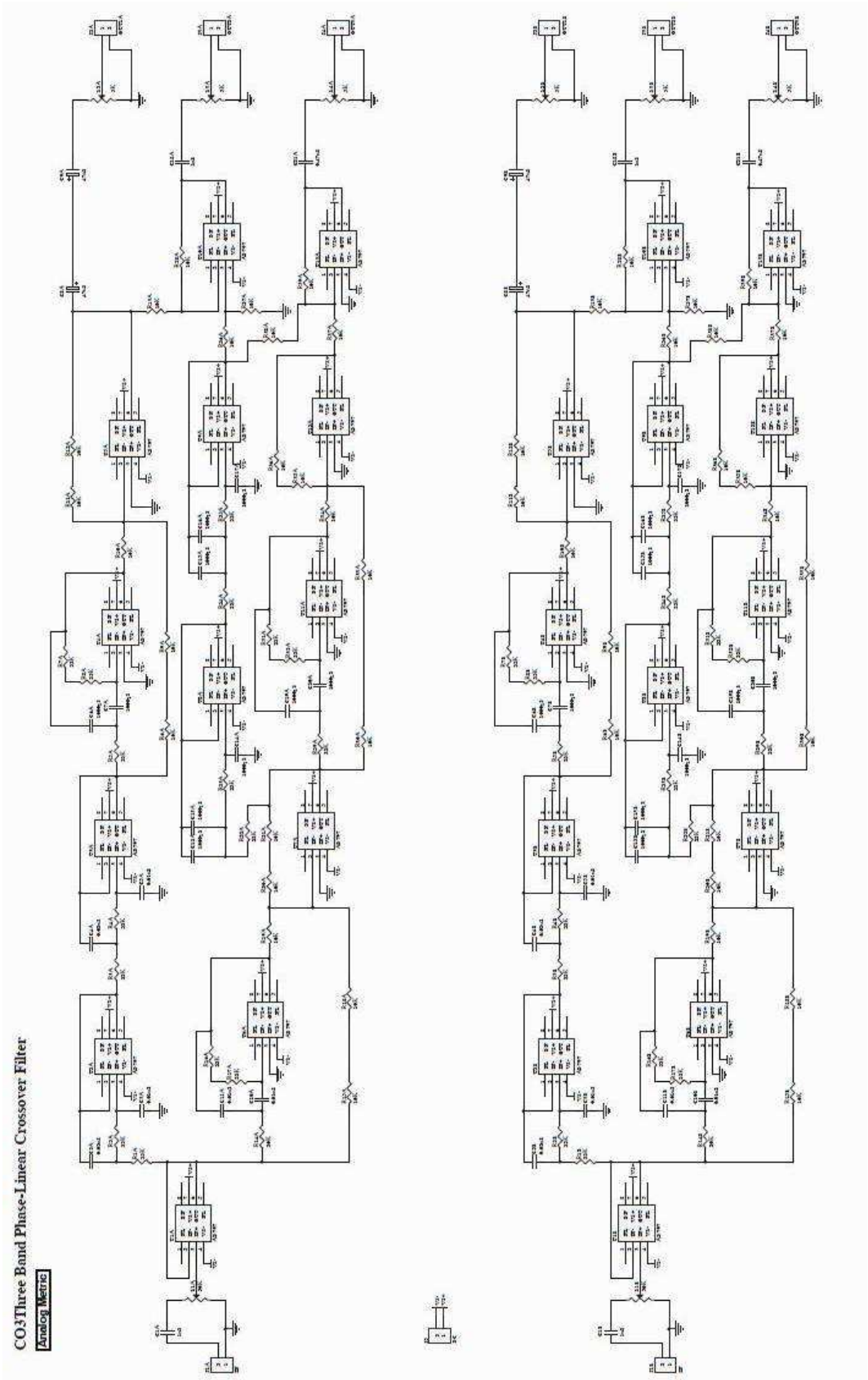
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Table I

Resistance for the Low and High Frequency Crossover Point

R1, R1B, R2, R2B, R3, R3B, R4, R4B, R14, R14B, R16, R16B, R17, R17B	1: 47K 1/4W for 250Hz 2: 36K 1/4W for 300Hz 3: 33K 1/4W for 350Hz 4: 22K 1/4W for 500Hz 5: 15K 1/4W for 750Hz 6: 14K 1/4W for 800Hz	14	Low frequency crossover point
R22, R22B, R23, R23B, R24, R24B, R25, R25B, R29, R29B, R31, R31B, R32, R32B	1: 62K 1/4W for 1.8KHz 2: 56K 1/4W for 2KHz 3: 33K 1/4W for 3.5KHz 4: 22K 1/4W for 5KHz 5: 20K 1/4W for 5.6KHz 6: 18K 1/4W for 6.2KHz	14	High frequency crossover point

Table II

Frequency Response of the Crossover Filter