Rx

File: Rx.kicad_sch

Tx

File: Tx.kicad_sch

Sheet: /
File: LiFiTxRxRev3.kicad_sch

**Title:**

| Size: A4 | Date: | **Rev:** |
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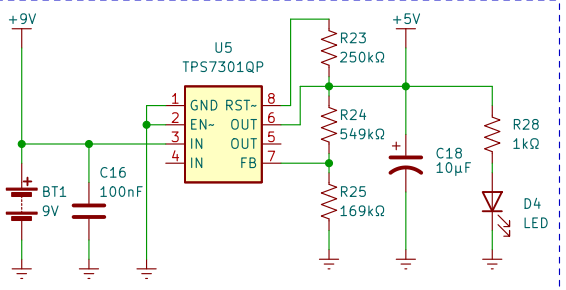
| KiCad E.D.A. eeschema (6.0.10) | | Id: 1/3 |

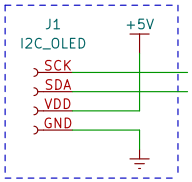
ADA4807 has better small signal single supply performance with 5V supply

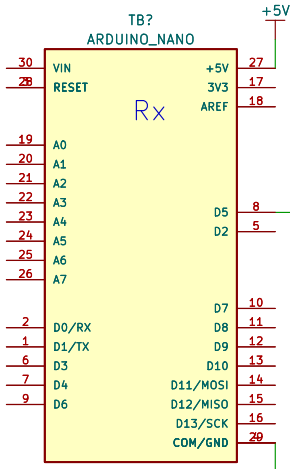
PD preeamp and µC VCC

**OUTPUT VOLTAGE PROGRAMMING GUIDE**

| OUTPUT VOLTAGE | R1 | R2 | UNIT |
|---|---|---|---|
| 2.5 V | 191 | 169 | kΩ |
| 3.3 V | 309 | 169 | kΩ |
| 3.6 V | 348 | 169 | kΩ |
| 4 V | 402 | 169 | kΩ |
| 5 V | 549 | 169 | kΩ |
| 6.4 V | 750 | 169 | kΩ |



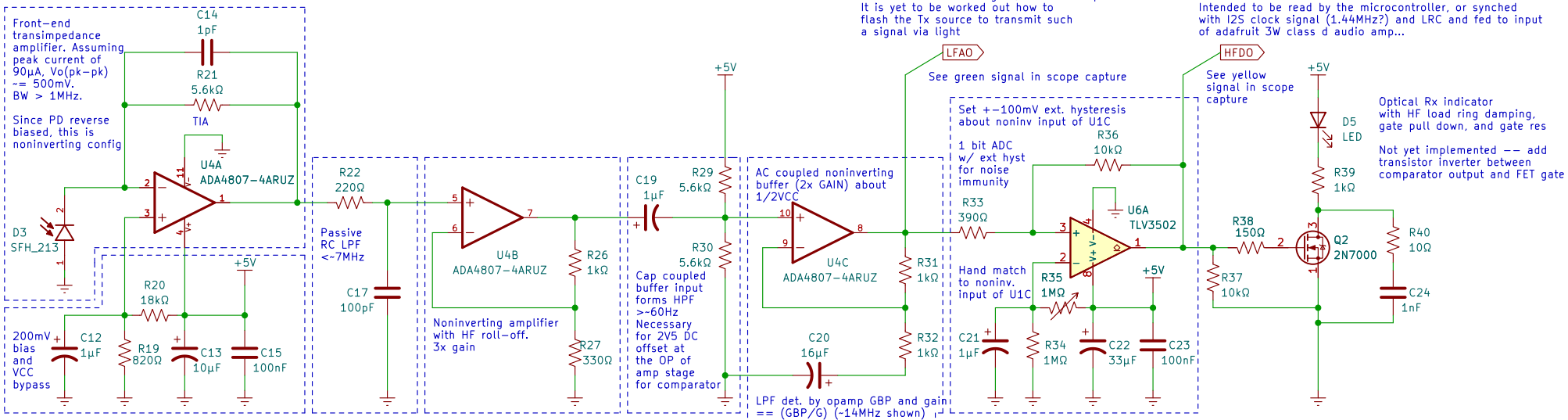




TO DO:
- local clock source for synch? think ESP8266audio lib... some sort of gating or enable mechanism to enable clock output when signal is being received (S/H??)
- lower overall gain and the hysteresis as well? remove stage for less filtering, reduce gain, lower comparator hysteresis?
- seems that there is some loading effect between preamp output and comparator input...
- also noticed that it appears there is ringing on tx end coupled optically into rx end....
- use local nodemcu for bclk and lrc, transmit data over light and use that for din? (i2s)
- add input polarity protect?

Could implement separate 386 for modulated audio

Intended to be read by a ADC or drive a reactive load via LF signal, such as a speaker... It is yet to be worked out how to flash the Tx source to transmit such a signal via light

Intended to be read by the microcontroller, or synched with I2S clock signal (1.44MHz?) and LRC and fed to input of adafruit 3W class d audio amp...




+ AD Ask The Application Engineer-32: Practical Techniques to Avoid Instability Due to Capacitive Loading

See TI TIDU535, R13AN0003EU0100
https://www.jensign.com/tznoiseAD/index.html
https://tools.analog.com/en/photodiode/

High Bandwidth TIA

See Burr-Brown (TI) SBOA059, TI SBOA263A
https://www.basic4mcu.com/...
...bbs/board.php?bo_table=k9&wr_id=24&page=2
(remove...)

Noninverting amp with HF roll off at input and static gain 3x

See previous and TI SBOA224A

Cap coupled DC offset buffer and noninverting amp with HP input and LP output

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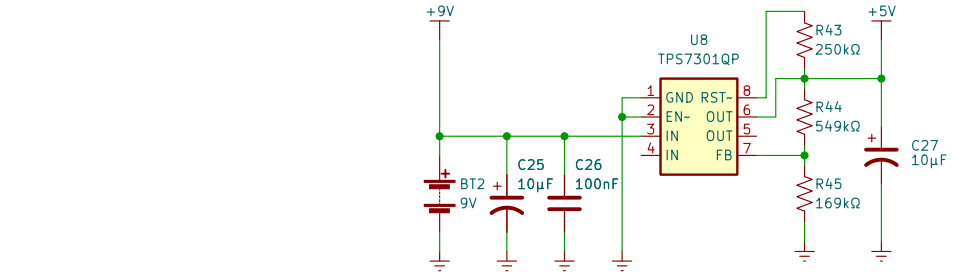
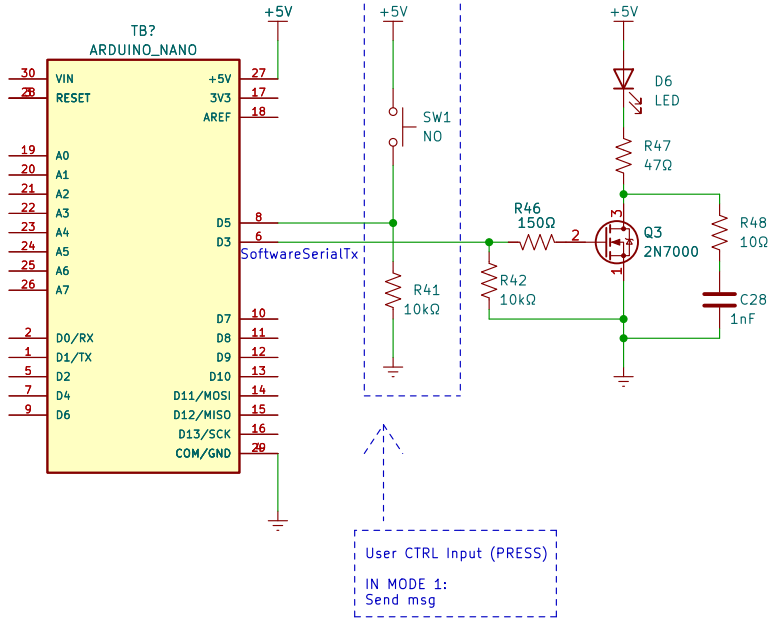



Upload SerialWriteStringswPB.ino

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| File: Tx.kicad_sch | | |
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| KiCad E.D.A. eeschema (6.0.10) | | Id: 3/3 |