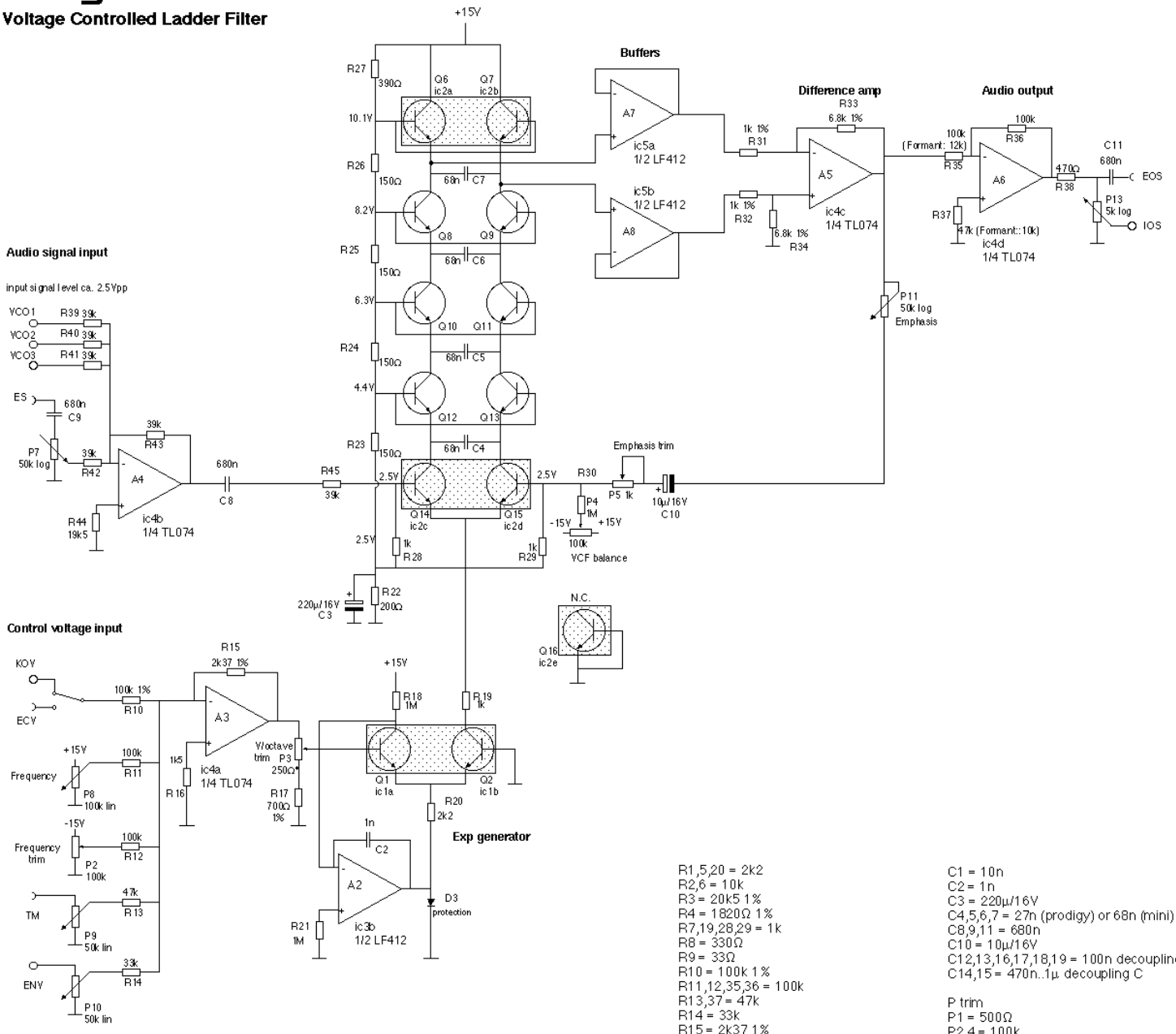
Voltage Controlled Ladder Filter



R1,5,20 = 2k2
R2,6 = 10k
R3 = 20k5 1%
R4 = 1820Ω 1%
R7,19,28,29 = 1k
R8 = 330Ω
R9 = 33Ω
R10 = 100k 1%
R11,12,35,36 = 100k
R13,37 = 47k
R14 = 33k
R15 = 2k37 1%
R16 = 1k5
R17 = 700Ω 1%
R18,21,30 = 1M
R22 = 200Ω
R23,24,25,26 = 150Ω
R27 = 390Ω
R31,32 = 1k 1%
R33,34 = 6k8 1%
R38 = 470Ω
R39,40,41,42,43,45 = 39k
R44 = 19k5

Formant:
R35=12k
R37 = 10k

Q1-Q5 = IC1: LM3046 transistor array
Q6,Q7,Q14,Q15,Q16 = IC2: LM3046 transistor array
Q8,Q9,Q10,Q11,Q12,Q13 = BC109(a,b,c) low noise transistor
A1, A2 = IC3: LF412 (Low drift opamp)
A3,A4,A5,A6 = IC4: TL074
A7,A8 = IC5: LF412
D1 = IC6: LM329 (Precision low drift reference)
D2,D3 = 1N4148

C1 = 10n
C2 = 1n
C3 = 220µ/16V
C4,5,6,7 = 27n (prodigy) or 68n (mini)
C8,9,11 = 680n
C10 = 10µ/16V
C12,13,16,17,18,19 = 100n decoupling C
C14,15 = 470n..1µ decoupling C

P trim
P1 = 500Ω
P2,4 = 100k
P3 = 250Ω
P5 = 1k

Potentiometers
P7,11 = 50k log ES, Emphasis (Q)
P8 = 100k lin Frequency
P9,10 = 50k lin TM, ENV, VC Q
P13 = 5k log IOS (Internal Output Sigal)

2 x box10 header connector
DIN41617 31-pin connector

- All resistors recommended metal film
- Cermet trimmers recommended (especially P2 and P3)
- Capacitors MKM or MKF recommended

- The exp generator is inspired by the Elektor Formant VCO's exp generator
- Temperature control as in National Semiconductor Application Note AN-299 with added temperature adjustment.
- Pin-compatible with the Formant regular VCF

Revision 1.2
Last change: June 10th 1996

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