VCA1

J1 CV1 0-5V
CV2_TN
LED1
RV1 100K
R2 100K
C1 100pF
R3 68K
D8 BAT42
D9 BAT42
R6 240K
50K RV2 -12V
U2A TL074
J2 Audio_in_1 10Vpp
In2_TN
R8 100K
R10 470R
C3 470pF
GND
Vc1 Iin1 Iout1
U3A AS2164
R7 100K
C2 100pF
O1
R9 1K
U4A TL074
J3 Audio_out_1 10Vpp
D1 LED_Bi
R1
R4 1M
LED1
R5 1M
U1A TL074

VCA2

J4 CV2 0-5V
CV2_TN CV3_TN
LED2
RV3 100K
R12 100K
C4 100pF
R13 68K
D10 BAT42
D11 BAT42
R16 240K
50K RV4 -12V
U2B TL074
J5 Audio_in_2 10Vpp
In3_TN
R18 100K
R20 470R
C6 470pF
Vc2 Iin2 Iout2
U3B AS2164
R17 100K
C5 100pF
O2
R19 1K
U4B TL074
J6 Audio_out_2 10Vpp
D2 LED_Bi
R11
R14 1M
LED2
R15 1M
U1B TL074

Mix

O1 R43 100K
O2 R44 100K
O3 R45 100K
O4 R46 100K
C21 100pF
R42 100K
U5A TL072
C22 100pF
R47 10K
R48 10K
U5B TL072
Mix Out

Audio Out 4 select

O4
JP1 Mix/VCA4
Mix Out
R39 1K
J12 Audio_out_4

VCA3

J7 CV3 0-5V
CV3_TN CV4_TN
LED3
RV5 100K
R22 100K
C7 100pF
R23 68K
D12 BAT42
D13 BAT42
R26 240K
50K RV6 -12V
U2C TL074
J8 Audio_in_3 10Vpp
In3_TN In4_TN
R28 100K
R30 470R
C9 470pF
Vc3 Iin3 Iout3
U3C AS2164
R27 100K
C8 100pF
O3
R29 1K
U4C TL074
J9 Audio_out_3 10Vpp
D3 LED_Bi
R21
R24 1M
LED3
R25 1M
U1C TL074

VCA4

J10 CV4 0-5V
CV4_TN
LED4
RV7 100K
R32 100K
C10 100pF
R33 68K
D14 BAT42
D15 BAT42
R36 240K
50K RV8 -12V
U2D TL074
J11 Audio_in_4 10Vpp
In4_TN
R38 100K
R40 470R
C12 470pF
Vc4 Iin4 Iout4
U3D AS2164
R37 100K
C11 100pF
O4
U4D TL074
10Vpp
D4 LED_Bi
R31
R34 1M
LED4
R35 1M
U1D TL074

Power

J13 EuroPower_JST_3P
+12V_IN
GND
-12V_IN
PWR_FLAG

EURO_PWR_16P J14
GATE GATE
CV CV
+5V +5V
+12V +12V
GND GND
GND GND
GND GND
-12V -12V
PWR_FLAG
D6
C15 22uF
+12V
D7
C19 22uF
-12V
Reverse polarity diodes required for AS2164

U3E AS2164
-VEE
GND
+VCC
MODE
R41 7K5
+12V
C13 100nF
D5 BAT42
-12V
C14 100nF
GND
Schottky diode required for AS2164

+12V
C17 100nF U1E TL074
-12V
+12V
C18 100nF U2E TL074
-12V
+12V
C16 100nF U4E TL074
-12V
+12V
C20 100nF U5C TL072
-12V

Module CV inputs (jacks)
0V CV = 100% attenuation
5V CV = Unity Gain

VCA Inputs Vc1, Vc2, Vc3, Vc4
3.3V = 100% attenuation
0V = unity gain
Vc < 0V = +20dB gain

Added vca cv input protection diodes to input stage opamps.
Changed mixed output op amp resistors to 10k.
Rev 0.1.4.

This version is a prototype
DIYSynthMNL
Sheet: /
File: AS2164-Quad-Exponential-VCA.kicad_sch
Title: Eurorack AS2164 Quad Exponential VCA
Size: A3 | Date: 2024-02-15 | Rev: 0.1.4
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