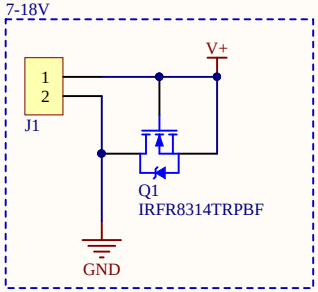
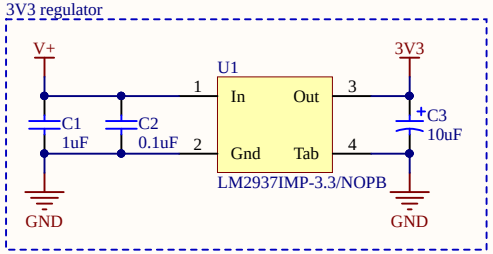
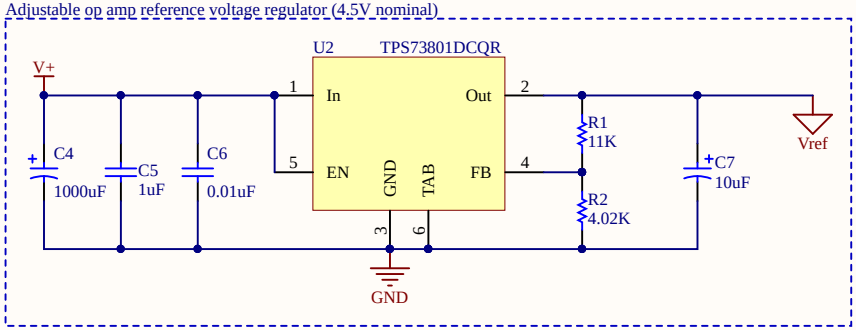
Power input and reverse voltage protection
7-18V

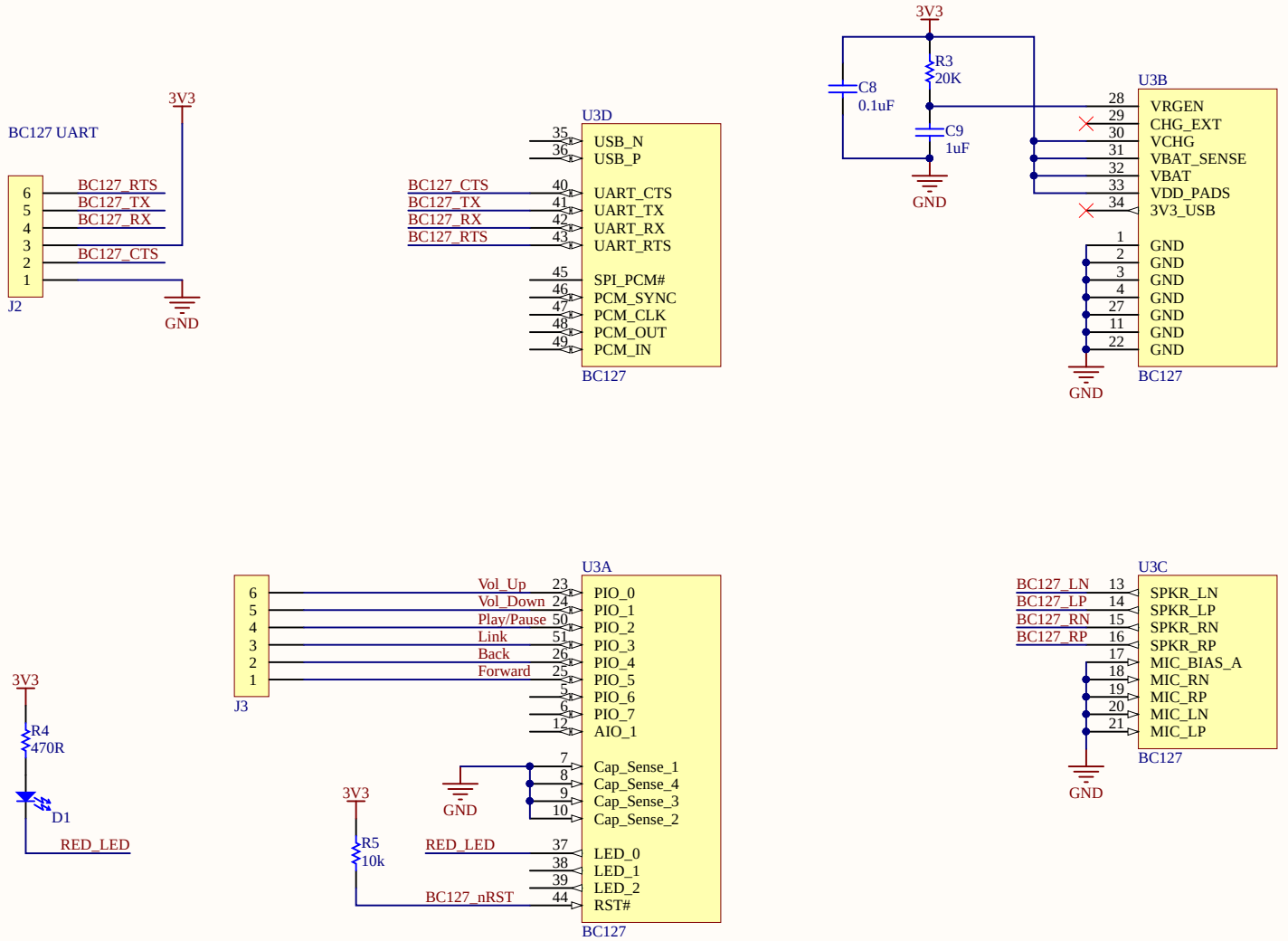


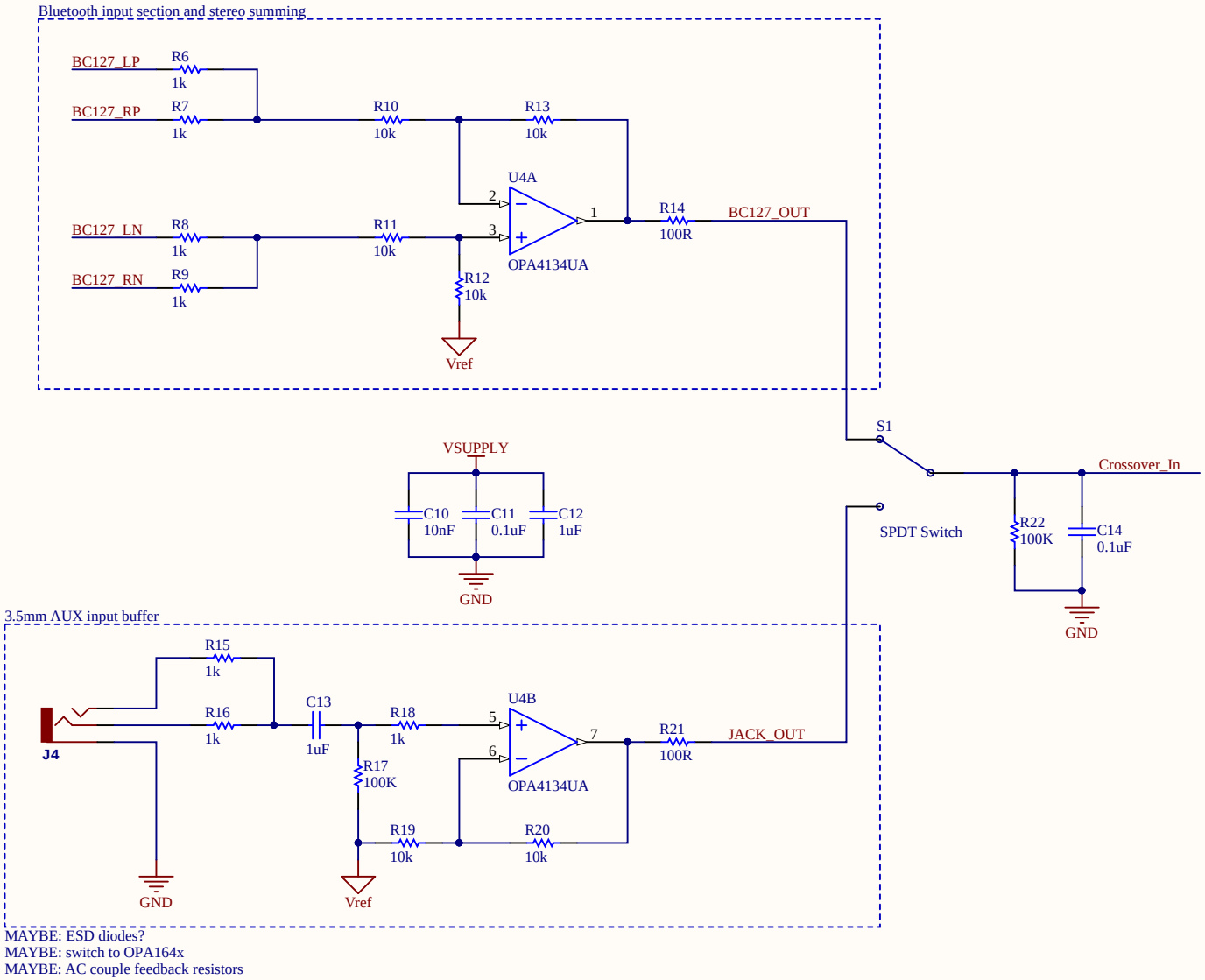
3V3 regulator

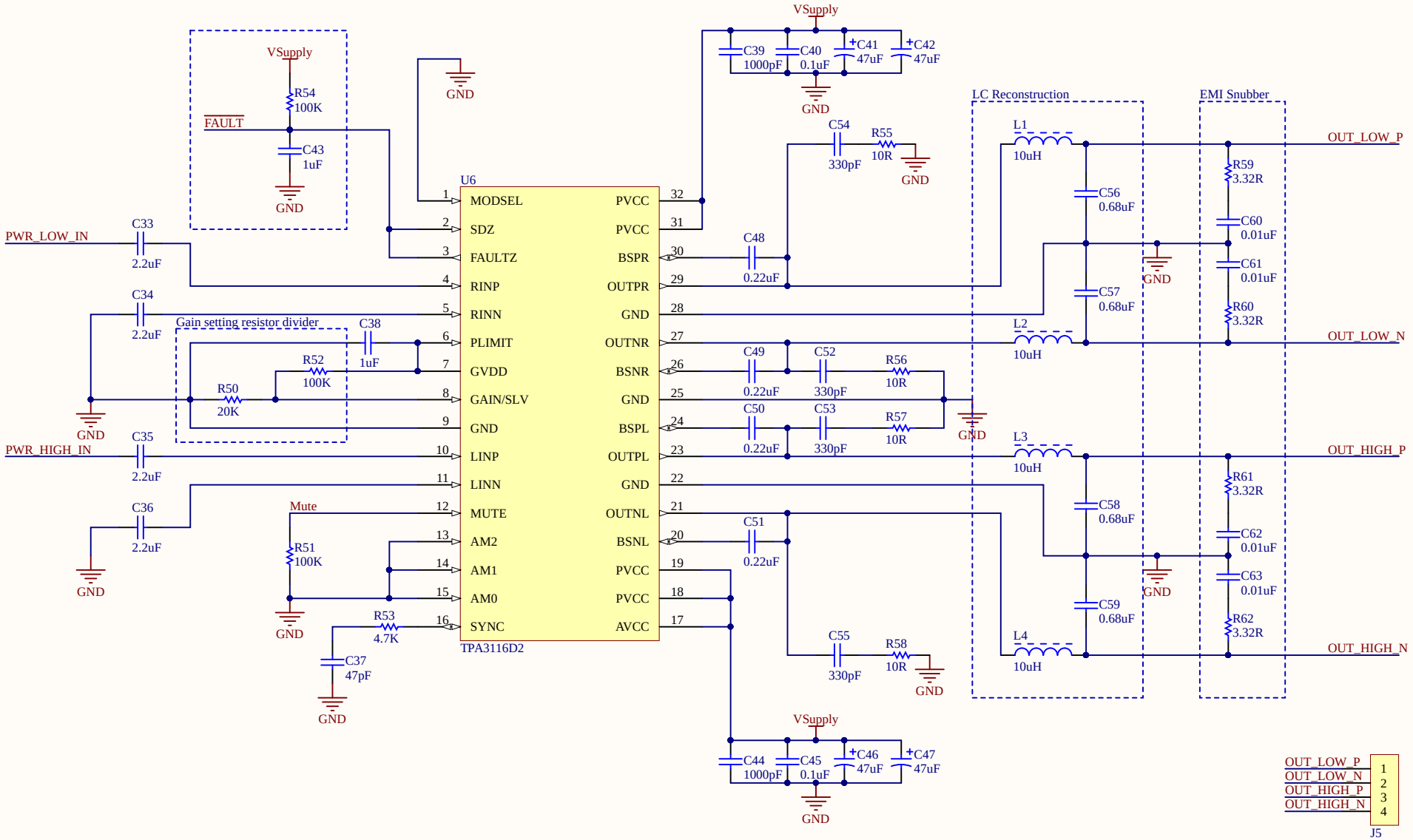


Adjustable op amp reference voltage regulator (4.5V nominal)




BC127 UART
3V3
BC127_RTS
BC127_TX
BC127_RX
BC127_CTS
GND
J2
U3D
USB_N
USB_P
UART_CTS
UART_TX
UART_RX
UART_RTS
SPI_PCM#
PCM_SYNC
PCM_CLK
PCM_OUT
PCM_IN
BC127
C8
0.1uF
R3
20K
C9
1uF
U3B
VRGEN
CHG_EXT
VCHG
VBAT_SENSE
VBAT
VDD_PADS
3V3_USB
GND
R4
470R
D1
RED_LED
J3
Vol_Up
Vol_Down
Play/Pause
Link
Back
Forward
U3A
PIO_0
PIO_1
PIO_2
PIO_3
PIO_4
PIO_5
PIO_6
PIO_7
AIO_1
Cap_Sense_1
Cap_Sense_4
Cap_Sense_3
Cap_Sense_2
R5
10k
LED_0
LED_1
LED_2
RST#
BC127_nRST
U3C
BC127_LN
BC127_LP
BC127_RN
BC127_RP
SPKR_LN
SPKR_LP
SPKR_RN
SPKR_RP
MIC_BIAS_A
MIC_RN
MIC_RP
MIC_LN
MIC_LP


Bluetooth input section and stereo summing
BC127_LP
R6
1k
BC127_RP
R7
1k
R10
10k
R13
10k
U4A
2
3
1
R14
100R
BC127_OUT
BC127_LN
R8
1k
R11
10k
BC127_RN
R9
1k
R12
10k
OPA4134UA
Vref
VSUPPLY
C10
10nF
C11
0.1uF
C12
1uF
GND
S1
SPDT Switch
Crossover_In
R22
100K
C14
0.1uF
GND
3.5mm AUX input buffer
R15
1k
R16
1k
C13
1uF
R18
1k
U4B
5
6
7
R21
100R
JACK_OUT
J4
R17
100K
R19
10k
R20
10k
OPA4134UA
GND
Vref
MAYBE: ESD diodes?
MAYBE: switch to OPA164x
MAYBE: AC couple feedback resistors


VSupply
R54
100K
FAULT
C43
1uF
GND
GND
U6
MODSEL
SDZ
FAULTZ
RINP
RINN
PLIMIT
GVDD
GAIN/SLV
GND
LINP
LINN
MUTE
AM2
AM1
AM0
SYNC
PVCC
PVCC
BSPR
OUTPR
GND
OUTNR
BSNR
GND
BSPL
OUTPL
GND
OUTNL
BSNL
PVCC
PVCC
AVCC
TPA3116D2
C39
1000pF
C40
0.1uF
C41
47uF
C42
47uF
C54
330pF
R55
10R
C48
0.22uF
C49
0.22uF
C52
330pF
R56
10R
C50
0.22uF
C53
330pF
R57
10R
C51
0.22uF
C55
330pF
R58
10R
C44
1000pF
C45
0.1uF
C46
47uF
C47
47uF
LC Reconstruction
EMI Snubber
L1
10uH
L2
10uH
L3
10uH
L4
10uH
C56
0.68uF
C57
0.68uF
C58
0.68uF
C59
0.68uF
R59
3.32R
C60
0.01uF
C61
0.01uF
R60
3.32R
R61
3.32R
C62
0.01uF
C63
0.01uF
R62
3.32R
OUT_LOW_P
OUT_LOW_N
OUT_HIGH_P
OUT_HIGH_N
PWR_LOW_IN
C33
2.2uF
C34
2.2uF
Gain setting resistor divider
C38
1uF
R52
100K
R50
20K
PWR_HIGH_IN
C35
2.2uF
C36
2.2uF
Mute
R51
100K
R53
4.7K
C37
47pF
J5

Note for LR4:
Fp = 1/(2.83*pi*R*C)
R = 10K
C = 2200pF

LR4 Low Pass at ~5KHz

C18 4700pF
C19 4700pF
R23 10k
R24 10k
R25 10k
R26 10k
R27 100R
R28 100K
C20 2200pF
C21 2200pF
U5A
U5B
OPA4134UA
LR4_OUT_LOW
GND

VSUPPLY
C15 10nF
C16 0.1uF
C17 1uF

Linkwitz Transform bypass jumpers
Put jumper by default on pins 1 and 2
JP1
JP2
LR4_OUT_LOW
LT_IN
LT_OUT
PRE_LOW_OUT
Vref

Crossover_In

Butterworth High Pass at 55Hz

R32 26.1K
C25 0.1uF
C26 0.056uF
R38 56.2K
U5C
R34 100R
R39 100K
C27 1uF
R40 100K
LT_IN

Linkwitz Transform

R29 13k
C22 0.068uF
R30 35K
R31 35K
C23 0.1uF
R33 13k
C24 0.068uF
R35 8.06K
R36 8.06K
C28 0.39uF
U5D
R37 100R
R41 100K
LT_OUT

PRE_LOW_OUT
VR1
MUTE
PWR_LOW_IN
R42 10k

Reduces extreme low frequencies to prevent speaker damage and op amp saturation in Linkwitz Transform

LR4 High Pass at 5Khz

R43 10k
R44 10k
C29 2200pF
C30 2200pF
C31 2200pF
C32 2200pF
R46 20K
R47 20K
U4C
U4D
R45 100R
R48 100K
PRE_HIGH_OUT

FAULT
VR2
PWR_HIGH_IN
R49 10k

Note:
Potentiometers are connected to 4 pin JST-PH connectors
4th pin is unused by potentiometers, used as auxiliary IO pins for power amp