Some "nuts" on the Low Flicker Noise Mixer Preamp

This preamplifier is from the Bruce Griffith page at :

http://www.ko4bb.com/~bruce/LowNoiseMixerPreamp.html
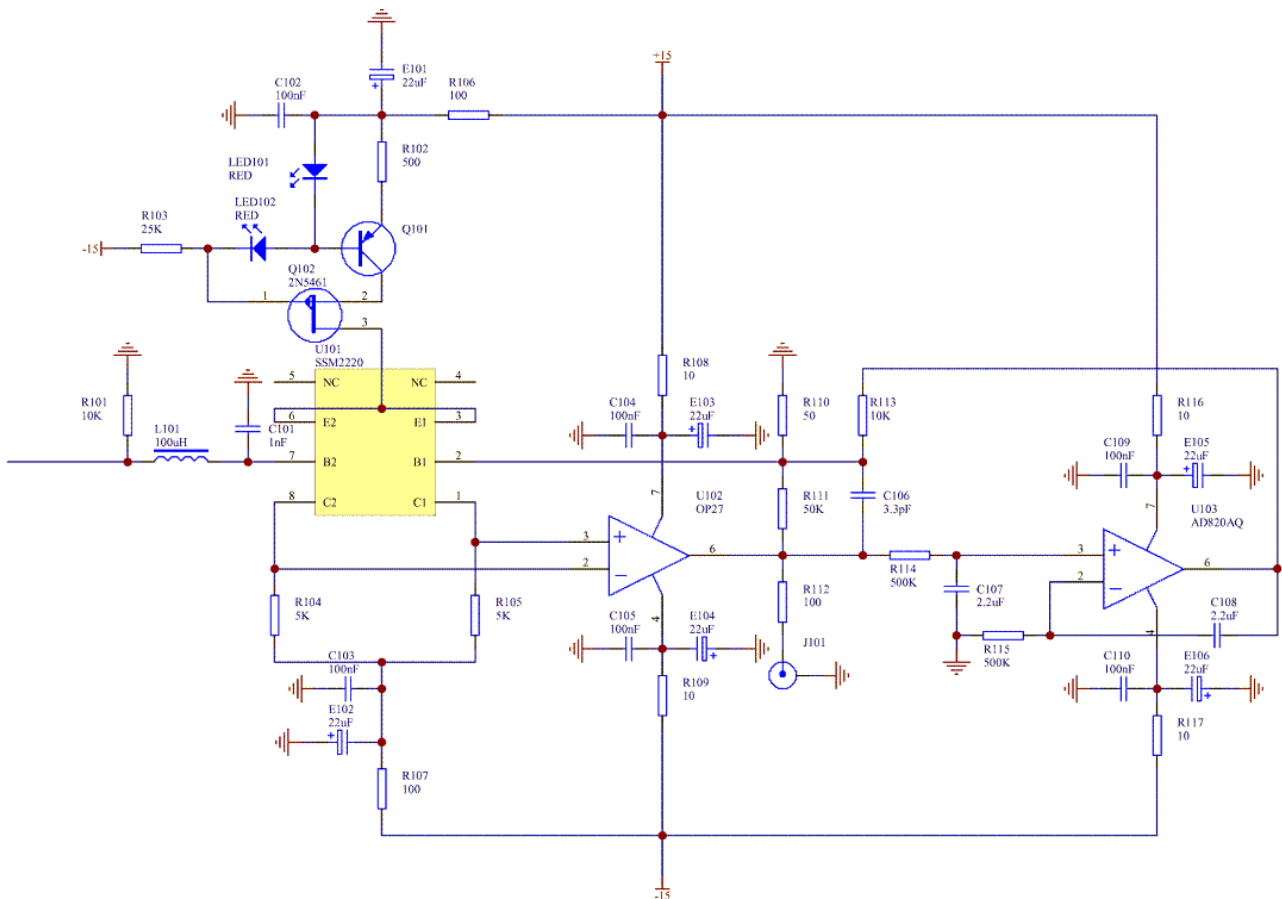
DC servo U103 maintains the dc output of U104 at zero volts. A mixer dc offset of up to 40mV can be compensated.
R114*C107 = R115*C108 and mismatches produce a pole zero mismatch which can be accommodated by gain calibration.

I have realized this preamplifier to use it for phase noise measurements. During the tests I have verified a spur oscillation in the range 100 to 500 kHz closing the input from 50 ohm to short. The level and frequency vary and depend from the input impedance.

With the help of Bruce I have removed the oscillation inserting a series RC between the collectors of the input pnp transistor pairs (C1 C2) pin 1 and 8. Using a 1200 ohm serie with 150pF the preamplifier is stable with input loads from short to open.
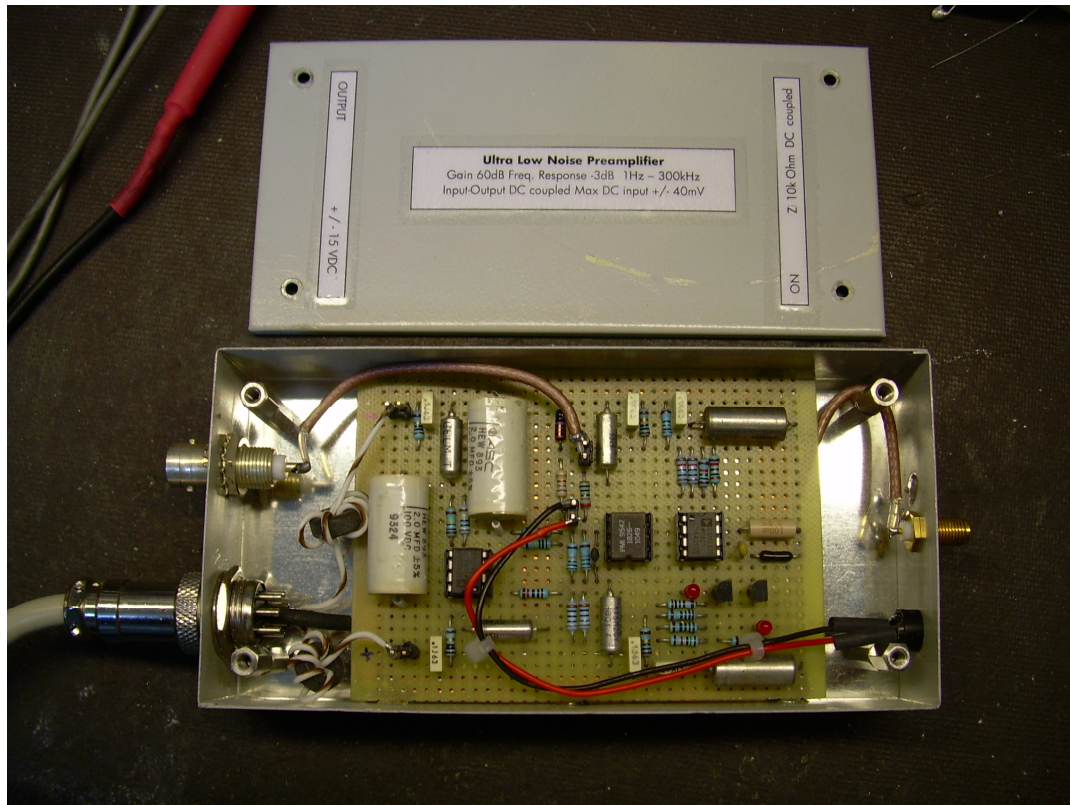
60 dB ultra low noise preamplifier

Some measurement using an HP 3561A FFT spectrum analyzer
All measurement are averaged with 10 sample.

Voltage Gain :   1039
Test: input of 9.672uV rms produce 10.05 mV rms as output.

Amplifier base noise test. Input closed with 50 Ohm.

Test frequency Hz	Output uV rms averaged	Output uV peak averaged	Measure BW Hz	Equivalent Input nV averaged noise rms
10	1.8	3.7	0.19	1.8
100	6	9.3	1.9	6
500	4.9	11.6	9.5	4.9
1,000	7.8	15.5	19	7.8
5,000	19.7	37.5	95.4	19.7
10,000	19.9	59.9	190	19.9
50,000	62	112	954	62
100,000	52	117	954	52