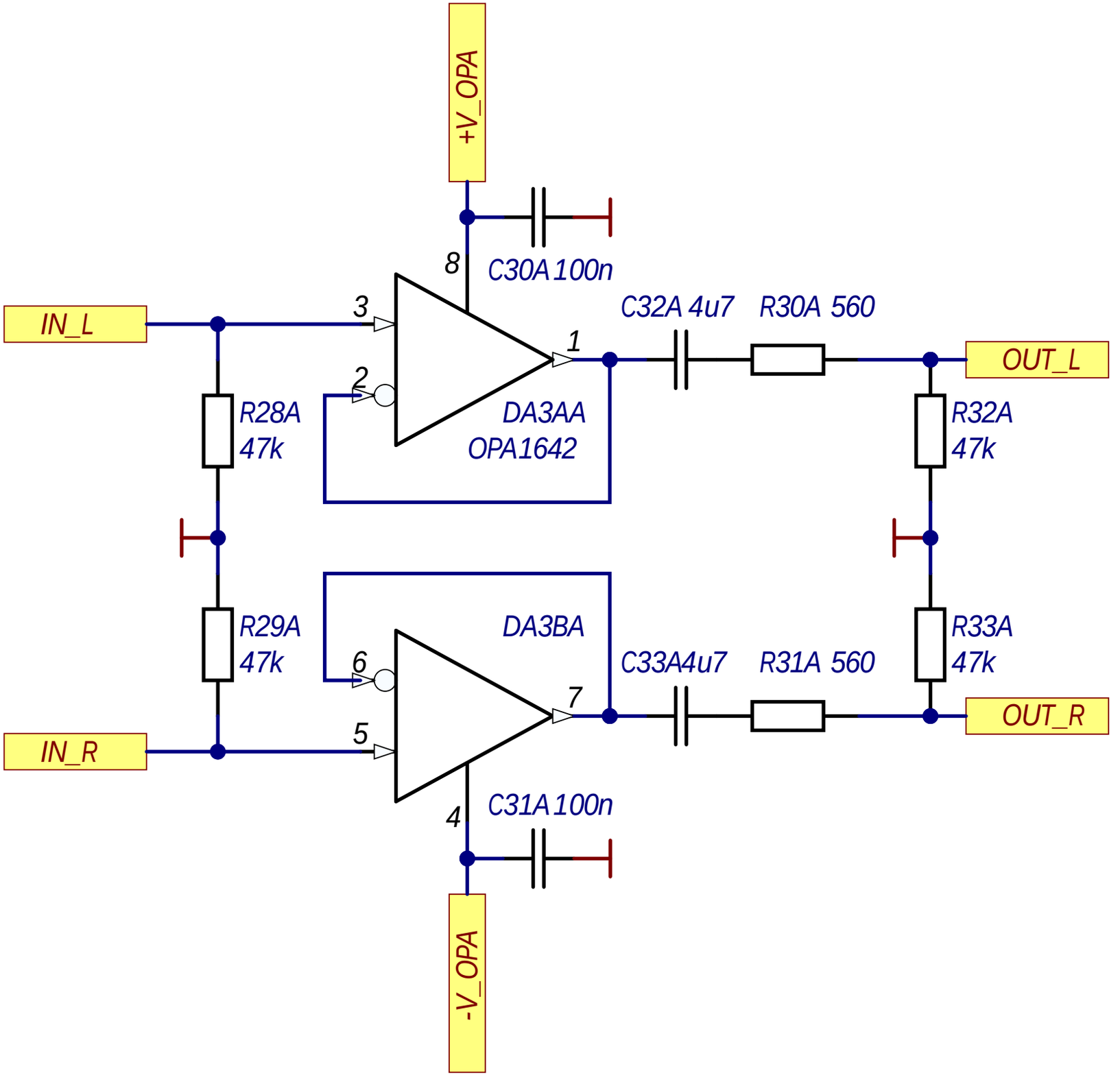
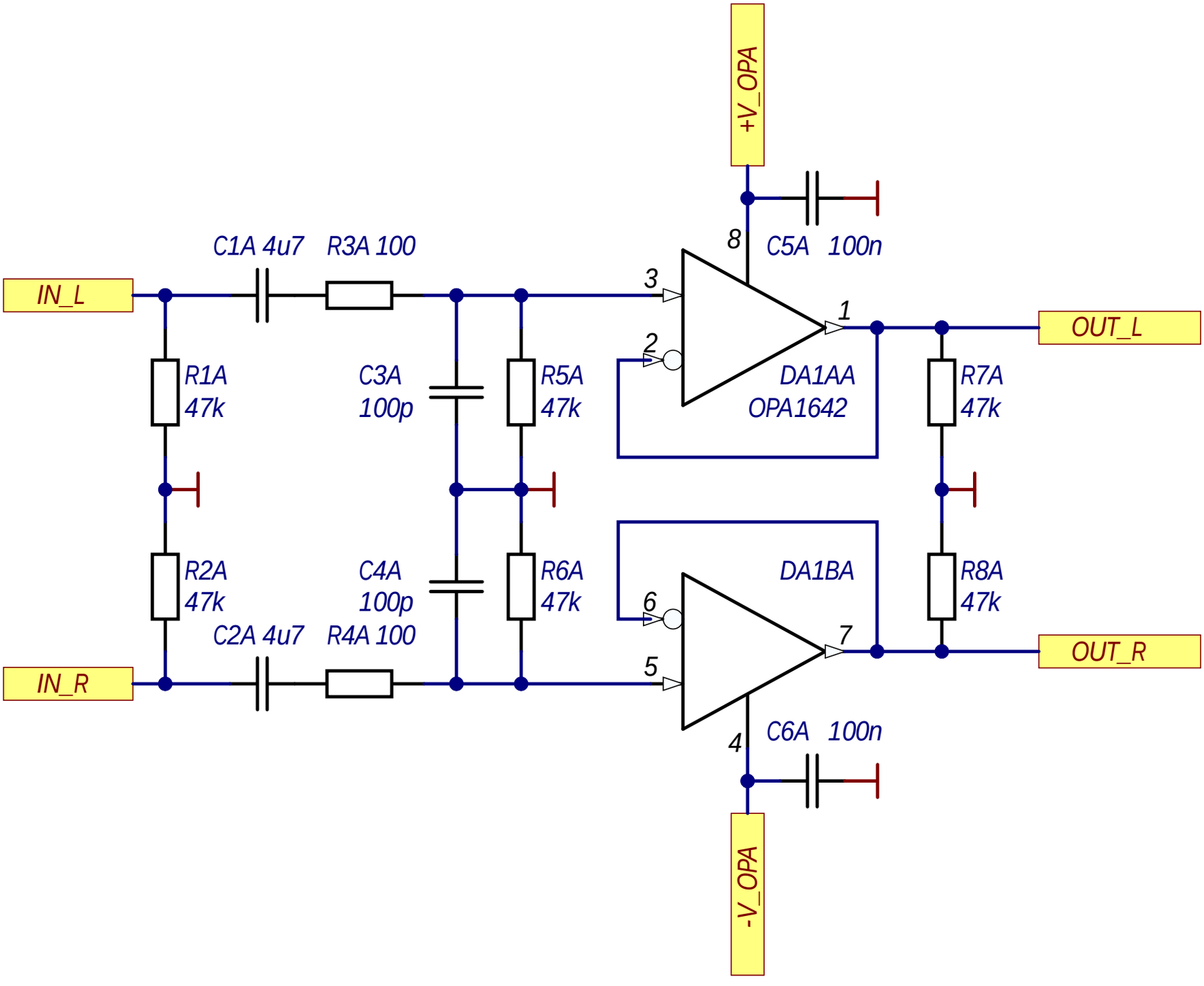
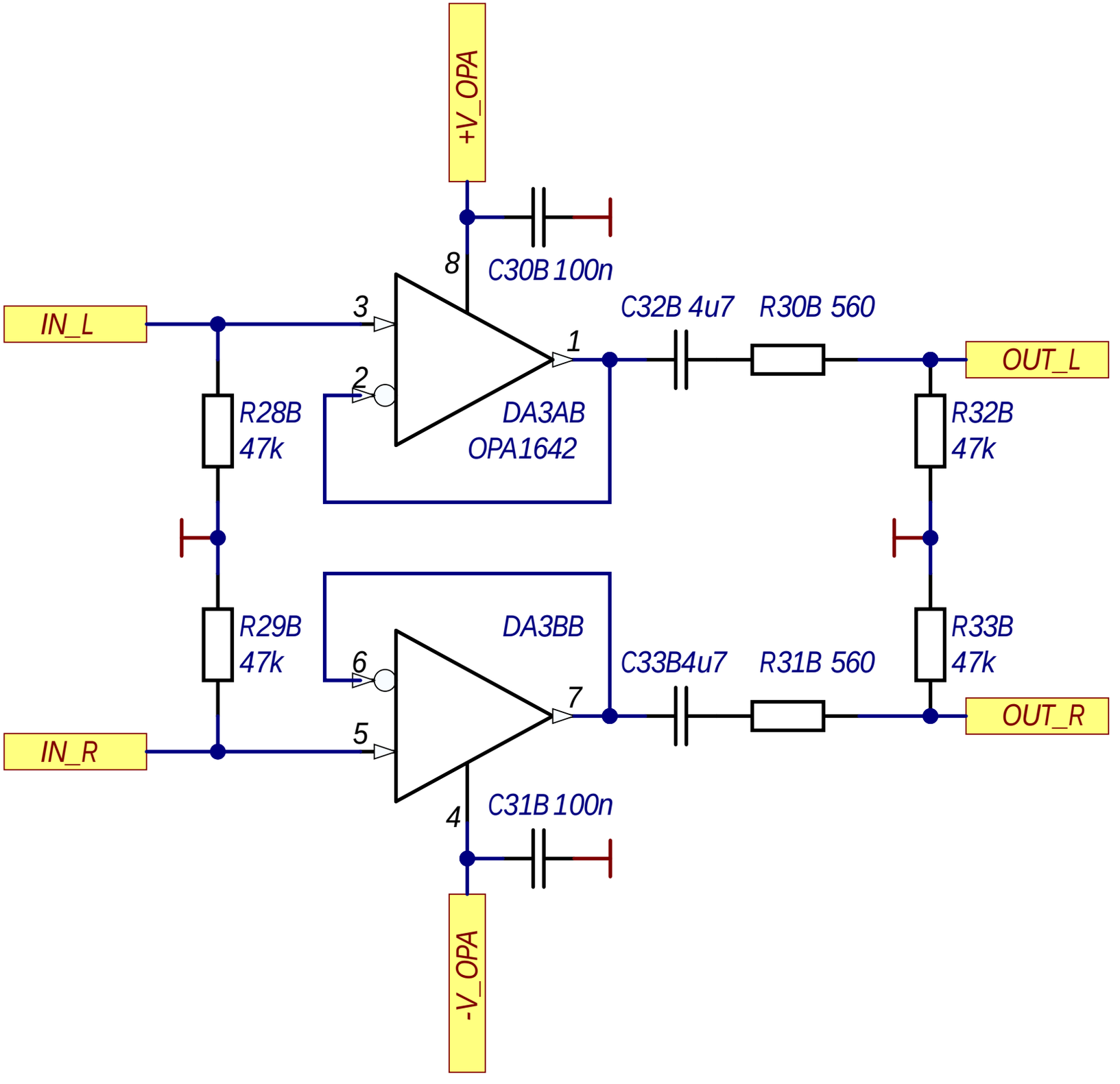
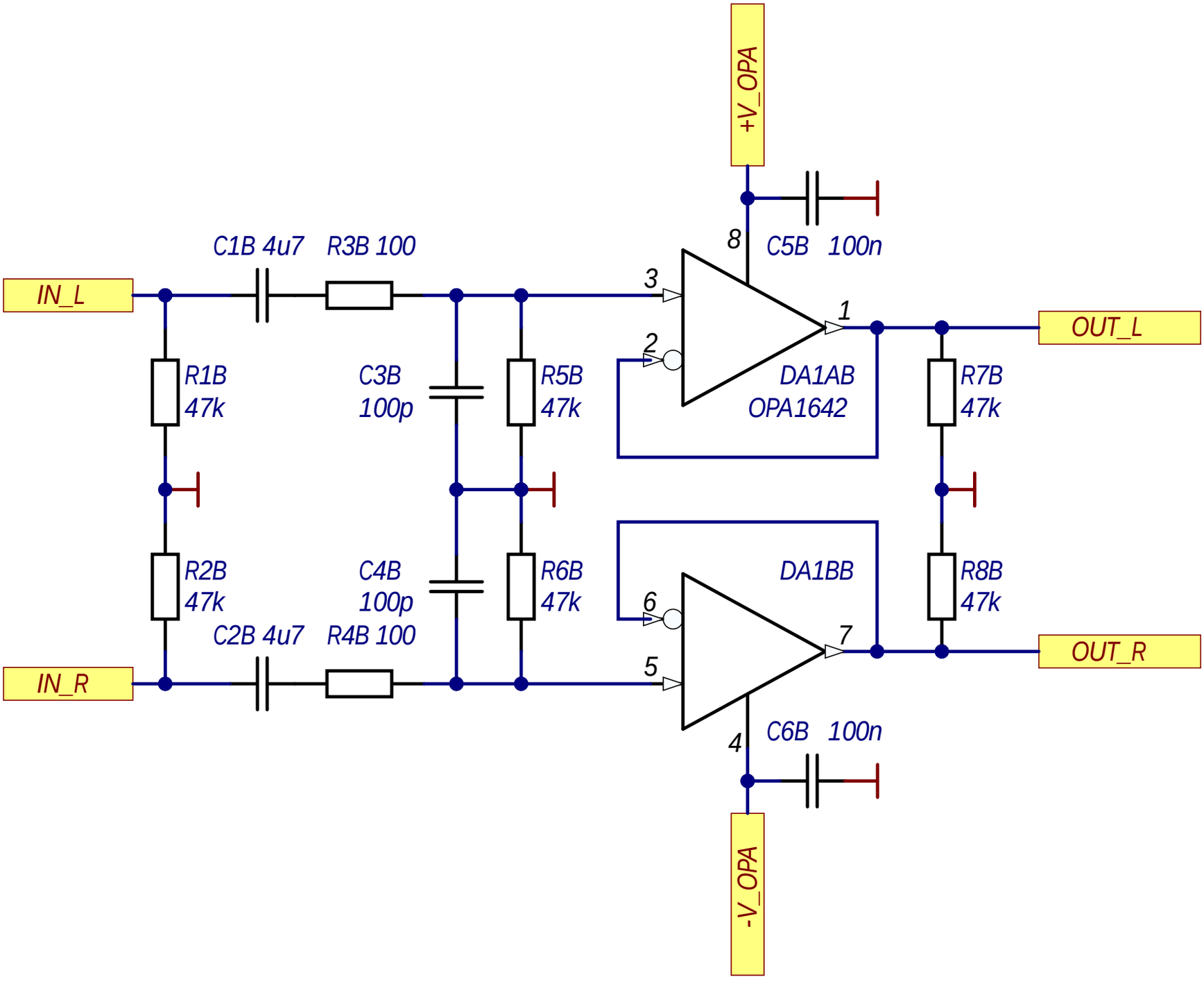
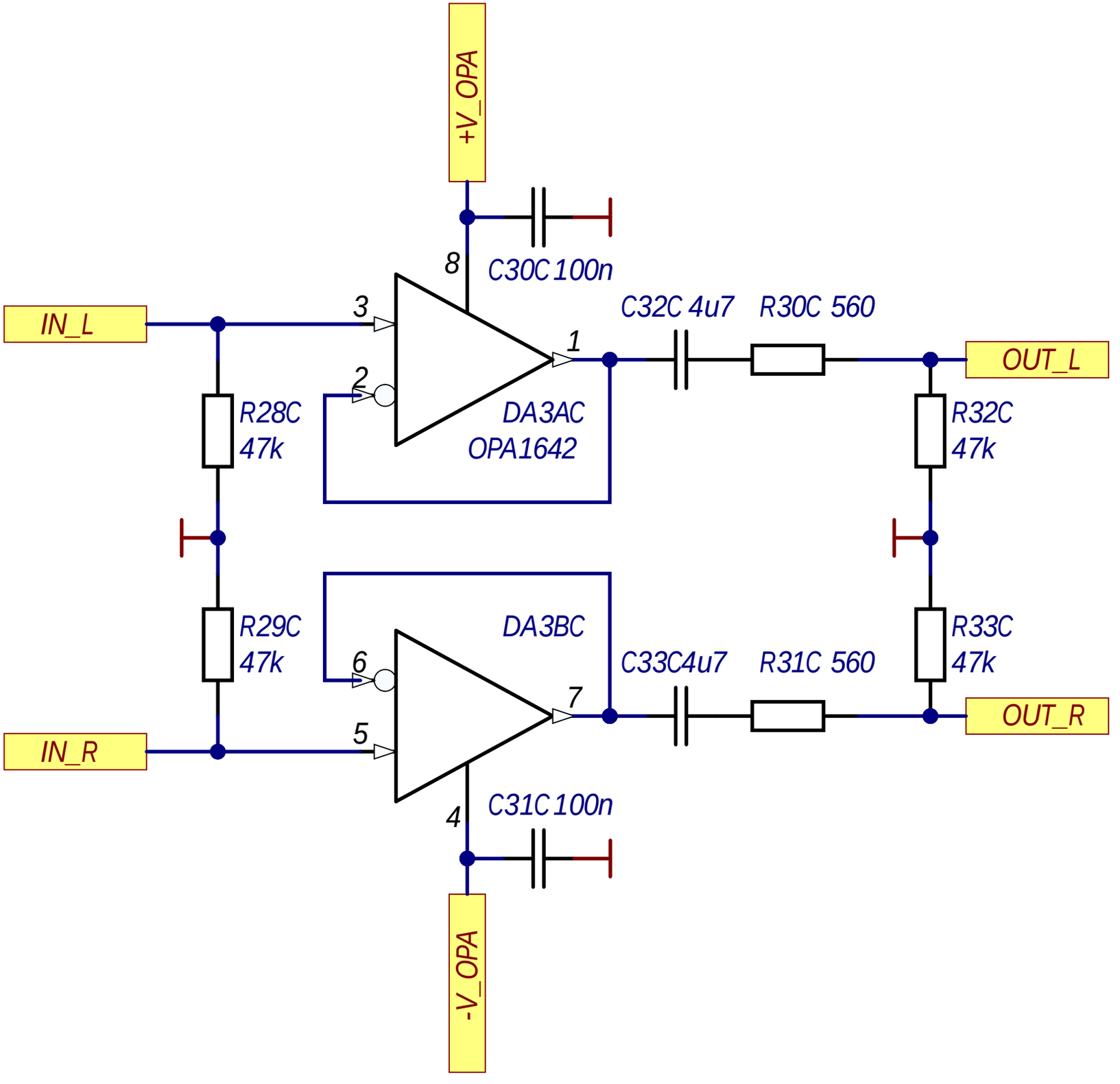
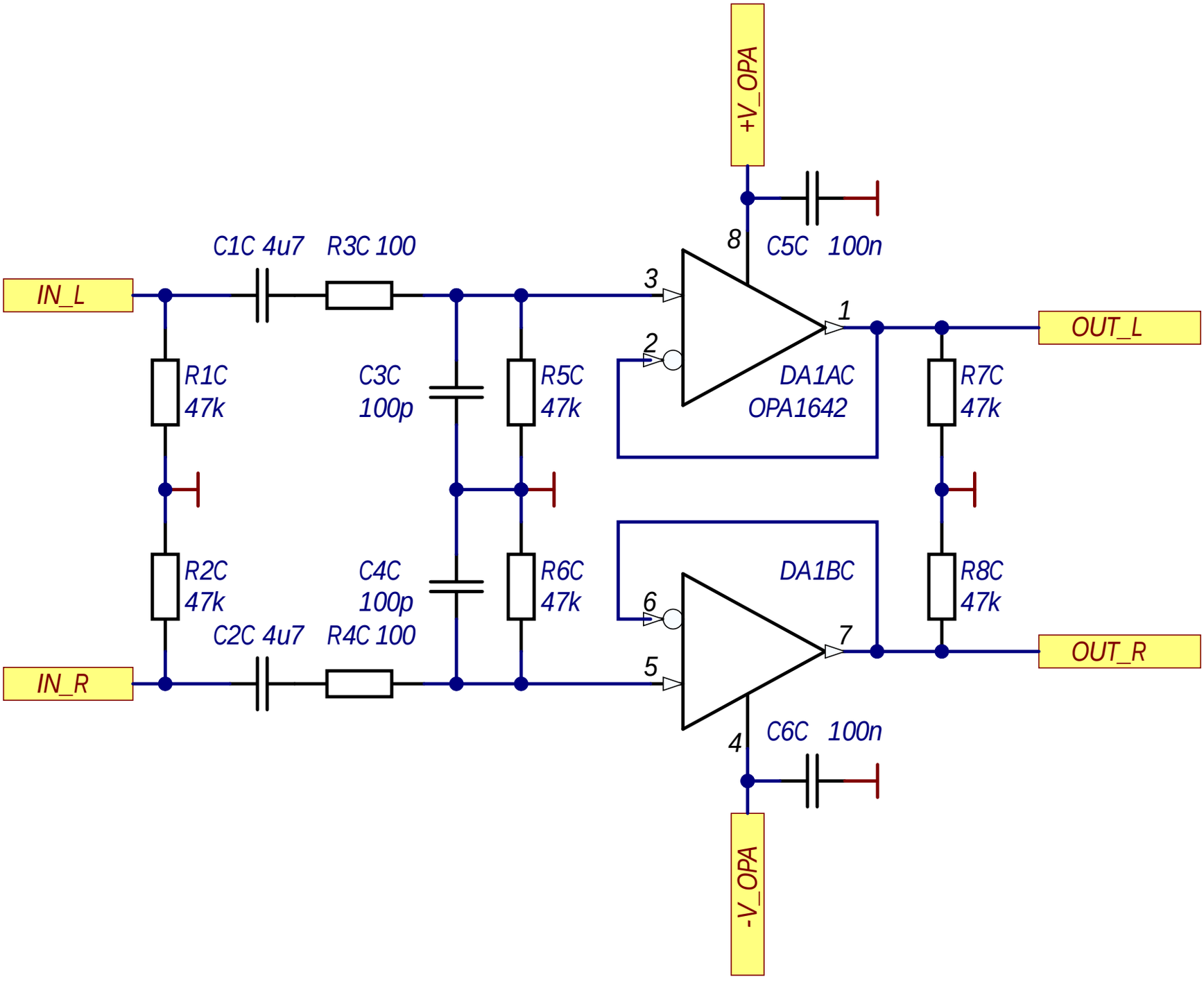

+V_OPA
C30A 100n
8
IN_L
3
2
1
C32A 4u7
R30A 560
OUT_L
R28A
47k
DA3AA
OPA1642
R32A
47k
R29A
47k
DA3BA
6
7
C33A4u7
R31A 560
R33A
47k
IN_R
5
OUT_R
4
C31A 100n
-V_OPA

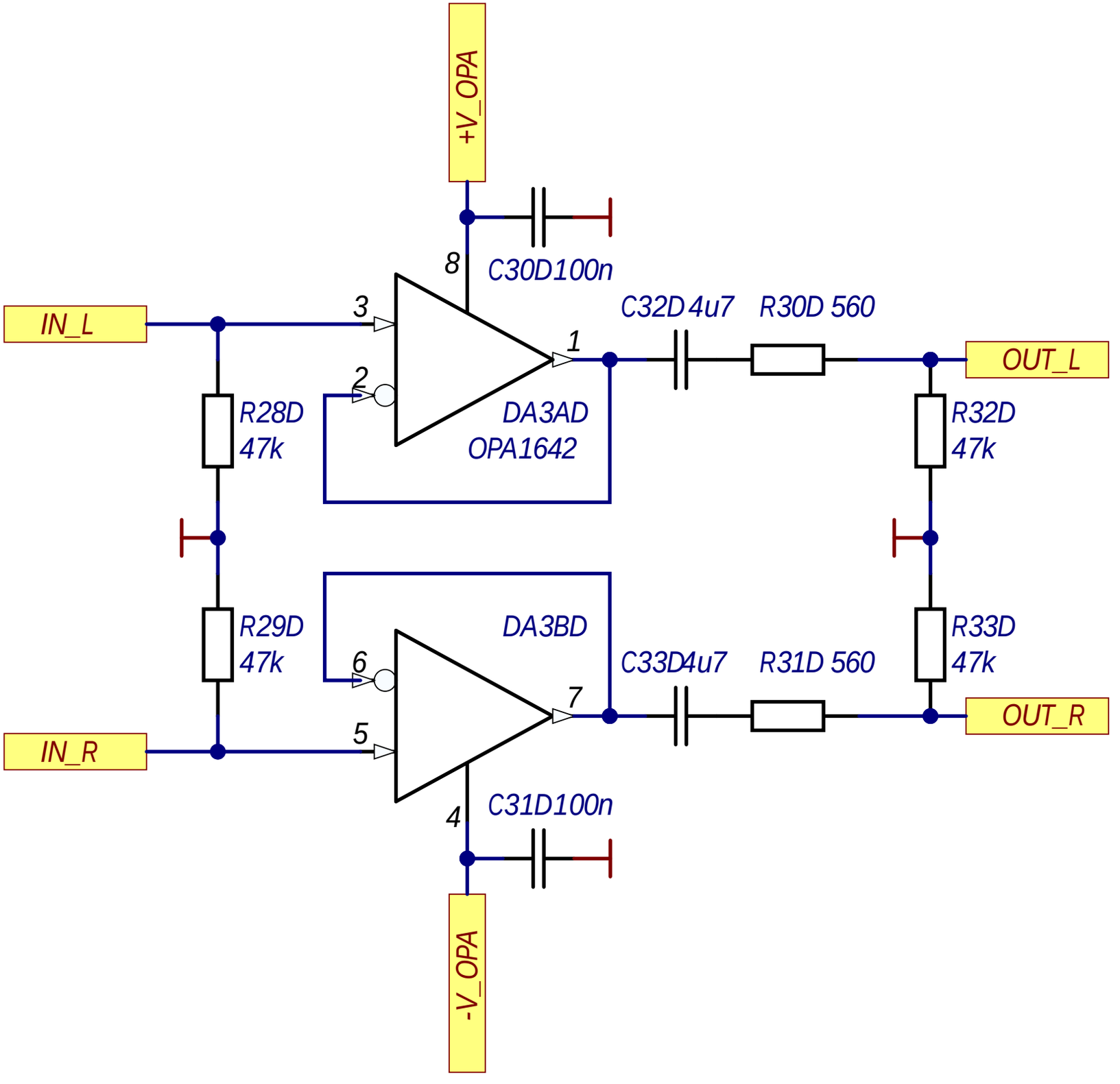

+V_OPA
C5A 100n
8
C1A 4u7
R3A 100
IN_L
3
1
OUT_L
2
R1A
47k
C3A
100p
R5A
47k
DA1AA
OPA1642
R7A
47k
DA1BA
R2A
47k
C4A
100p
R6A
47k
R8A
47k
6
7
C2A 4u7
R4A 100
IN_R
5
OUT_R
4
C6A 100n
-V_OPA

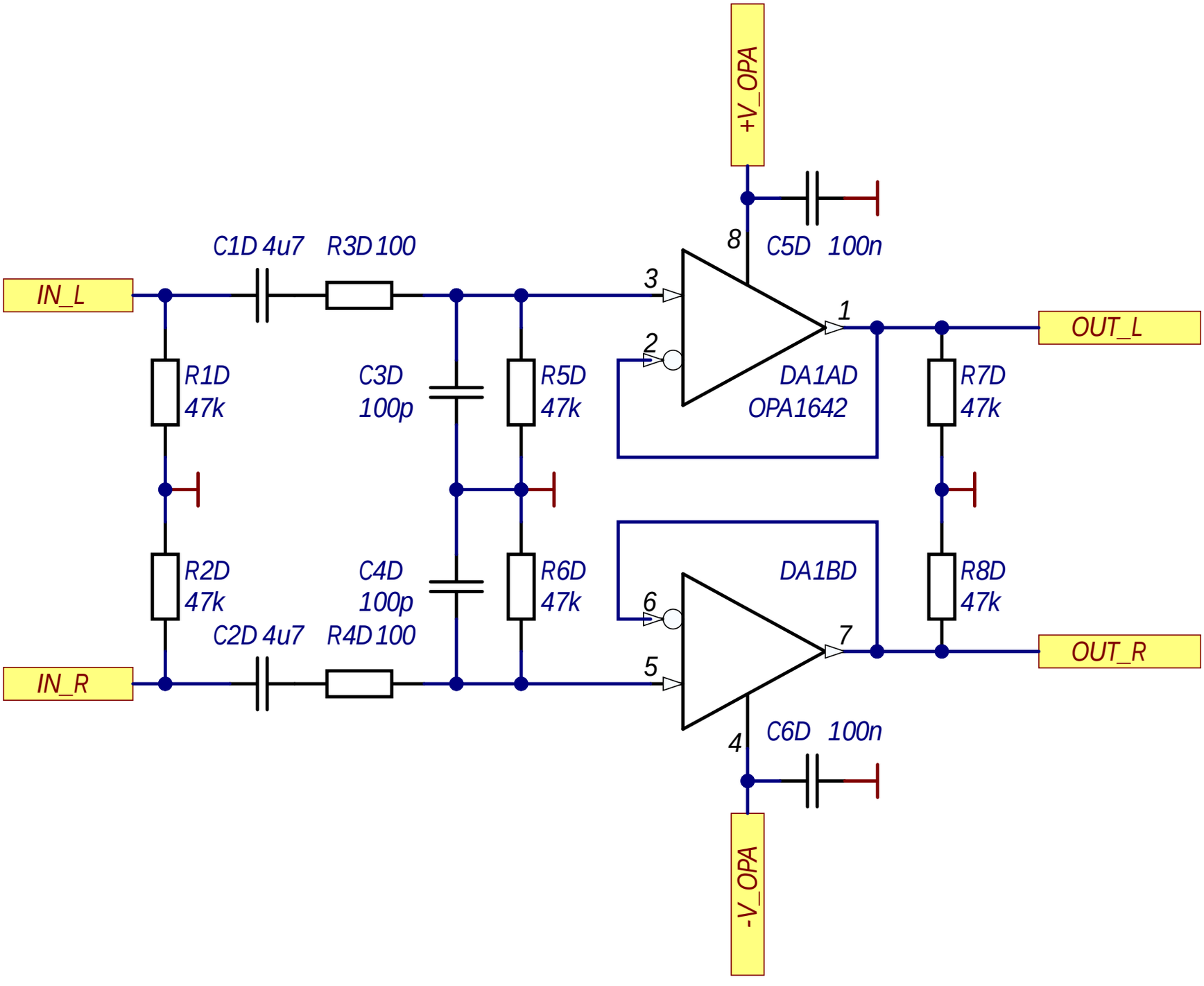

+V_OPA
C30B 100n
8
IN_L
3
2
1
C32B 4u7
R30B 560
OUT_L
R28B
47k
DA3AB
OPA1642
R32B
47k
R29B
47k
DA3BB
6
7
C33B4u7
R31B 560
R33B
47k
IN_R
5
OUT_R
4
C31B 100n
-V_OPA

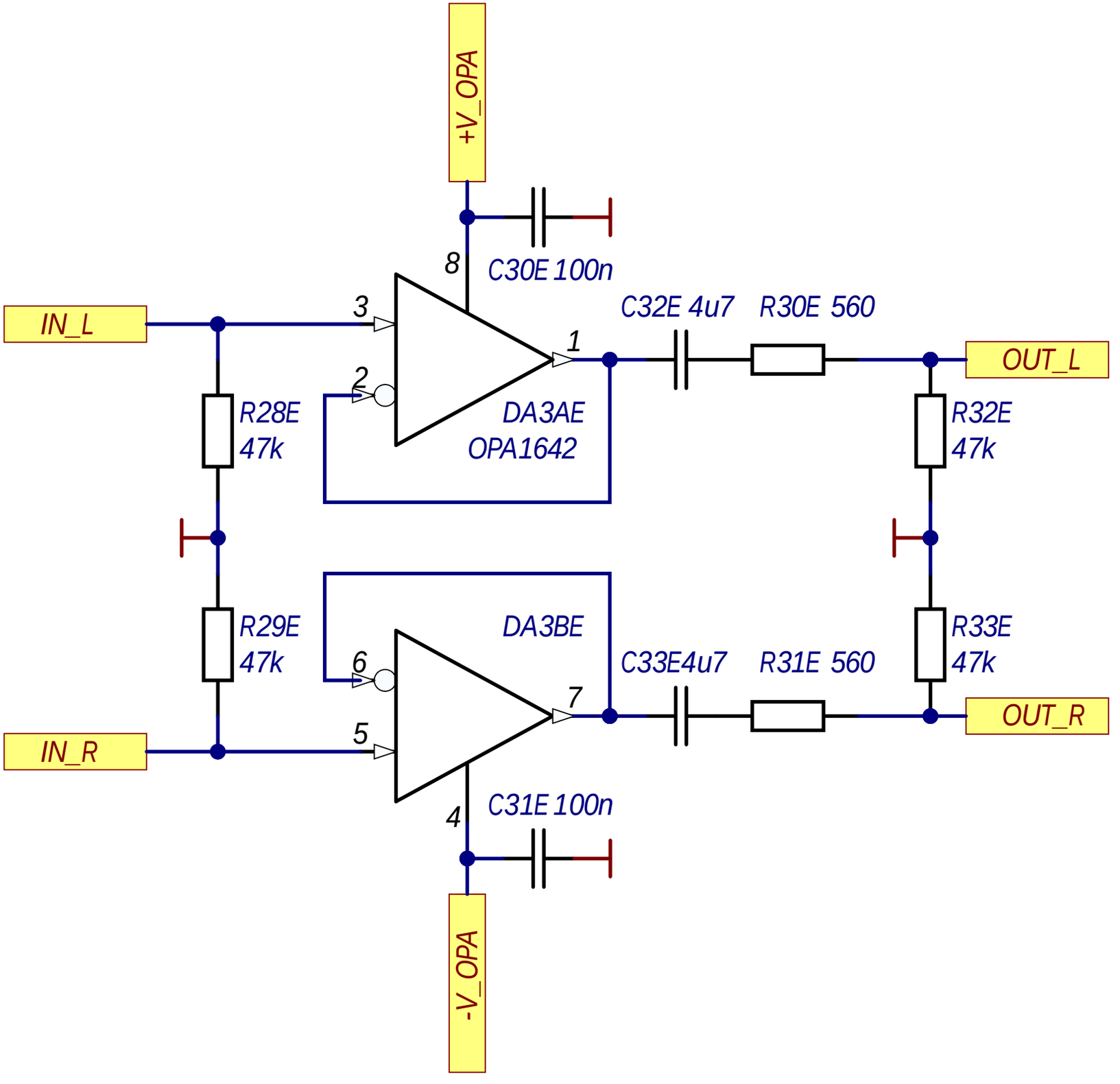

+V_OPA
C5B 100n
8
C1B 4u7
R3B 100
IN_L
3
1
OUT_L
2
R1B
47k
C3B
100p
R5B
47k
DA1AB
OPA1642
R7B
47k
R2B
47k
C4B
100p
R6B
47k
DA1BB
R8B
47k
6
7
C2B 4u7
R4B 100
OUT_R
IN_R
5
4
C6B 100n
-V_OPA

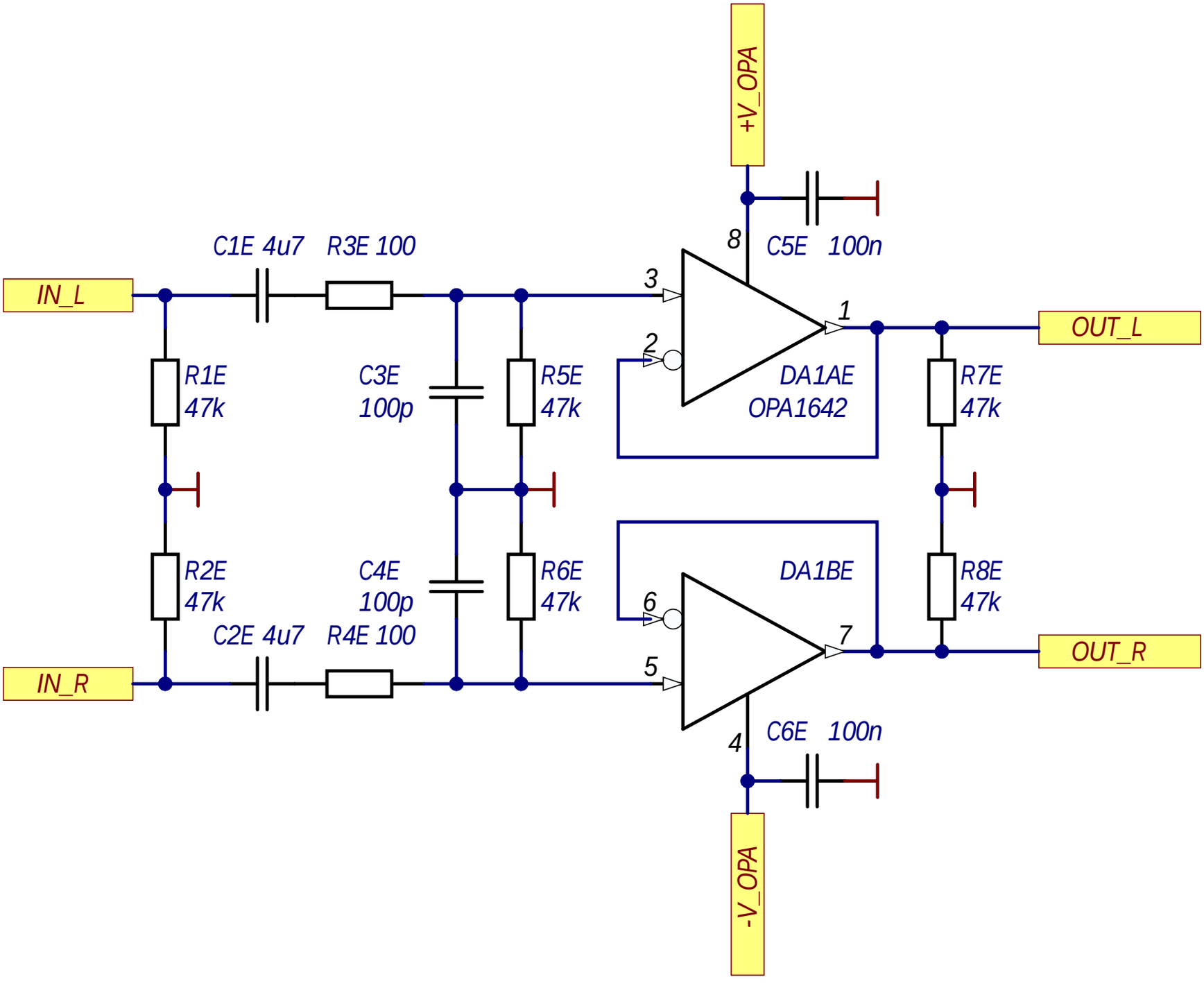

+V_OPA
C30C 100n
8
IN_L
3
2
1
C32C 4u7
R30C 560
OUT_L
R28C
47k
DA3AC
OPA1642
R32C
47k
R29C
47k
DA3BC
6
7
C33C4u7
R31C 560
R33C
47k
IN_R
5
OUT_R
4
C31C 100n
-V_OPA

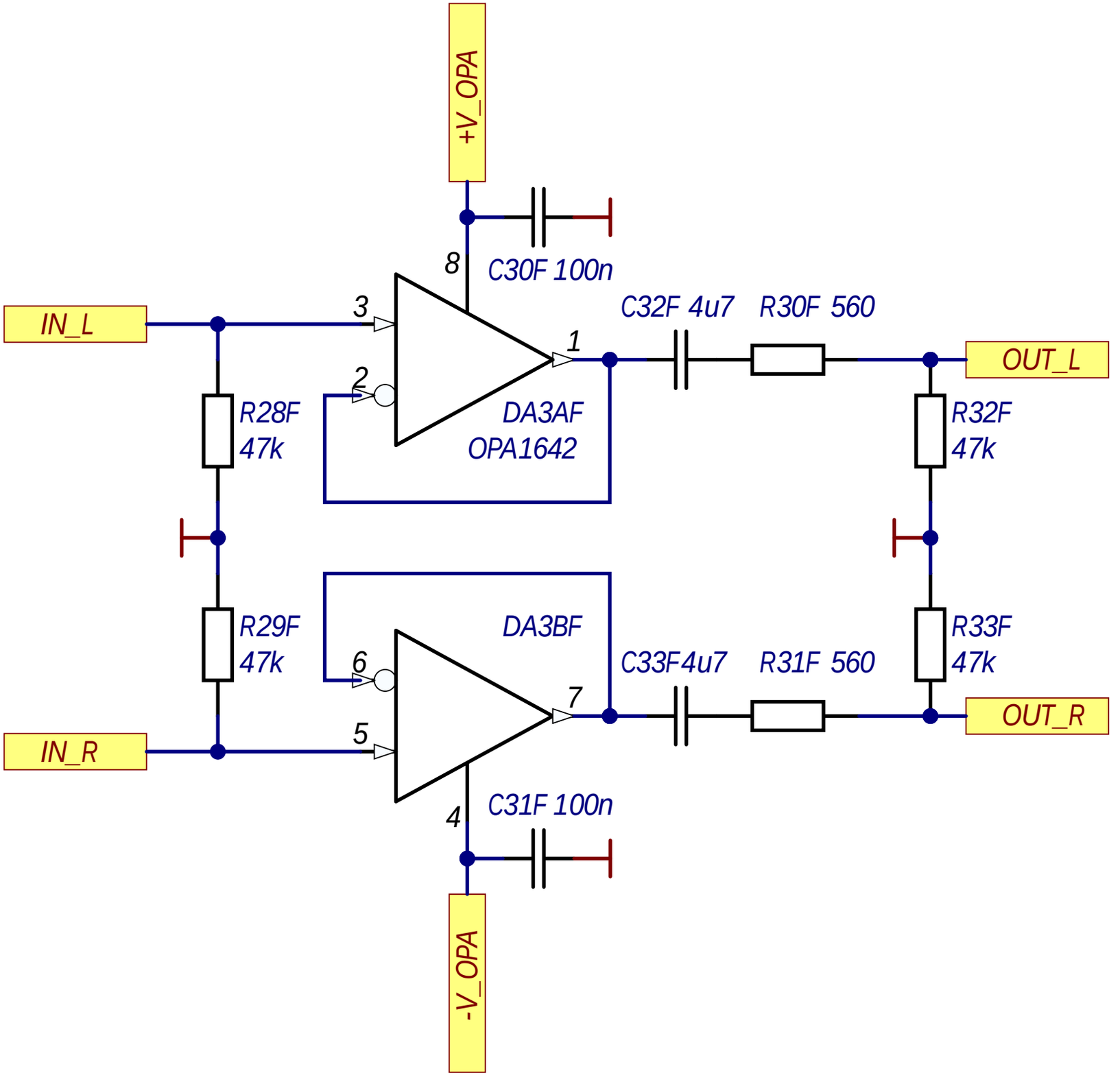

+V_OPA
C5C 100n
8
C1C 4u7
R3C 100
IN_L
3
1
OUT_L
2
R1C
47k
C3C
100p
R5C
47k
DA1AC
OPA1642
R7C
47k
R2C
47k
C4C
100p
R6C
47k
DA1BC
R8C
47k
6
7
C2C 4u7
R4C 100
IN_R
5
OUT_R
4
C6C 100n
-V_OPA

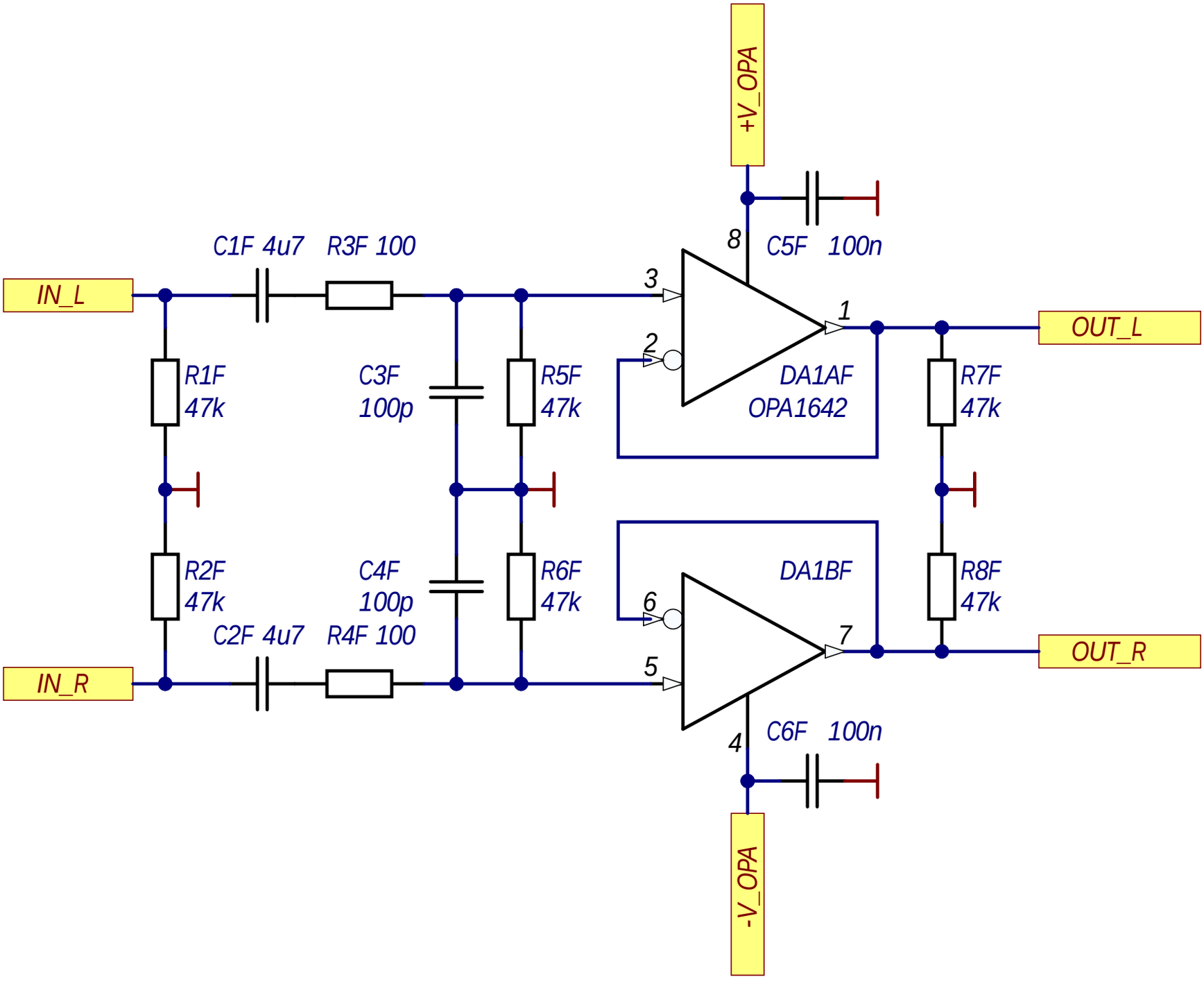

+V_OPA
C30D100n
8
IN_L
3
2
1
C32D 4u7
R30D 560
OUT_L
R28D
47k
DA3AD
OPA1642
R32D
47k
R29D
47k
DA3BD
6
7
C33D4u7
R31D 560
R33D
47k
IN_R
5
OUT_R
4
C31D100n
-V_OPA

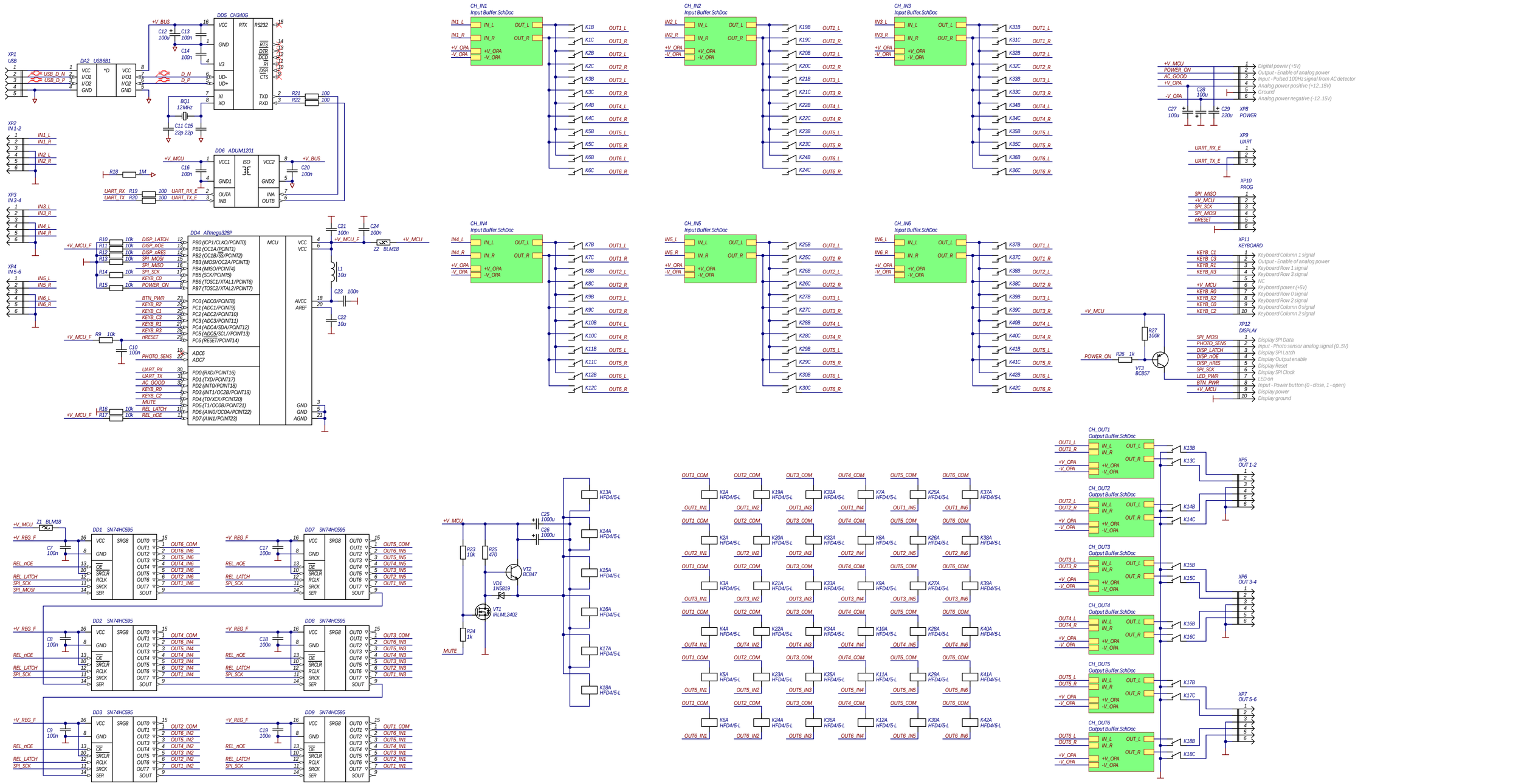

+V_OPA
C5D 100n
8
C1D 4u7
R3D 100
IN_L
3
1
OUT_L
2
R1D
47k
C3D
100p
R5D
47k
DA1AD
OPA1642
R7D
47k
R2D
47k
C4D
100p
R6D
47k
DA1BD
R8D
47k
6
7
C2D 4u7
R4D 100
IN_R
5
OUT_R
4
C6D 100n
-V_OPA


+V_OPA
C30E 100n
8
IN_L
3
2
1
C32E 4u7
R30E 560
OUT_L
R28E
47k
DA3AE
OPA1642
R32E
47k
R29E
47k
DA3BE
6
7
C33E4u7
R31E 560
R33E
47k
IN_R
5
OUT_R
4
C31E 100n
-V_OPA


+V_OPA
C5E 100n
8
C1E 4u7
R3E 100
IN_L
3
1
OUT_L
2
R1E
47k
C3E
100p
R5E
47k
DA1AE
OPA1642
R7E
47k
R2E
47k
C4E
100p
R6E
47k
DA1BE
R8E
47k
6
7
C2E 4u7
R4E 100
IN_R
5
OUT_R
4
C6E 100n
-V_OPA


+V_OPA
C30F 100n
8
IN_L
3
2
1
C32F 4u7
R30F 560
OUT_L
R28F
47k
DA3AF
OPA1642
R32F
47k
R29F
47k
DA3BF
6
7
C33F4u7
R31F 560
R33F
47k
IN_R
5
OUT_R
4
C31F 100n
-V_OPA


+V_OPA
C5F 100n
8
C1F 4u7
R3F 100
IN_L
3
1
OUT_L
2
R1F
47k
C3F
100p
R5F
47k
DA1AF
OPA1642
R7F
47k
DA1BF
R2F
47k
C4F
100p
R6F
47k
R8F
47k
6
7
C2F 4u7
R4F 100
IN_R
5
OUT_R
4
C6F 100n
-V_OPA


XP1
USB
DA2 USB6B1
USB_D_N
USB_D_P
+V_BUS
C12 100u
C13 100n
C14 100n
DD5 CH340G
VCC
GND
V3
UD-
UD+
XI
XO
RTX
RS232
RTS
DTR
DCD
RI
DSR
CTS
TXD
RXD
D_N
D_P
BQ1 12MHz
C11 C15 22p 22p
R21 100
R22 100
XP2
IN1-2
IN1_L
IN1_R
IN2_L
IN2_R
XP3
IN3-4
IN3_L
IN3_R
IN4_L
IN4_R
XP4
IN5-6
IN5_L
IN5_R
IN6_L
IN6_R
DD6 ADUM1201
VCC1
GND1
OUTA
INB
ISO
VCC2
GND2
INA
OUTB
+V_MCU
C16 100n
C20 100n
R18 1M
R19 100
R20 100
UART_RX
UART_TX
UART_RX_E
UART_TX_E
DD4 ATmega328P
PB0 (ICP1/CLKO/PCINT0)
PB1 (OC1A/PCINT1)
PB2 (OC1B/SS/PCINT2)
PB3 (MOSI/OC2A/PCINT3)
PB4 (MISO/PCINT4)
PB5 (SCK/PCINT5)
PB6 (TOSC1/XTAL1/PCINT6)
PB7 (TOSC2/XTAL2/PCINT7)
PC0 (ADC0/PCINT8)
PC1 (ADC1/PCINT9)
PC2 (ADC2/PCINT10)
PC3 (ADC3/PCINT11)
PC4 (ADC4/SDA/PCINT12)
PC5 (ADC5/SCL/PCINT13)
PC6 (RESET/PCINT14)
ADC6
ADC7
PD0 (RXD/PCINT16)
PD1 (TXD/PCINT17)
PD2 (INT0/PCINT18)
PD3 (INT1/OC2B/PCINT19)
PD4 (T0/XCK/PCINT20)
PD5 (T1/OC0B/PCINT21)
PD6 (AIN0/OC0A/PCINT22)
PD7 (AIN1/PCINT23)
MCU
VCC
AVCC
AREF
GND
AGND
C21 100n
C24 100n
+V_MCU_F
Z2 BLM18
L1 10u
C23 100n
C22 10u
R10 10k
R11 10k
R12 10k
R13 10k
R14 10k
R15 10k
DISP_LATCH
DISP_nOE
DISP_nRES
SPI_MOSI
SPI_MISO
SPI_SCK
KEYB_C0
POWER_ON
BTN_PWR
KEYB_R2
KEYB_C1
KEYB_C3
KEYB_R1
KEYB_R3
nRESET
R9 10k
C10 100n
PHOTO_SENS
UART_RX
UART_TX
AC_GOOD
KEYB_R0
KEYB_C2
MUTE
R16 10k
R17 10k
REL_LATCH
REL_nOE
CH_IN1
Input Buffer.SchDoc
CH_IN2
Input Buffer.SchDoc
CH_IN3
Input Buffer.SchDoc
CH_IN4
Input Buffer.SchDoc
CH_IN5
Input Buffer.SchDoc
CH_IN6
Input Buffer.SchDoc
IN_L
IN_R
OUT_L
OUT_R
+V_OPA
-V_OPA
K1B OUT1_L
K1C OUT1_R
K2B OUT2_L
K2C OUT2_R
K3B OUT3_L
K3C OUT3_R
K4B OUT4_L
K4C OUT4_R
K5B OUT5_L
K5C OUT5_R
K6B OUT6_L
K6C OUT6_R
K19B OUT1_L
K19C OUT1_R
K20B OUT2_L
K20C OUT2_R
K21B OUT3_L
K21C OUT3_R
K22B OUT4_L
K22C OUT4_R
K23B OUT5_L
K23C OUT5_R
K24B OUT6_L
K24C OUT6_R
K31B OUT1_L
K31C OUT1_R
K32B OUT2_L
K32C OUT2_R
K33B OUT3_L
K33C OUT3_R
K34B OUT4_L
K34C OUT4_R
K35B OUT5_L
K35C OUT5_R
K36B OUT6_L
K36C OUT6_R
K7B OUT1_L
K7C OUT1_R
K8B OUT2_L
K8C OUT2_R
K9B OUT3_L
K9C OUT3_R
K10B OUT4_L
K10C OUT4_R
K11B OUT5_L
K11C OUT5_R
K12B OUT6_L
K12C OUT6_R
K25B OUT1_L
K25C OUT1_R
K26B OUT2_L
K26C OUT2_R
K27B OUT3_L
K27C OUT3_R
K28B OUT4_L
K28C OUT4_R
K29B OUT5_L
K29C OUT5_R
K30B OUT6_L
K30C OUT6_R
K37B OUT1_L
K37C OUT1_R
K38B OUT2_L
K38C OUT2_R
K39B OUT3_L
K39C OUT3_R
K40B OUT4_L
K40C OUT4_R
K41B OUT5_L
K41C OUT5_R
K42B OUT6_L
K42C OUT6_R
+V_MCU
POWER_ON
AC_GOOD
+V_OPA
-V_OPA
C28 100u
C27 100u
C29 220u
XP8
POWER
Digital power (+5V)
Output - Enable of analog power
Input - Pulsed 100Hz signal from AC detector
Analog power positive (+12..15V)
Ground
Analog power negative (-12..15V)
XP9
UART
UART_RX_E
UART_TX_E
XP10
PROG
SPI_MISO
SPI_MOSI
SPI_SCK
nRESET
XP11
KEYBOARD
KEYB_C1
KEYB_C3
KEYB_R1
KEYB_R3
KEYB_R0
KEYB_R2
KEYB_C0
KEYB_C2
Keyboard Column 1 signal
Output - Enable of analog power
Keyboard Row 1 signal
Keyboard Row 3 signal
NC
Keyboard power (+5V)
Keyboard Row 0 signal
Keyboard Row 2 signal
Keyboard Column 0 signal
Keyboard Column 2 signal
XP12
DISPLAY
PHOTO_SENS
DISP_LATCH
DISP_nOE
DISP_nRES
SPI_SCK
LED_PWR
BTN_PWR
Display SPI Data
Input - Photo sensor analog signal (0..5V)
Display SPI Latch
Display Output enable
Display Reset
Display SPI Clock
LED on
Input - Power button (0 - close, 1 - open)
Display power
Display ground
R27 100k
R26 1k
VT3 BC857
DD1 SN74HC595
DD2 SN74HC595
DD3 SN74HC595
DD7 SN74HC595
DD8 SN74HC595
DD9 SN74HC595
Z1 BLM18
C7 100n
C8 100n
C9 100n
C17 100n
C18 100n
C19 100n
OUT0 OUT1 OUT2 OUT3 OUT4 OUT5 OUT6 OUT7 SOUT
OE SRCLR RCLK SRCK SER
OUT6_COM OUT6_IN6 OUT5_IN6 OUT6_IN5 OUT3_IN6 OUT2_IN6 OUT1_IN6
OUT5_COM OUT5_IN5 OUT5_IN6 OUT6_IN5 OUT3_IN5 OUT2_IN5 OUT1_IN5
OUT4_COM OUT4_IN4 OUT5_IN4 OUT4_IN5 OUT3_IN4 OUT2_IN4 OUT1_IN4
OUT3_COM OUT3_IN3 OUT5_IN3 OUT4_IN3 OUT3_IN5 OUT2_IN3 OUT1_IN3
OUT2_COM OUT6_IN2 OUT5_IN2 OUT4_IN2 OUT3_IN2 OUT2_IN2 OUT1_IN2
OUT1_COM OUT6_IN1 OUT5_IN1 OUT4_IN1 OUT3_IN1 OUT2_IN1 OUT1_IN1
C25 1000u
C26 1000u
R23 10k
R25 470
R24 1k
VT2 BC847
VD1 1N5819
VT1 IRLML2402
K13A HFD4/5-L
K14A HFD4/5-L
K15A HFD4/5-L
K16A HFD4/5-L
K17A HFD4/5-L
K18A HFD4/5-L
CH_OUT1
Output Buffer.SchDoc
CH_OUT2
Output Buffer.SchDoc
CH_OUT3
Output Buffer.SchDoc
CH_OUT4
Output Buffer.SchDoc
CH_OUT5
Output Buffer.SchDoc
CH_OUT6
Output Buffer.SchDoc
K13B
K13C
K14B
K14C
K15B
K15C
K16B
K16C
K17B
K17C
K18B
K18C
XP5
OUT 1-2
XP6
OUT 3-4
XP7
OUT 5-6