

Egenbygge: 35-400W AM-sändare

Låt lödkolven vara varm!!!

Tilman D. Thulesius – SM0JZT

SSA – QTC 25+ år

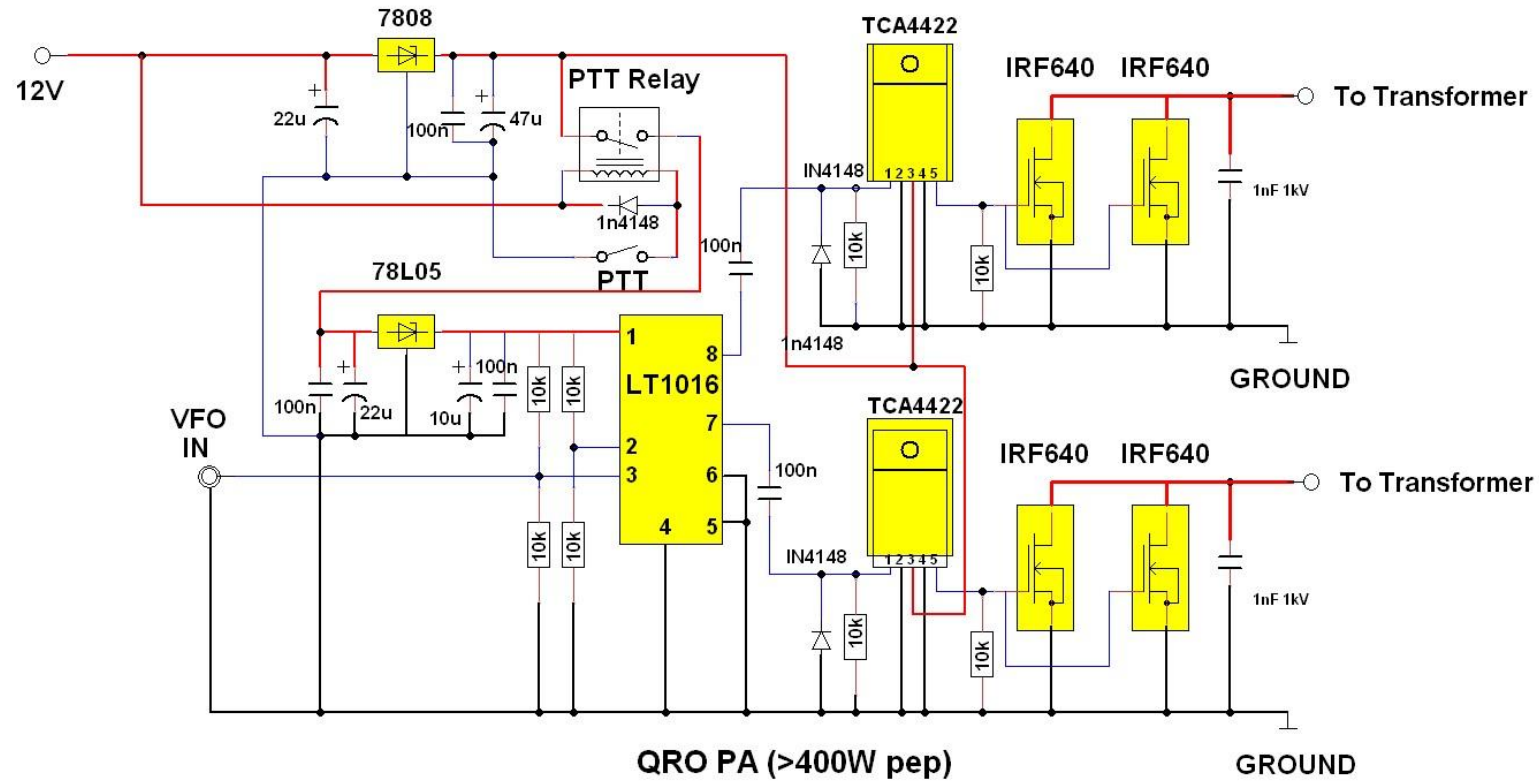
<http://radio.thulesius.se>

ver 20feb25



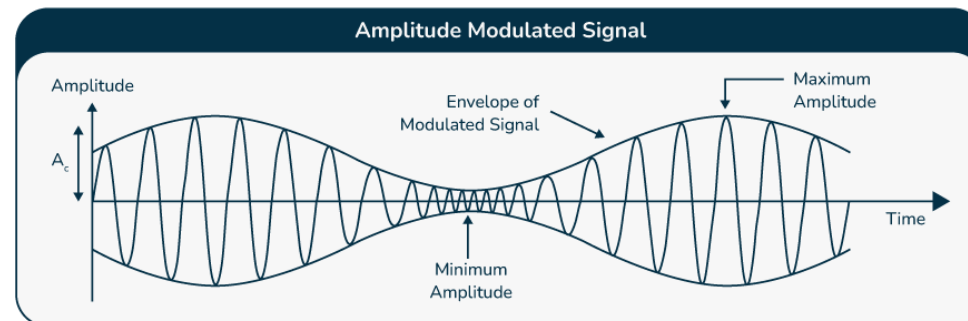
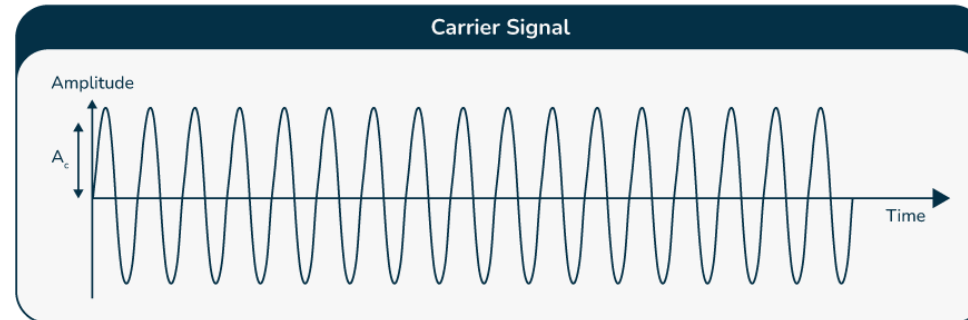
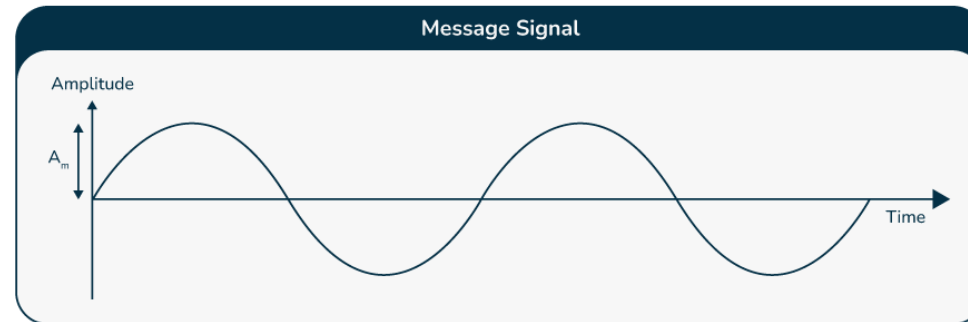
400W Class E, AM-sändare med halvledare

Bygg själv!!



AM är inte effektivt – Men det är kul!

Amplitude Modulation





Johnson Viking Valiant

Johnsson Viking Valiant AM transmitter

Modulator – LF-förstärkare

2 x 6146

PA

3 x 6146

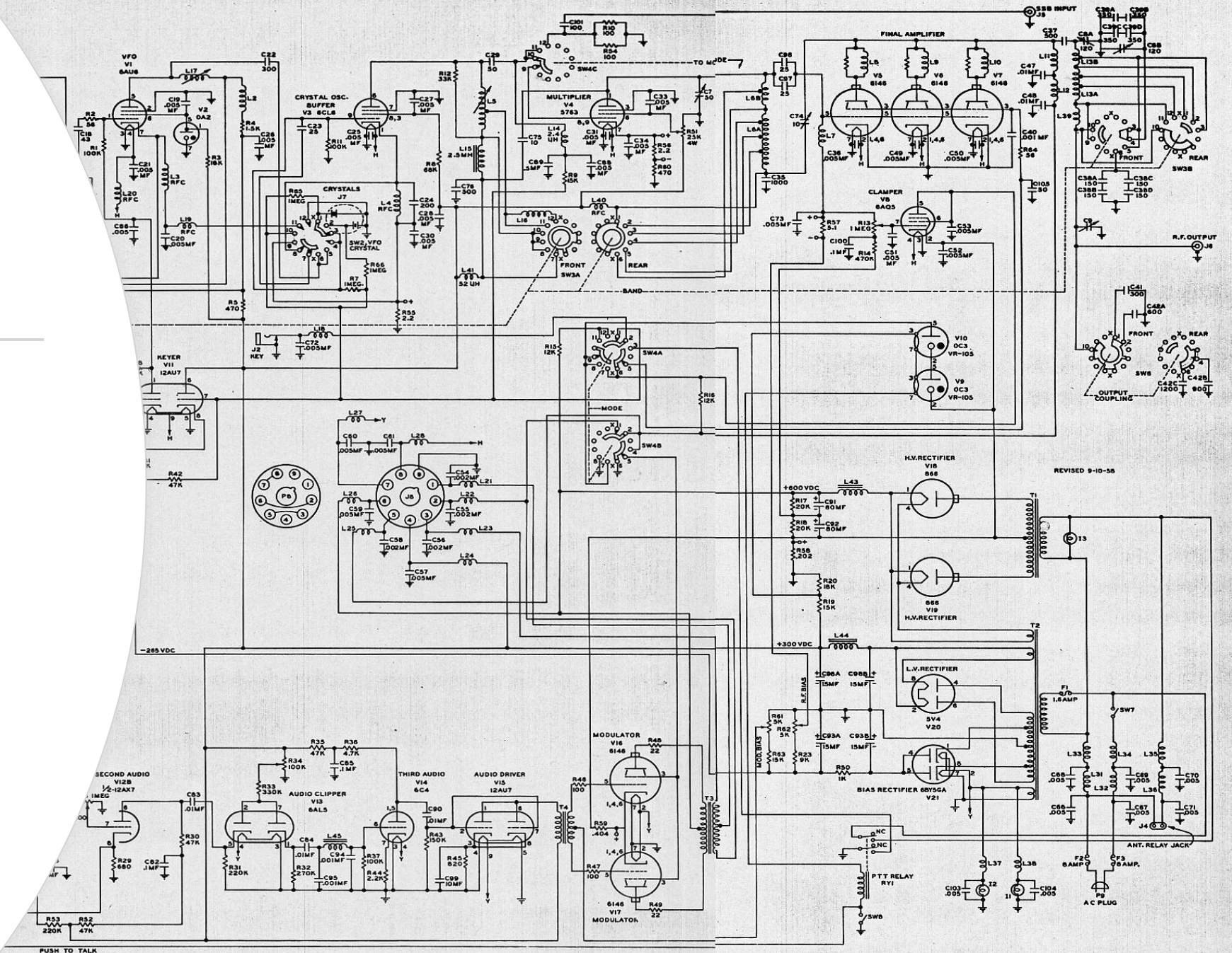
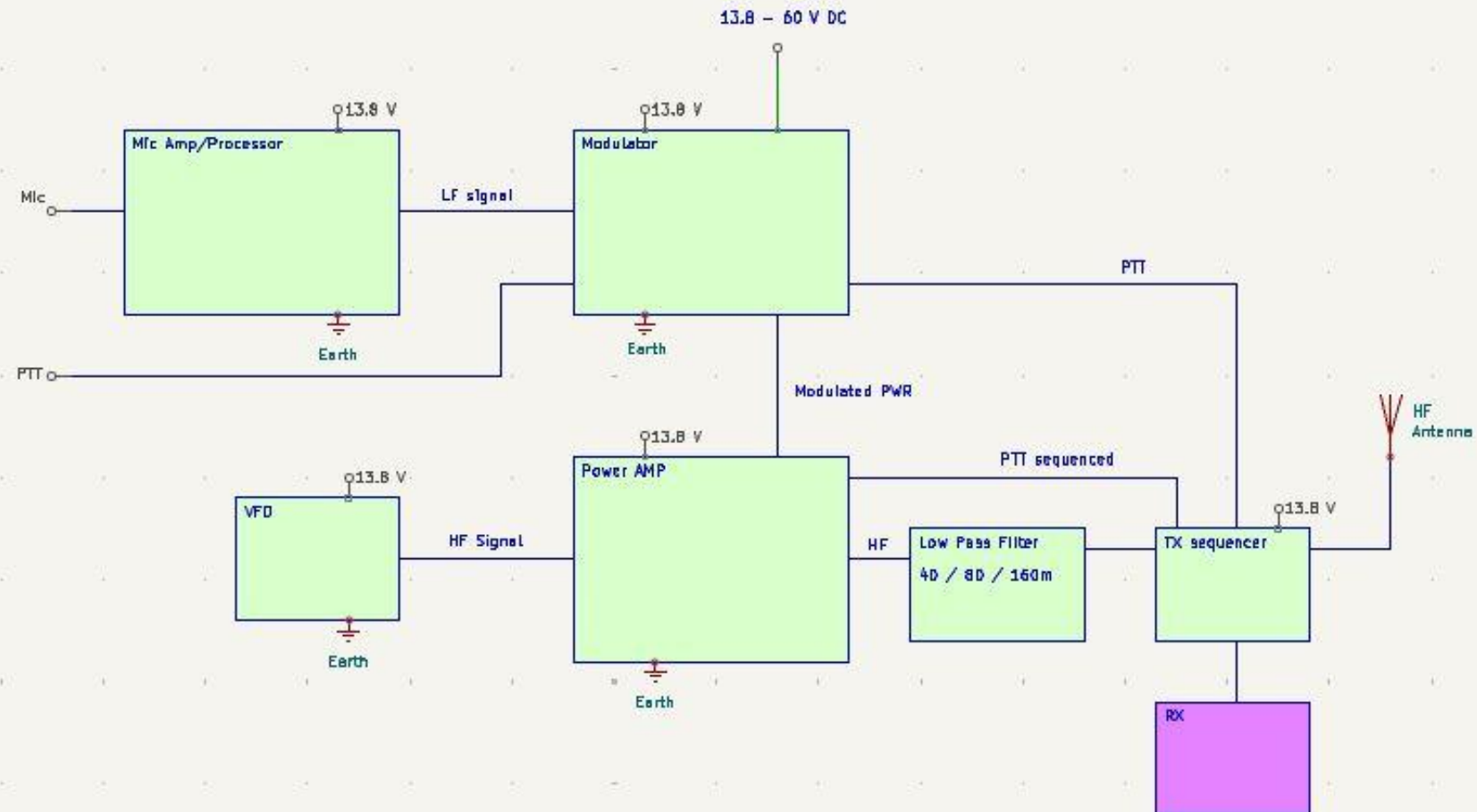


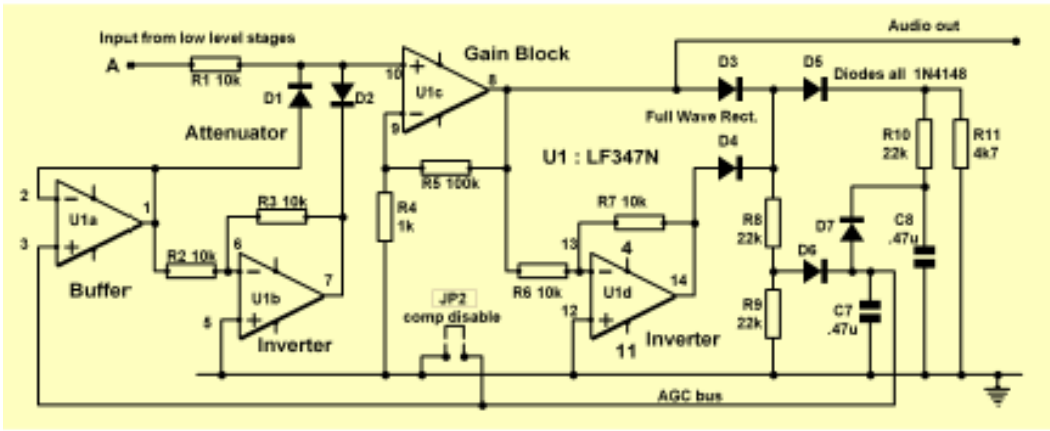
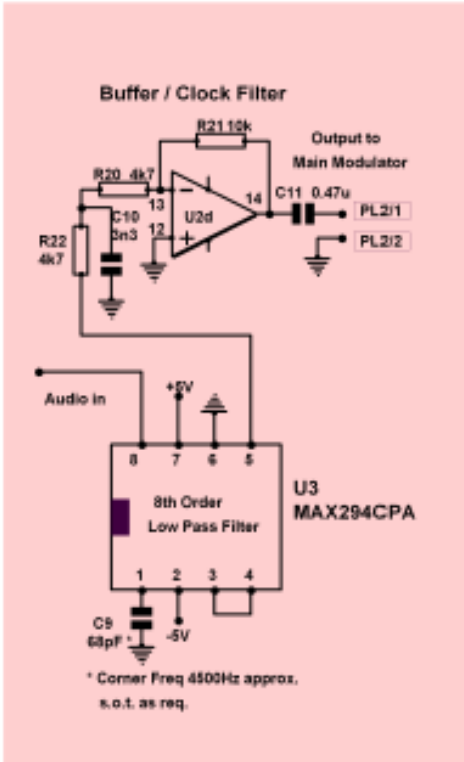
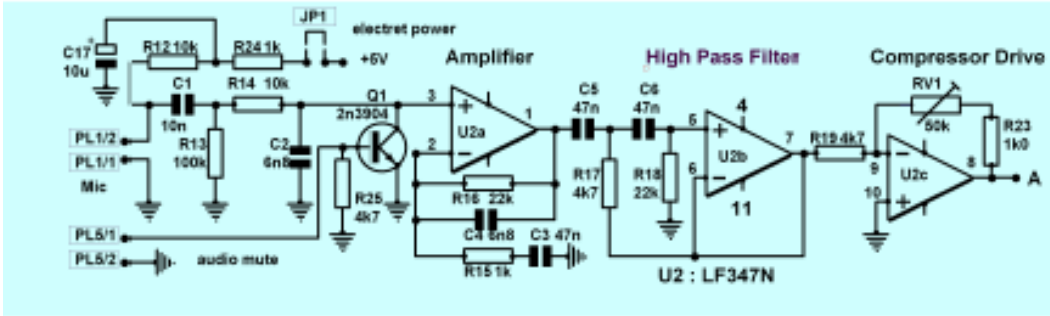
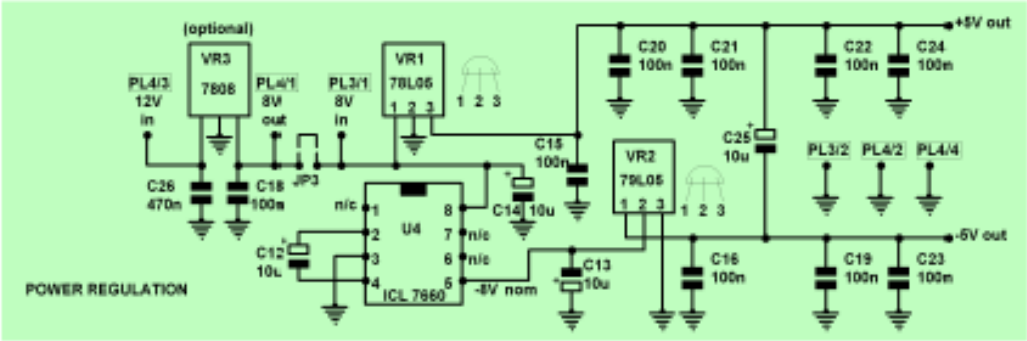
Figure 9, Valiant Schematic Diagram

400W AM sändare - Blockscheema

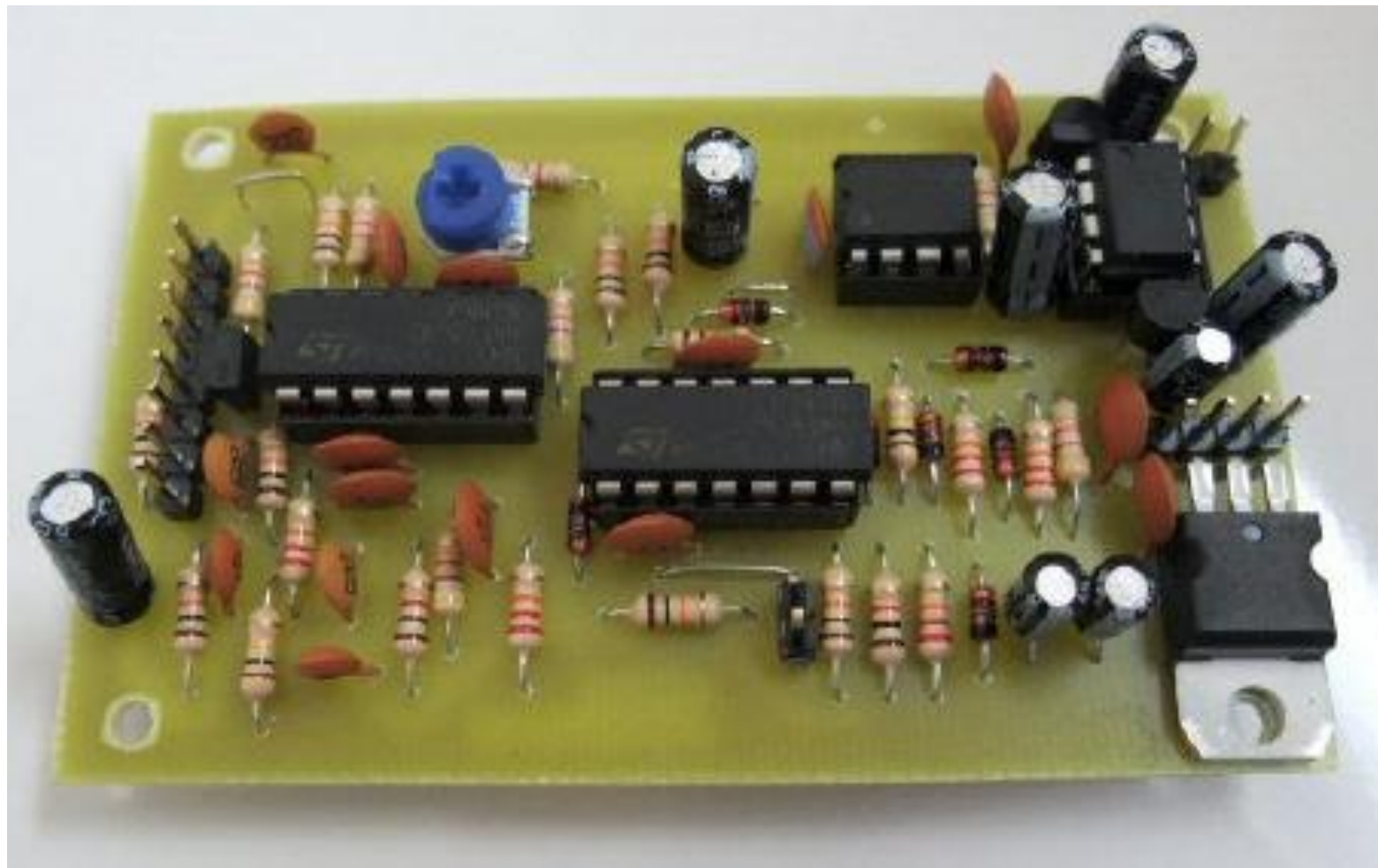


Mic amp - processor

FAT 5 AUDIO PROCESSING



Mic amp – processor – kort



Modulator med PWM

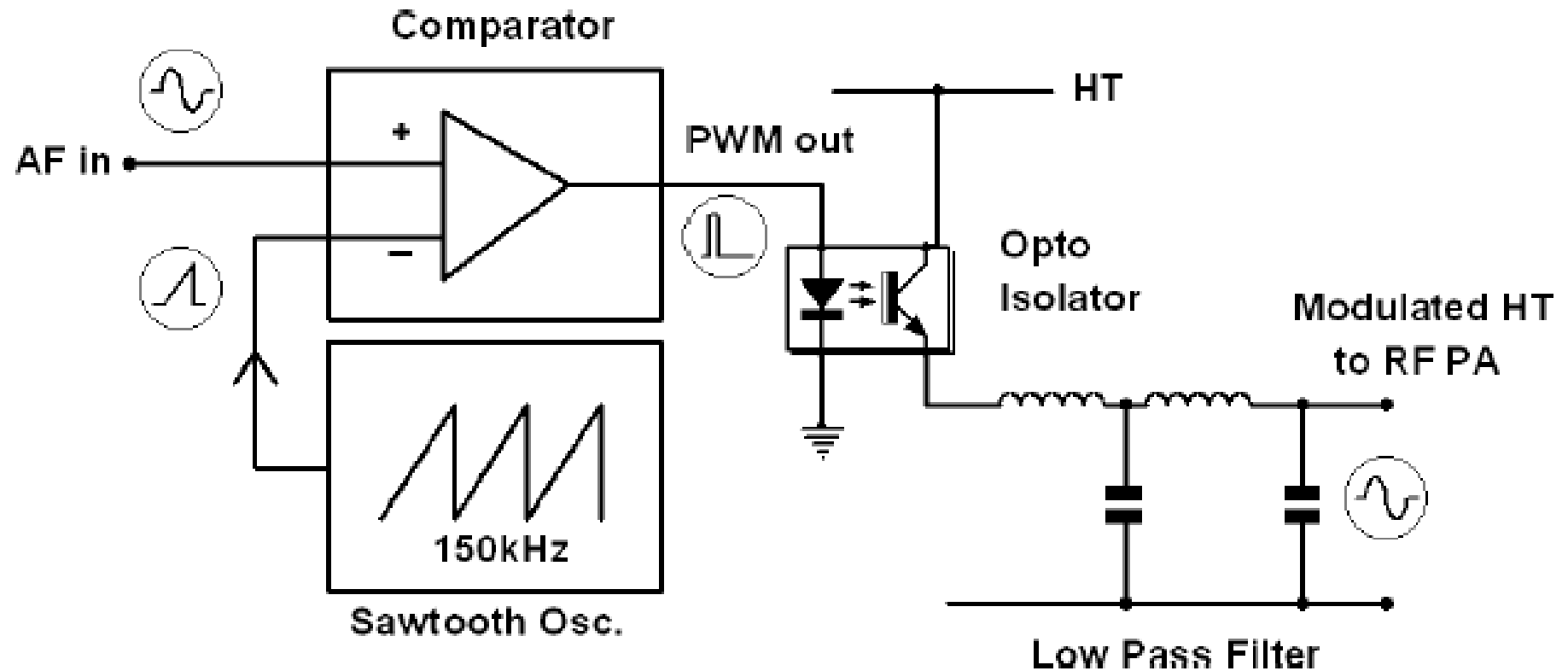
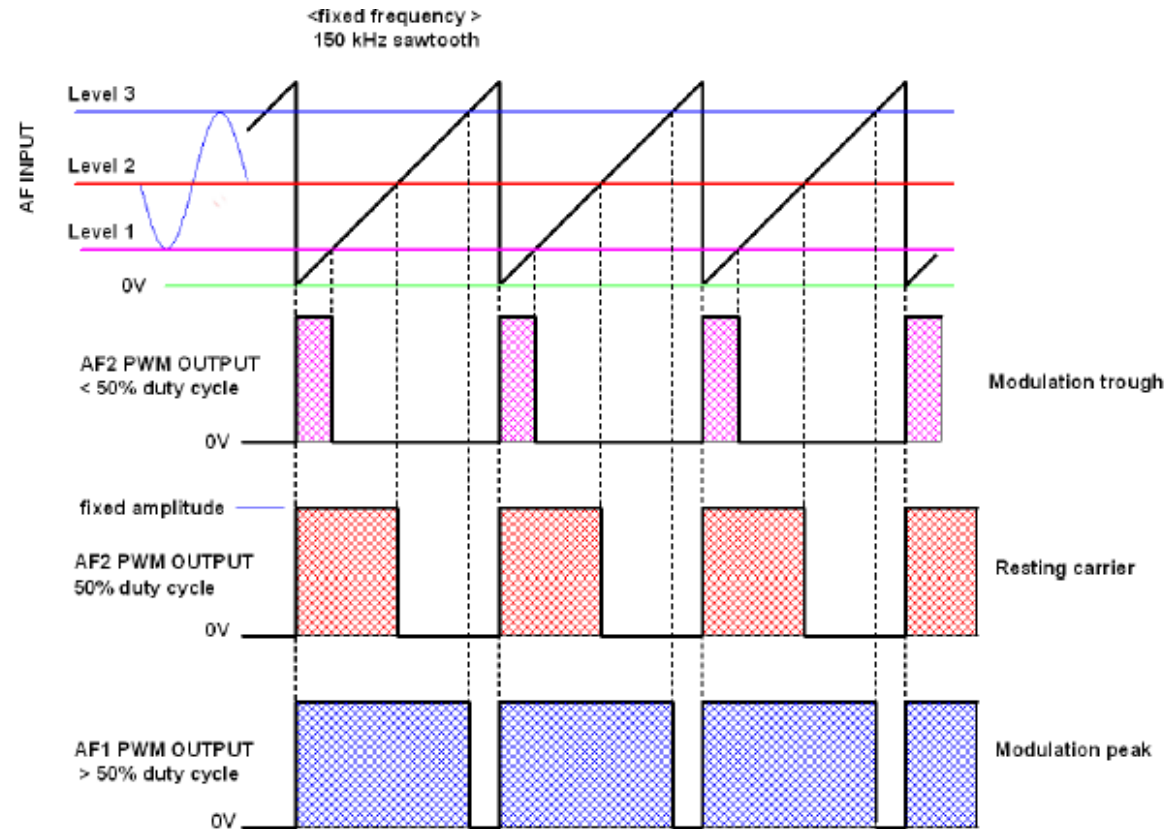


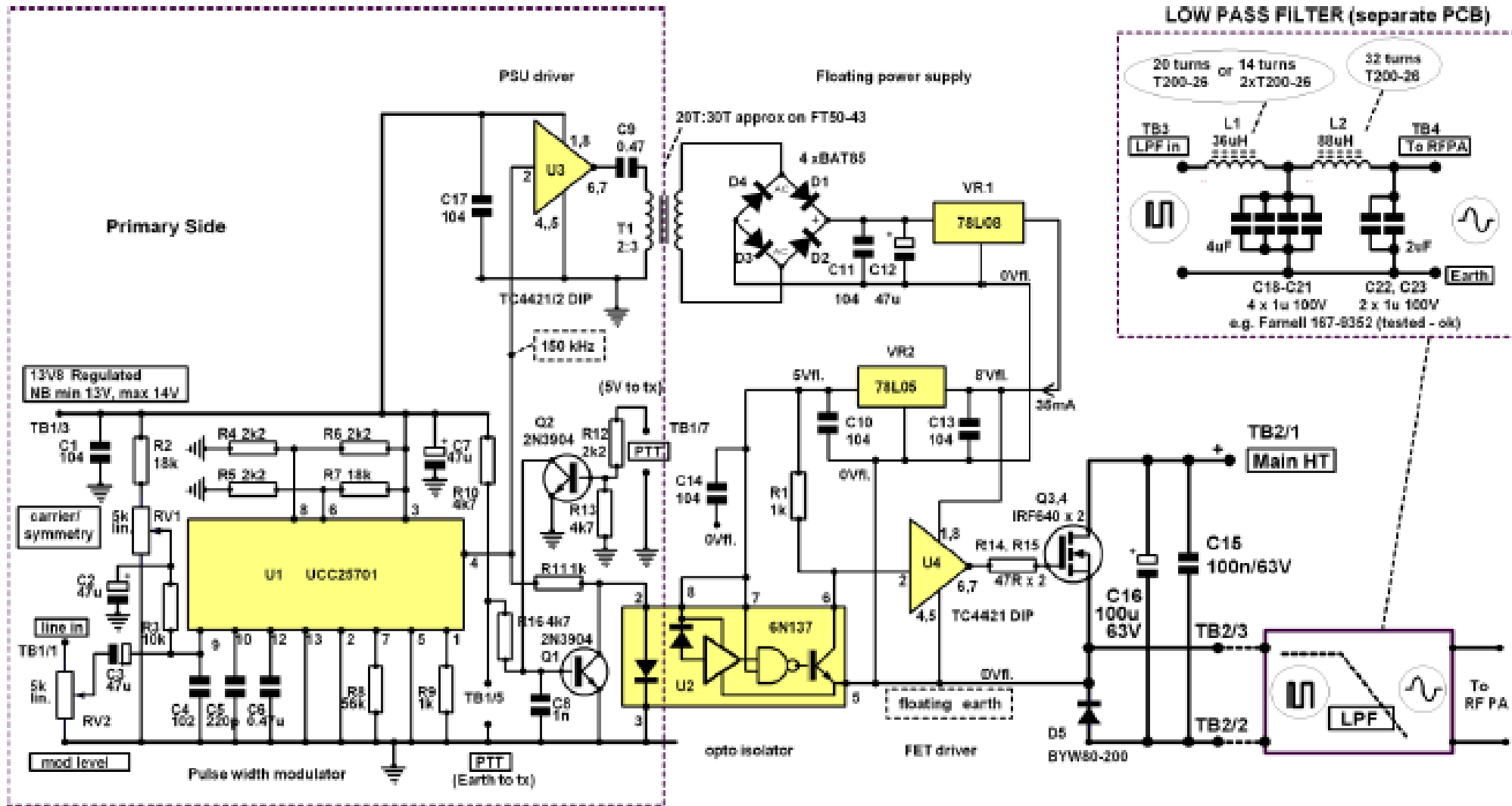
Fig 4 Simplified diagram of PWM system

Audio – Sågtand - PWM

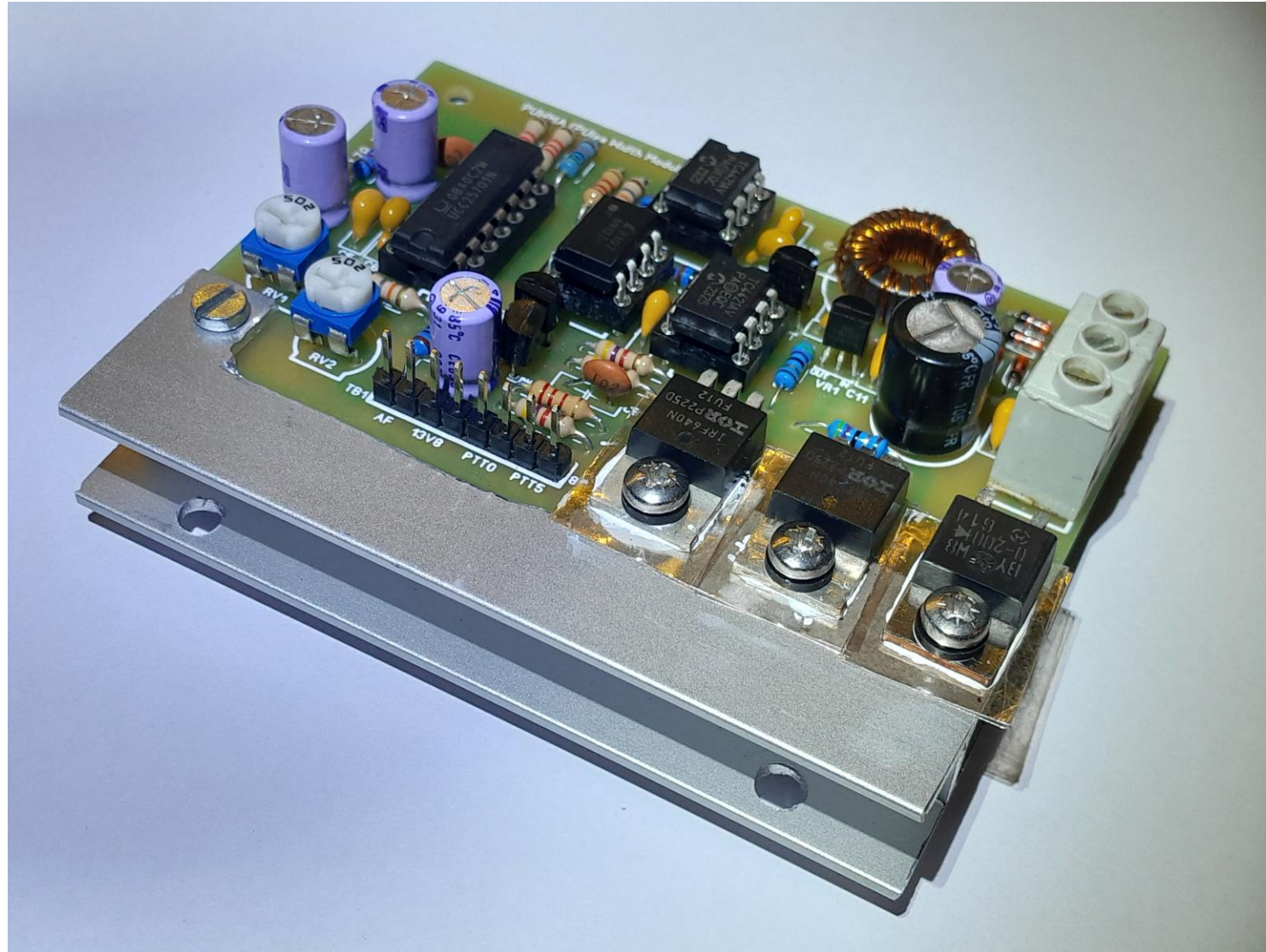
- Pulsbredds modulering
- Komparering mot sågtandoscillator och LF-signal
- Modulering av matningsspänning
- Filtrering till PA



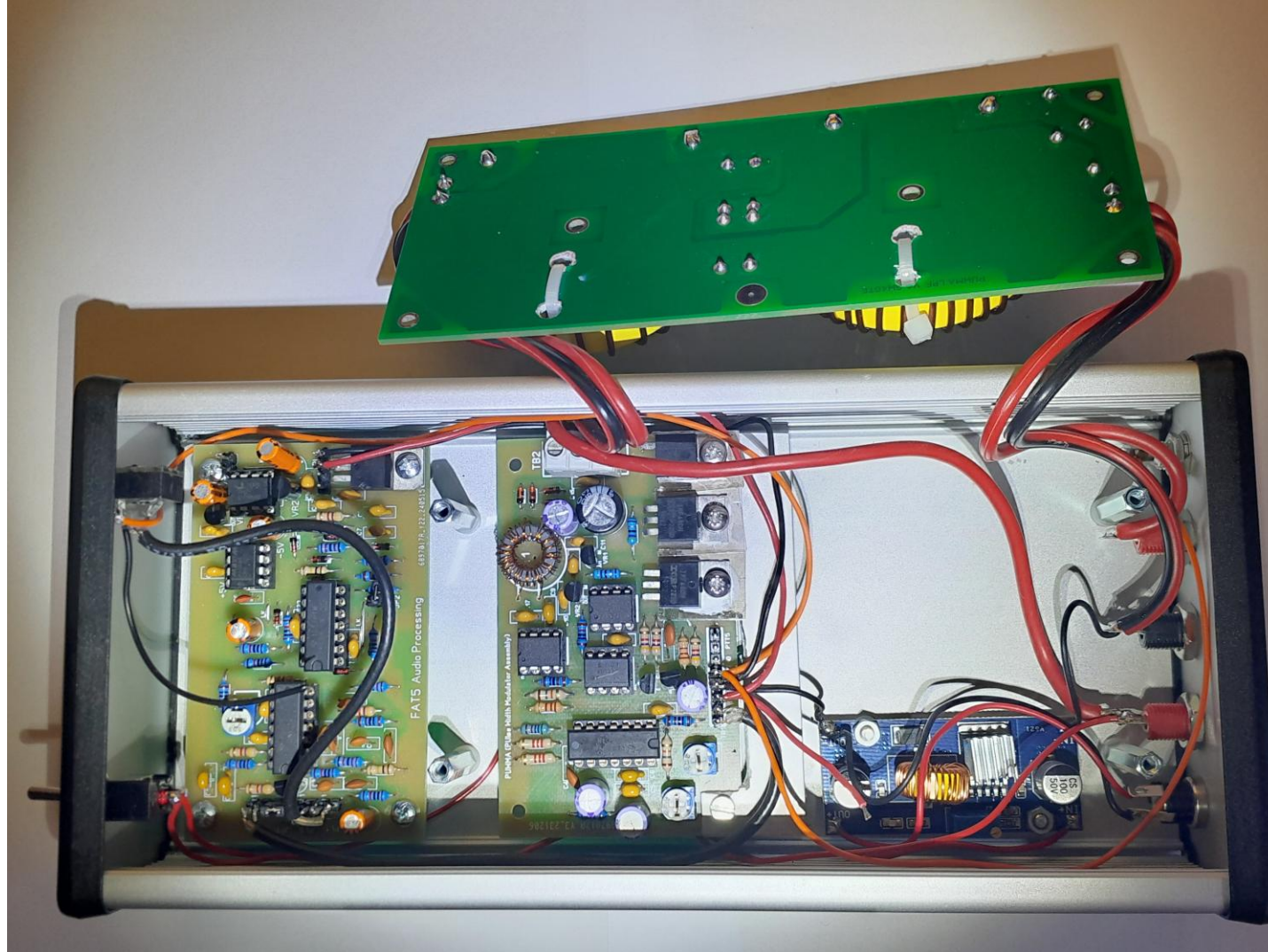
PWM modulator



PWM modulator

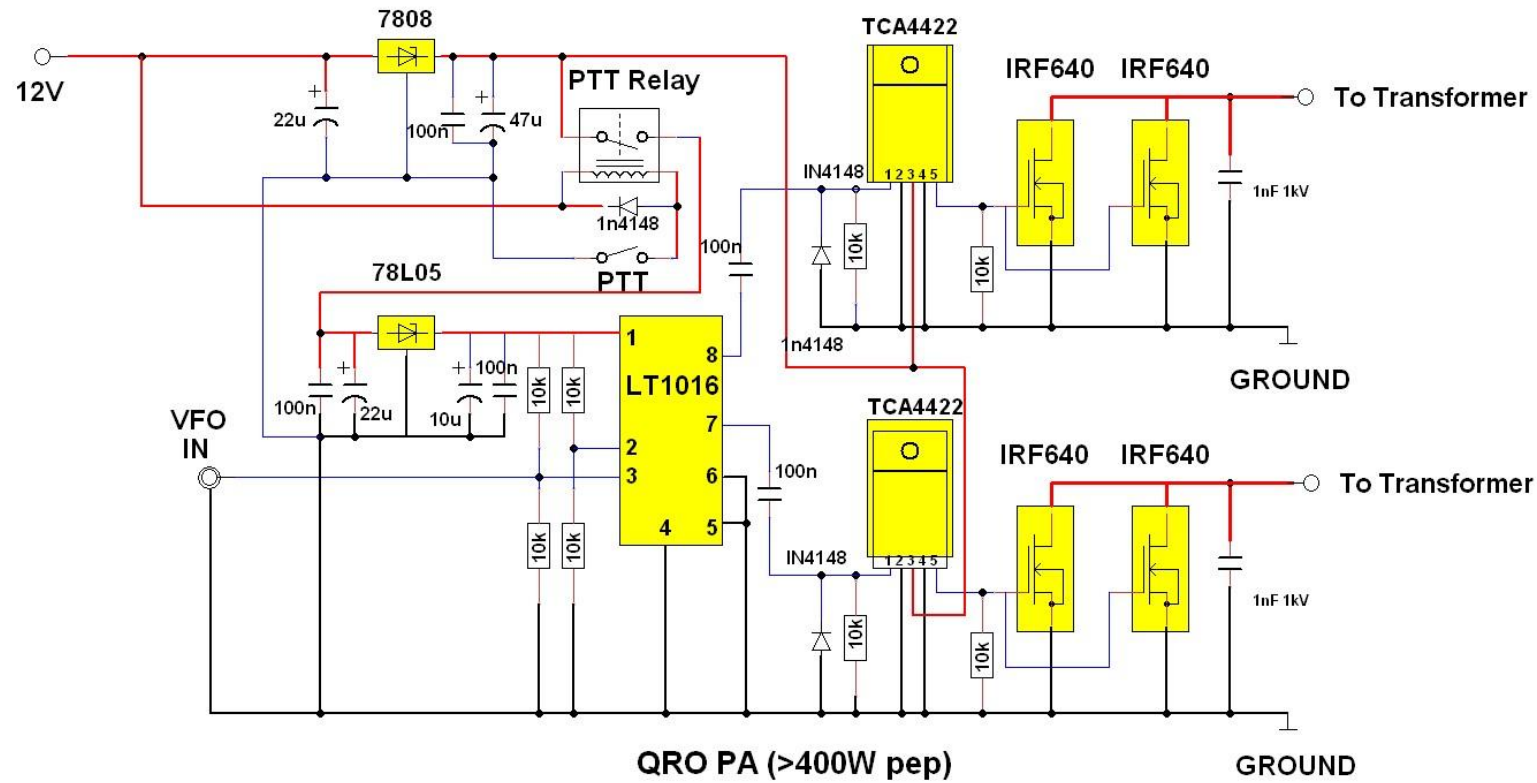


Mic processor + PWM modulator

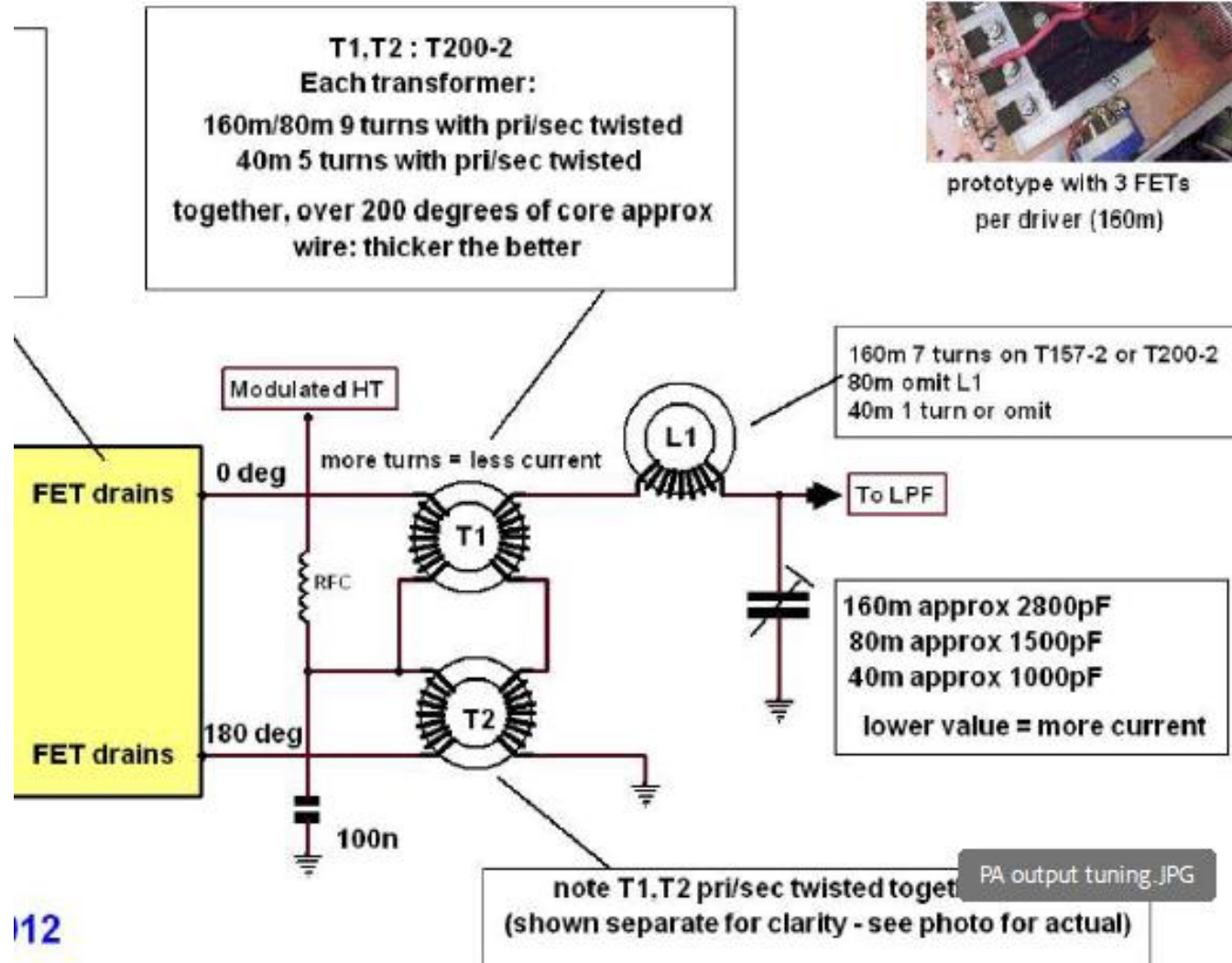


400W Class E, AM-sändare med halvledare

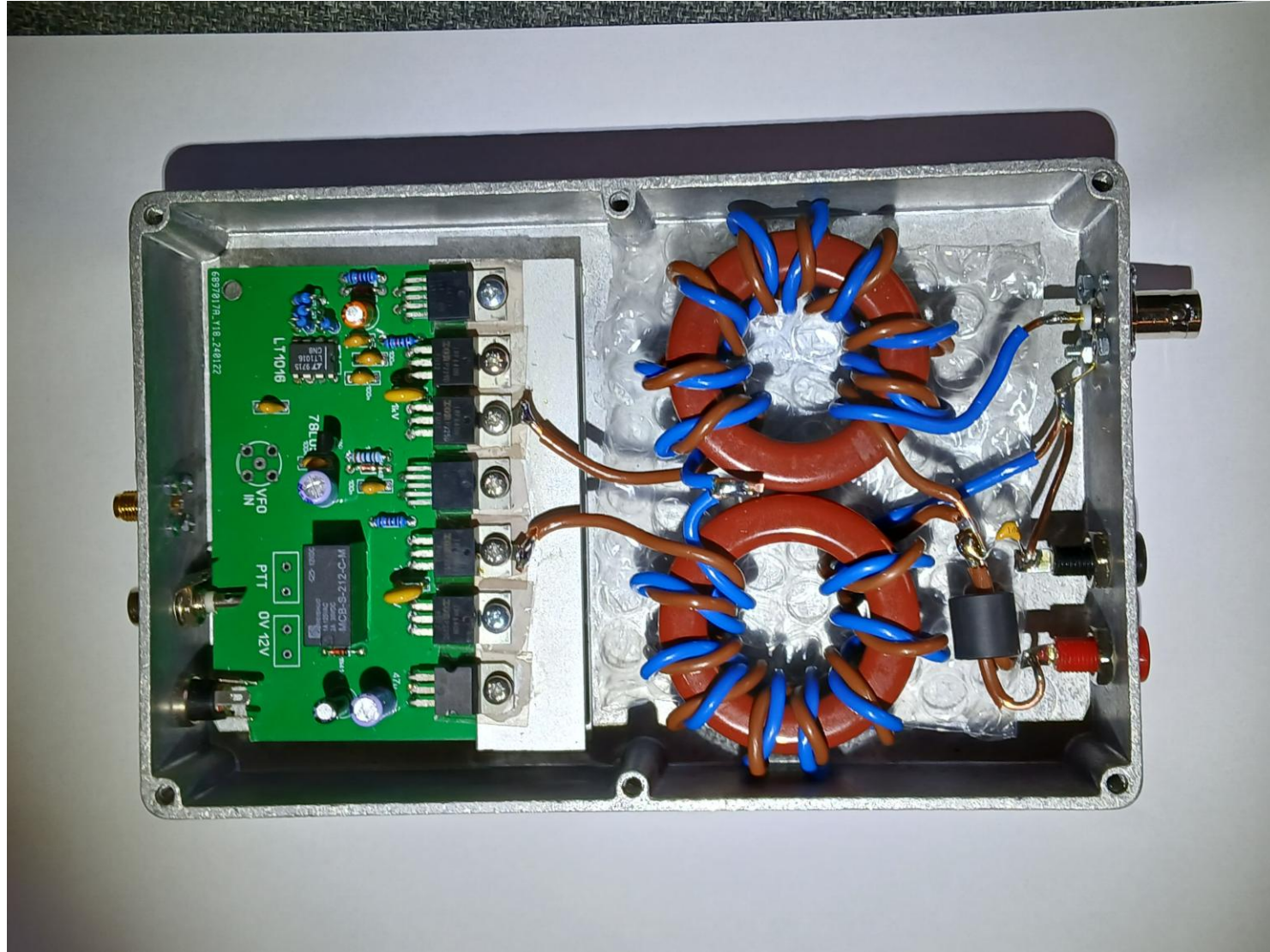
Bygg själv!!



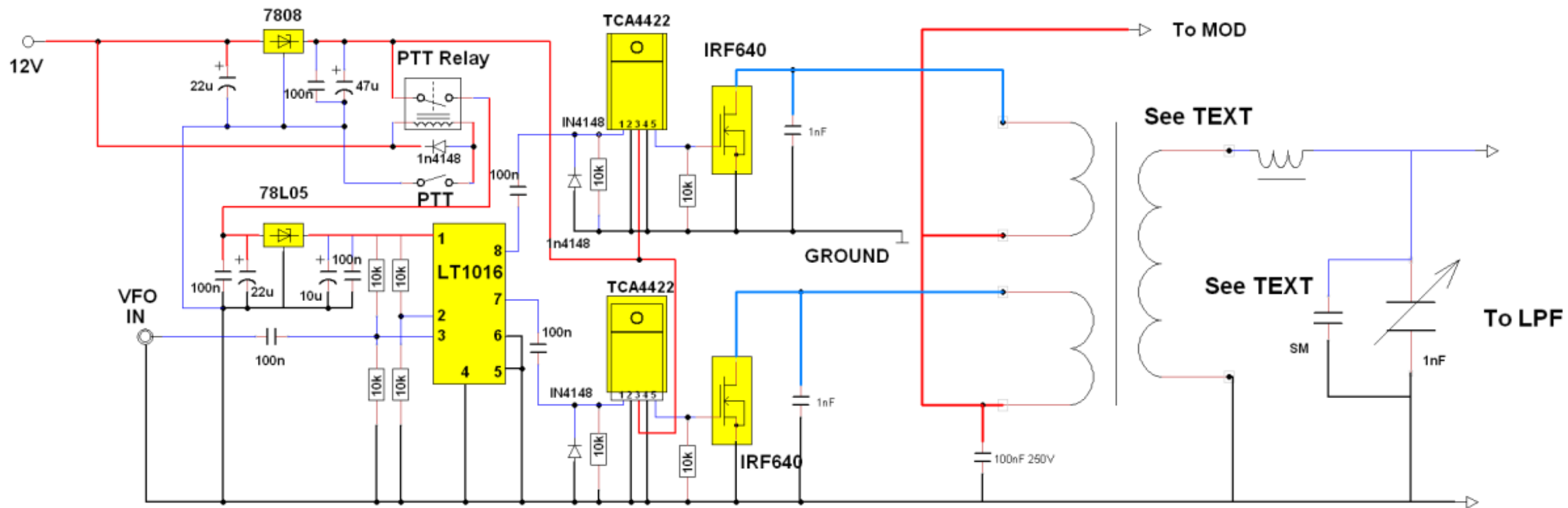
400W PA – Commando Output



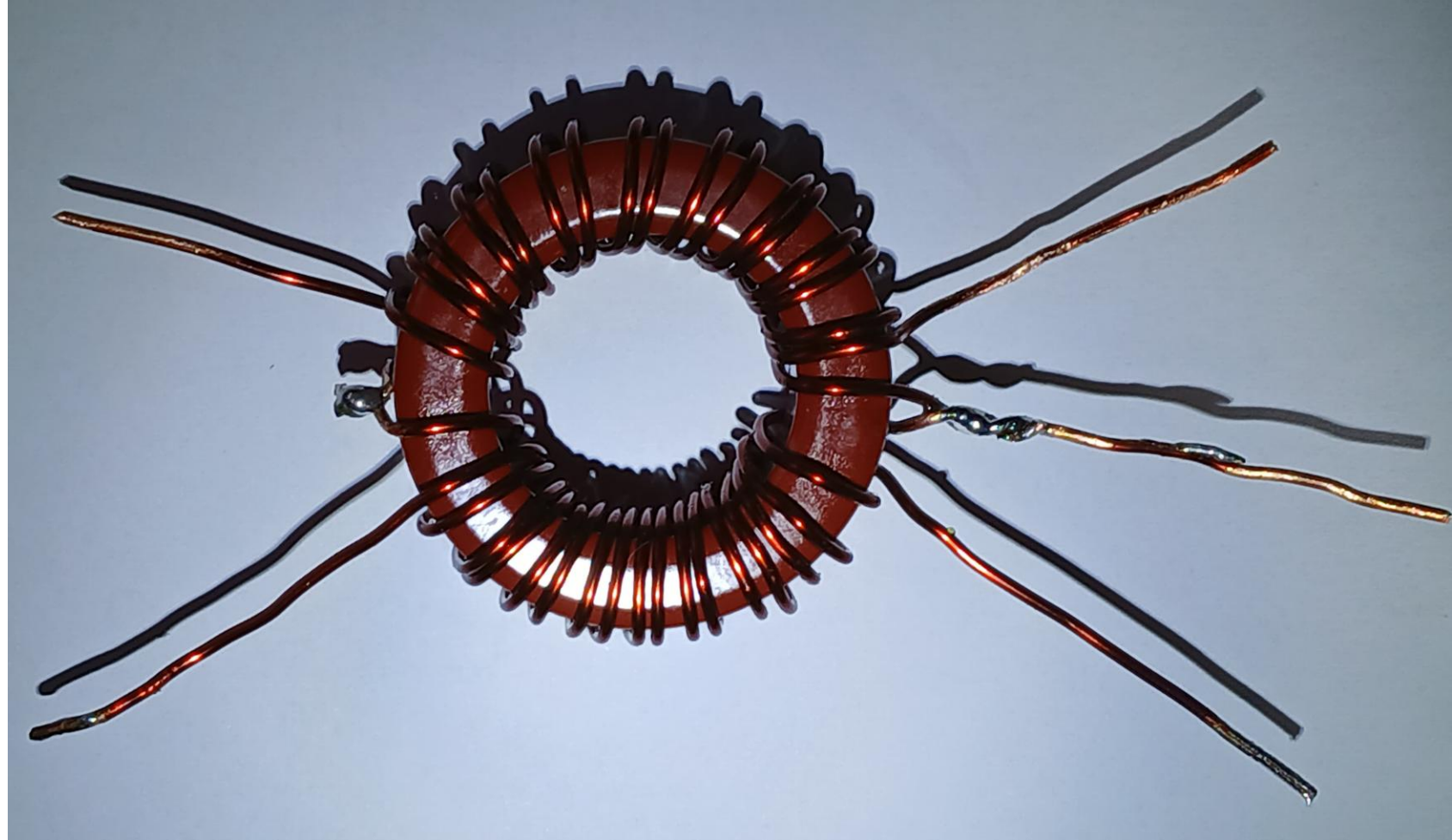
80M 400W PA



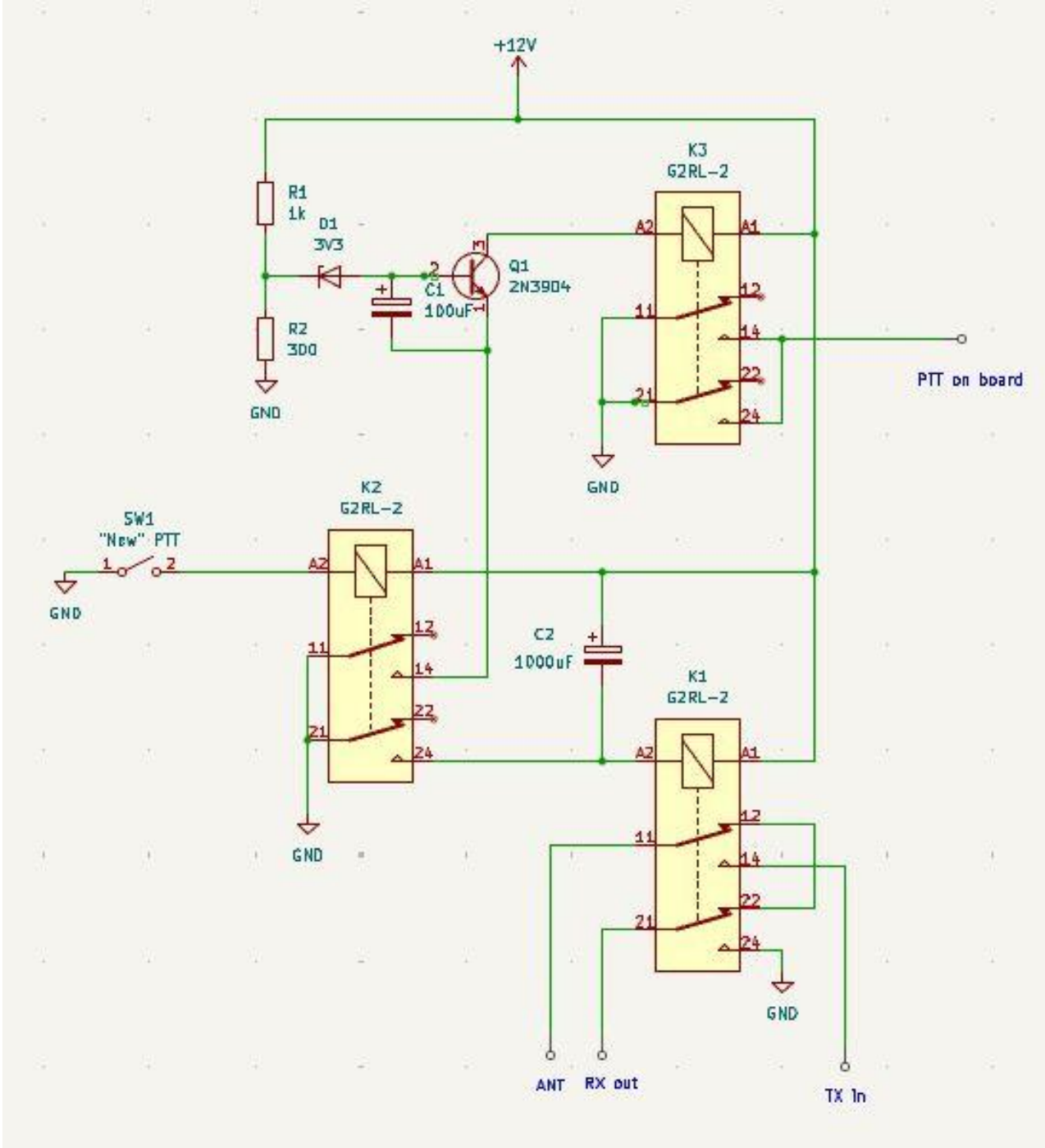
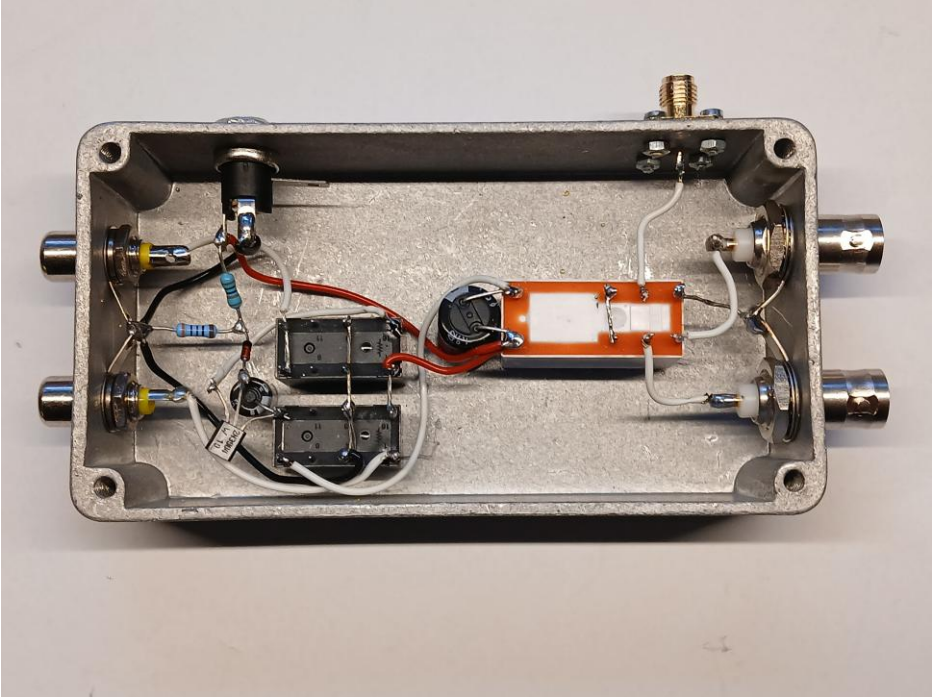
160M "QRP" AM



160M
"QRP" AM



T/R-omkoppling



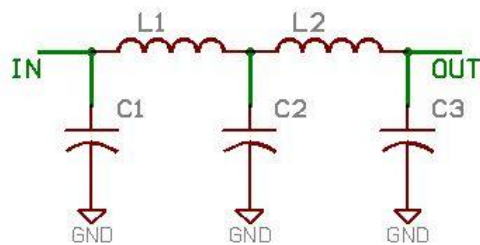
Låg Pass Filter

- T157-2 klarar 500W
- LPF Filter - www.wa4dsy.net/filter/filterdesign.html
- Inductor - www.changpuak.ch/electronics/amidon_toroid_calculator.php

5 pole lowpass filter

I/O impedance = 50.0 ohms
3 DB cutoff freq = 3.0 MHz

Best for medium to high impedance loads.

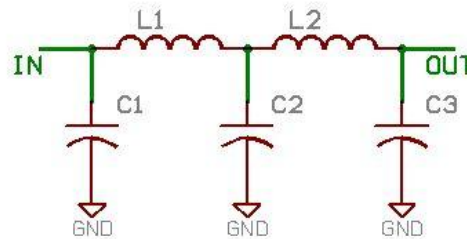


Part	Part Values		
	Butterworth	Chebyshev 0.1 DB	Bessel
L1	4.29 uH	4.13 uH	1.35 uH
L2	4.29 uH	4.13 uH	2.95 uH
C1	655.72 pF	1381 pF	184.94 pF
C2	2122 pF	2378 pF	853.07 pF
C3	655.72 pF	1381 pF	2396 pF

5 pole lowpass filter

I/O impedance = 50.0 ohms
3 DB cutoff freq = 5.0 MHz

Best for medium to high impedance loads.

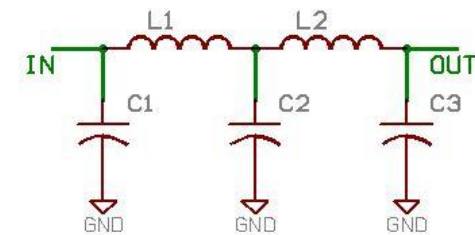


Part	Part Values		
	Butterworth	Chebyshev 0.1 DB	Bessel
L1	2.58 uH	2.48 uH	0.8072 uH
L2	2.58 uH	2.48 uH	1.77 uH
C1	393.43 pF	828.43 pF	110.96 pF
C2	1273 pF	1427 pF	511.84 pF
C3	393.43 pF	828.43 pF	1438 pF

5 pole lowpass filter

I/O impedance = 50.0 ohms
3 DB cutoff freq = 9.0 MHz

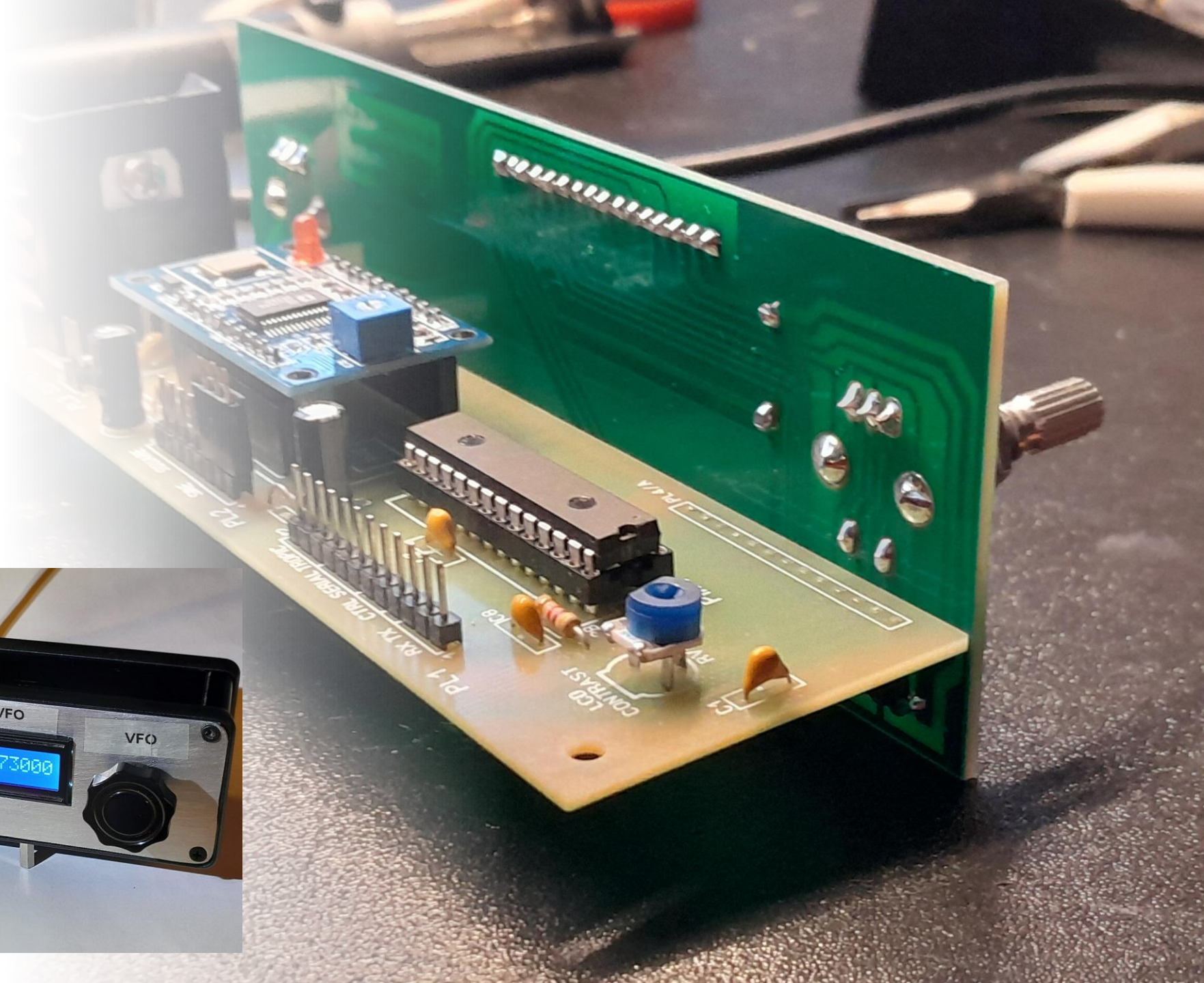
Best for medium to high impedance loads.



Part	Part Values		
	Butterworth	Chebyshev 0.1 DB	Bessel
L1	1.43 uH	1.38 uH	0.4485 uH
L2	1.43 uH	1.38 uH	0.9823 uH
C1	218.57 pF	460.24 pF	61.65 pF
C2	707.36 pF	792.63 pF	284.36 pF
C3	218.57 pF	460.24 pF	798.68 pF

VFO

- DDS
- SI5351
- Signalgenerator
- ...



Summering.....

- Genom experiment och kreativitet till nya kunskaper
- www.s9plus.com
 - Dokumentation och “kits”
- QTC - radio.thulesius.se
 - Aktiv som skribent sedan över 25år.....
- Jag finns i utställningen för frågor / demo