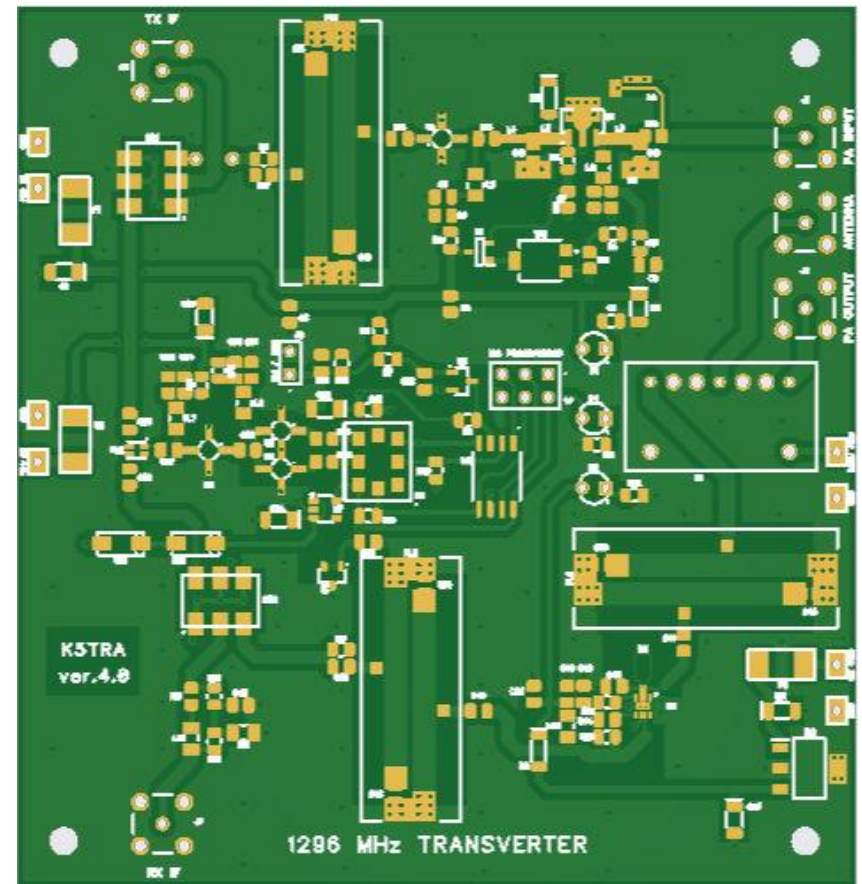
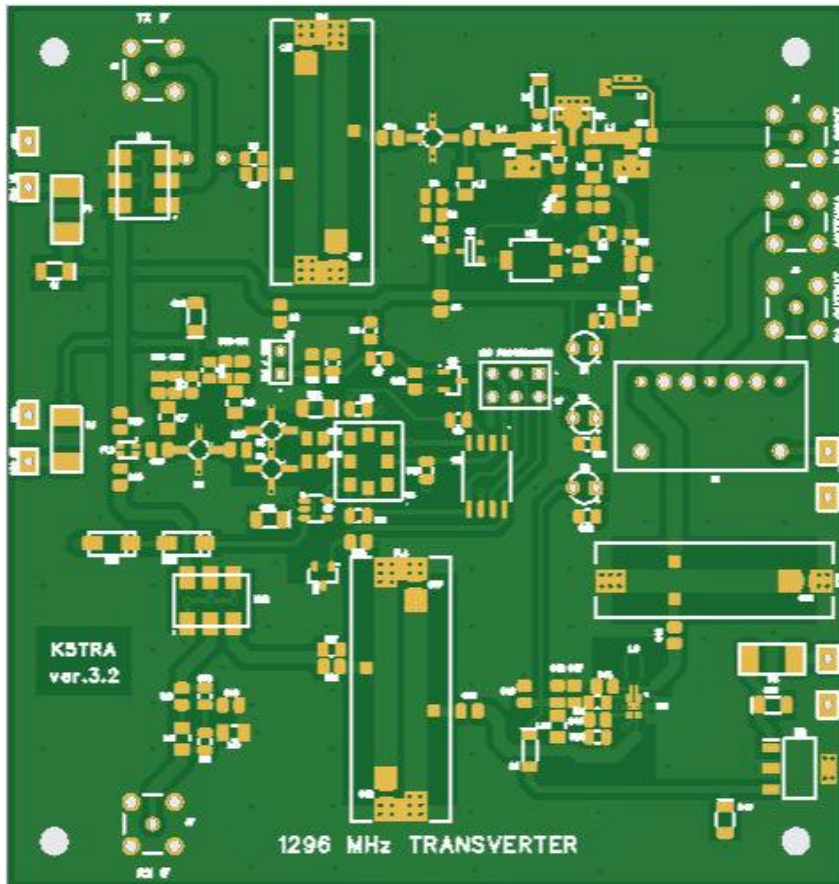


# SOME NEW PROJECT BOARDS

# OVERVIEW

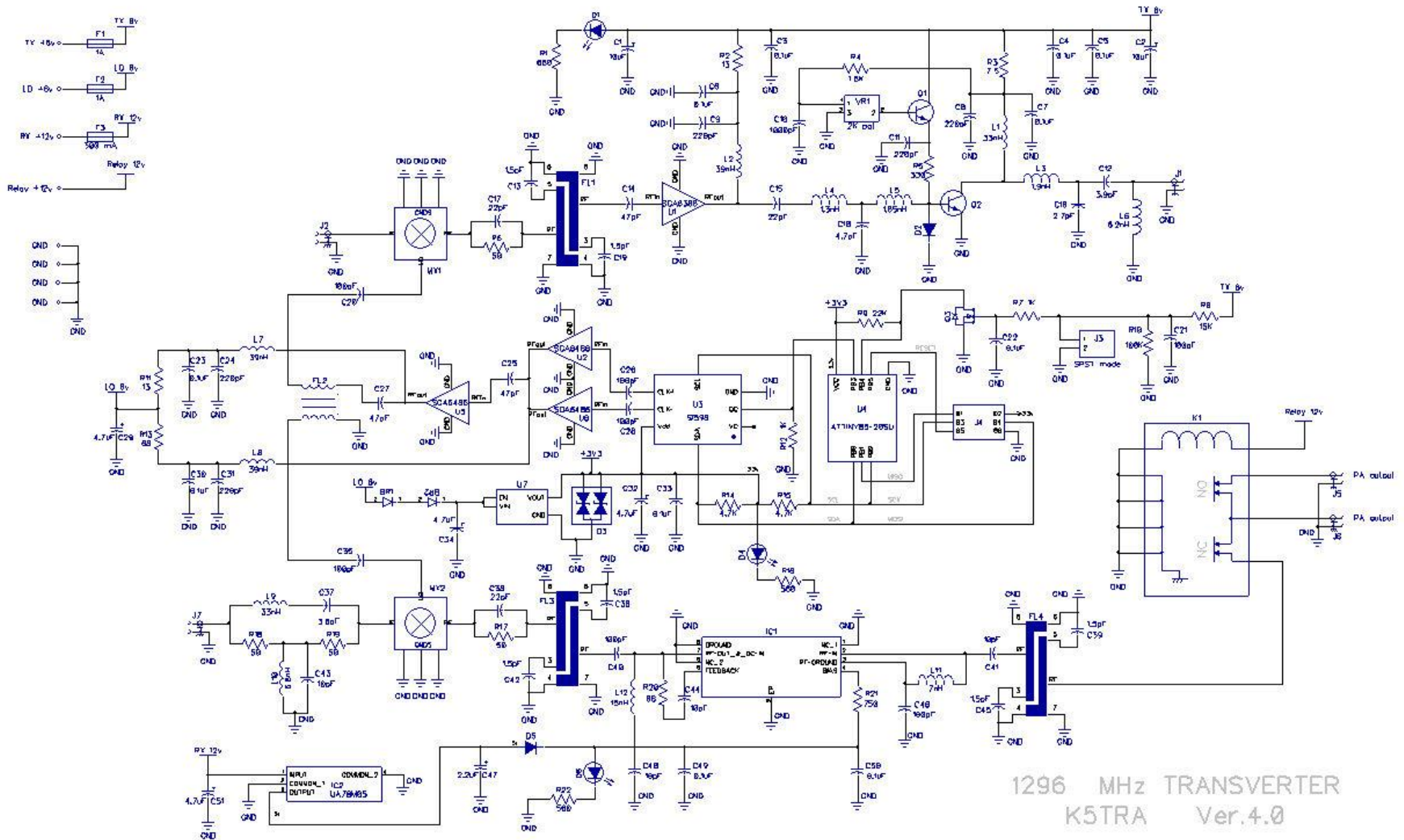
- 13 boards on 0.40" FR4
- Frequency programmable transverters:
  - **1296 MHz:** two front-end BPF options
  - **902 MHz:** two front-end BPF options
- Three resonator interdigital BPF prototypes: 1296 and 902 MHz
- Two stage driver amplifiers:
  - **1296 MHz:** two BPF options
  - **902 MHz:** two BPF options
- Frequency programmable beacon RF
- Beacon Morse and level controller – alternative to Freakin Beacon
- Attiny85 proto board interface for new development

# 1296 MHz TRANSVERTERS

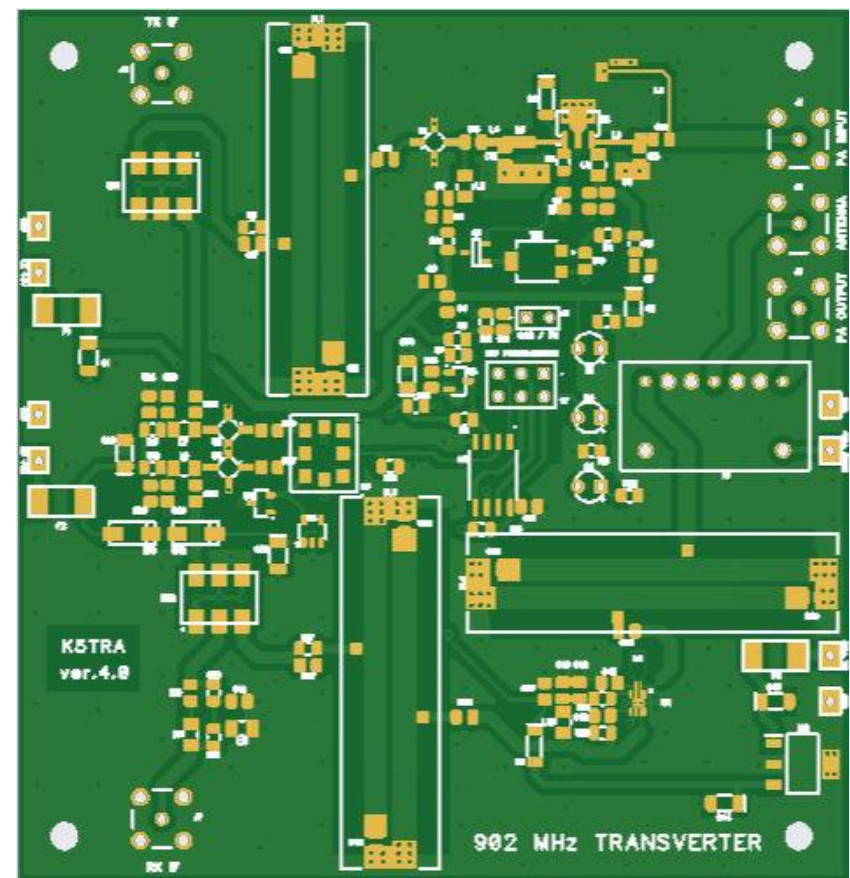
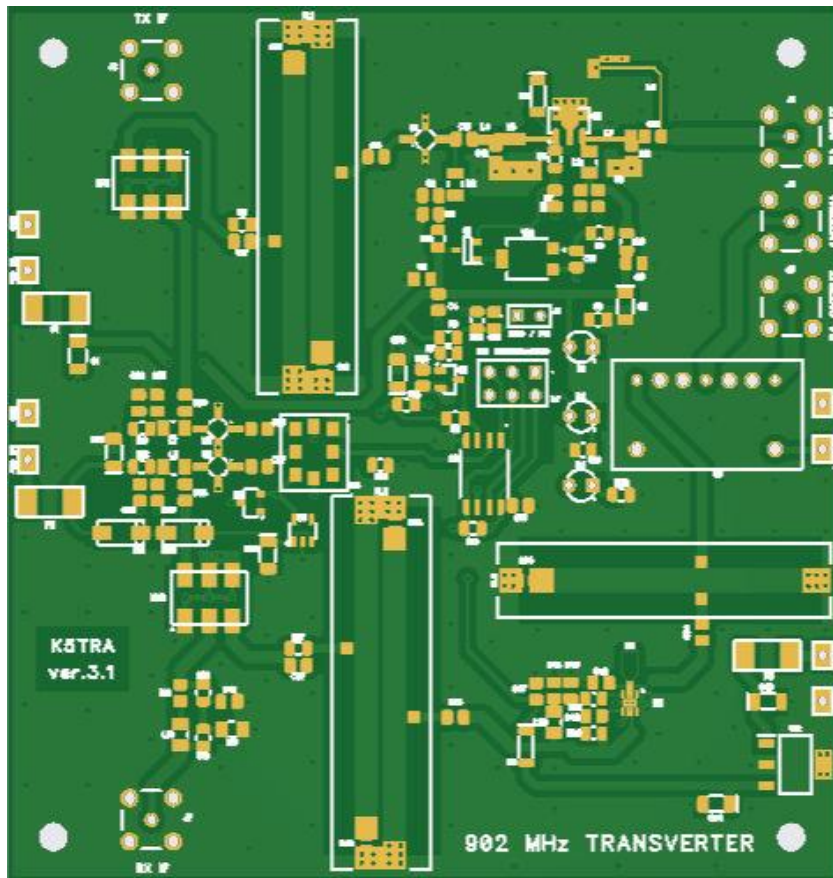


- Two 1296 MHz transverters
- LO frequency programmable: Si598 – ATtiny85 – push-push doubler
- Two options on front-end BP filter
- 3.62" x 3.8"

# 1296 MHz TRANSVERTER SCHEMATIC

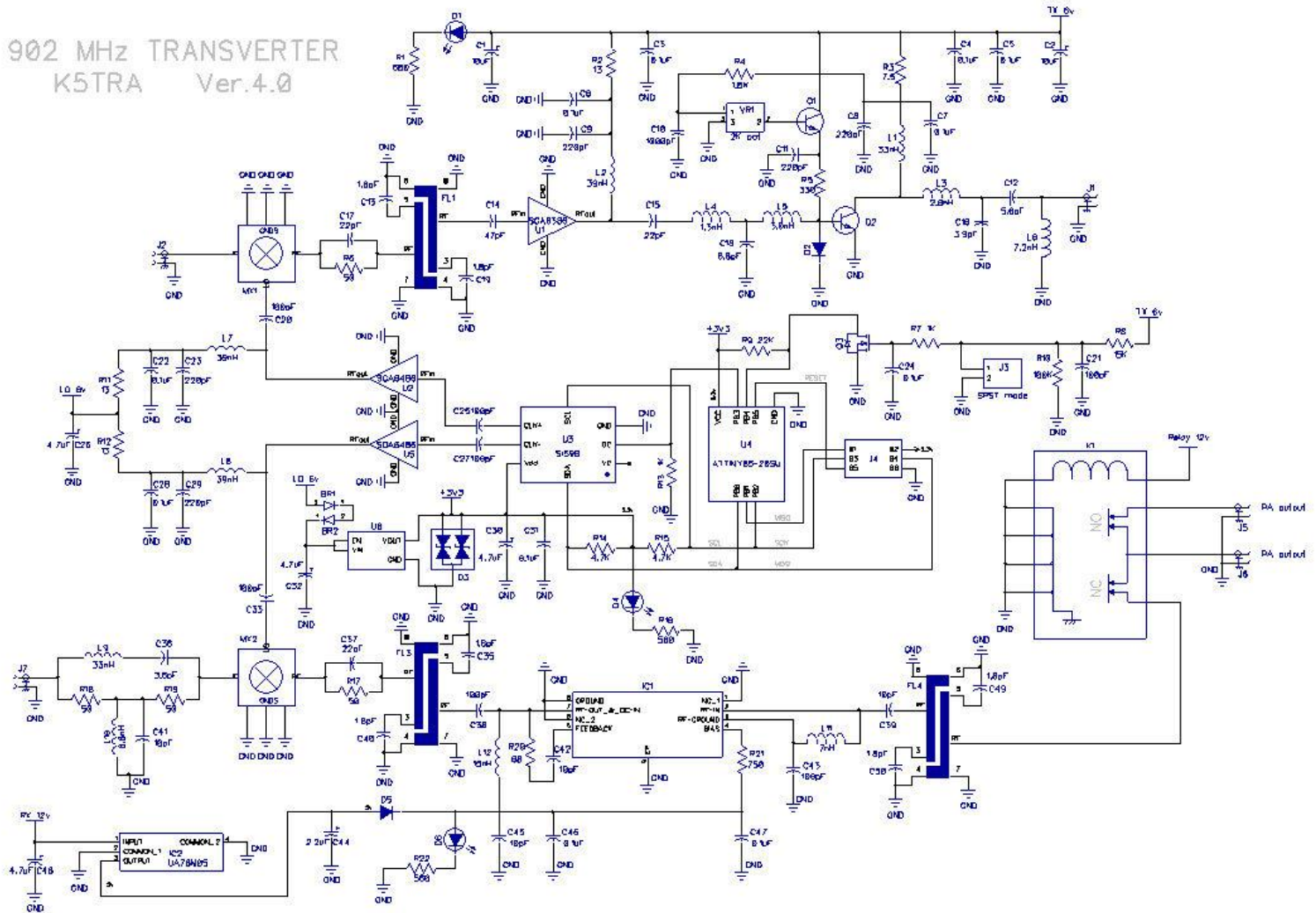


# 902 MHz TRANSVERTERS

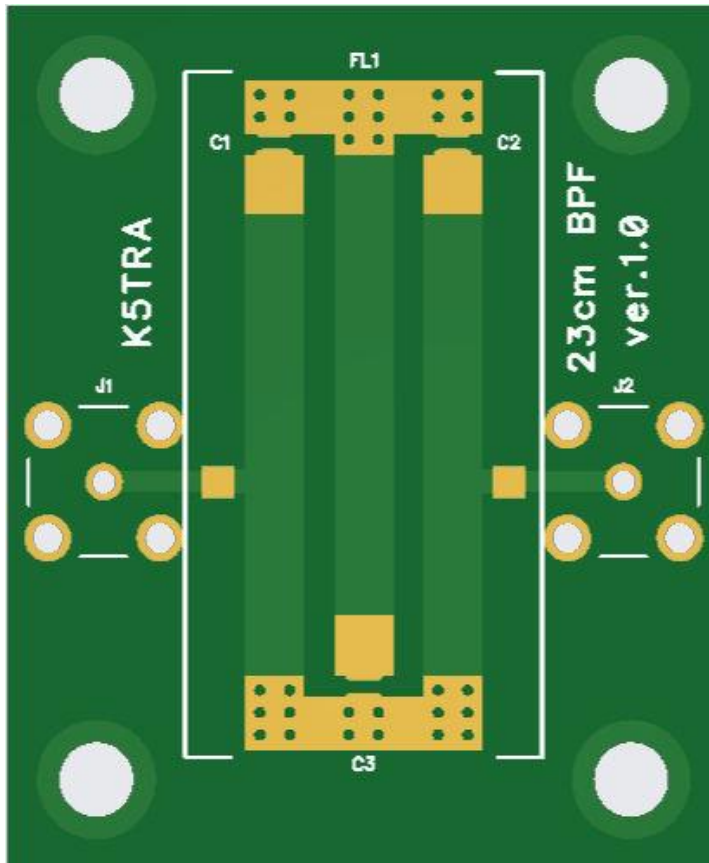


- Two 902 MHz transverters
- LO frequency programmable: Si598 – ATtiny85
- Two options on front-end BP filter
- 3.62" x 3.8"

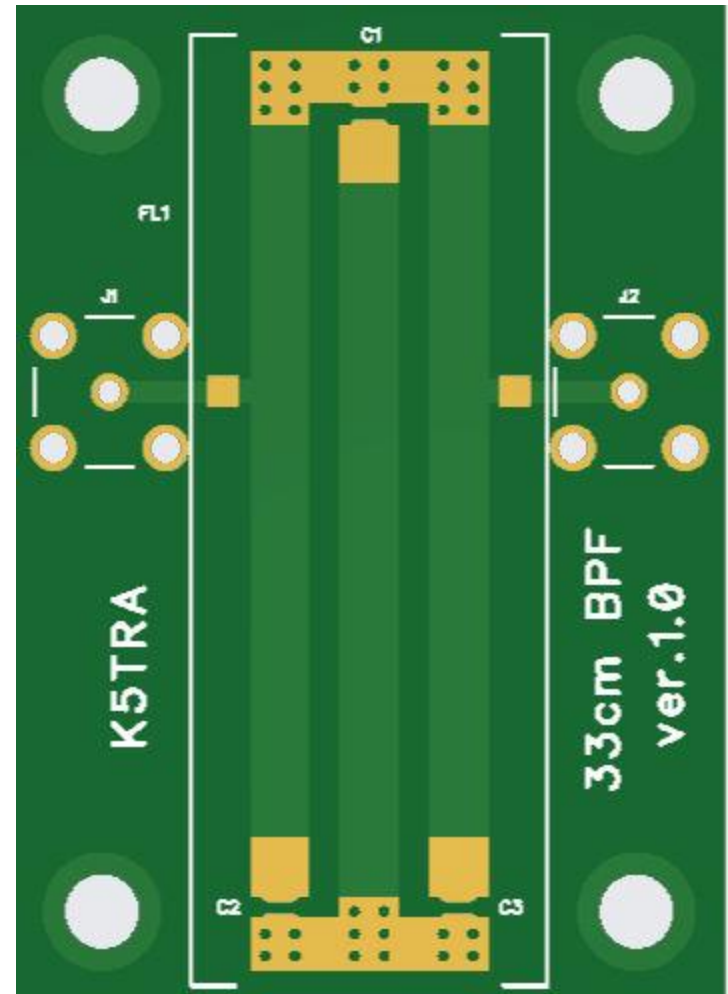
# 902 MHz TRANSVERTER SCHEMATIC



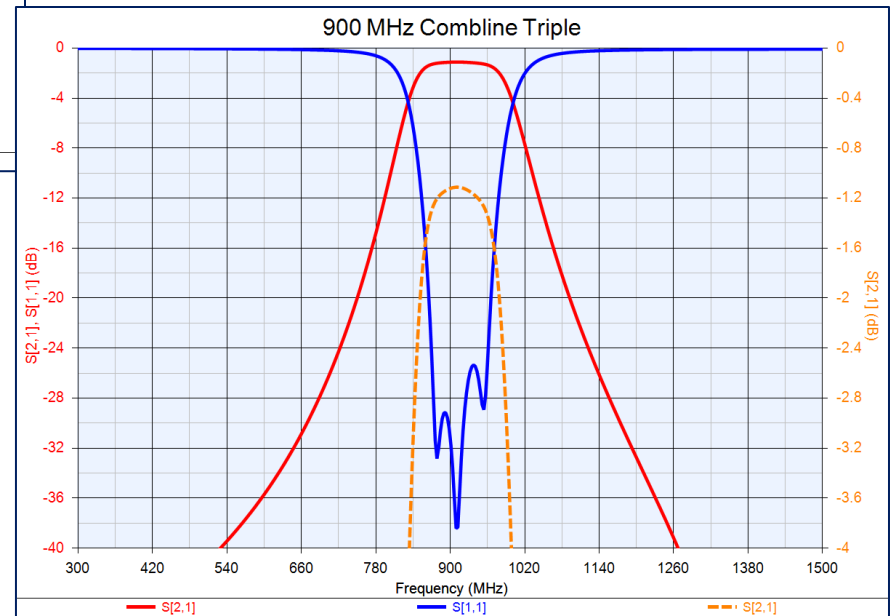
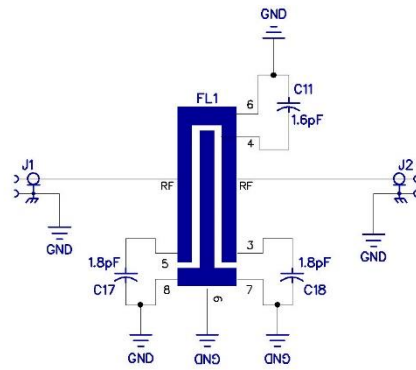
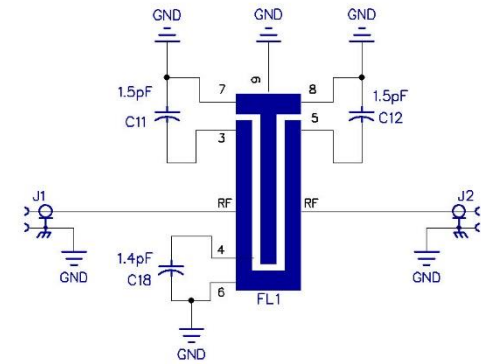
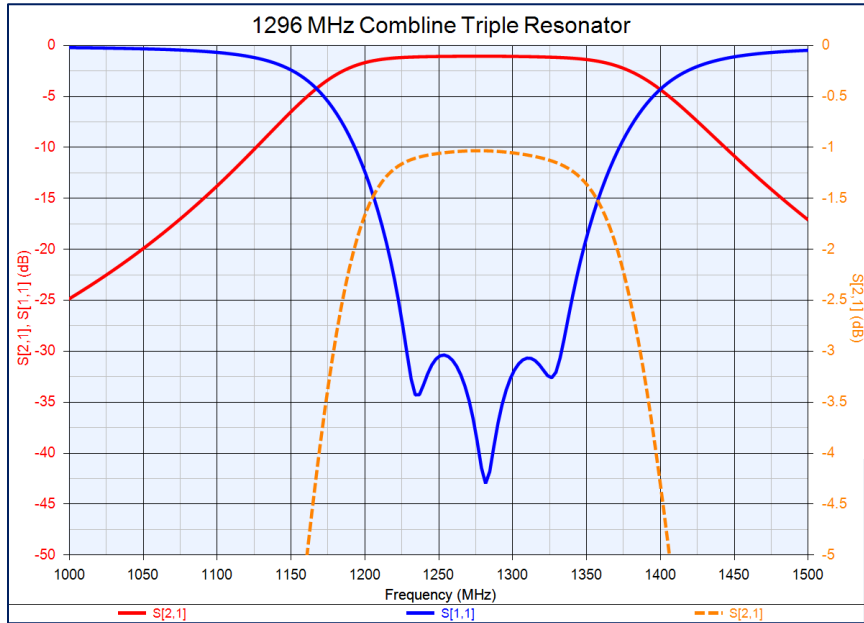
# THREE RESONATOR INTERDIGITAL BPF



- Two prototype filters: 902 and 1296 MHz
- Three resonator: better selectivity, a bit more insertion loss
- 1.2" x 1.45" and 1.2" x 1.675"

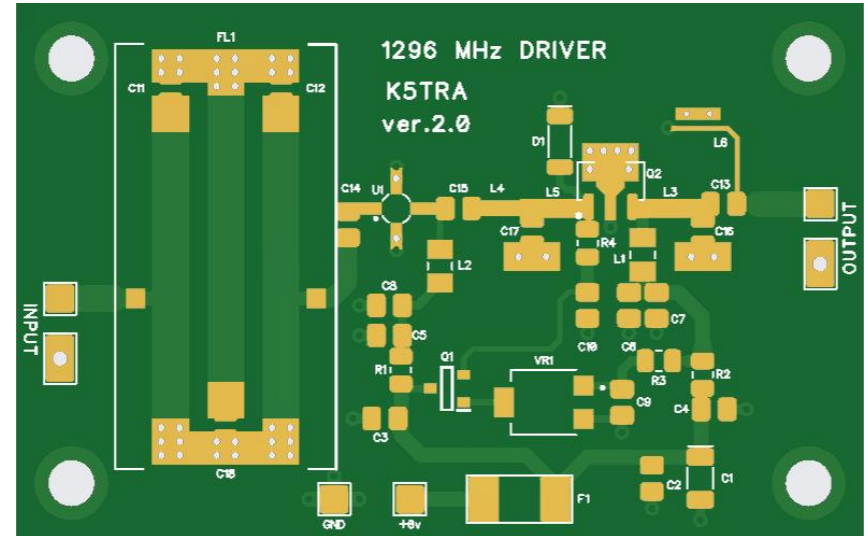
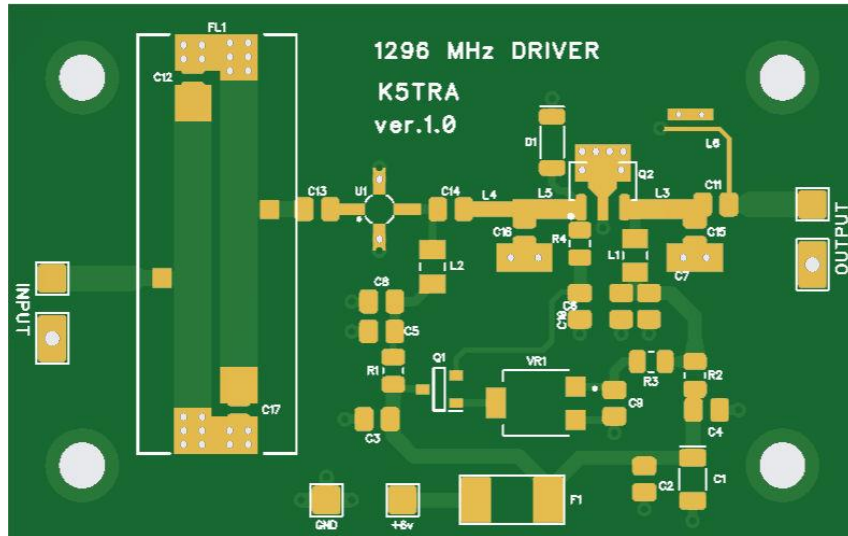


# THREE RESONATOR BPF ANALYSIS



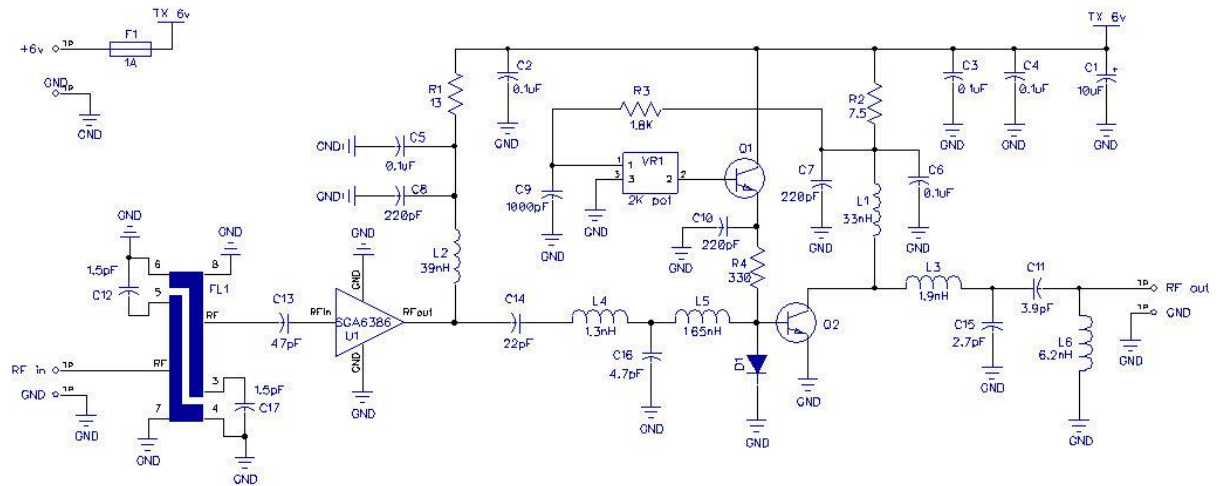
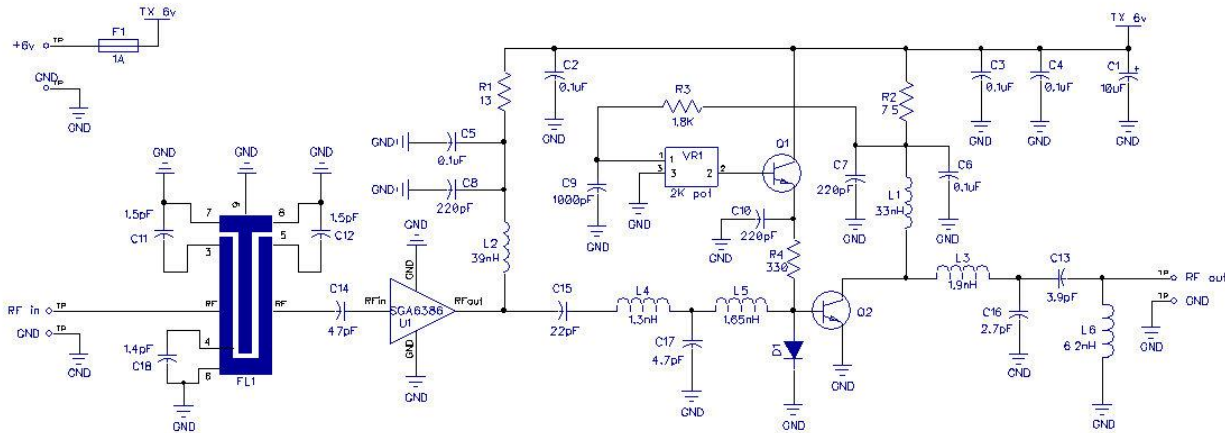


# 1296 MHz DRIVER AMPLIFIER

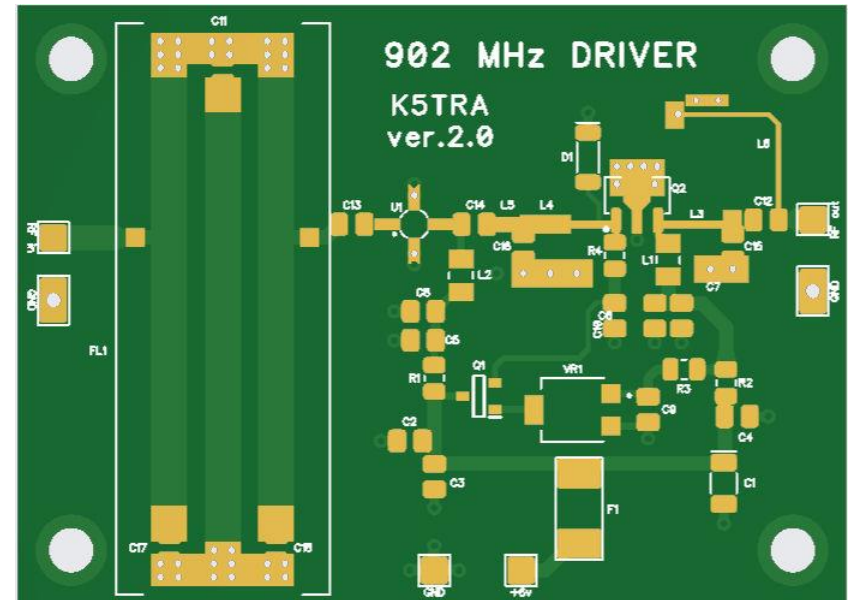
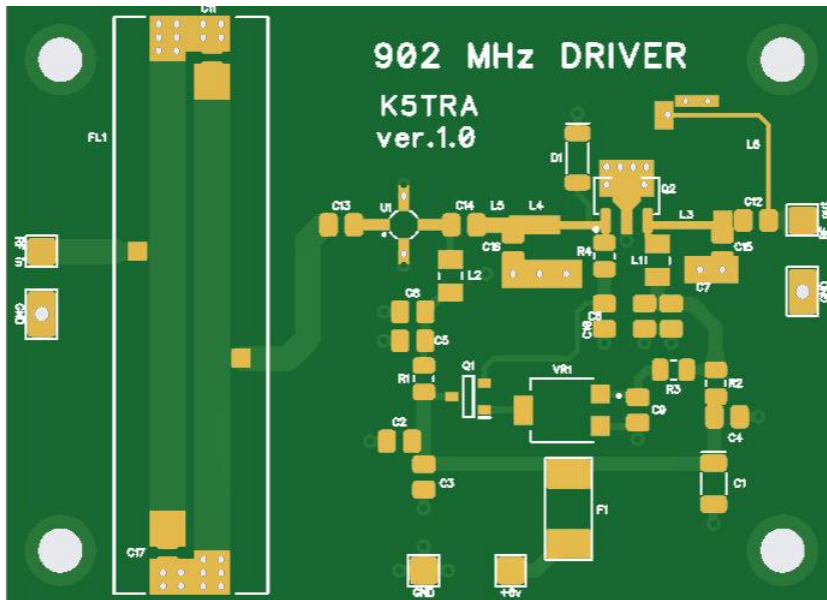


- Two 1296 MHz 2-stage driver amplifiers
- Two and three resonator filters
- +25 dB gain, 23 dBm output
- $V_{cc} = +6v$
- 2.3" x 1.45"

# 1296 MHz DRIVER SCHEMATIC

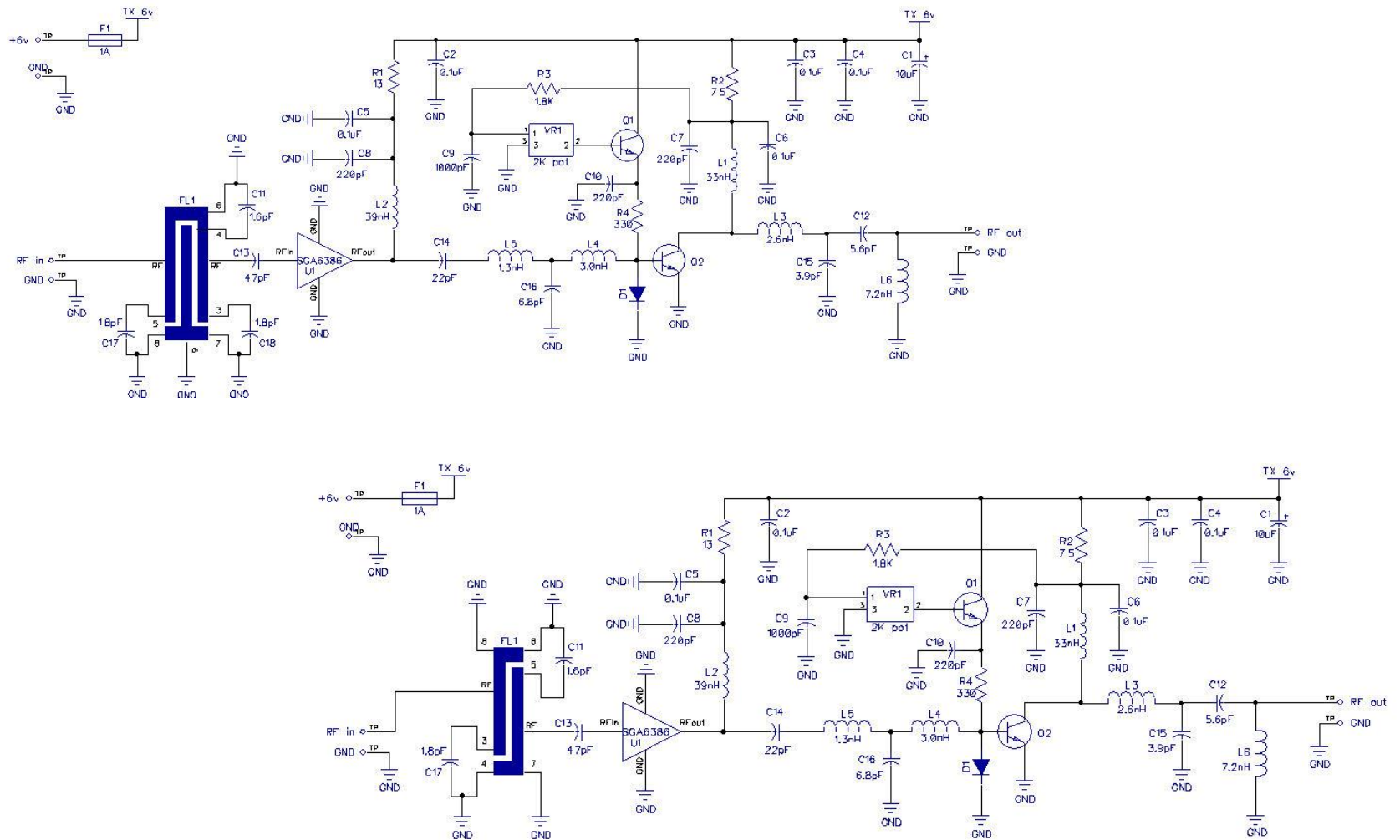


# 902 MHz DRIVER AMPLIFIER



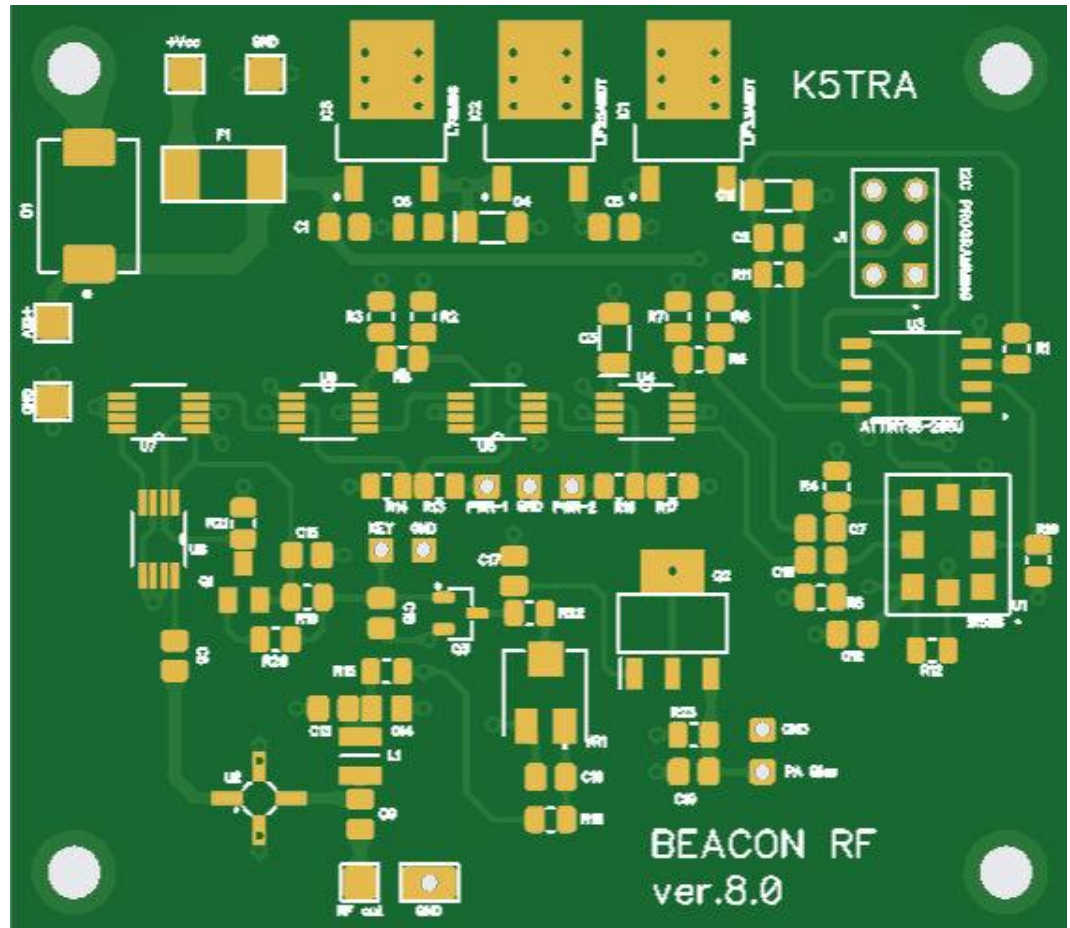
- Two 902 MHz 2-stage driver amplifiers
- Two and three resonator filters
- +26 dB gain, 23.5 dBm output
- $V_{cc} = +6v$
- 2.325" x 1.675"

# 902 MHz DRIVER SCHEMATIC

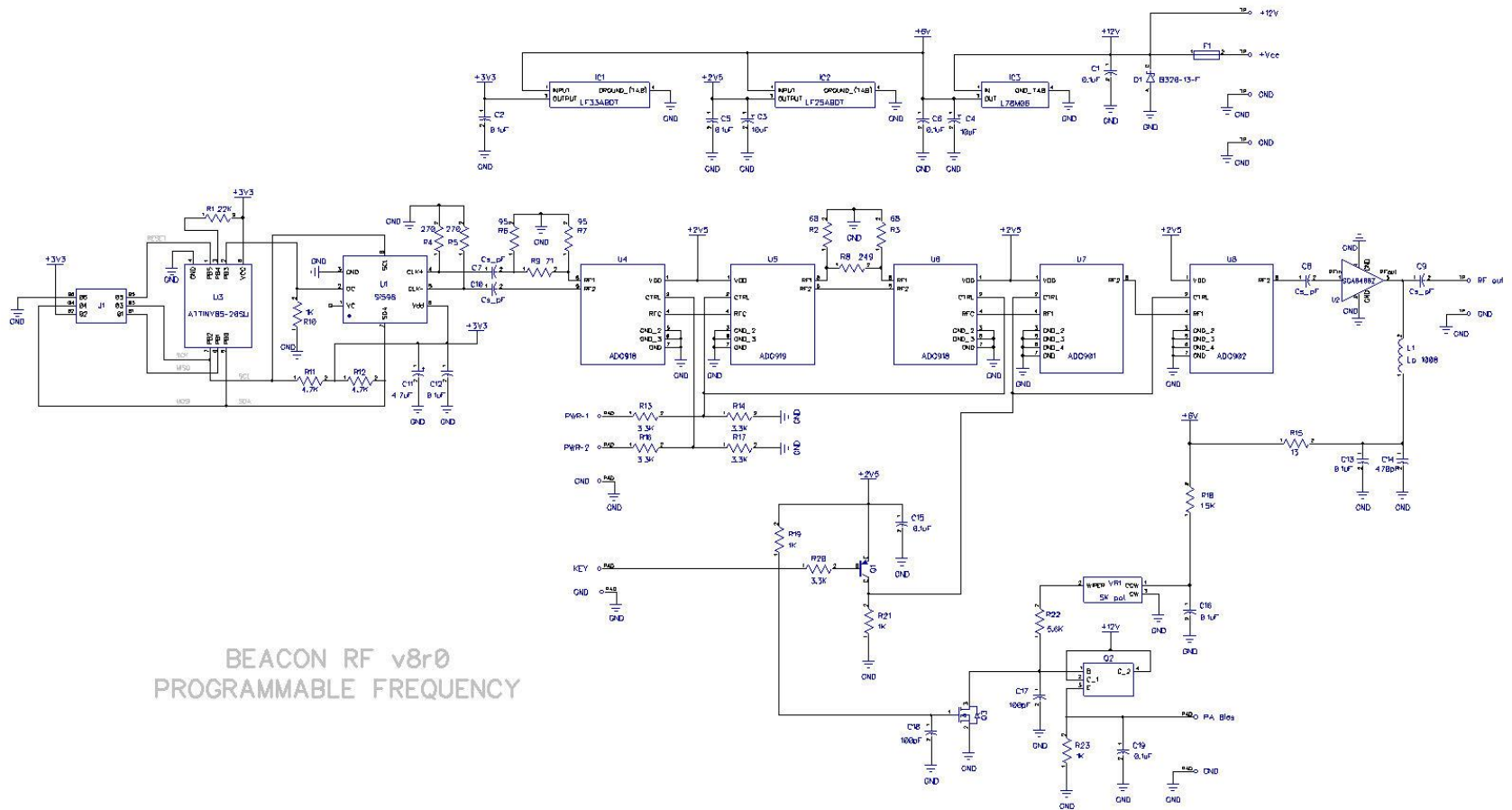


# BEACON RF

- Frequency programmable
- Si598 – ATtiny85
- Three step output levels
- Based on previous K5TRA RMG beacons
- 2.50" x 2.20"

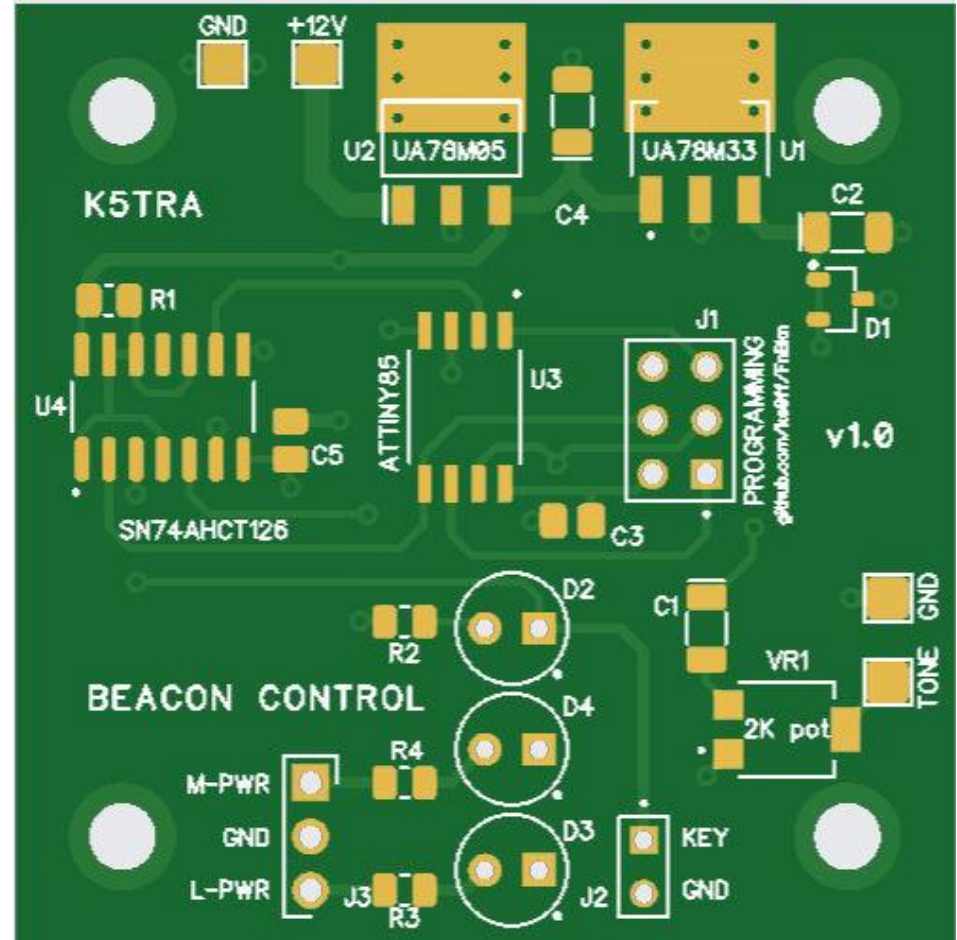


# BEACON RF SCHEMATIC

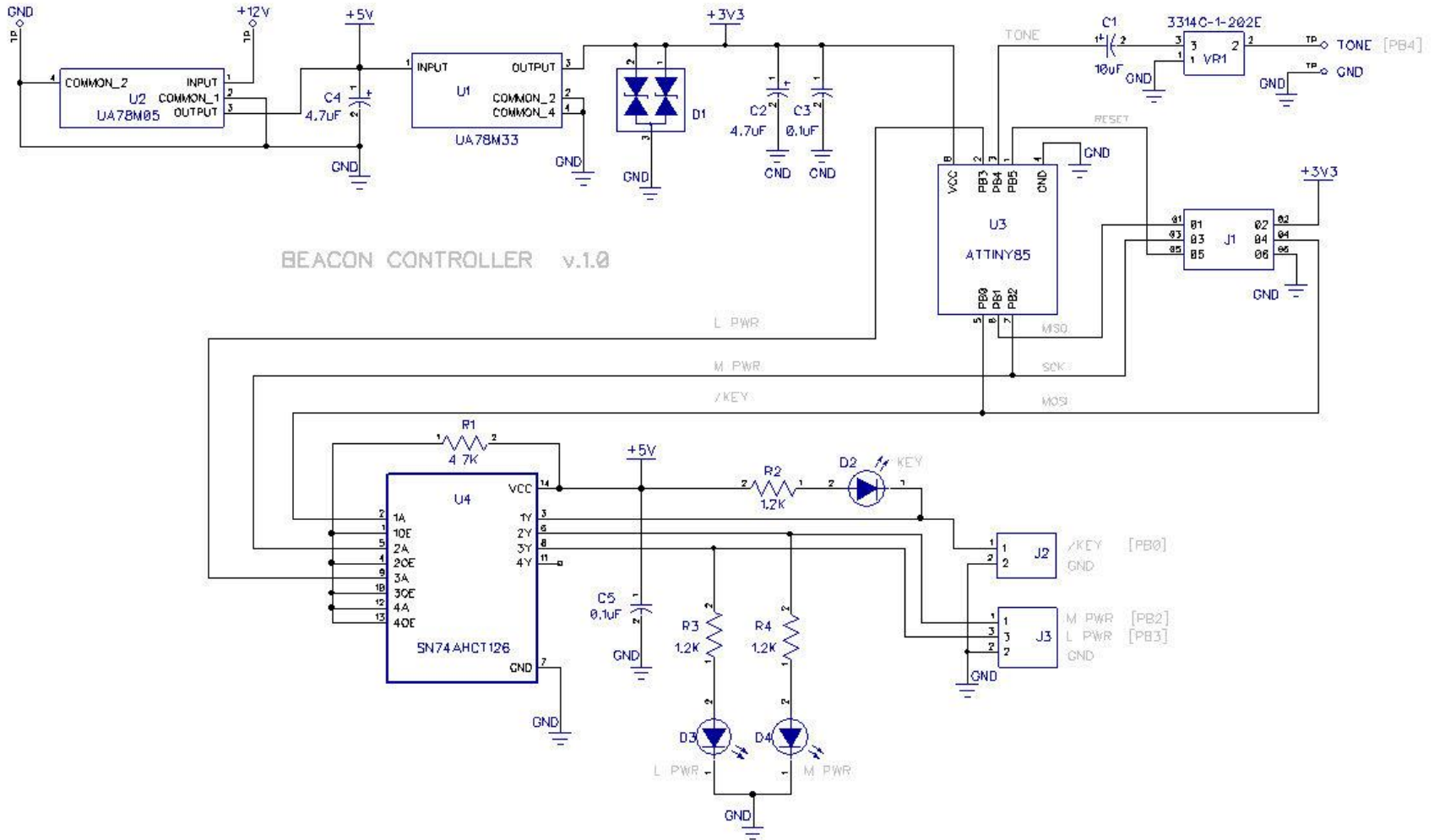


# BEACON CONTROLLER

- ATtiny85 MCU
- 74AHCT126 buffer
- Morse and level control
- Logic (5v) and tone outputs
- KE0FF MCU code
- Similar functionality to Freakin Beacon controller
- 1.75" x 1.75"

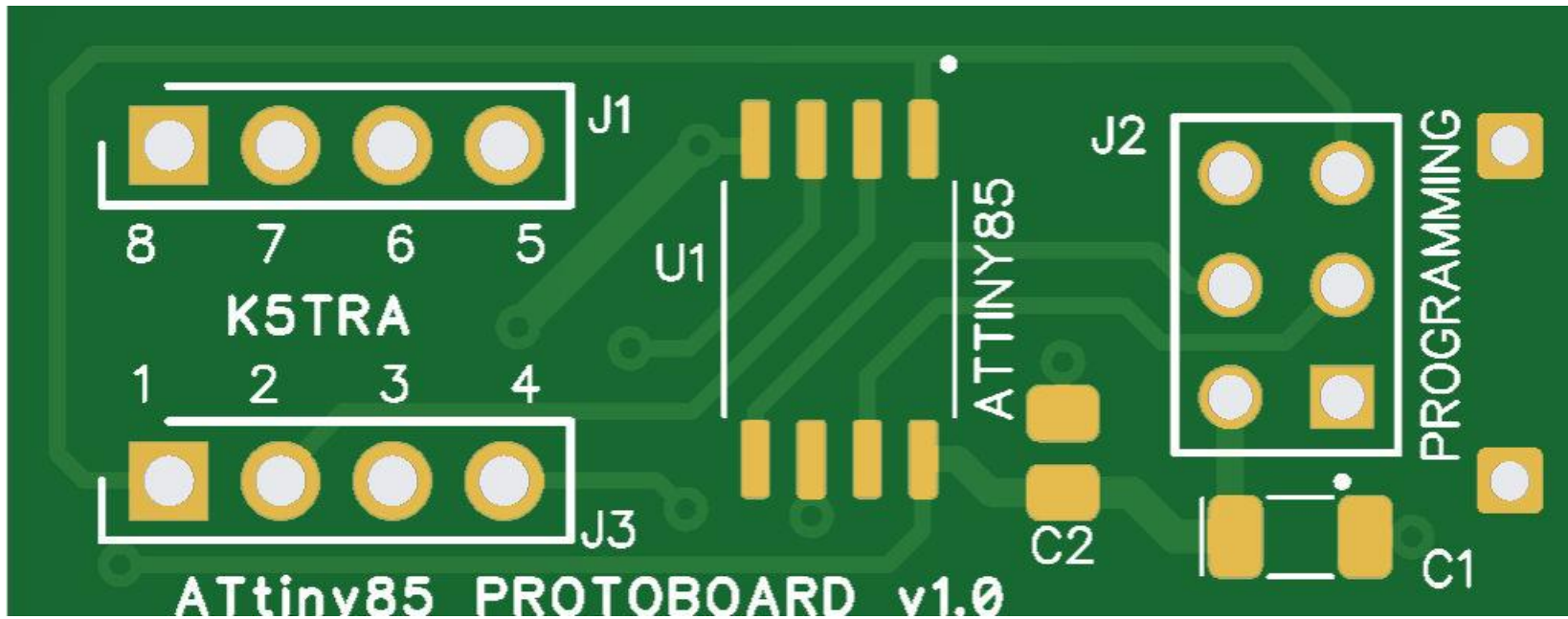


# BEACON CONTROLLER SCHEMATIC



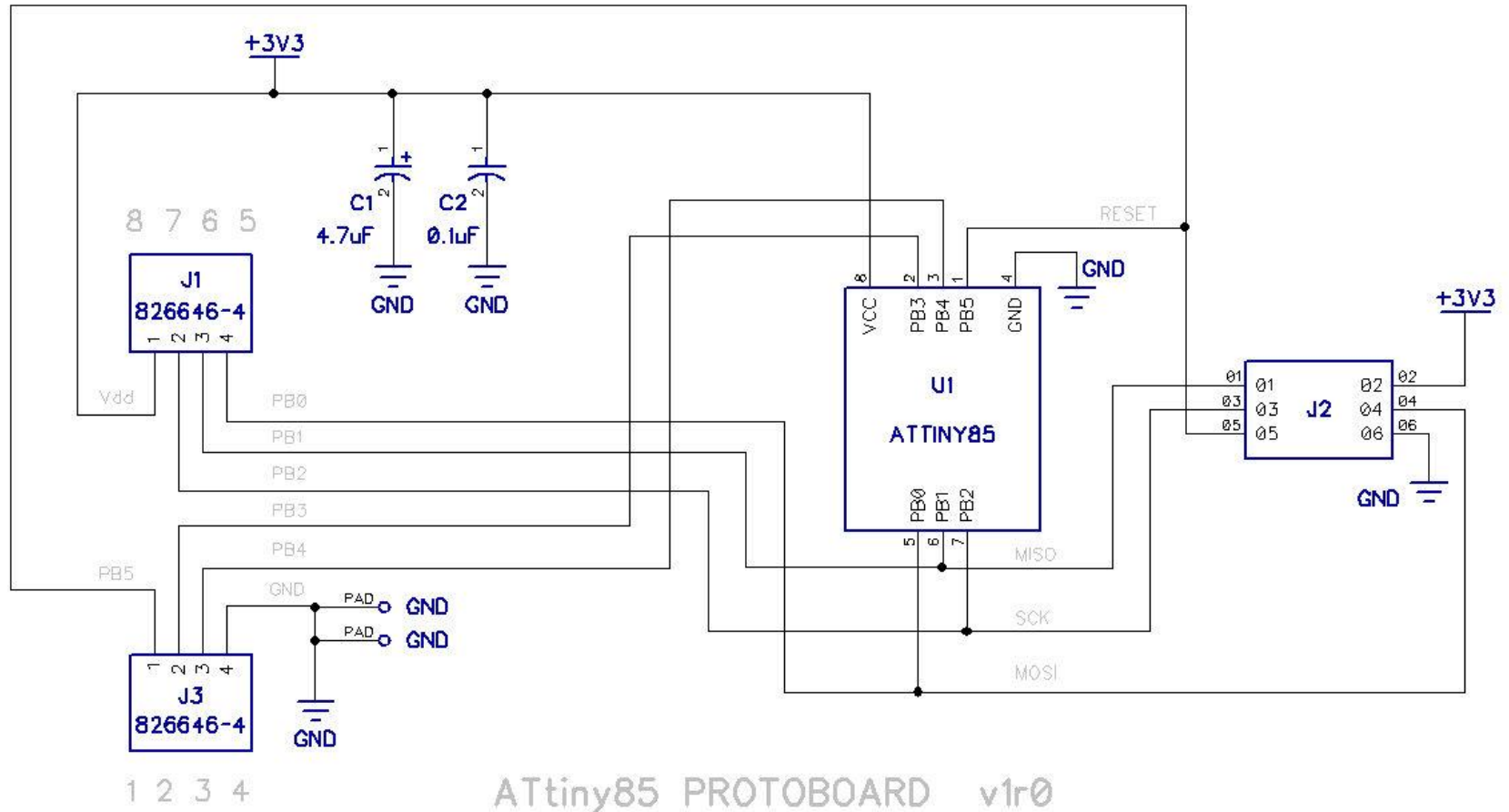


# ATtiny PROTO INTERFACE



- ATtiny85 MCU
- Programming – 6-pin 2x3 header
- DIP pin spacing to plug into proto-board
- 1.40" x 0.55"

# ATtiny PROTO INTERFACE SCHEMATIC



# THIRTEEN BOARDS

