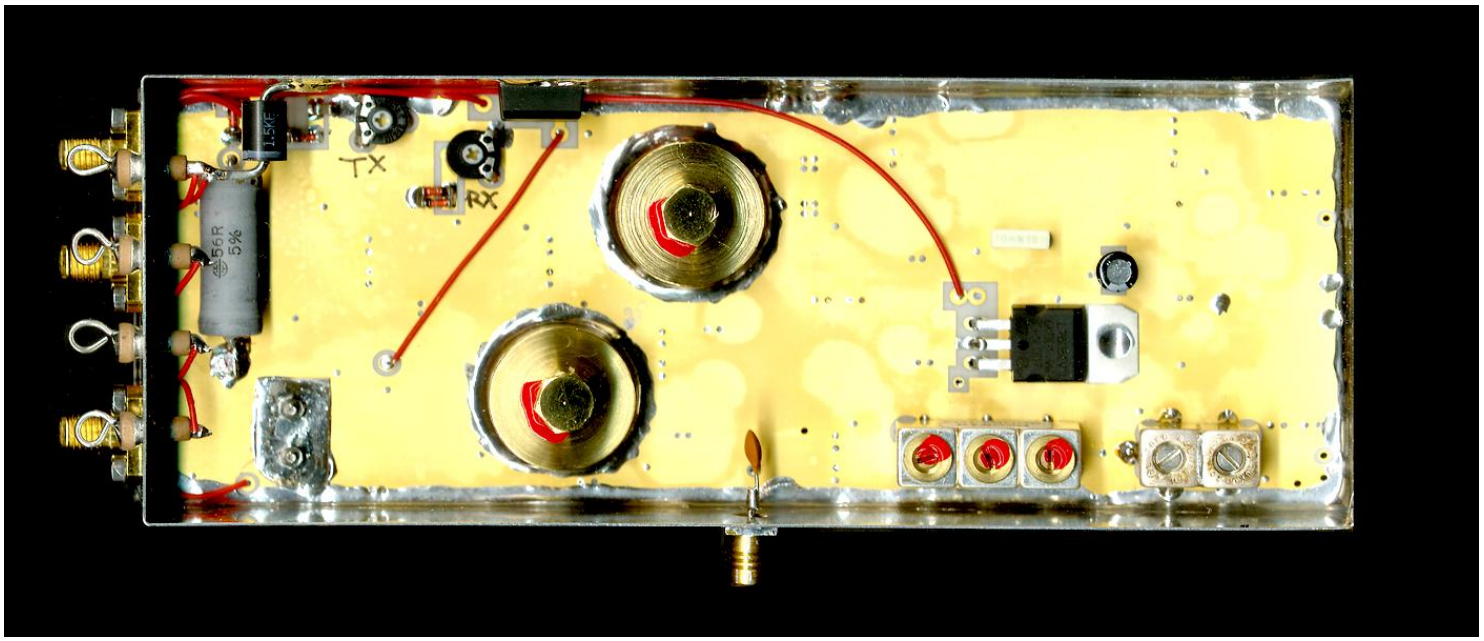
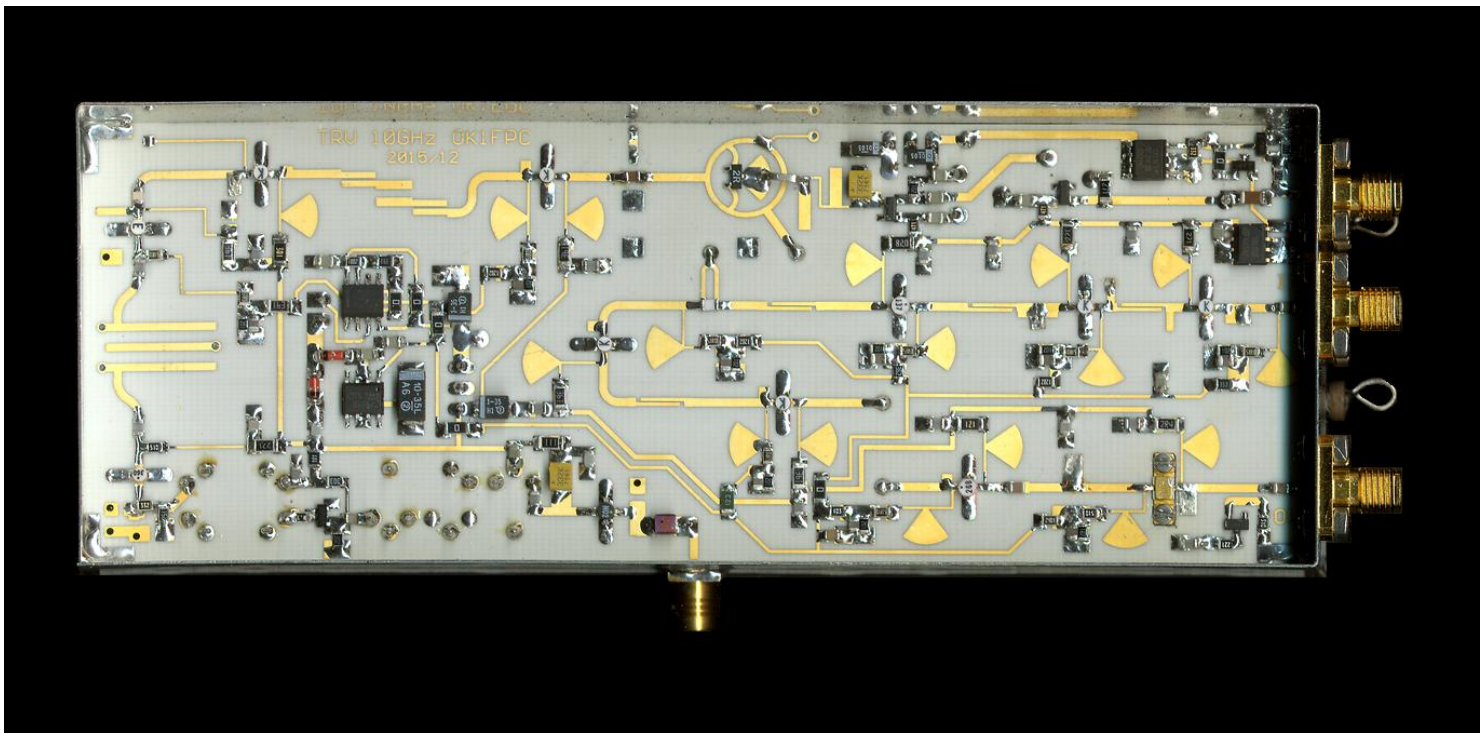
TRV 10GHz OK1FPC 2015/12 – [2023]





Parameters:

IF 2m (70cm on demand) to 3cm transverter (very similar to DB6NT's G2 version):

RF output on 3cm: typical 250mW (power output is always tested!)

Noise figure on 3cm: typical 1,4dB NF (noise figure is always tested!)

PTT: classical GND shortage or PTT via IF coax (+12V)

MON: about 1,5V should be equal to 250mW but you can't absolutely rely on it

Dimensions of the box: 147 x 55,5x 31mm

Space between RX SMA and TX SMA Connectors: 21,81mm (good for SMA relay)

LO input: is working around 106 MHz. Older versions needs max 0 dBm. Newer version has 6dB attenuator from resistors, it can be seen after opening box directly at the LO connector. Even with that 6dB attenuator Ales found that still +0dBm is enough. At the newer version GPSDO's power is recommended not to get over about 10 dBm.

LO connector: CMX (not SMA). 10368 MHz = (LO input x 96) + IF. More:
http://www.leobodnar.com/shop/index.php?main_page=product_info&cPath=107&products_id=301&zenid=dd22650002b44fba478b2b195069177c

IF: SMA on 144 MHz (145 or 146 MHz is usable too – it depends only on LO).
IF Operation power input: 2-2,5W on 2m (only short 5W peak would be acceptable!) – so IF would be ideal for FT817 or FT290.

ATTENTION! The input 2m PWR should NEVER get over 5W as switching pin diodes can be damaged! While most of modern transceivers like FT847, FT897, FT857, Icoms, Kenwoods (Elecraft's K3 seems to be fine) suffer from ALC problem with power peak, I'd strongly recommend to use some kind of at last 8dB 20W attenuator, tuning power down at the control knob isn't enough! More at: https://www.ok2kkw.com/00000104/ft847_alc_mod/uprava_alc_ft847_en.htm

Inside the transverter are 2 trimmers for the gain regulation of RX and TX.

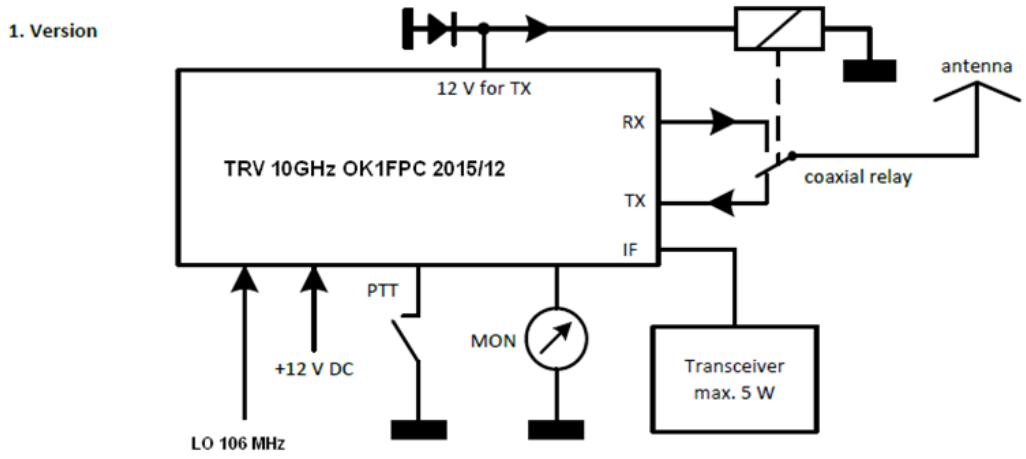
Measured Noise Figure, output power and voltage for PWR monitor will be written on body of TRX.

Price on request, tracking number included. More via ok1tehlist@seznam.cz

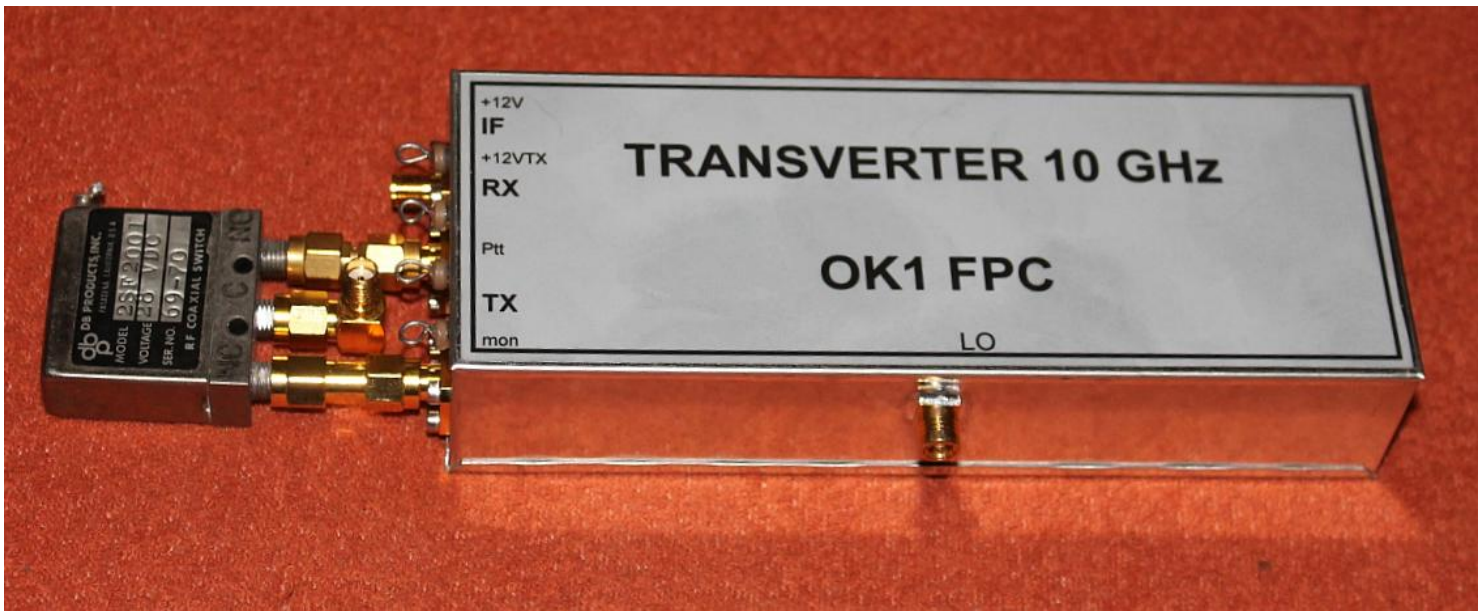
73, Matej, OK1TEH

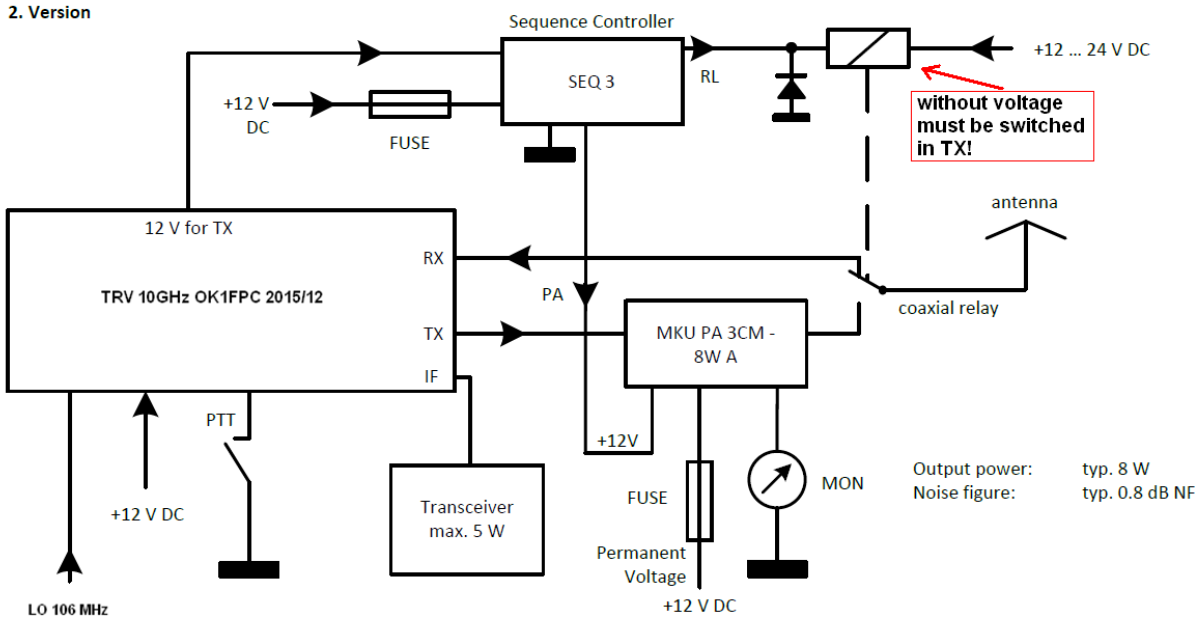
More at:
https://www.ok2kkw.com/00003016/sequencer/sequencer_2.htm
https://www.ok2kkw.com/00003016/sequencer/jednovyfuk.htm

Recommended circuits:

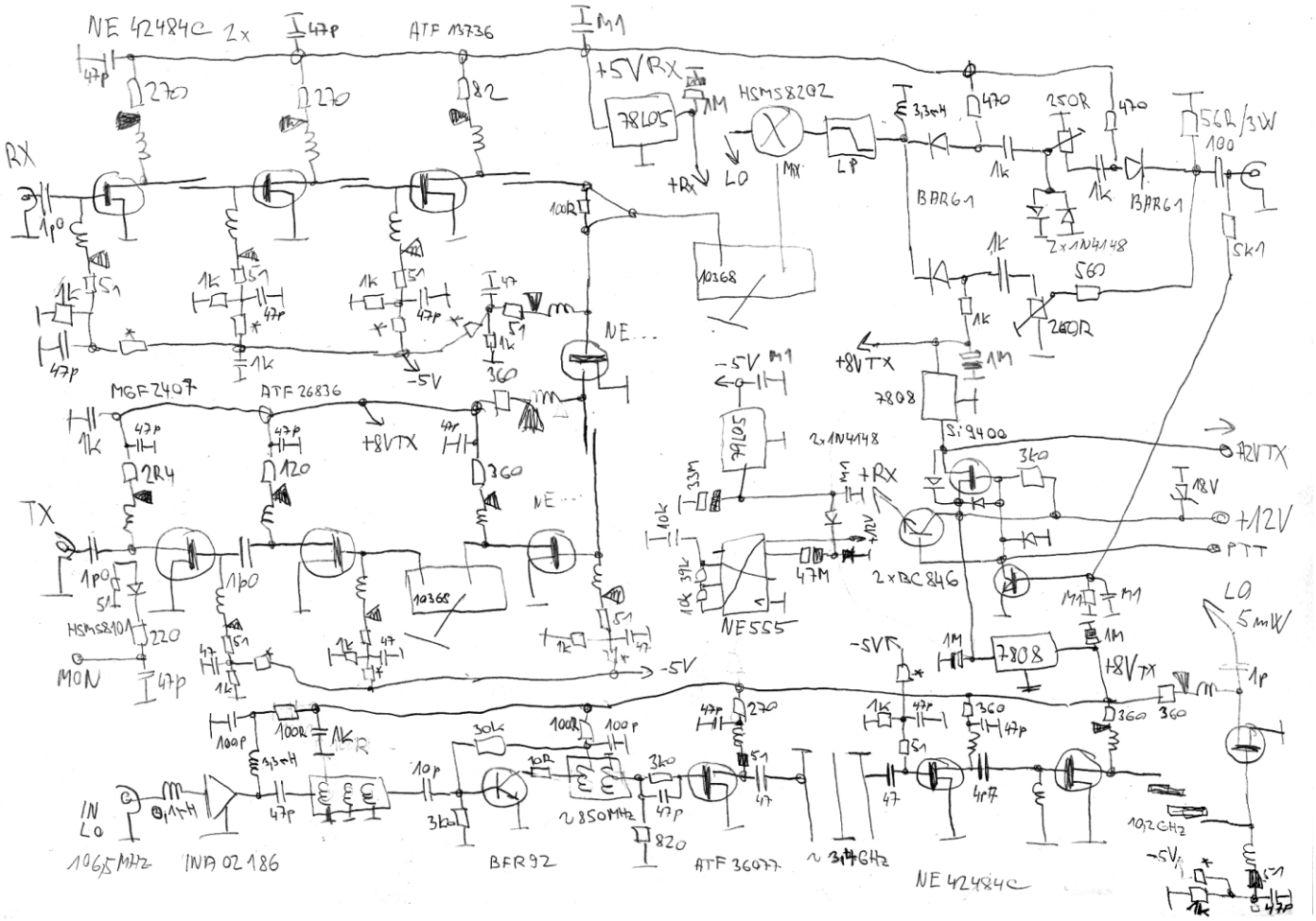


1st Basic version could successfully use SMA relay connected directly to RX and TX connector like it's showed at picture, but beware **relay must be always set to TX without voltage**! But for successful RainScatter operation is minimal requirement: about >4W SSPA with 60cm dish. For EME: 1m dish and about 8W. 1,4dB NF should be enough for first EME tests too, because most of EME stations are running with much higher powers. Even basic 48cm dish with transverter at the focus should be enough to hear the DL0SHF EME beacon. Attention: for EME from Europa is always used vertical polarization.





Transverter schema:



Example of cheap 10 GHz SSPAs:

PA3DZL: https://ok2kkw.com/next/pa3dzl_10g_sspa_ver1-7_20-8-2021.pdf

DL2AM: http://www.dl2am.de/pa1d.htm

DK2FD: http://www.dk2fd.de/200000/2150000.htm (not sure if still actual)

Kuhne: https://shop.kuhne-electronic.com/kuhne/en/shop/power-amplifiers/?page=2&sort_by=sorting

PE1RKI: http://www.pe1rki.com/10ghzamplifiers.html

4W PA with TIM1011-4 – try Ebay like:
https://www.ebay.com/itm/325100582793
https://www.ebay.com/itm/133483287093

4W PA from Italy:
https://www.ebay.com/itm/334319850302
https://www.ebay.com/itm/334274482596

More SHF components by:

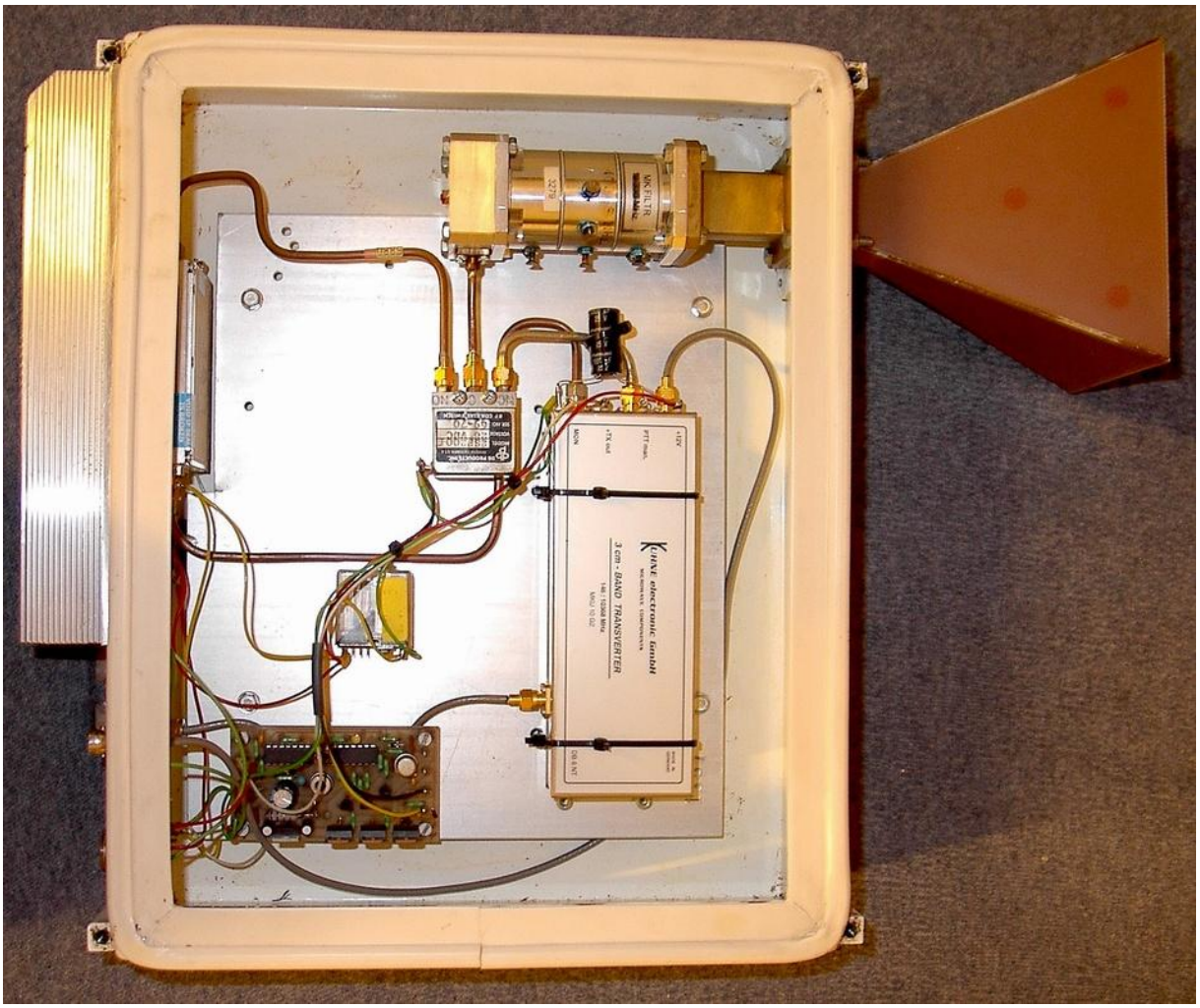
SP7DYN: https://sp7dyn.com/shop/

OK1UEI: Feeds, Filters, Waveguides, Dishes –mailto:ok1uei(at)centrum.cz

Some examples at: http://ok1teh.nagano.cz/3cm/3cm_pic.htm + https://ok1teh.rajce.idnes.cz/10GHz_OK2A_upgrade/

Antennas: *If you think about cheap and good offset SAT dish with massive feed holder, look for "Kathrein CAS antenna"*

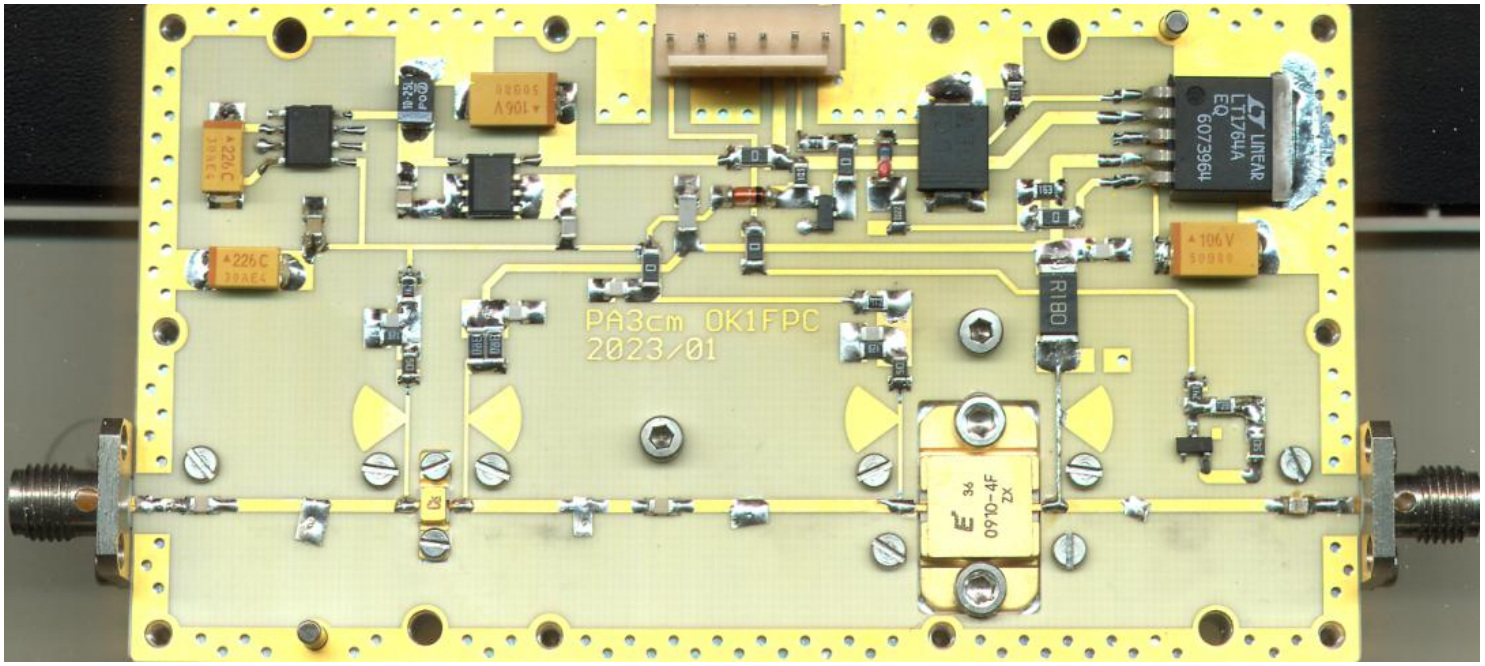
Feed for SAT offset antenna can be bought from I0JXX or https://www.rfhamdesign.com/products/dish-feeds/offset-dish-horn-dish-feed/index.php

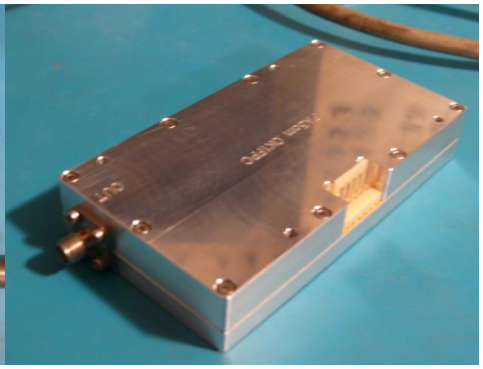


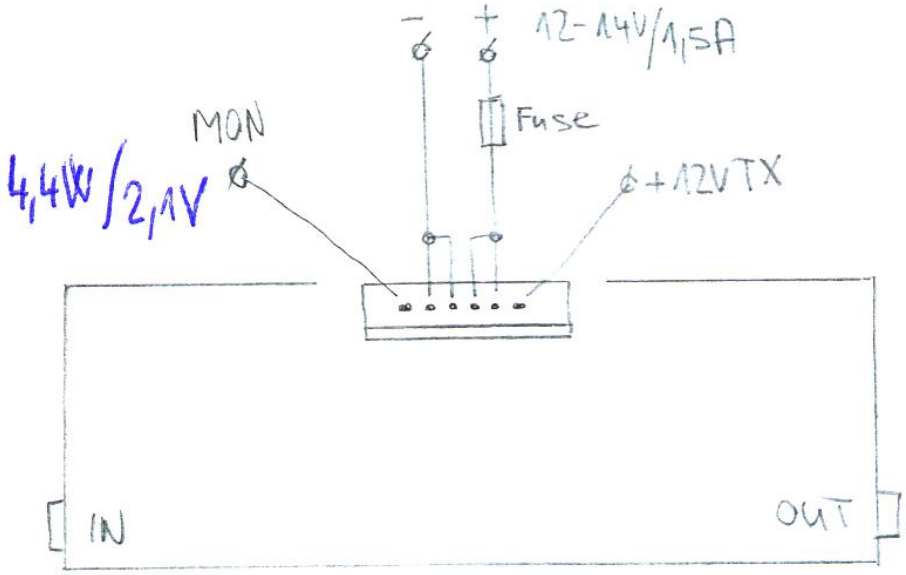
[250mW in, 4,5W out 10GHz SSPA OK1FPC [2023]]

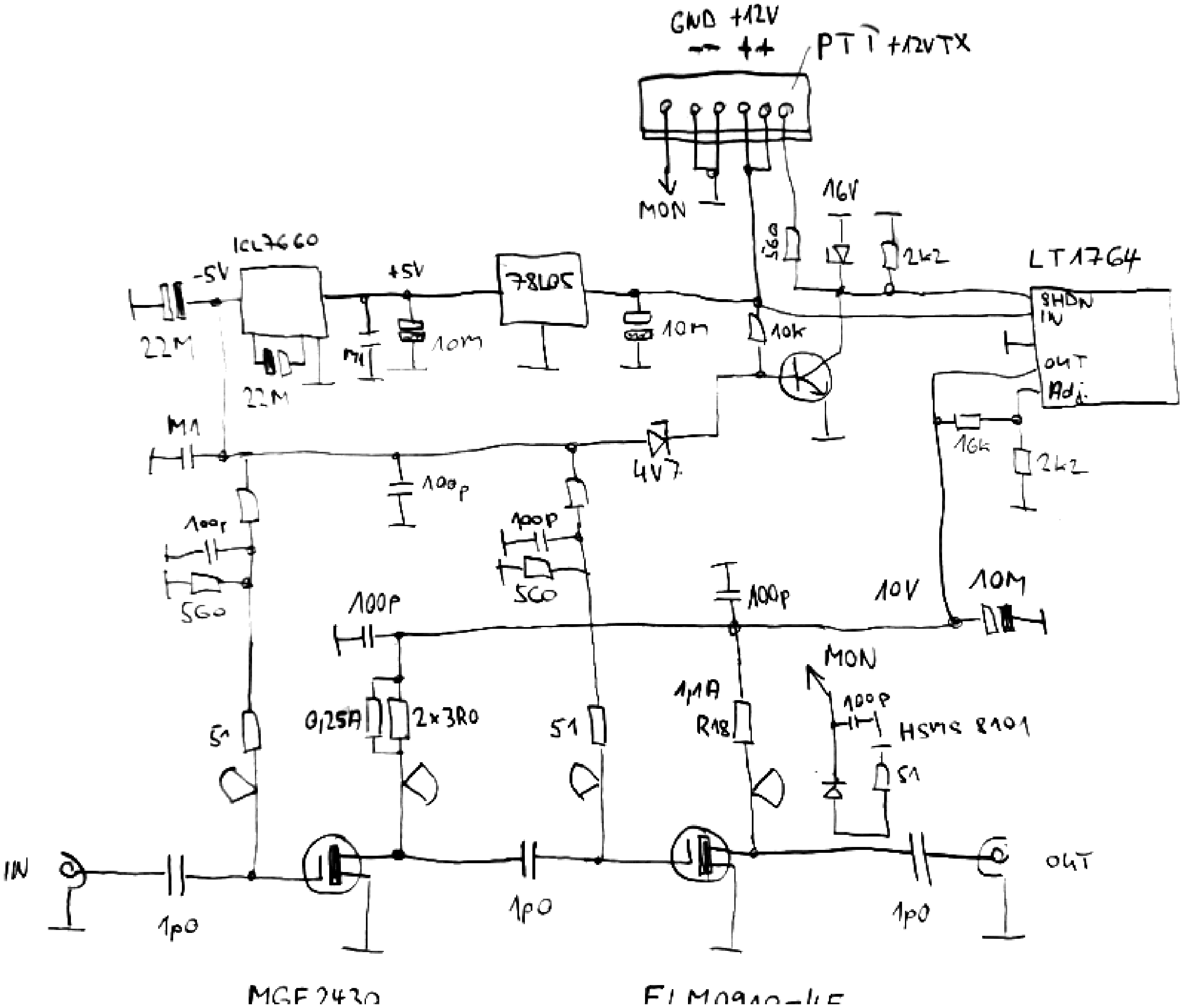
12V SSPA, full power 4,5W with 1,6A, robust milled aluminum case, dimensions: 10,0 x 15,3 x 1,7cm, 2nd part of controlling connector is included for free.

Attention, PA doesn't contain temperature sensor, due to its low efficiency good heatsink and cooling is mandatory! Otherwise said on damage caused by temperature you can't apply Warranty.








GND +12V
PTT +12VTX
MON
ICL7660
-5V
+5V
78L05
LT1764
SHDN
IN
OUT
Adj
16V
2k2
560
10k
22M
M1
10M
M1
4V7
100p
16k
2k2
560
10V
10M
MON
100p
HSMS 8101
51
1,1A
R18
0,25A
2x3R0
51
IN
OUT
1p0
MGF2430
FLM0910-15