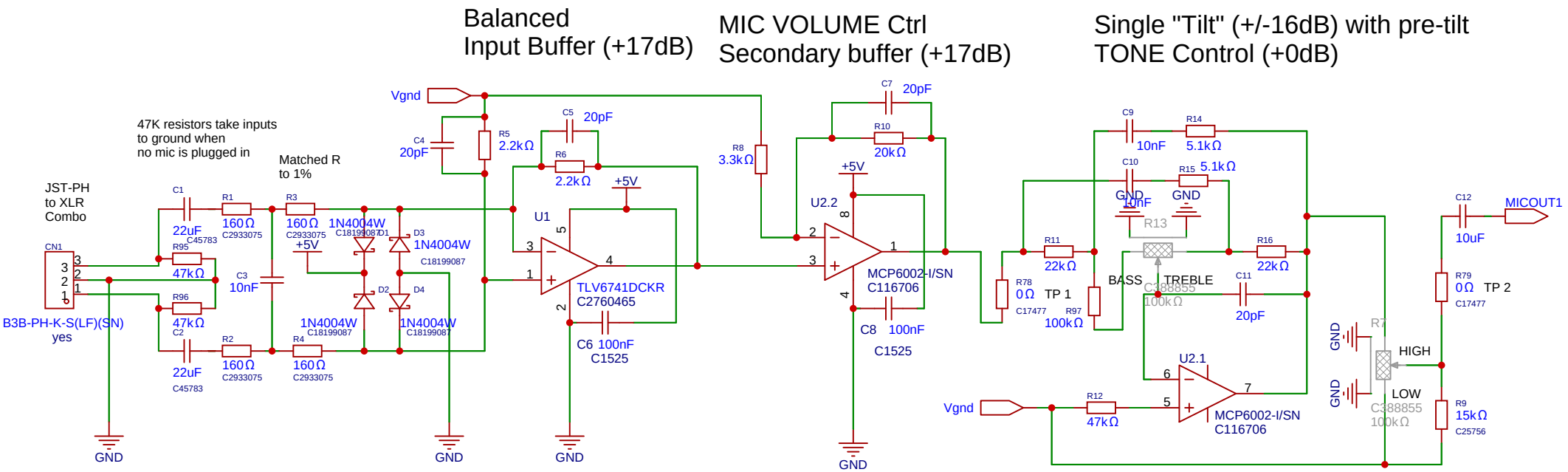
MIXER V3.0

Microphone preamp, Mic #1

TODO:
- add 100K to TONE pot to bias it
- upside down all the pots so they can be assembled by JLCPCB



NOTE:
MIC1 channel is using TLV6741 (3.5nV/sqrt(Hz))

For comparison:
LMV721 is 8.5nV/sqrt(Hz)
MCP6002 is 28nV/sqrt(Hz)

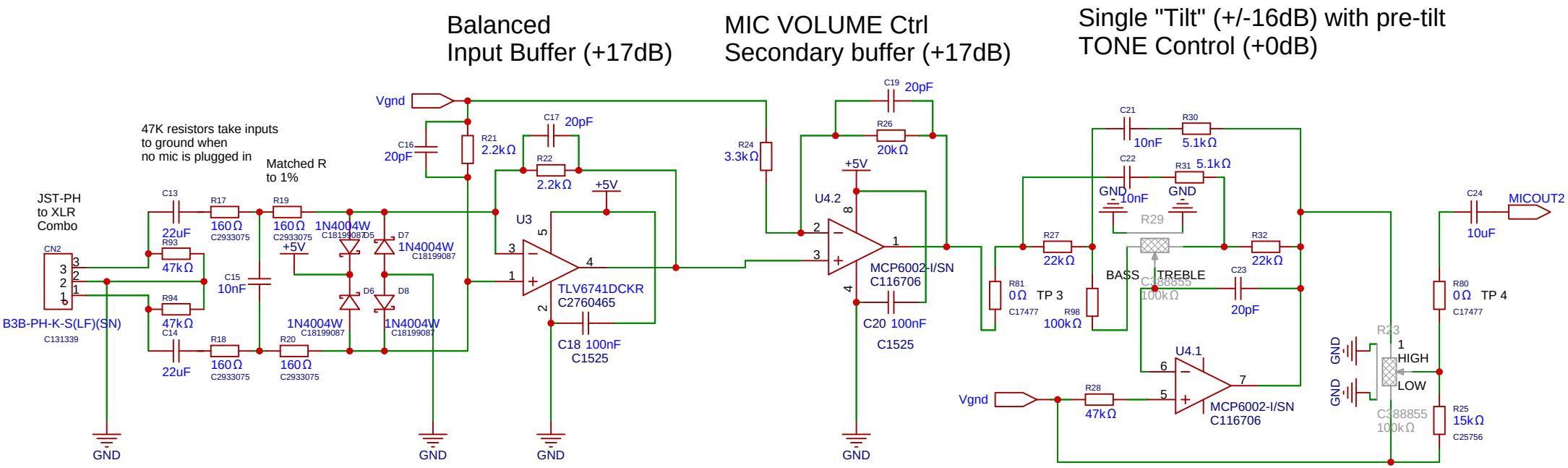
On XLR connector:
pin 1: ground/shield
pin 2: positive/hot
pin 3: negative/cold

On XLR connector board:
pin 1: cold/ring_sleeve/RS (shorted to ground when Hilton plugged in)
pin 2: common ground
pin 3: hot/tip/T

Schematic	mixer project v3	Update Date	2025-11-20
		Create Date	2025-10-28
Page	MIC1.Preamp	Part Number	JLCPCB-002
Drawed	M.Pogue	Mixer NEXT GEN V3	
Reviewed	EasyEDA Pro		
		VER / SIZE / PAGE 1 OF 6	
EasyEDA	V2.4 / A4	EasyEDA.com	

MIXER V3.0

Microphone preamp, Mic #2



NOTE:
MIC2 channel is using TLV6741 (3.5nV/sqrt(Hz))

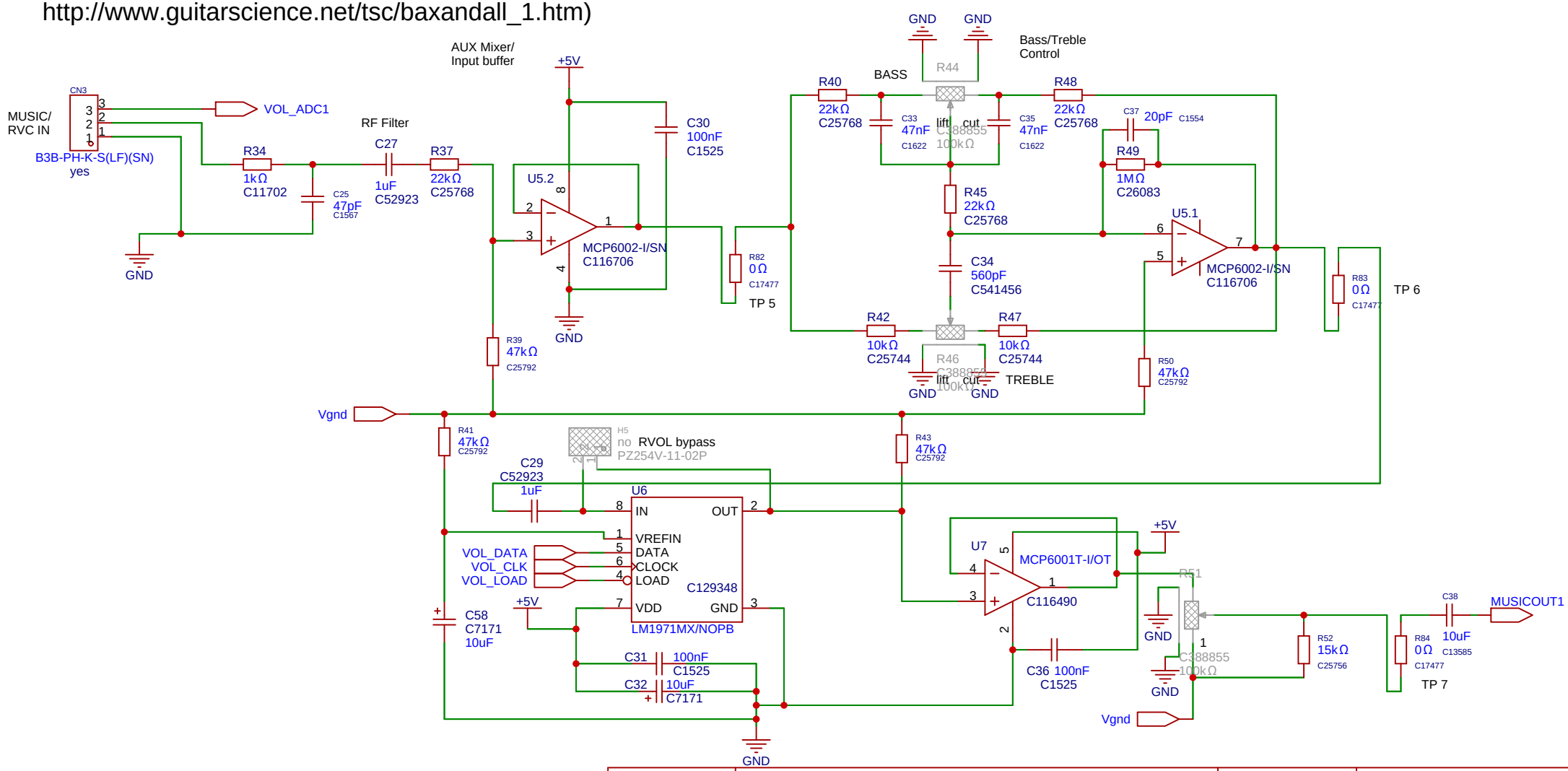
For comparison:
LMV721 is 8.5nV/sqrt(Hz)
MCP6002 is 28nV/sqrt(Hz)

Schematic	mixer project v3	Update Date	2025-11-20
		Create Date	2025-10-28
Page	MIC2.Preamp	Part Number	JLCPCB-002
Drawed	M.Pogue	Mixer NEXT GEN V3	
Reviewed	EasyEDA Pro		
		VER	SIZE	PAGE 2 OF 6
EasyEDA		V2.4	A4	EasyEDA.com

Music Mixer/Preamp/Remote Vol/Main Vol Control

MIXER V3.0

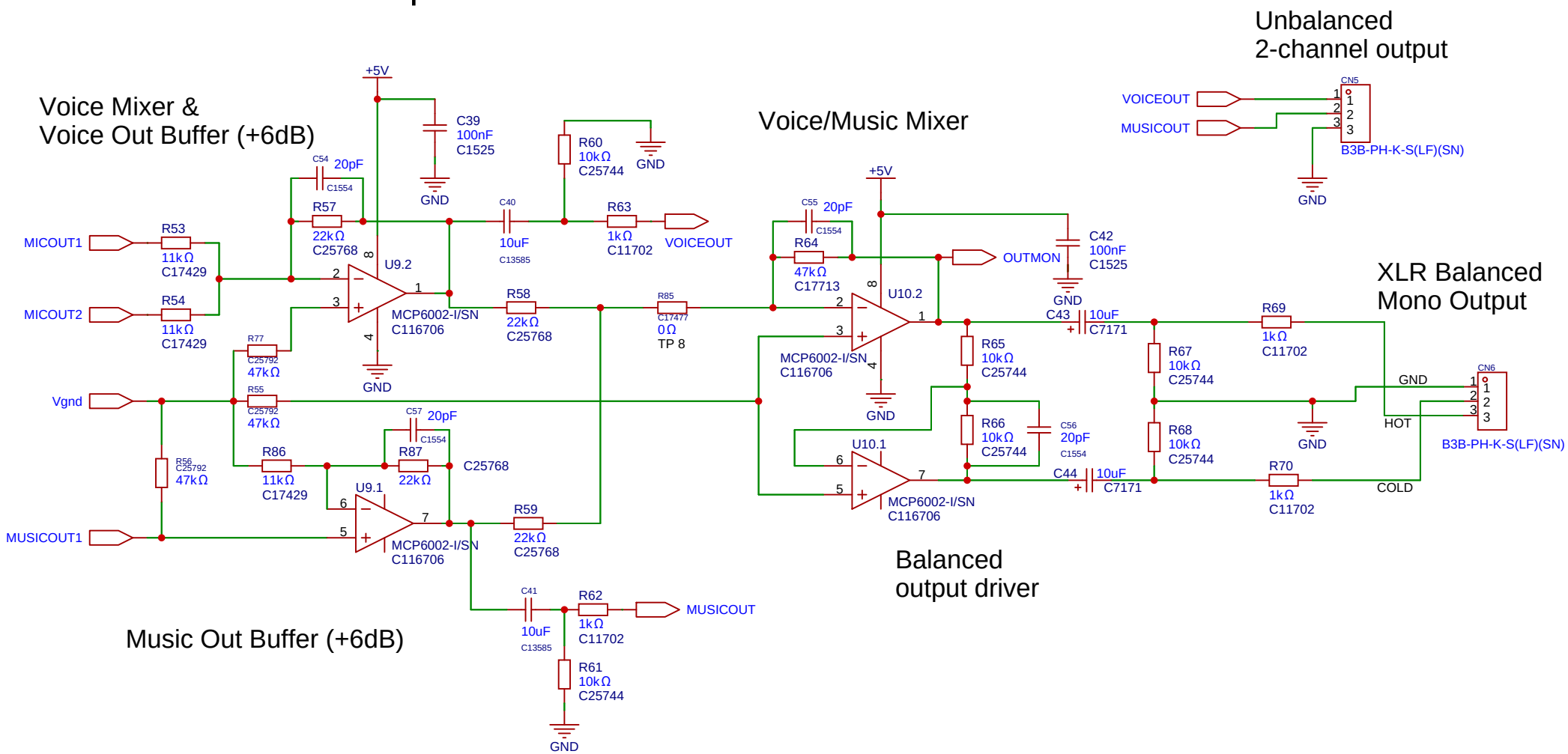
(source: https://www.ti.com/lit/ug/tidu034/tidu034.pdf, https://sound-au.com/project01.htm, http://www.guitarscience.net/tsc/baxandall_1.htm)



Schematic	mixer project v3	Update Date	2025-12-21
		Create Date	2025-10-28
Page	MUSIC.Preamp	Part Number	JLCPCB-002
Drawed	M.Pogue	Mixer NEXT GEN V3	
Reviewed	EasyEDA Pro		
		VER / SIZE / PAGE 3 OF 6	
EasyEDA	V2.4 / A4	EasyEDA.com	

MIXER V3.0

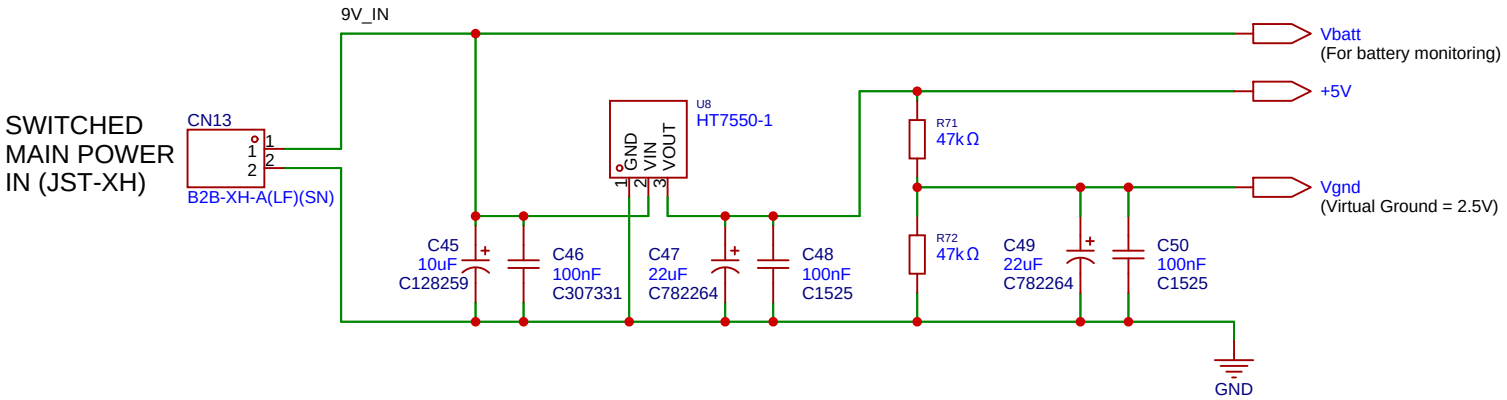
Final Mixer/Balanced output driver



Schematic	mixer project v3	Update Date	2025-11-09
		Create Date	2025-10-28
Page	OutputStage	Part Number	JLCPCB-002
Drawed	M.Pogue	Mixer NEXT GEN V3	
Reviewed	EasyEDA Pro		
		VER	SIZE
		V2.4	A4
		PAGE 4 OF 6	
EasyEDA		EasyEDA.com	

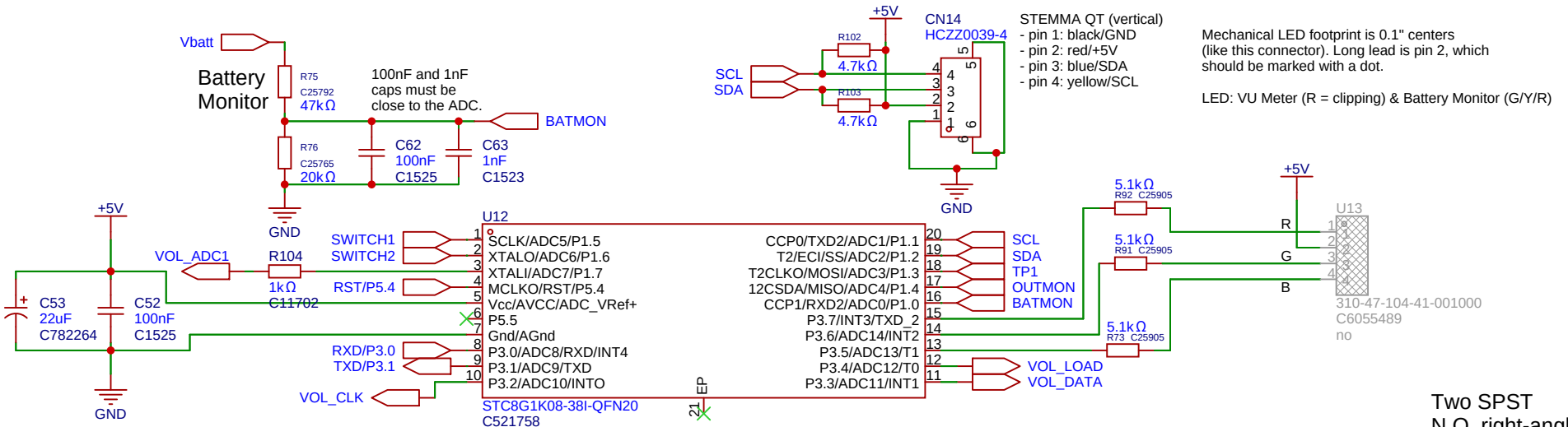
MIXER V3.0

Input Power Management



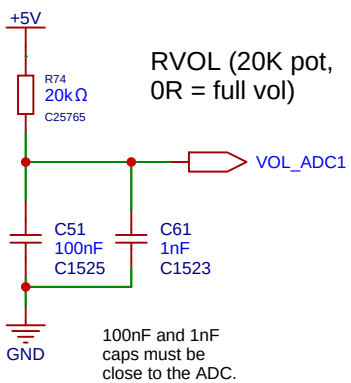
Schematic	mixer project v3	Update Date	2025-11-19
		Create Date	2025-10-28
Page		Part Number	JLCPCB-002
Drawed	M.Pogue	Mixer NEXT GEN V3	
Reviewed	EasyEDA Pro		
		VER	SIZE	PAGE 5 OF 6
EasyEDA		V2.4	A4	EasyEDA.com

MIXER V3.0 MCU (Battery Monitor, Remote Vol Ctrl)

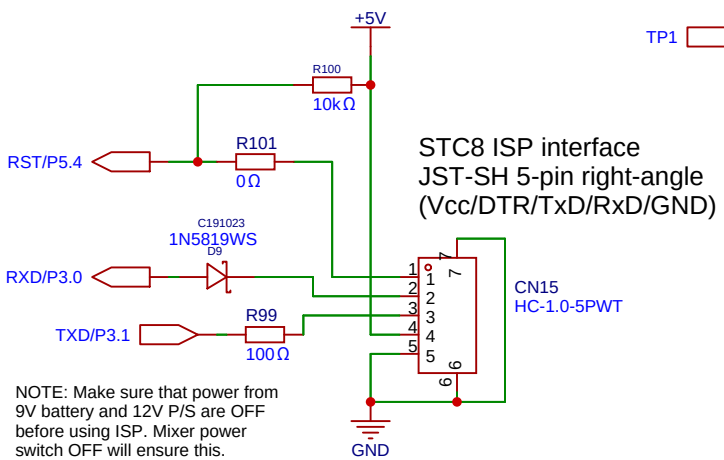


Mechanical LED footprint is 0.1" centers (like this connector). Long lead is pin 2, which should be marked with a dot.

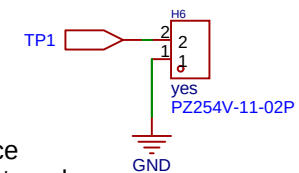
LED: VU Meter (R = clipping) & Battery Monitor (G/Y/R)

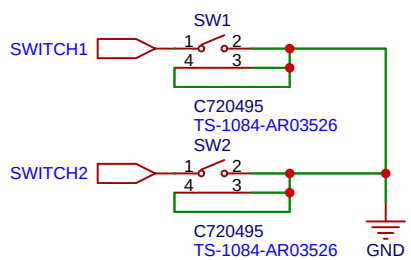


RVOL (20K pot, 0R = full vol)



STC8 ISP interface
JST-SH 5-pin right-angle
(Vcc/DTR/TxD/RxD/GND)





Two SPST
N.O. right-angle
buttons (w/4.1K MCU pullups)
for RVC curve select
and LED mode.

NOTE: Digital section must be carefully isolated from Analog section.

NOTE: VOL_ADC{1,2} are +5 when there is no Remote Vol Ctrl plugged in. They are 0 - 2.5V when the RVC{1,2} is plugged in.

NOTE: BATT_MON is 0 - 2.7V for +9V input.

RVOL in LB-202 goes to a STEREO TRS connector:
If (Normal RVC mode) then
// S shorted to R
VOL = T;

Y adapter for both use cases:
https://www.amazon.com/gp/product/B096XNHTH3?th=1

Dongle for MUTE functionality:
https://www.amazon.com/gp/product/B01G0NFET2

STEMMA QT connector is for +5V and +5V-compatible devices only.

NOTE: Make sure that power from 9V battery and 12V P/S are OFF before using ISP. Mixer power switch OFF will ensure this.

NOTE: Use C91552 for just 4 2.5mm right-angle pins.

JST-SH PINOUT:
1 - DTR active low
2 - TX
3 - RX
4 - Vcc
5 - GND

Schematic	mixer project v3	Update Date	2026-02-06
		Create Date	2025-10-28
Page	MCU	Part Number	JLCPCB-002
Drawed	mpogue	Mixer NEXT GEN V3	
Reviewed	mpogue		
		VER	SIZE	PAGE 6 OF 6
EasyEDA		V3.0.2	A4	zenstarstudio.com