Amplificateur 1 kW à transistor LDMOS

F6BQP

. .'eescale Semiconductor
Technical Data

Document Number: MRFE6VP61K25H
Rev. 4.1, 3/2014

RoHS

RF Power LDMOS Transistors

High Ruggedness N-Channel Enhancement-Mode Lateral MOSFETs

These high ruggedness devices are designed for use in high VSWR industrial (including laser and plasma exciters), broadcast (analog and digital), aerospace and radio/land mobile applications. They are unmatched input and output designs allowing wide frequency range utilization, between 1.8 and 600 MHz.

- Typical Performance: V_{DD} = 50 Volts, I_{DQ} = 100 mA

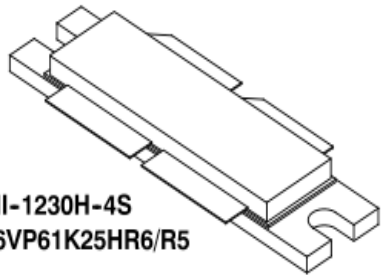
Signal Type	P_{out} (W)	f (MHz)	G_{ps} (dB)	η_D (%)
Pulse (100 μsec, 20% Duty Cycle)	1250 Peak	230	24.0	74.0
CW	1250 CW	230	22.9	74.6

Application Circuits (1) — Typical Performance

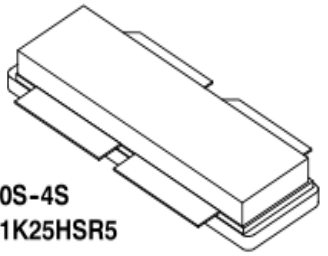
Frequency (MHz)	Signal Type	P_{out} (W)	G_{ps} (dB)	η_D (%)
27	CW	1300	27	81
40	CW	1300	26	85
81.36	CW	1250	27	84
87.5-108	CW	1100	24	80
144-148	CW	1250	26	78
170-230	DVB-T	225	25	30
352	Pulse (200 μsec, 20% Duty Cycle)	1250	21.5	66
352	CW	1150	20.5	68
500	CW	1000	18	58

MRFE6VP61K25HR6
MRFE6VP61K25HR5
MRFE6VP61K25HSR5
MRFE6VP61K25GSR5

1.8-600 MHz, 1250 W CW, 50 V
WIDEBAND
RF POWER LDMOS TRANSISTORS

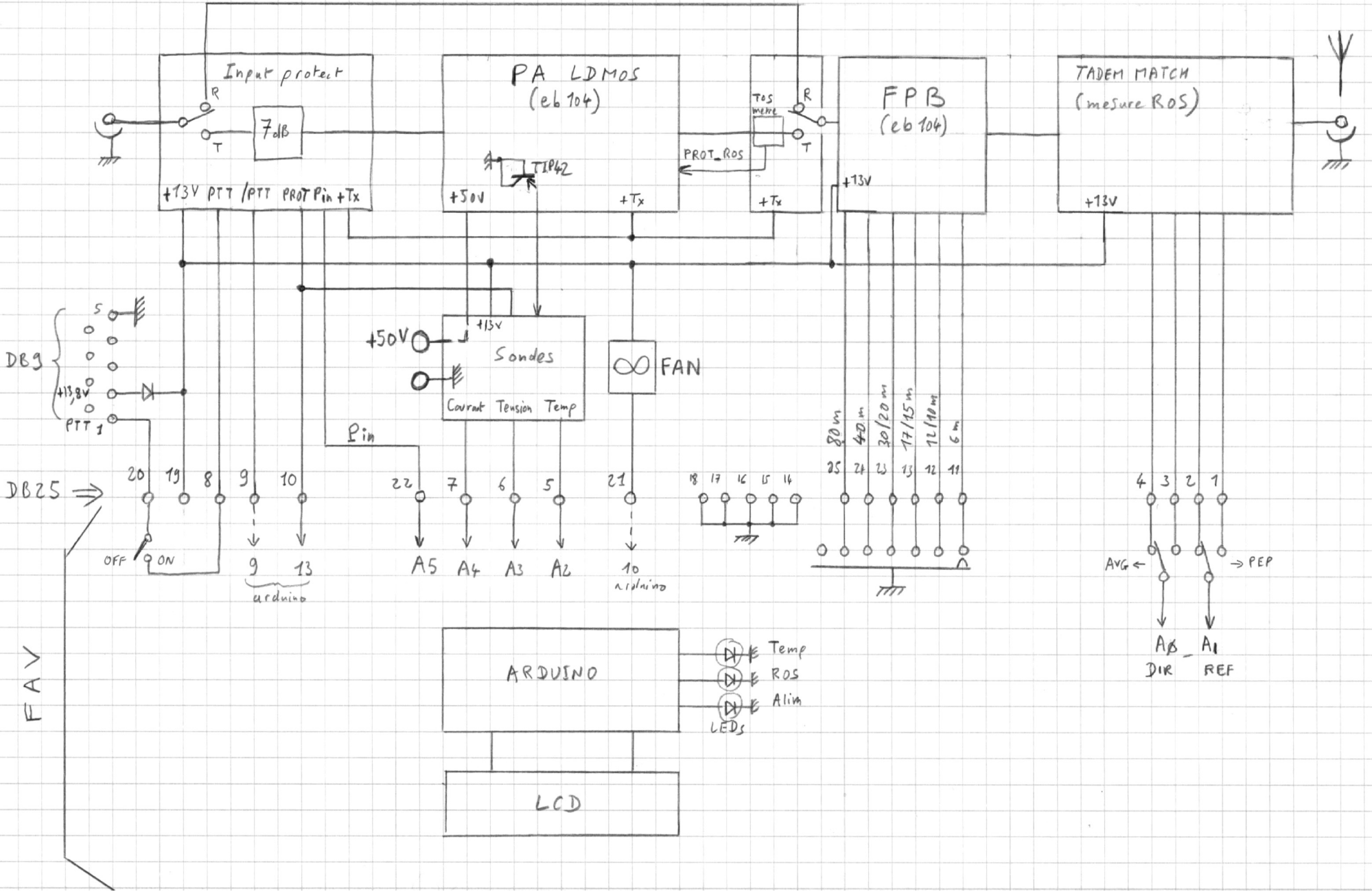


NI-1230H-4S
MRFE6VP61K25HR6/R5

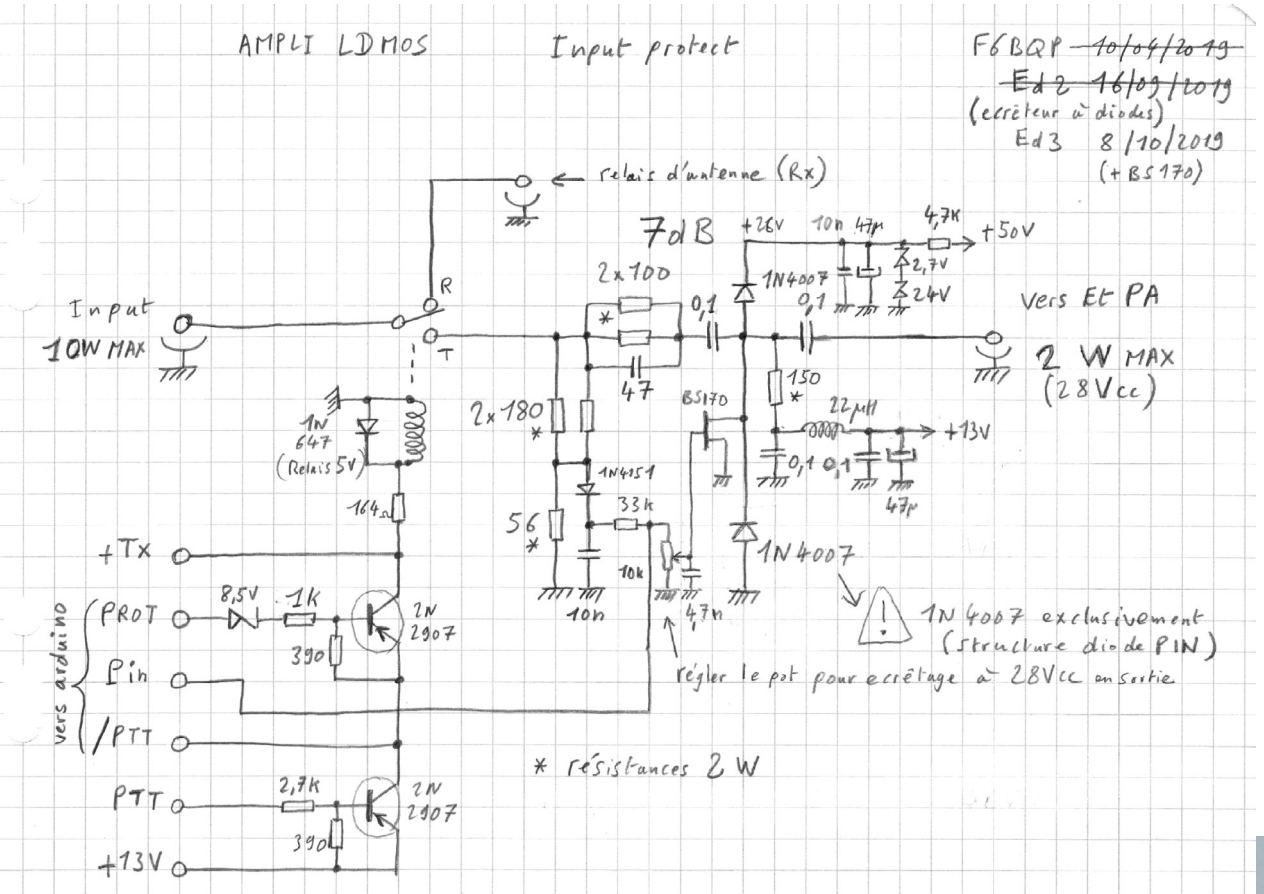


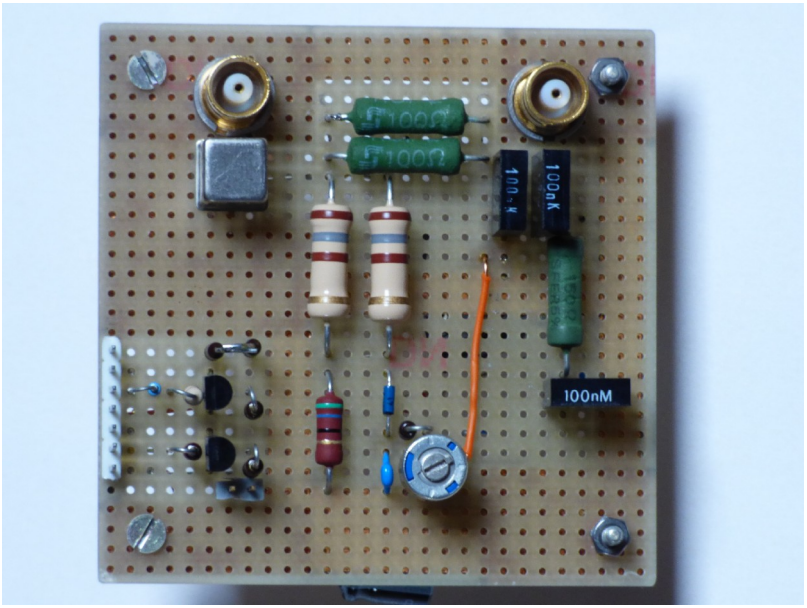
NI-1230S-4S
MRFE6VP61K25HSR5

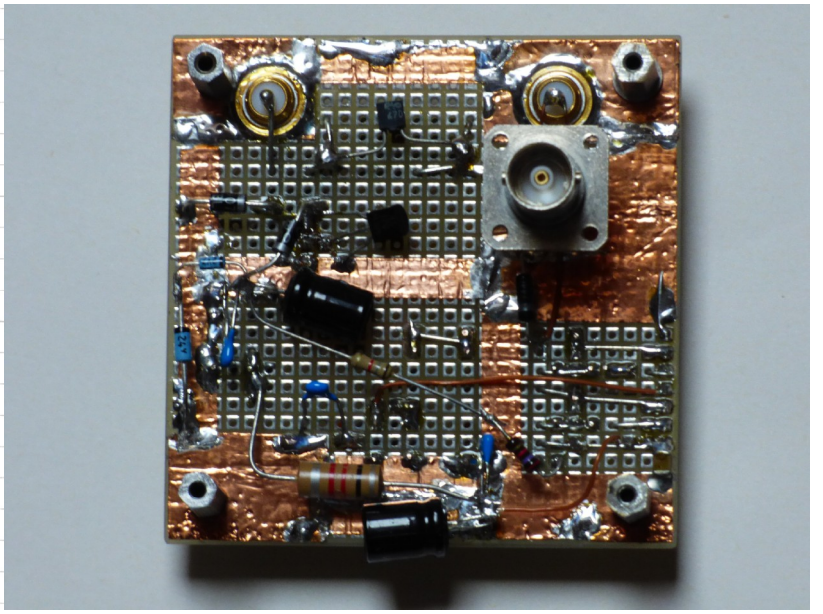
AMPLI LDMOS Interconnections F6BQP 3/2/2019

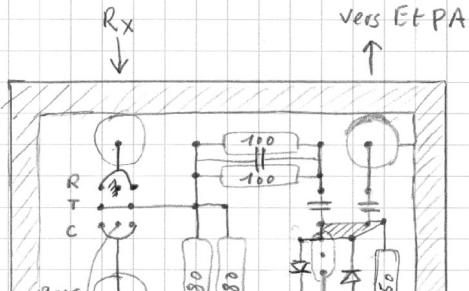


Input protect

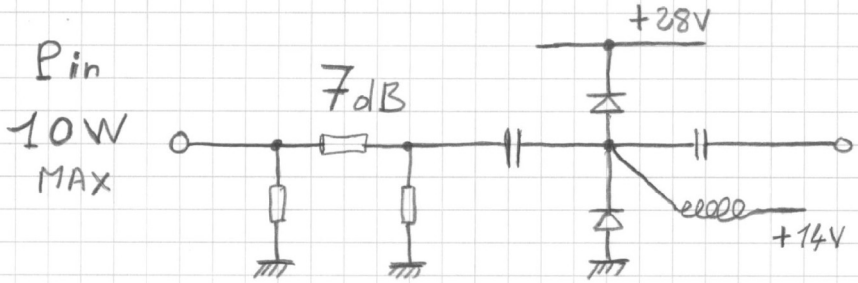


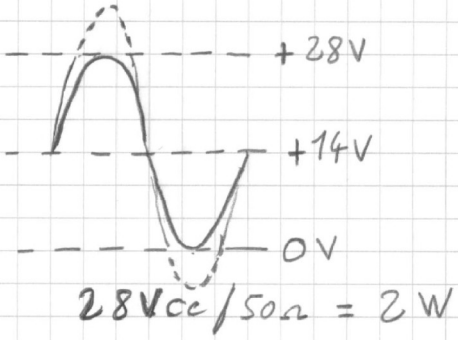


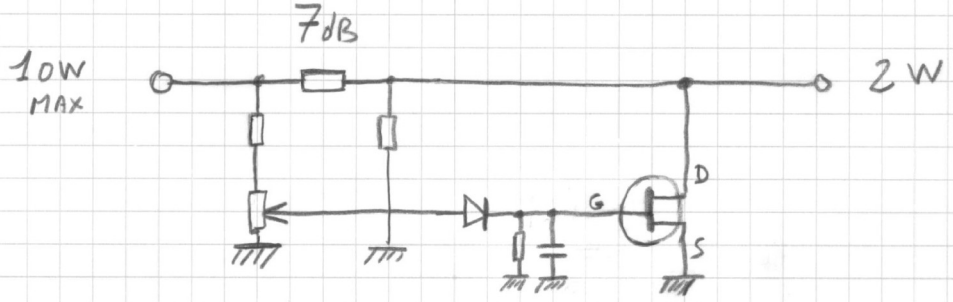




Limiteur de puissance







Seuil de conduction du Mos réglé pour Pin = 10W

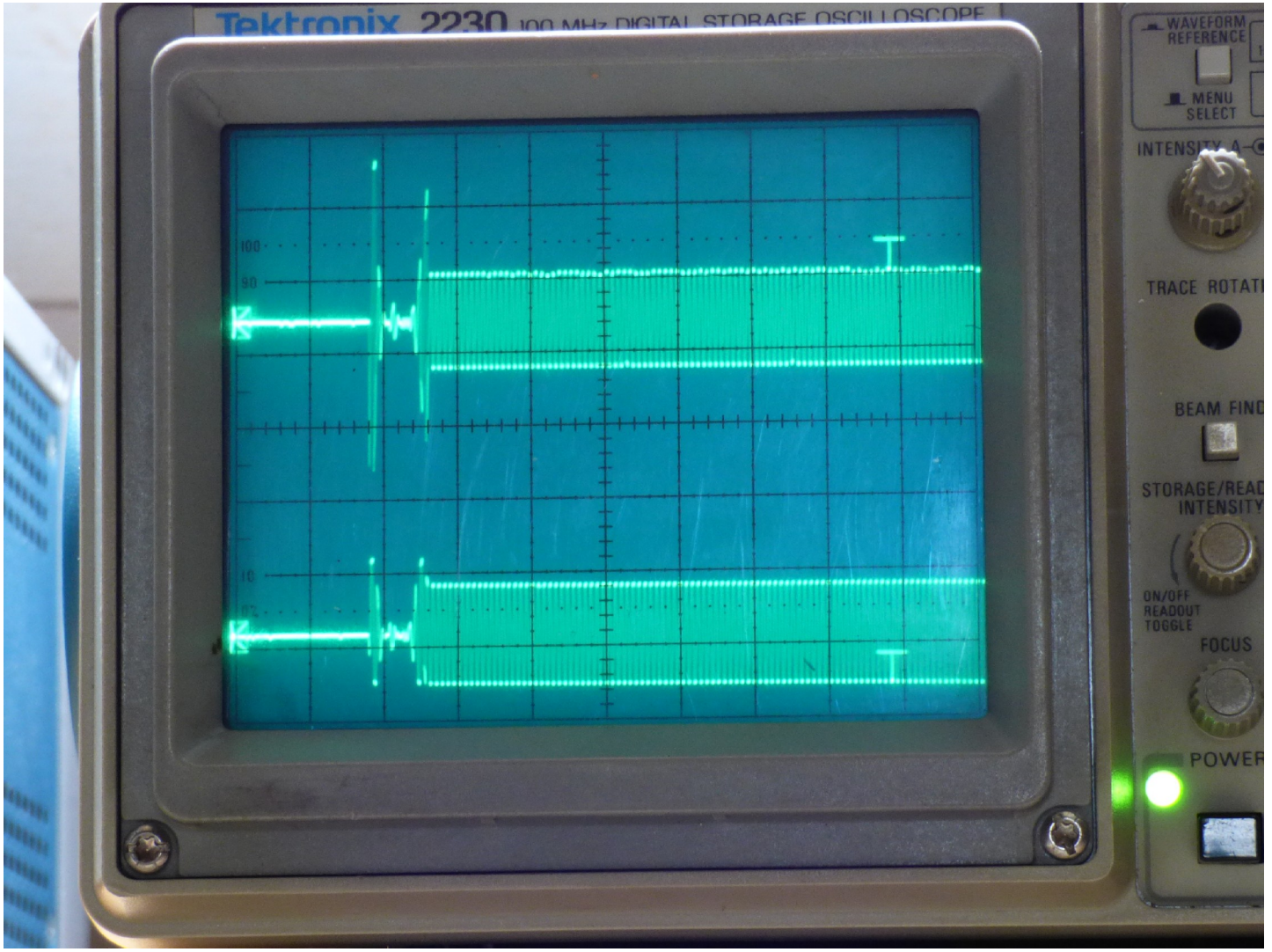
ATTENUATEUR 7dB ⇒ 7dB → ← 7dB si reflection totale ⇒ Return Loss = 14dB

soit ROS = 1,5

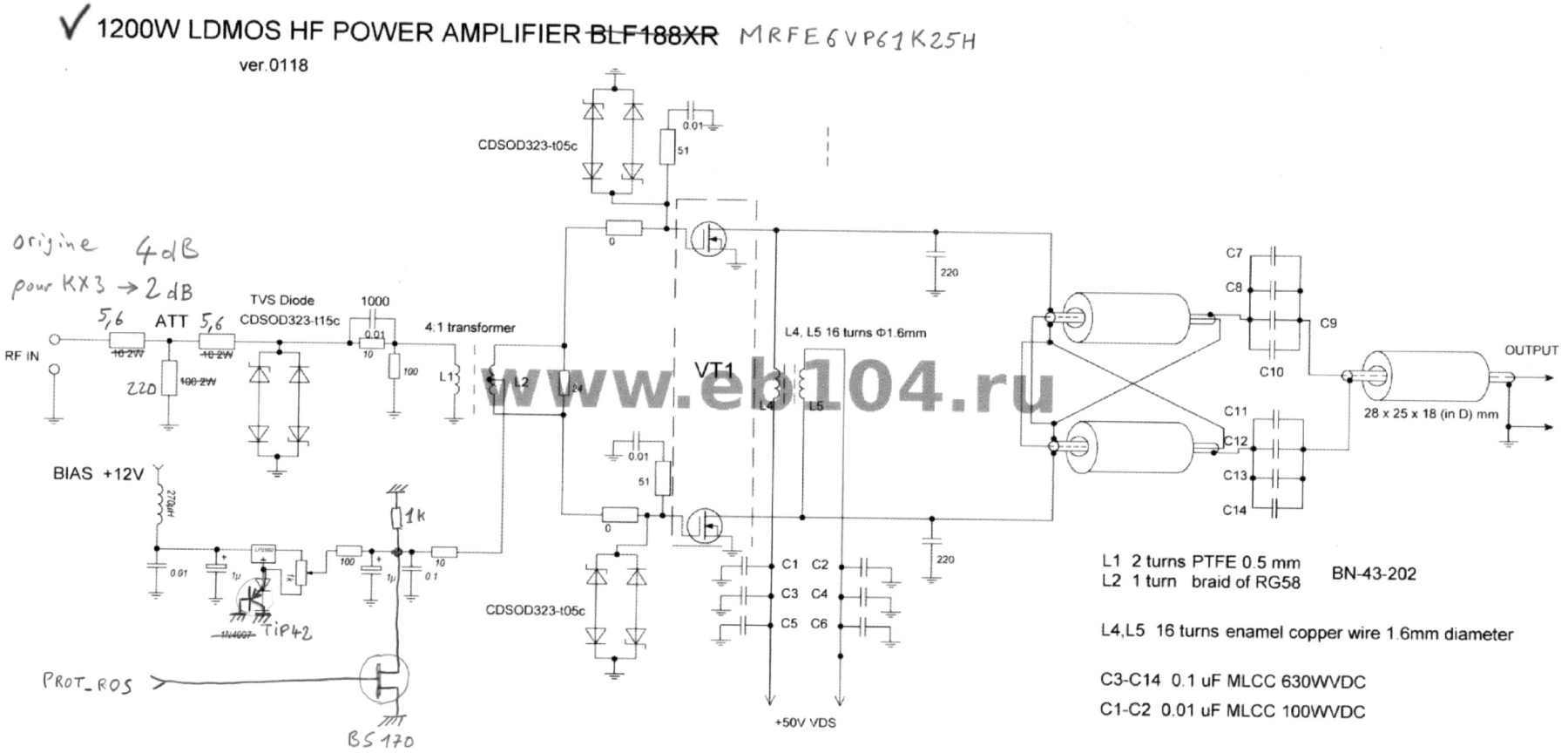
(Pour un transceiver 100W ajouter au moins 6dB soit 13 dB d'atténuation)

Action de l’écréteur avec FT847 10W AM

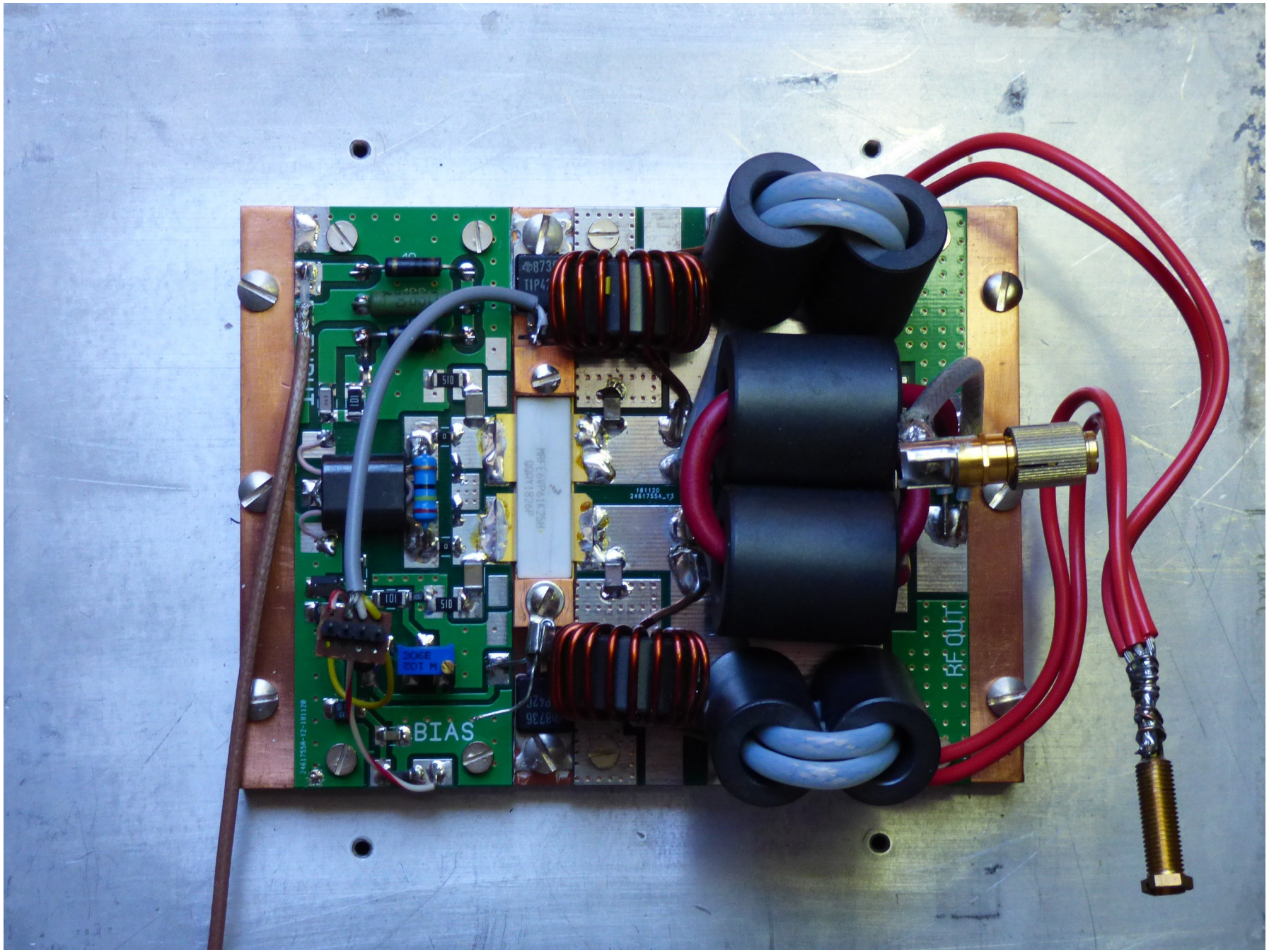
trace du haut : overshoot à 3 X la tension soit 90W
trace du bas : en sortie de l’écréteur



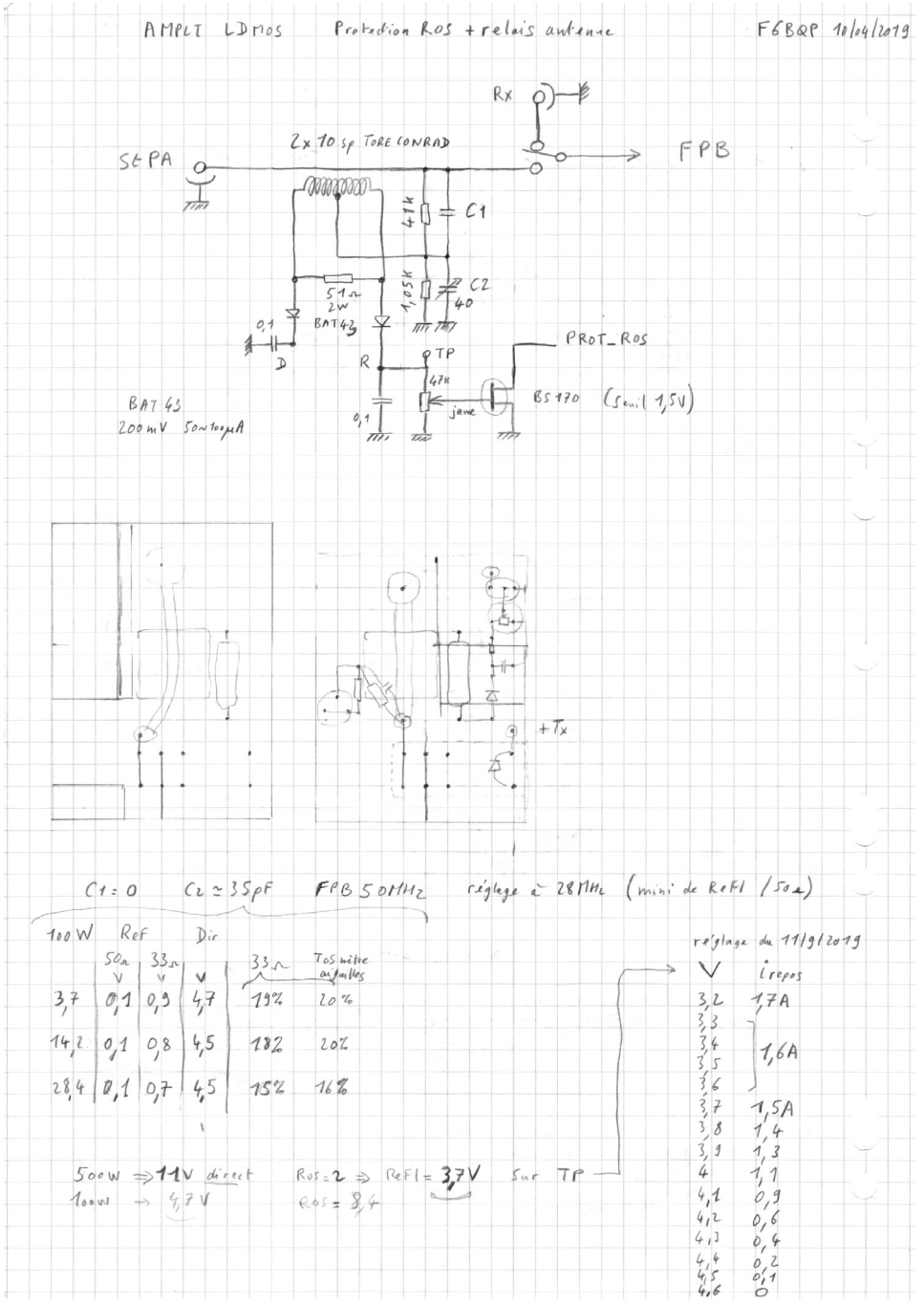
Module ampli eb104



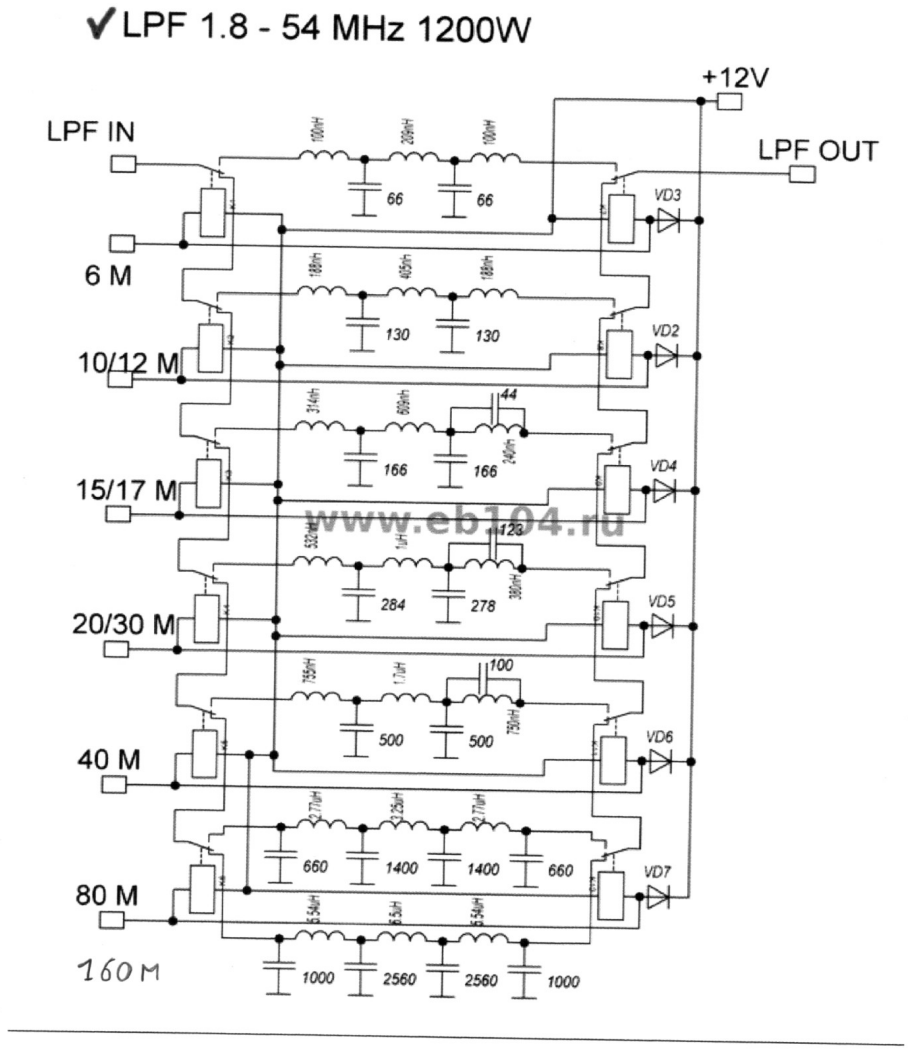
Module ampli eb104

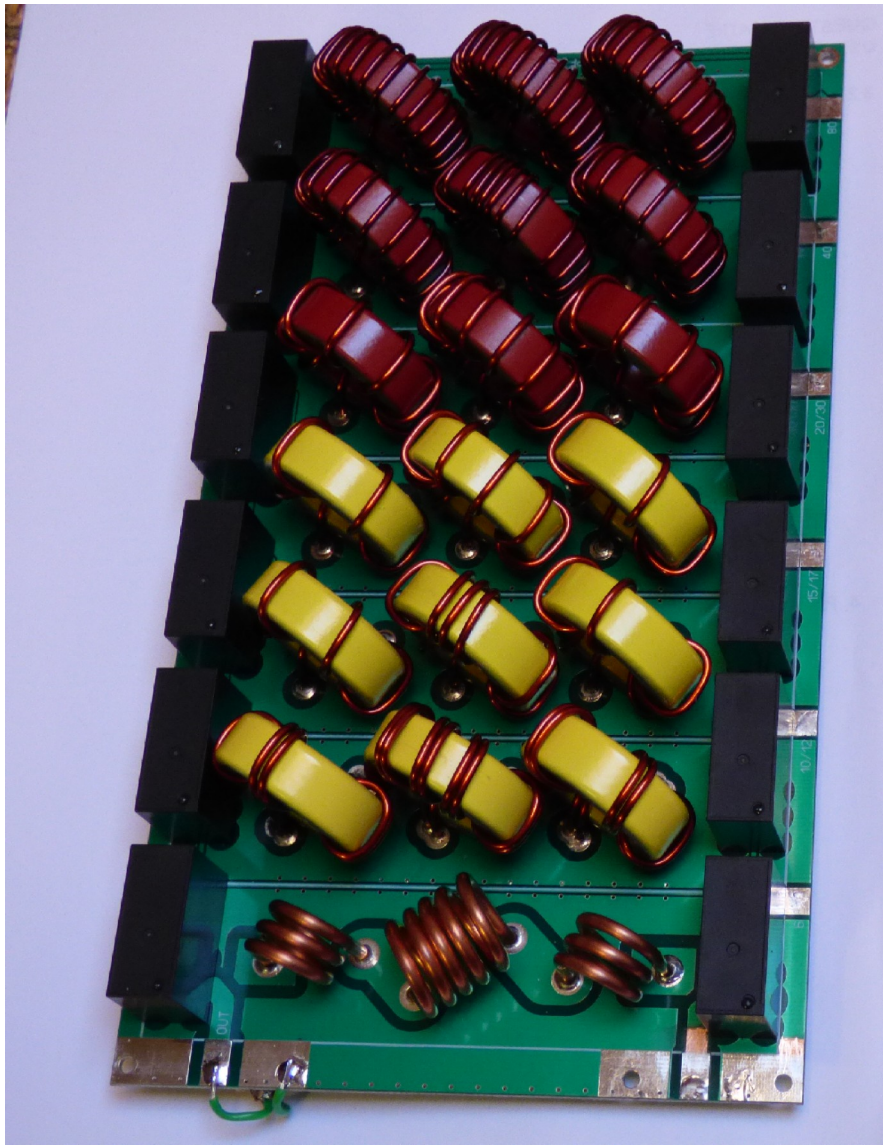


Protection ROS

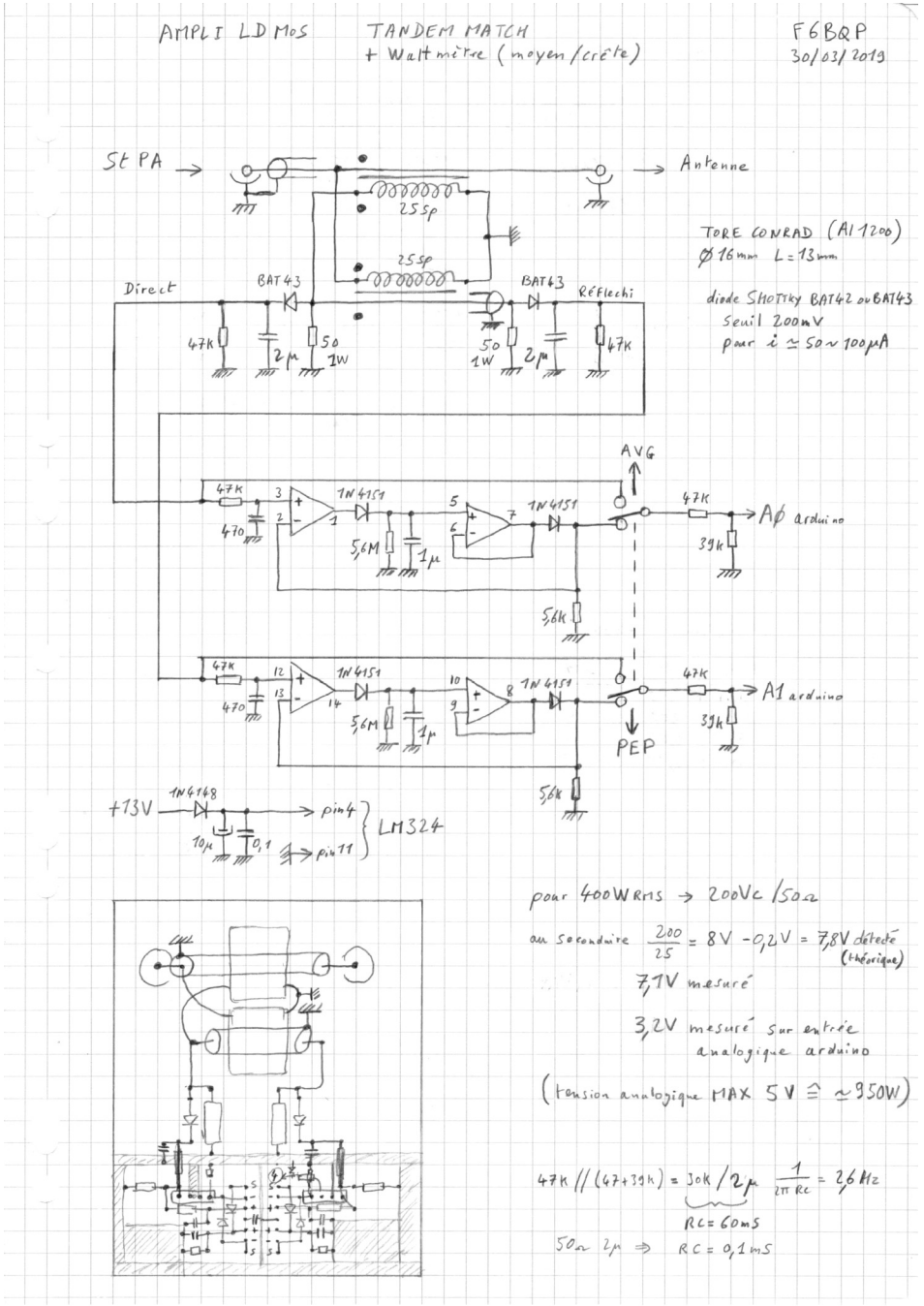


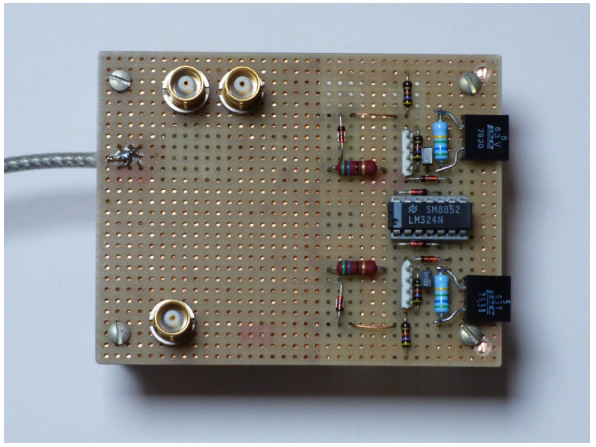
Filtres Passe-bas eb104

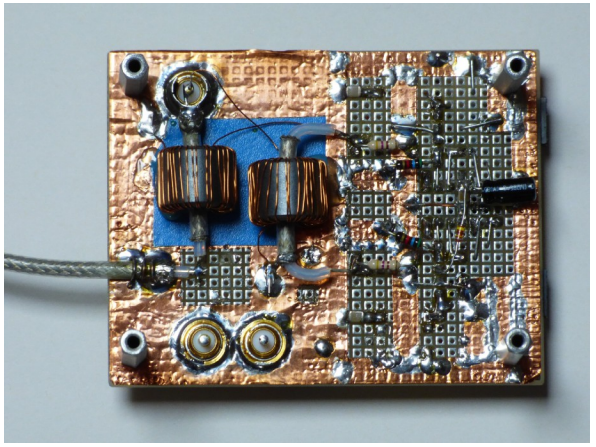




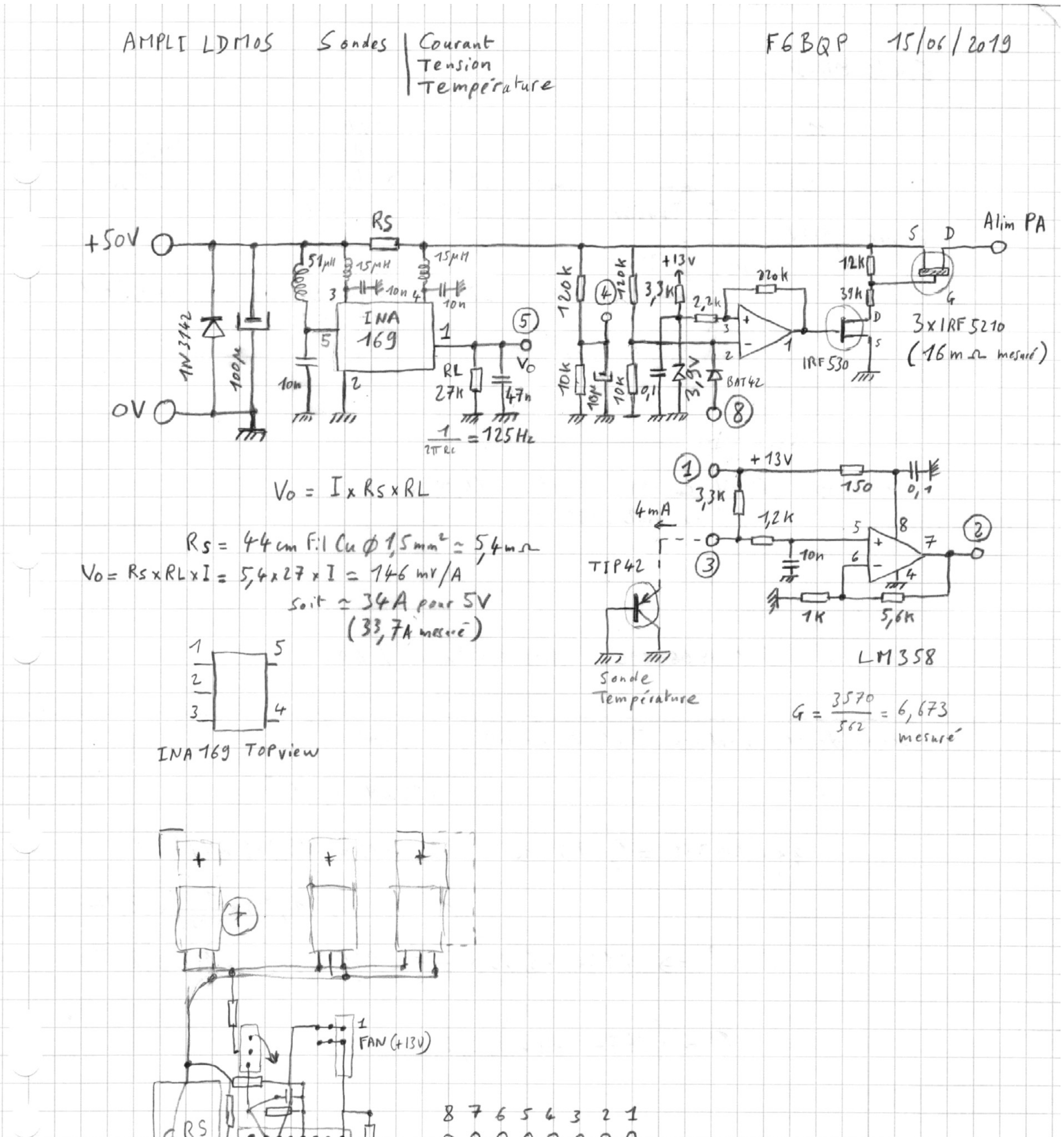
Tandem match

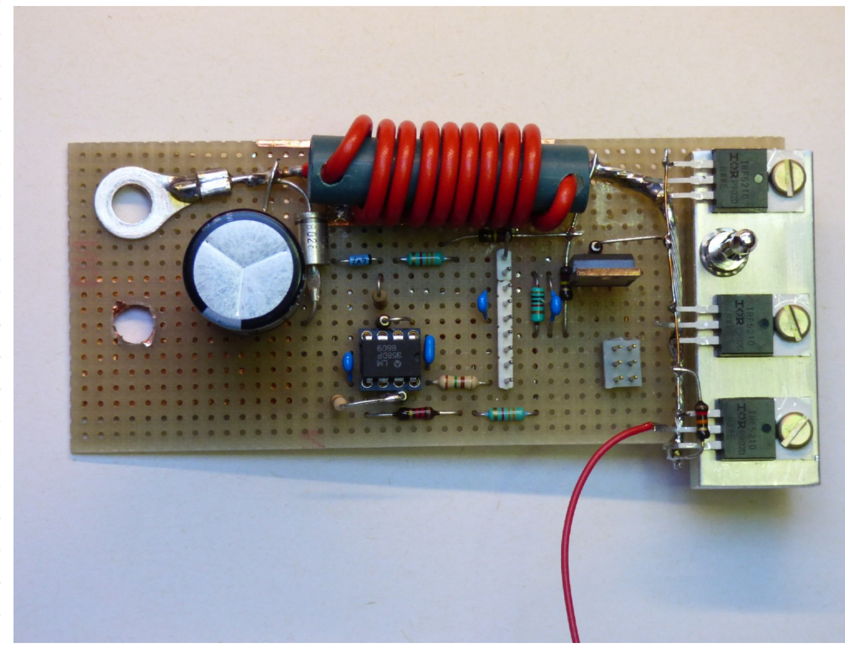




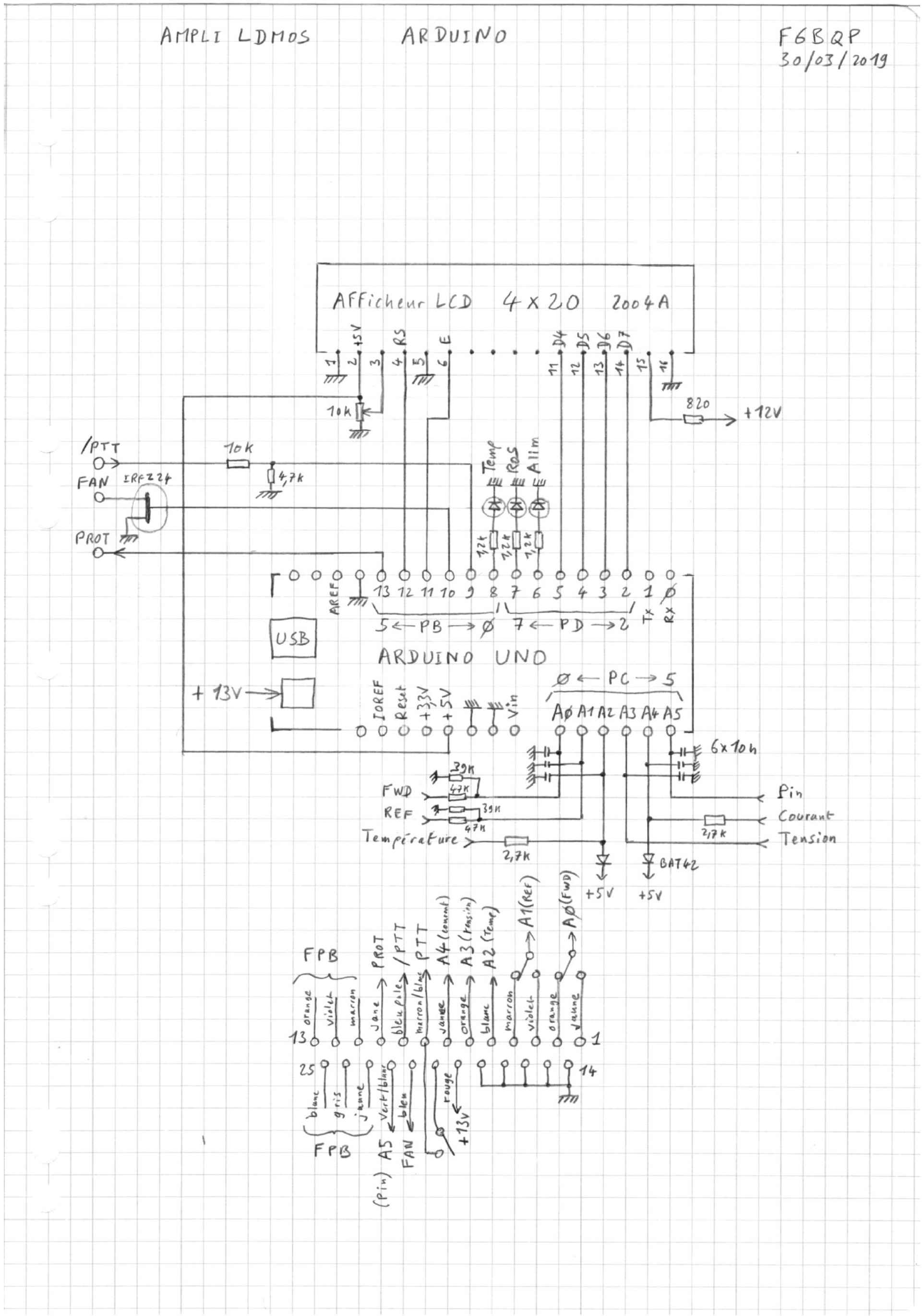


sondes

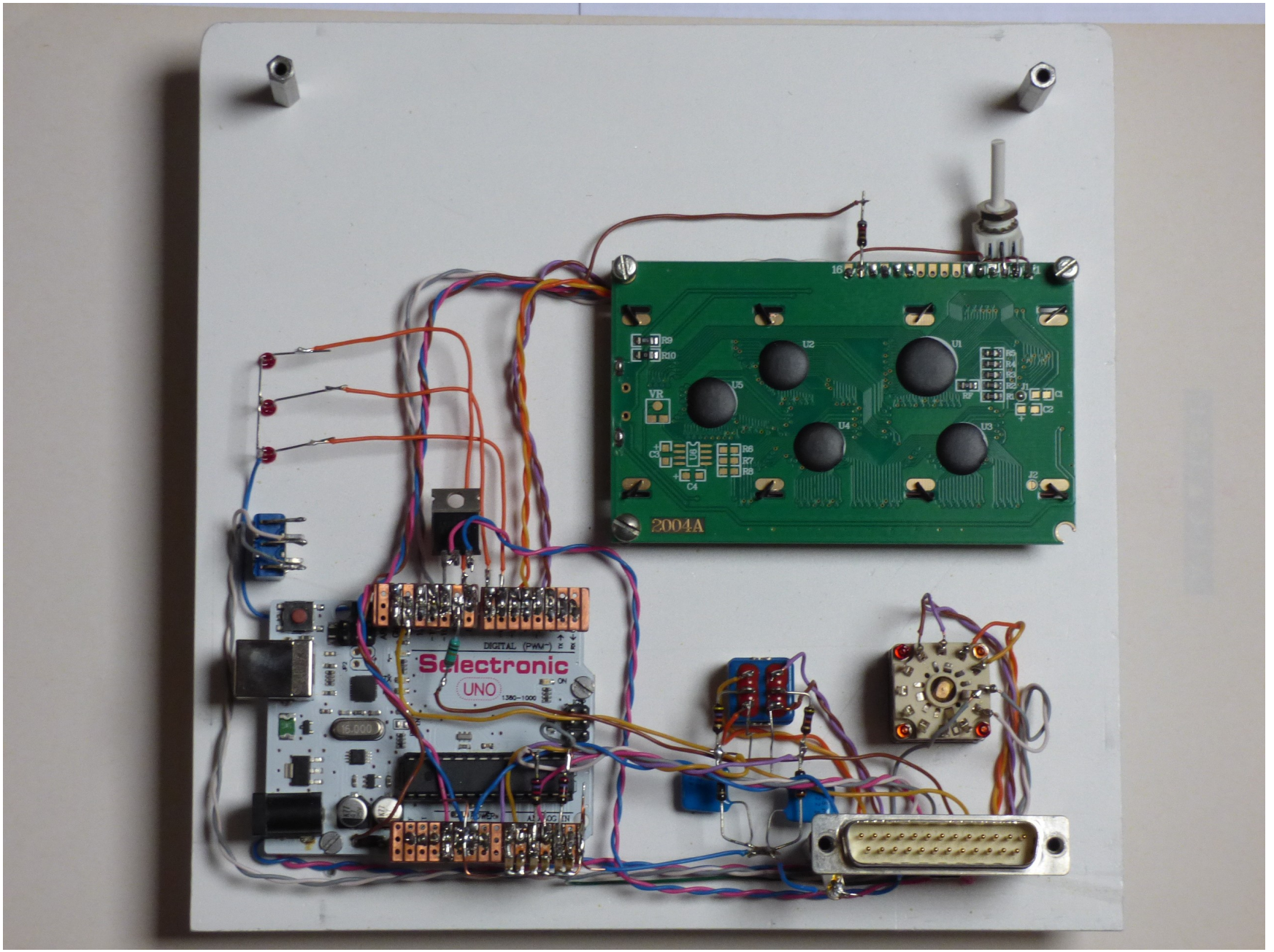

AMPLI LDMOS
Sondes
Courant
Tension
Température
F6BQP 15/06/2019
+50V
0V
RS
Alim PA
1N3742
100µ
10n
INA 169
RL 27k
47n
Vo
1/2πRLC = 125Hz
120k
10k
3,3k
+13V
2,2k
220k
12k
39k
IRF530
3xIRF5210
(16 mΩ mesuré)
BAT42
Vo = I x Rs x RL
Rs = 44 cm Fil Cu ϕ 1,5 mm² ≃ 5,4 mΩ
Vo = Rs x RL x I = 5,4 x 27 x I = 146 mV/A
soit ≃ 34A pour 5V
(33,7A mesuré)
INA 169 TOPview
4mA
TIP42
Sonde Température
1,2k
150
0,1
1K
5,6K
LM358
G = 3570/562 = 6,673 mesuré
FAN (+13V)
8 7 6 5 4 3 2 1



Arduino


AMPLI LDMOS
ARDUINO
F6BQP
30/03/2019
Afficheur LCD 4x20 2004A
ARDUINO UNO
USB
+13V
/PTT
FAN
PROT
IRFZ24
10k
4,7k
820
+12V
Temp
ROS
Alim
FWD
REF
Température
Pin
Courant
Tension
6x10n
BAT42
+5V
FPB

Face avant (Arduino)



Fournisseurs

		QSJ
Module ampli	eb104.ru	110 $
FPB	eb104.ru	200 $
Transistor LDMOS	mouser.fr	185 €
Plaque cuivre	F5CYS rfmeca.com	56 €
Composants divers	farnell.fr	

Ampli décamérique 1kW à transistor LDMOS

Retrouvez tous les schémas, photos, videos, logiciel Arduino ici :

http://f6bqp.free.fr/amplildmos.php

Liens internet

- https://eb104.ru/karta-sayta/directory
- https://www.w6pql.com/1_kw_sspa_for_1_8-54_mhz.htm
- http://www.pa0fri.com/